



Office of the  
Deputy Prime Minister  

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Creating sustainable communities

# *Proposals for introducing a Code for Sustainable Homes*

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A consultation paper



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Deputy Prime Minister  

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Creating sustainable communities

# Proposals for introducing a Code for Sustainable Homes

A consultation paper

December 2005

Office of the Deputy Prime Minister: London

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**SECTION 1:**

**The Consultation**



# The Consultation

## The need for a new approach

In recent years, great progress has been made in improving the sustainability of buildings and their contents through a range of initiatives. For example, a building built to the recently announced revised standards will be 40% more energy efficient than one built only 5 years ago. For this, we have to thank changes in building regulations. Appliances, like fridges and freezers, are more efficient than they were ten years ago. However, the position remains that more than a quarter of the UK's carbon emissions come from energy used in homes and more than half of water used is in homes.

Notwithstanding these changes, there is an appetite amongst the public and in the development industry to understand what constitutes a sustainable building. They are concerned about climate change both globally and at home and recognise that without serious and sustained action, the effects will get worse and not better. People want to do their bit.

Against this background, Government has been considering what could be done to inform people better about the sustainability of new homes. We are considering how to present them with a choice: when they are buying a new home, to use their purchasing power to acquire a sustainably built home or one which, although it will contain sustainable elements, may make more of an impact on the environment.

We could, of course, regulate for greater sustainability. That is largely the approach taken to date but there are reasons why it may not be the best solution:

- first, there is already a burden of regulation on house-builders and the Government's aim is not to add to it unless there is no real alternative;
- secondly, some aspects of sustainability are not suited to regulation. For example, although it may be helpful to encourage and inform people to fit a sustainable dishwasher in their home that uses less power and less water, it may not be appropriate to tell them that this is what they must do; and
- finally, there are interactions and trade-offs. Sustainability is not an exact science and is still developing. Regulation to deliver much higher waste recycling in homes may, for example, be affected by the amount of space available in a home to store recycled goods awaiting collection.

So we need a different approach: one that builds upon current regulations, and moves a stage further; builds upon people's willingness to think about sustainability and to use their purchasing power to obtain it; and offers an alternative to regulation and a way to incorporate sustainability in new homes voluntarily.

That is what the Code for Sustainable Homes aims to achieve. We are proposing a fresh approach to delivering sustainable new homes by voluntary compliance. And we are defining sustainability not only as a single characteristic, such as water or energy use, but as a package relating to the whole house. Those familiar with building regulations will recognise this as a major and welcome departure from current practice, and if the voluntary approach is widely adopted by house-builders it may offer a new direction for delivering sustainable building standards.

## How the Code will work

The Code as currently proposed will have six essential elements. These are:

- energy efficiency in the fabric of the building and appliances in the building. This covers, for example, the standard of insulation or the use of solar heating. It may include 'A' rated kitchen appliances (where fitted) or low energy light bulbs;
- water efficiency, for example, fitting dual or low flush toilets and reduced flow taps;
- surface water management, for example sustainable drainage;
- site waste management, as building construction is responsible for a significant proportion of waste that currently goes to landfill;
- household waste management. This means providing space for bins, such as segmented kitchen bins for recycling waste;
- use of materials, for example, using low allergy materials.

Minimum standards will be set for each essential element and all of these must be achieved if a home is to meet Code standards. Where there is a relevant building regulation, then the minimum Code standard will at least equal or exceed it.

In addition, we are proposing that homes built to higher Code standards may have some of the following features:

- Lifetime Homes. This is about internal adaptability so that a home can be adapted for use of an elderly or disabled person;
- additional sound insulation which is important especially in apartment developments;
- private external space which may be a garden or a balcony;
- higher daylighting standards which is beneficial to health and reduces the need for electric lighting;
- improved security; and finally
- a home user guide. This is a home log book and will advise purchasers on the details of the sustainability of their home.

The Code is performance-based which means that it does not prescribe how a particular standard should be achieved. Rather, it sets a standard and allows the house-builder to deliver the required level of sustainability. We believe that this is the right approach because it encourages the house-building industry and its suppliers to become much more innovative in finding sustainable building solutions and products.

## Scoring sustainability

It is proposed that the Code should have five levels:

- a base level that meets the minimum standard in each of the six essential elements;
- three further levels that deliver all of the minimum standards and additional levels of sustainability either by meeting higher standards in some of the essential elements or by offering some of the optional elements; or a combination of both; and
- a level which delivers 80% or more of the Code. This may be aspirational but there are already housing developments in England that may meet this level. So it is achievable.

We propose that these levels should be defined by a scoring system, which adds up to a hundred points; the possible levels are set out in Section 2. The scores have yet to be allocated and consultees should recognise that there is an element of subjectivity in that process. We propose to finalise the scoring system in the light of this consultation exercise, taking the view of our code steering committee. A proposed system of Code points is at Annex C.

It may be helpful to illustrate how a particular home might be scored. Initially, a score will be awarded for meeting the minimum standard in each of the six essential elements – giving the home a score of, say, 30 points.

The home might also perform better than the minimum standard in terms of predicted water consumption and be more energy efficient. The windows might be triple glazed and made from sustainable timber products: and it might also have high sound insulation and be more accessible for the disabled. These ‘extras’ might score another 35 points, delivering a total score of 65 out of a possible 100. On that basis, it would be rated as a ‘level three’ home in terms of its sustainability.

## Communicating the Code to purchasers

One of the key requirements that Government has set for the Code is that it should be readily comprehensible to the purchasers of new homes and should be capable of use by house-builders in marketing their products. Clearly the detailed workings of the Code may not be of particular interest to purchasers but the Government firmly believes that purchasers will want to know how sustainable their new home is.

We therefore propose that different levels of the Code should be represented by a star system (or something similar) so that ☆ represents a home built to the Code’s minimum standards and ☆☆☆☆☆ represents the highest level. We further propose that more of the detail should be given to house buyers when they purchase their homes.

We welcome the views of house-builders about how far a star-rating system will represent a marketing tool in selling their new homes and invite their ideas about an alternative approach. House-builders are starting to use sustainability as a means of product differentiation and we are happy to build on their experience to develop this further.

## Relationship with EcoHomes

Many consultees will recognise the debt that the proposed Code owes to the EcoHomes system developed by the Building Research Establishment (BRE). This has been used to minimise the environmental impact of, particularly, affordable housing built by Registered Social Landlords (RSLs) with Housing Corporation funding. Our national regeneration agency, English Partnerships, also requires developments on its land to meet EcoHomes standards. EcoHomes is now starting to be used more extensively by the house-building industry although it is fair to say that its market penetration in the private sector is still limited.

Government has been working with BRE, CIRIA and others to develop the Code and we are grateful to them for the amount of assistance that has been provided. We have focussed on BRE's EcoHomes experience for two reasons: first, that BRE is the undisputed world expert in this area and we are very fortunate to have this level of expertise on which to draw. Secondly, because it is not in anyone's interest to abandon Ecohomes without ensuring an orderly and clear transition to the new Code.

The detailed underpinning of the Code also draws on EcoHomes and BRE's expertise. We propose, by the time of the launch of the Code next year, to have a manual available which will explain in comprehensible terms how to deliver the different levels of the Code. This will be based on the technical detail set out at Annex C.

## Sustainability Checklists

The planning system is key to creating sustainable communities by, for example, ensuring that development is located on sustainable sites and that development is located in such a way as to reduce the need to travel. Planning policies have increased the rate of development of brownfield land in England from 56% in 1997 to 70% in 2004 and we have increased densities from 25 homes per hectare in 1997 to 40 homes per hectare in 2004.

The Code deals principally with the sustainability of the home and associated aspects of the development. It does not deal with the sustainability of the location as this is largely a land use planning issue. We are also helping to put in place a complementary mechanism to the Code. ODPM is part-funding a World Wildlife Fund for Nature (WWF) and BRE initiative to develop region-specific Sustainability Checklists for Developments. The aim is to provide a tool for planners and developers to assess the sustainability performance of developments.

The intention of WWF and ODPM is that the Sustainability Checklists for Developments will directly complement the Code and regional planning policy to ensure that house-builders receive clear and consistent guidance when planning their developments. The regional Checklists are due for completion by March 2007 and we expect that at least four will be launched alongside the Code next year.

## Who has drawn up the Code?

The idea for delivering more sustainable new homes originated in the Government's Energy White Paper – *Our energy future – creating a low carbon economy* published in February 2003. The Sustainable Buildings Task Group (SBTG) report *Better buildings – better lives* – proposed the Code. The SBTG was a group of, principally, non-Government advisers.

It recommended:

*“the establishment of a single national Code for Sustainable Buildings (the Code); based on the Building Research Establishment's Environmental Assessment Method (BREEAM) and incorporating clearly specified minimum standards in key resource efficiency criteria (energy and water efficiency, waste and use of materials); and developed by a joint venture body to develop and establish the Code”.*

That recommendation was taken forward by a Senior Steering Group (SSG) under the chairmanship of ODPM. Membership of the Group is set out in ODPM News release 2004/0320. Government is most grateful to them for their work to date.

## How will the Code be applied?

The Government wishes to see all new homes in England built to meet the Code. We believe that, not only is this what new home buyers want and expect, but that it is incumbent on the house-building industry to deliver greater sustainability. Homes we construct today should be built to last for at least 60 years. It will be a lost opportunity if house-builders fail to recognise how much the climate of the UK could change even by 2030.

The Government intends to implement its commitment set out in the Labour Party manifesto earlier this year which stated

*“From April 2006 all new homes receiving Government funding will meet the new Code for Sustainable Buildings and we will encourage local authorities to apply similar standards to private homes”.*

Ministers will deliver this commitment by requiring, from the launch of the Code next year, that all new homes built by RSLs (or others) with Housing Corporation funding will comply with higher levels of the Code, together with homes developed by:

- English Partnerships;
- with the direct funding support from any of ODPM's housing growth programmes, including the Thames Gateway, the Milton Keynes/South Midlands area and Ashford, together with any other growth points that are supported.

This will include sites developed by the nine Regional Development Agencies and we intend to invite local authorities to make the same commitment to housing developments that they support. That does not mean, however, that we intend that building to meet Code standards should become a condition of planning consent.

The Housing Corporation will require that, from April 2006, all new affordable housing which they support should meet the EcoHomes 'very good' standard. English Partnerships already make this a requirement for homes built on land they own. There is no exact read-across between the Code and EcoHomes but we will require new dwellings developed by these bodies to be at least as sustainable as the EcoHomes 'very good' standard, which means they will meet our proposed level three.

Where any home has already been commissioned, or is in prospect, that will comply with an existing EcoHomes standard, we do not intend that it should be redesigned to fit with the Code. For a transitional period, satisfying EcoHomes criteria will be deemed to comply with the Code. This is important so as not to disrupt the investment plans of housing delivery agencies or homes already in the pipeline.

## **How will compliance be secured?**

We propose that compliance with the Code should be evaluated by using a team of assessors. Such a team already exists in the EcoHomes product. These assessors are independent, may be drawn from any relevant profession and are trained and registered by BRE.

The Government sees benefits in using the existing team to evaluate compliance with the Code not only in order to avoid duplication of effort but to ensure that there is continuity with the existing EcoHomes scheme. But we do not think that should preclude any other organisation offering a similar validation service, under licence, so long as they meet the required UKAS standards.

## **Who will own the Code?**

This has been a difficult question. The Government is clear that the Code must be seen to be independent of any particular interest. However, BRE has a very large stake in the development of the Code because of the EcoHomes product, and it would not be acceptable simply to use their expertise without appropriate recognition.

We therefore propose that the Code will be a partnership between ODPM and the BRE Trust, a registered charity. We have agreed in principle that the BRE Trust should be responsible for the maintenance of the Code and for keeping it up to date. Any licence income will be applied first to maintaining, operating and improving the Code and thereafter will be shared in an arrangement to be agreed with the BRE Trust.

We propose that, when the Code is fully established, it should be monitored and its development informed by a small steering committee under ODPM chairmanship. We do not intend that this should include more than a handful of members who have yet to be identified. But we believe that this should include, at a minimum, a representative of the house-builders and of BRE.

## **International issues**

In developing the Code we have taken account of the ongoing European standardisation work. We will continue to monitor this ongoing work. Future revisions of the Code will need to be in conformity with the agreed international standards.

## Cost of building to meet the Code's standards

Sustainable building has a price tag. Equally, failing to build sustainably, potentially, has large hidden costs to the UK in terms of the effects of climate change and, for example, the need to invest in extra supplies of water and the cost of additional energy generation and transmission capacity.

The average cost of building to the minimum standards of the Code is estimated to be £608 per home. These have been subject to a partial regulatory impact assessment, see Annex D.

Building to meet the highest levels of the Code will be more expensive and it would be unrealistic not to expect this to feed through into the purchase price of a highly sustainable home. Over time, the Government expects even these higher costs to be factored into land values as house-builders replenish their land holdings.

Equally, higher initial construction costs will achieve savings in lowering running costs. This will be of particular interest to certain purchasing groups, such as the elderly, who may be relatively wealthy in terms of capital but may wish to reduce the cost of regular bills. The way the Code is constructed however, is intended to allow all house-builders to meet at least the minimum level of the Code at minimal cost and to offer them a great deal of flexibility about how they can meet higher levels.

## What we want from you

We would like your comments on a number of key questions:

- do you welcome the concept of the Code?
- have we got the workings of the Code broadly right? Do you think that:
  - a) the coverage with the six essential elements and other optional elements is correct? If not, what would you modify?
  - b) a mix of essential and optional 'tradable' elements is helpful?
  - c) a scoring system in terms of points out of 100 is workable?
  - d) the concept of a one to five-star rating system is right?
- if you are a house-builder, will you use the Code?

A form on which you may make your response is at Annex D of this consultation paper. You can complete and return the response form either electronically or by post.



## **SECTION 2**

# **Proposed Code for Sustainable Homes**



# Proposed Code for Sustainable Homes

## Structure

This section provides more detail about the workings of the Code. It is currently being developed for new homes in England but we anticipate that it could also be applicable in Wales. It will also need to be reviewed and revised to take account of emerging international standards, particularly the ongoing European standardisation work, referred to in Annex A.

Table A provides an overview of the proposed structure of the Code, which consists of two sections. Section one contains the Code's six essential elements. Each essential element will have a minimum standard. All Code compliant homes must meet the minimum standard in each essential element. Section two contains the optional elements.

## Proposed essential elements

- Energy efficiency (conservation of fuel and power)
- Water efficiency (use of potable water)
- Surface water management
- Site waste management (during construction)
- Household waste management (during occupation and use)
- Use of materials

## Proposed optional elements

- Lifetime Homes
- Security
- Soundproofing
- Private external space
- Daylighting
- Home User guide



## Establishing the Minimum Standards

Table B sets out the minimum standard for each essential element. More detailed information on the minimum standards is contained in Annex B. These standards have been subject to a partial regulatory impact assessment, see Annex F.

Table B: Essential Elements and Minimum Standards	
Essential Element	Minimum Standard
Energy Efficiency (conservation of fuel and power)	As Building Regulations Part L1A 2006
Water Efficiency (use of potable water)	No greater than 125 litres per head per day (46m <sup>3</sup> /bedspace/year).
Surface Water Management	Ensure that peak run-off rates and annual volumes of run-off will be no worse than the original conditions for the development site.
Site Waste Management (during construction)	Adopt and implement Site Waste Management Plans (including monitoring of waste)
Household Waste Management (during occupation and use)	At least 0.8m <sup>3</sup> storage for each home
Use of Materials	Inventory of materials/products used.

## Proposed Higher Levels and Code Points

Table A provides an overview of the proposed structure and illustrates the proposed system of Code Points; up to 100 Code Points will be available.

All homes built to the Code must meet the minimum standards in Table B.

These minimum standards form the entry level of the Code and score a fixed number of Code Points (we suggest 30 points). The attainment of a higher level will depend on the number of additional Code Points scored. Annex C sets out the proposed system of additional Code Points.

A home can meet higher levels of the Code in a number of ways: exceeding the minimum standards in some or all of the essential elements; meeting some of the standards in the optional elements; or a combination of both.

We are minded to establish the following levels:

- Code Level 1 (a one-star home): the minimum standards (30 Code Points)
- Code Level 2 (a two-star home): as Level 1 plus at least 15 extra Code Points
- Code Level 3 (a three-star home): as Level 1 plus at least 30 extra Code Points
- Code Level 4 (a four-star home): as Level 1 plus at least 40 extra Code Points
- Code Level 5 (a five star-home): as Level 1 plus at least 50 extra Code Points

The system of Code Points (see Annex C) has yet to be allocated and consultees should recognise that there is an element of subjectivity in that process.

In allocating the points, we will take into account that from April 2006, all affordable homes built with Housing Corporation or English Partnerships financial support will be required to meet EcoHomes 'very good' standard. The Code will provide a broad equivalence to this at, we suggest, Level 3.

The proposed approach would allow full tradeability between any of the elements of the Code above the minimum non-optional Level 1 standards. We have considered whether increased levels of energy and water efficiency should be compulsory in order to achieve higher levels of the Code. We need to assess this option further because of its implications in terms of cost and practicality and would welcome your comments (see question 3 on the response form). But in practice, the Code Points would work so that a five star rating could only be achieved if a home emits no building-related carbon emissions – a carbon neutral home

## **Operational Issues and Future Development**

It is essential that industry is fully involved in the evolution of and committed to using the Code. ODPM will establish a small steering committee to oversee the future development of the Code. Management and maintenance of the technical aspects of the Code will be dealt with by ODPM in partnership with BRE Trust, advised by this board.

BRE Trust will develop, in consultation with the steering committee, a Guidance manual (building on existing 'EcoHomes' guidance) setting out how the different levels of the Code could be achieved.

## **Assessment, Compliance and Verification Processes**

We believe that it is essential that the compliance and verification processes for the Code are transparent, straight forward and be perceived as worthwhile for all parties. One option, subject to consultation, is to develop the scheme with the BRE Trust as described in this document

BRE Trust will provide retraining programmes for BRE's existing EcoHomes network of assessors to assess the new Code. The methodology will be broadly similar to the existing EcoHomes system. Licensed assessors will conduct design stage assessments and recommend initial Code ratings.

BRE Trust will develop, introduce and market an assessment scheme for the new Code, and will licence third parties as 'scheme operators' meeting the requirements of the United Kingdom Accreditation Service (UKAS).

Under the current EcoHomes system the award of an EcoHomes rating is made on the basis of the design stage assessment. Verification that the home has been built in accordance with the design is an option (the Post Construction Review) that English Partnerships currently use.

ODPM proposes that certification of the level of compliance with the Code should be awarded once a post completion check has been carried out to verify that the home complies with the design assessment rating. We invite views on this proposal.

# ANNEXES



# ANNEX A: European standards

## Committee for European Standardisation (CEN)

At the European level, the European Commission issued a Standardisation Mandate (M350) to the Committee for European Standardisation (CEN) on 29 March 2004. This mandate directs CEN to address the “Developing of Horizontal Standards for the Assessment of the Integrated Environmental Performance of Buildings”.

This mandate refers to the increasing risk of barriers to trade being created due to the further development of national standards for whole building works and environmental product declarations. It also refers to the increasing demands on industry for information, based on different methods required within EU Member States. The consequence of such demands is increasing costs on industry and the mutual non-acceptance of environmental product information; hence the mandate to CEN.

CEN's official response to mandate M350 sets out a proposed programme of work, in three sections:

- section 1 – dealing with the building level and the performance assessment;
- section 2 – dealing with the construction products level and environmental products declarations;
- section 3 – dealing with the building life cycle.

This proposed work programme will build on the International Standards Organisation (ISO) work on environmental management standards (ISO/TC207) and building standards (ISO/TC59) and seeks to establish European rules for:

- Environmental product declarations
- Assessing health and comfort performance
- Environmental performance and
- Life cycle cost performance

CEN has created a dedicated CEN Technical Committee – CEN TC 350 Integrated environmental performance of buildings – to develop the European standards on this work programme.

ODPM will continue to monitor these ongoing work streams and their likely outcomes. The work being carried out under the CEN Mandate M350 would appear to be particularly relevant to the development of the Code. Future revisions of the Code would need to be in conformity with the agreed international standards.

# ANNEX B: Minimum Standards

## Energy Efficiency (Conservation of Fuel and Power)

### Statutory Baseline (from 6 April 2006)

Part L 2006 will require calculations based on the potential performance of the building based on standardised occupation and behaviour in relation to space heating, hot water heating and lighting. Compliance with Part L 2006 will require calculation of the home's carbon dioxide emission rate (DER) in accordance with the procedures set out in SAP 2005. This emission rate must not be greater than the target carbon dioxide emission rate (TER) derived according to the procedure published in Approved Document L1A 2006.

### Establishing the Minimum Standard

The significant improvements to the thermal resistance of the building fabric and the improvements in boiler efficiency in recent years mean that new homes will be 40% more efficient than homes built immediately prior to the introduction of the 2002 Building Regulations.

The partial Regulatory Impact Assessment accompanying the Part L consultation paper stated that the measure proposed were at the limit of what could be achieved in a cost-effective manner.

One consequence of these significant improvements is the increasing contribution of unregulated sources (household appliances and other equipment) to the total carbon dioxide emissions from our homes. Based on data given in BRE's Domestic Energy Fact File, the average carbon dioxide emissions from these unregulated sources is estimated to be 15kg/m<sup>2</sup>/year.

Another consequence is the strong influence of the choice of fuel for space heating and hot water. Homes unable to use mains gas for space and water heating will have to invest in additional energy efficiency measures or incorporate lower carbon technologies, such as microgeneration, than homes that use mains gas for such uses.

The Government's recent consultation: *Microgeneration Strategy and Low Carbon Buildings Programme* invited views on the potential of microgeneration. Responses to this consultation will contribute to the Government's Microgeneration Strategy, due to be published in April 2006.

### Proposed Minimum Standard (Code Threshold)

**As Part L 2006 – carbon dioxide emissions under Part L: DER not to exceed TER, derived according to the procedure published in Approved Document L1A 2006.**

Note: carbon dioxide emissions not regulated under Part L (estimated at 15kg/m<sup>2</sup>/year) are not included.

## Water Efficiency – Use of Potable Water

### Statutory Baseline

The Water Supply (Water Fittings) Regulations 1999 are concerned with minimising waste, misuse, undue consumption, erroneous measurement or contamination of water supplied by a water company. These regulations do not require specific fittings to be installed; guidance is provided through the Water Regulatory Advisory Scheme (WRAS).

### Establishing the Minimum Standard

The most widely accepted average per capita consumption (pcc) of potable water in England and Wales is that reported in Ofwat's 2003-04 report 'Security of Supply, Leakage and the Efficient use of Water.' This report quotes an average pcc of 154 litres per head per day (l/h/d); the average pcc quoted by water companies ranged from 136 l/h/d to 186 l/h/d. The report also quotes an average household occupancy of 2.4 persons.

Savings in individual households will depend on the habits of the occupants. A water efficient house with inefficient occupants may have a far higher overall consumption than a standard house with a water aware family. For example, total water used for a shower depends on the flow rates (technology) and the duration (habit). A 10 l/min shower taken for 15 minutes will use 150 l of water – as much as two baths.

Water efficient fittings and appliances used to reduce demand in new homes must have performance comparable to standard fittings otherwise there is a risk that householders will replace them with standard ones, increasing the water consumption.

Further reductions in average per capita consumption may involve the need to supplement the mains supply with harvested rainwater, or by reusing grey water. There are environmental, economic and acceptability issues around the applicability of water reuse and recycling systems for households, which need to be fully considered before incorporating into a development.

### Proposed Minimum Standard (Code Threshold)

**Predicted average per capita consumption to not exceed 125 l/h/d  
(46m<sup>3</sup>/bedspace/year)**

## Surface Water Management

### Statutory Baseline

This is mainly a planning issue (PPG25 guidance) and the Code will be updated as that guidance changes. Approved Document Part H states that surface water disposal should be discharged to a soak away or other infiltration system where practicable. This document also refers to the CIRIA guidance on SUDS. It also states that discharge to a watercourse may require consent from the Environment Agency, who may limit the rate of discharge.

## Establishing the Minimum Standard

Water and sewerage companies can, under sewers for adoption, adopt hard engineered solutions (such as attenuation tanks). Other drainage systems such as sustainable drainage systems (SUDs) employ softer engineering methods (such as swales and ditches).

### Proposed Minimum Standard (Code Threshold)

The setting of universal minimum numerical values to limit water flows (natural and storm) is not feasible.

**Ensure that peak runoff rates and annual volumes of runoff will be no worse than the original conditions for the development site.**

This will therefore require a developer to have information available on pre-development run-off.

## Site Waste Management (during construction)

### Statutory Baseline

The Clean Neighbourhoods and Environment Act 2005 (c.f. Chapter 3, section 54) introduced a new enabling provision for site waste management plans (SWMP) for construction and demolition projects. These are currently not a statutory requirement, although Defra is currently holding a series of workshops.

### Establishing the Minimum Standard

Presently it is not feasible to set universal numerical targets.

### Proposed Minimum Standard (Code Threshold)

**Adopt and implement a site waste management plan (including monitoring of waste)**

## Household Waste Management (during occupation and use)

### Statutory Baseline

The Household Waste Recycling Act 2003 requires waste collection authorities, by 2010, to provide every household in England with a separate collection of at least two types of recyclable waste. Building Regulations, Part H requires that solid waste storage is of sufficient area having regard to the requirements of the waste collection authority and sited so as to be accessible for use by people in the building and readily accessible removal to the collection point.

The Approved Document in support of Part H provides guidance on the separate storage of waste for recycling should it be necessary – 0.25m<sup>3</sup> per home.

## Establishing the Minimum Standard

British Standard BS 5906 (Code of Practice for Storage and On-site Treatment of Solid Waste from Buildings) sets a minimum of 0.8m<sup>3</sup> per home for waste storage. This standard is currently being revised by the Chartered Institute of Waste Management.

## Proposed Minimum Standard (Code Threshold)

**Provide at least 0.8 m<sup>3</sup> of storage for each home.**

## Materials

### Statutory Baseline

Regulation 7 of the Building Regulations deals with materials and workmanship. In addition, The Construction Products Regulations 1991 transpose the provisions of the Construction Products Directive 89/106/EEC, into UK law.

Article 6 of Directive of 89/106/EEC is particularly relevant: Member States may not impede the free movement, placing on the market or use of products which satisfy the Directive. In addition, Annex 1 to the Directive sets out the 'essential requirements' which relate to construction products.

## Establishing the Minimum Standard

It is very difficult for the minimum standard to preclude the use of any material that complies with the Construction Products Directive.

## Proposed Minimum Standard (Code Threshold)

**Inventory of materials/products used in the construction of the home and development.** Initially the minimum standard could be a log book inventory for the home owner. Additional information that this log book could contain includes:

- Evidence from manufacturers or suppliers of life-cycle assessment of their materials;
- Evidence of producer responsibility via certification or declaration;
- The ability to recycle (potential for recycling) the materials/products at the end of the building's life.

# ANNEX C: Proposed System of Additional Code Points

This system is being developed by BRE Trust. It builds on their EcoHomes system of credits and weightings. More information on EcoHomes can be found at ([www.ecohomes.org](http://www.ecohomes.org)). The EcoHomes weighting system is based on the findings of a study originally carried out in 1998 and involving sixty participants from across the industry and other stakeholders. Further details of this work are published in BRE Digest 446 (Assessing environmental impacts of construction, industry consensus, BREEAM and UK Ecopoints; Ian Dickie and Nigel Howard, BRE 2000).

## Essential Elements: Additional Code Points

<p><b>Energy Efficiency (Carbon dioxide emissions)</b></p> <p><b>Code Minimum Standard: As Part L 2006 – carbon dioxide emissions under Part L: DER not to exceed TER, derived according to the procedure published in Approved Document L1A 2006</b></p>
<p><b>CO<sub>2</sub> Emissions regulated under Building Regulations: Part L</b></p> <p>Additional code points based on exceeding the target carbon dioxide emission rate (TER) derived according to the procedure published in Approved Document L1A 2006. (Minimum U-value requirements will be included within the method to ensure adequate building fabric standards are achieved as in Part L).</p>
<p><b>CO<sub>2</sub> Emissions not regulated under Building Regulations: Part L – Eco Labelled White Goods</b></p> <p>Additional code point for the provision of eco labelled white goods.</p>
<p><b>CO<sub>2</sub> Emissions not regulated under Building Regulations: Part L – External Lighting</b> (including internal common parts)</p> <p><b>Space lighting</b> Additional code point where all space lighting is specifically designed to accommodate only compact fluorescent lamps (CFL) or fluorescent strip lights AND are controlled to prevent operation during daylight.</p> <p><b>Security lighting</b> Code Point where all intruder lighting to be 150 watts maximum and be fitted with PIR and daylight sensor and where all other type of security lighting to accommodate CFLs or fluorescent strips only and be fitted with dawn to dusk sensors or timers.</p>
<p><b>CO<sub>2</sub> Emissions not regulated under Building Regulations: Part L – Zero Emission Energy Source</b></p> <p>Additional code points available where zero emission energy sources are specified and used.</p>

**Water Efficiency (predicted potable water consumption)**

**Code Minimum Standard: Predicted average per capita consumption to not exceed to 125 l/h/d (46m<sup>3</sup>/bedspace/year)**

**Internal water use**

Additional code points awarded where potable consumption is:

- Less than or equal to 42 m<sup>3</sup> per bedspace per year
- Less than or equal to 37 m<sup>3</sup> per bedspace per year
- Less than or equal to 34 m<sup>3</sup> per bedspace per year
- Less than or equal to 32 m<sup>3</sup> per bedspace per year
- Less than or equal to 30 m<sup>3</sup> per bedspace per year

**External water use**

Additional code point for an adequate rain water collection system is specified for watering gardens and landscaped areas.

**Surface Water Management**

**Code Minimum Standard: Ensure that peak runoff rates and annual volumes of runoff will be no worse than the original conditions for the development site**

**Flood Risk Mitigation**

Additional code points for flood resilience measures which take account of the following:

- The nature of the site
- Mitigation measures for minimising impact of flooding on site through damage to fabric, property and safety
- Mitigation measures for minimising the impact of flooding in other areas

**Sustainable Drainage – Reduction of Surface Runoff**

Additional code points where peak surface runoff rates to either natural or municipal systems are reduced by 50% for:

- Hard surface runoff
- Roof runoff

<b>Site Waste Management</b> <b>Code Minimum Standard: Adopt and Implement Site Waste Management Plan (including monitoring of waste)</b>
<b>Construction Waste Management</b> Additional code point (s) awarded where construction waste is sorted on site and recycled
<b>Construction Site Impacts</b> Additional code point(s) awarded where 3 of the following are carried out on site: <ul style="list-style-type: none"><li>• monitor and report CO<sub>2</sub> or energy arising from site activities;</li><li>• monitor and report CO<sub>2</sub> or energy arising from transport to and from site;</li><li>• monitor and report on water consumption from site activities;</li><li>• adopt best practice policies in respect of air (dust) pollution arising from the site;</li><li>• adopt best practice policies in respect of water (ground and surface) pollution occurring on the site;</li><li>• all site timber is responsibly sourced.</li></ul>
<b>Considerate Constructors</b> Additional code point where evidence provided demonstrates that there is a commitment to comply with, or exceed, best practice site management principles.
<b>Household Waste Management (during occupation and use)</b> <b>Code Minimum Standard: Provide at least 0.8 m<sup>3</sup> of storage for each home</b>
<b>Recycling of Household waste</b> Additional code points awarded where internal and external dedicated storage is provided for recyclable waste.

## Materials

### Code Minimum Standard: Inventory of materials/products used in the construction of the home and development

#### Environmental Impact of Materials

Additional code points awarded where the following elements obtain an A rating from the Green Guide for Housing:

- Roof
- External walls
- Internal walls – party walls and internal partitions
- Floors
- Windows
- External surfacing
- Boundary protection

#### Responsible Sourcing of Timber: Basic Building Elements

Additional code points based on the percentage of certified timber and timber products and/or recycled/reused elements (measurement to be based on CPET rankings for schemes) where subject to full third party chain of custody.

#### Responsible Sourcing of Timber: Finishing Elements

Additional code points based on the percentage of certified timber and timber products and/or recycled/reused elements as above.

## Optional Elements: Code Points

Optional Elements
<p><b>Lifetime homes</b></p> <p>Additional code points for compliance with Lifetime Homes as follows:</p> <ul style="list-style-type: none"> <li>• where the principles of lifetime homes relating to access to the dwelling have been complied with (i.e. Lifetime Homes criteria 1-5 incl).</li> <li>• with additional point(s) where additional criteria relating to general standards of accessibility within the dwelling have been complied with in addition to above (i.e. Lifetime Homes criteria 1-7 incl, 11, 14, 15 and 16).</li> <li>• with additional point(s) where additional criteria relating to the potential for future adaptability have been complied with in addition to both sets of criteria above (i.e. Lifetime Homes criteria 1-16 incl.).</li> <li>• Information on Lifetime homes criteria can be found at: '<a href="http://www.lifetimehomes.org.uk">www.lifetimehomes.org.uk</a>'</li> </ul>
<p><b>Daylighting</b></p> <p>Additional code points where adequate daylighting is provided in accordance with BS 8206:pt2:</p> <ul style="list-style-type: none"> <li>• In the kitchen</li> <li>• In living rooms, dining rooms and studies</li> <li>• View of sky in all above rooms</li> </ul>
<p><b>Sound Proofing</b></p> <p>Additional code point where the unit is designed to Robust Standard Details to exceed Building Regulation standards</p> <p>OR additional code points where pre-completion testing is carried out to demonstrate compliance or improvements on performance standards in Approved Document E (2003 Edition).</p>
<p><b>External Private Space</b></p> <p>Additional code point where private or semi private space is provided for the occupants.</p>
<p><b>Security</b></p> <p>Additional code point(s) for complying with all the relevant Secured by Design criteria. (Further information: <a href="http://www.securedbydesign.com">www.securedbydesign.com</a>)</p>
<p><b>Home User Guide</b></p> <p>Additional code point(s) where a Home User Guide provided covering the following:</p> <ul style="list-style-type: none"> <li>• Heating system controls</li> <li>• Lighting efficiency measures and actions</li> <li>• Appliance efficiency measures and actions</li> <li>• Water efficiency measures and actions</li> <li>• Availability of recycling facilities within the home and in the surrounding area</li> <li>• Public transport availability in the area</li> </ul>

# ANNEX D: Response Form

## Invitation

You are invited to comment on the Government's proposals for a Code for Sustainable Homes.

Your views are particularly sought on the key proposals in Sections 1 and 2 and their potential impacts set out in the partial Regulatory Impact Assessment (RIA) in Annex E. It should be noted that, although all these proposals are being consulted on as part of a package of measures, they are not mutually exclusive, i.e. one or more of them could be disregarded or amended in the light of the consultation exercise.

## How to respond

Comments are invited on any aspect of this consultation document. However, to assist our analysis of responses we would appreciate it if you could complete the response form below either electronically or in hard copy. Please feel free to submit additional comments, evidence and/or supporting documentation.

Responses can be returned by post or by e-mail. The deadline for receiving responses to this consultation is 6 March 2006. All responses received before the deadline will be considered.

Additional copies of this consultation document and this response form may be downloaded from the ODPM website, [www.odpm.gov.uk](http://www.odpm.gov.uk), or obtained as hard copies from:

The Office of the Deputy Prime Minister  
PO Box 236  
Wetherby  
West Yorkshire  
LS23 7NB  
Tel: 0870 1226 236  
Fax: 0870 1226 237  
Textphone: 0870 1207 405  
E-mail: [odpm@twoten.press.net](mailto:odpm@twoten.press.net)

**Please return your response to this consultation as soon as possible and in any event no later than 6 March 2006. Please reply direct to the contractors engaged in collation and initial analysis at:**

### By post:

**Code Review  
CIRIA  
174-180 Old Street  
London  
EC1V 9BP**

### Or by e-mail:

**[csb@ciria.org](mailto:csb@ciria.org)**

<b>Response form for the consultation on proposals for introducing a Code for Sustainable Homes</b>	
<p style="text-align: center;"><b>Respondent Details</b></p> <p><b>Name:</b> <b>Organisation:</b></p> <p><b>Address:</b></p> <p><b>Town/City:</b> <b>County/Postcode:</b> <b>Fax:</b> <b>E-mail:</b></p>	<p><b>Please return by 6 March 2006 by post or e-mail to :</b></p> <p><b>Code Review</b> <b>CIRIA</b> <b>174-180 Old Street</b> <b>London</b> <b>EC1V 9BP</b></p> <p><b>e-mail to: <a href="mailto:csb@ciria.org">csb@ciria.org</a></b></p>

<b>Organisation type (tick one box only)</b>			
Approved Inspector	<input type="checkbox"/>	Manufacturer	<input type="checkbox"/>
Architects	<input type="checkbox"/>	Trade body or association	<input type="checkbox"/>
Civil/Structural Engineer	<input type="checkbox"/>	Private individual (unaffiliated)	<input type="checkbox"/>
Commercial Developers	<input type="checkbox"/>	Professional body or institution	<input type="checkbox"/>
Consultancy	<input type="checkbox"/>	Property funder	<input type="checkbox"/>
House or property developer	<input type="checkbox"/>	Research/academic organisation	<input type="checkbox"/>
Housing Association (Registered Social Landlords)	<input type="checkbox"/>	Specific interest or lobby group	<input type="checkbox"/>
Other non-governmental organisation	<input type="checkbox"/>	Individual in practice, trade or profession	<input type="checkbox"/>
Builder/other contractor (please specify)	<input type="checkbox"/>	Journalist/media	<input type="checkbox"/>
Local authority – Building Control	<input type="checkbox"/>	Insurer	<input type="checkbox"/>
Local authority – Environmental health	<input type="checkbox"/>	Other ( <i>please specify</i> ):	<input type="checkbox"/>
Local authority – other (please specify)	<input type="checkbox"/>		
Please use a 'X' in answering the following questions			
Is your response confidential?    Yes <input type="checkbox"/> No <input type="checkbox"/>			
If so please explain why.			
(See disclaimer on [last] page x)			

*Foreword:* It is appreciated that not all consultees will wish to express an opinion on every question. Where no response is given it will be presumed that consultees do not wish to contribute to the consultation on that specific matter. Where consultees strongly support particular aspects of the guidance please use the comments sections of this form to note that support.

Please note that provision is made throughout this questionnaire for you to provide additional comments. If, however you wish to provide detailed comments on any aspect of the consultation then please append additional materials and supplementary documents, clearly marked and cross referenced to the relevant questions, as necessary.

**1 Do you welcome the concept of the Code for Sustainable Homes?**

Yes  No

**Comments:**

**2 Do you think that the coverage of six essential elements and other optional elements is correct?**

Yes  No

**Comments:**

**3 Is a mix of essential and optional 'tradable' elements helpful?**

Yes  No

**Comments:**

**4 Do you think that a scoring system in terms of points out of 100 is workable?**

Yes  No

**Comments:**

**5 Do you think the concept of a one to five-star rating system is right?**

Yes  No

**Comments:**

**6 If you are a house-builder, will you use the Code?**

Yes  No

**Comments:**

**7 Do you agree that no certification should be awarded until a post construction check to verify that the home complies with the design assessment rating?**

Yes  No

**Comments:**

**8 Do you have comments on the costs and benefits identified in the draft  
Regulatory Impact Assessment (RIA)?**

Yes  No

**Comments:**

*Energy:*

*Water efficiency:*

*Surface water management:*

*Waste during construction:*

*Waste during occupation and use:*

*Use of materials:*

*Other:*

**9 Do you have any other comments on the draft RIA?**

Yes  No

**Comments:**

*Energy:*

*Water efficiency:*

*Surface water management:*

**10. Do you have any other comments not covered by your responses above?**

Yes  No

**Comments:**

## Thank you for your time

Please note:

All information in responses, including personal information, may be subject to publication or disclosure under freedom of information legislation. If a correspondent requests confidentiality, this cannot be guaranteed and will only be possible if considered appropriate under the legislation. Any such request should explain why confidentiality is necessary. Any automatic confidentiality disclaimer generated by your IT system will not be considered as such a request unless you specifically include a request, with an explanation, in the main text of your response.

Confidential responses will nevertheless be included in any statistical summary of numbers of comments and views expressed, although individuals will not be identified.

Names and addresses may be held in an electronic database of interested parties for the purpose of distributing future consultation documents on similar issues. However, any such details will not be given to any third party.

A summary of responses to this consultation will be published at *www.odpm.gov.uk*  
Paper copies will be available on request.

# ANNEX E: Code of Practice on Consultation and the Consultation Criteria

## The Consultation Criteria

The Government has adopted a code of practice on consultations. The criteria below apply to all UK national public consultations on the basis of a document in electronic or printed form. They will often be relevant to other sorts of consultation.

Though they have no legal force, and cannot prevail over statutory or other mandatory external requirements (e.g. under European Community Law), they should otherwise generally be regarded as binding on UK departments and their agencies, unless Ministers conclude that exceptional circumstances require a departure.

- 1. Consult widely throughout the process, allowing a minimum of 12 weeks for written consultation at least once during the development of the policy.**
- 2. Be clear about what your proposals are, who may be affected, what questions are being asked and the timescale for responses.**
- 3. Ensure that your consultation is clear, concise and widely accessible.**
- 4. Give feedback regarding the responses received and how the consultation process influenced the policy.**
- 5. Monitor your department's effectiveness at consultation, including through the use of a designated consultation co-ordinator.**
- 6. Ensure your consultation follows better regulation best practice, including carrying out a Regulatory Impact Assessment if appropriate.**

The full consultation code may be viewed at:

[www.cabinet-office.gov.uk/regulation/Consultation/Introduction.htm](http://www.cabinet-office.gov.uk/regulation/Consultation/Introduction.htm)

Are you satisfied that this consultation has followed these criteria? If not, or you have any other observations about ways of improving the consultation process please contact:

Adam Bond, ODPM Consultation Co-ordinator, Room 2.19, 26 Whitehall, London, SW1A 2WH;

or by e-mail to:

[adam.bond@odpm.gsi.gov.uk](mailto:adam.bond@odpm.gsi.gov.uk)

# ANNEX F: Partial Regulatory Impact Assessment

## Introduction

### Purpose and intended effect of measures

The proposed Code is a voluntary initiative being developed by Government and industry. The Code's principle objective is to give developers a non-statutory means of improving the sustainability of buildings. Its aim is to become the single national standard that all developers will subscribe to and consumers demand. The background to this proposal, including the minimum standards, is described in other sections of this document.

In its manifesto in April 2005 the Government committed to requiring all new homes that receive public funding to meet the new Code for Sustainable Buildings. Therefore, this partial Regulatory Impact Assessment (RIA) looks at the impacts of public housing schemes achieving the Code's minimum standards.

### Objectives

The objectives of the Code for Sustainable Homes are to encourage industry to produce and consumers to demand more Sustainable Homes, and to promote more sustainable building practices including:

- improvement in energy efficiency of new homes
- reduction in the consumption of water in new homes
- improvement of surface water runoff management and the risk of flooding and pollution caused by runoff from developments
- reduction of the amount of waste created during the construction of new homes
- improvement in the level of waste recycling provision for new homes
- improvement in the sustainability of material usage during the construction of new homes.

The minimum standards assessed reflect the objective that the Code should be cost-effective, practical and flexible enough to be achievable by all.

## Consultation

### Within government

Consultation within government on the proposed Code has been undertaken by the ODPM and has included discussion with Defra, the DTI and OGC. Government representatives also attended the consultation workshops that were undertaken early in 2005.

## Public consultation

Consultation on some of the measures has already been undertaken outside the development of the Code. Consultation on the proposals to revise Part L was completed in 2004 and has been incorporated in the latest draft of the Buildings Regulations. Initiatives to reduce waste during construction have also been explored by Defra at consultation workshops with industry in 2005 on proposals for Site Waste Management Plans.

The Government established a Senior Steering Group to advise on the overall development of the Code. This group produced an initial outline of the Code as a discussion tool for the Delivering Sustainable Communities Summit. Key stakeholders were invited to workshops on this initial outline of the Code during March and April 2005. The outputs from these workshops have informed the drafting of the Code. Copies of the workshops reports and the agreed initial outline are available on [www.dti.gov.uk/construction/sustaincode/codelead.htm](http://www.dti.gov.uk/construction/sustaincode/codelead.htm).

## Guiding principles of the partial RIA

This RIA focuses on the minimum standards for the six essential elements in sections on:

- energy efficiency (conservation of fuel and power)
- water efficiency (use of potable water)
- surface water management
- waste management during construction
- waste management during occupation and use
- use of materials

It looks at the impacts of public housing schemes achieving compliance with the Code minimum standards, and compares these with a do-nothing option. We have used estimates of new builds within England and Wales of 158,000 houses per year (ODPM's 1996 based housing projections for 2006 – 2021) and of around 11% being registered social landlords or local authority housing (based on ODPM average figures between 2000 and 2005).

Where possible the costs and benefits have been calculated for dwellings (the building scale). Some costings have been based on estimates at the development scale. For the purposes of this RIA an average size of a 'development' has been assumed as fifty dwellings. The outline costs of an assessment scheme have also been estimated and are described in the appendix to this RIA.

This partial RIA does not currently include a Small Firms Impact Test. This will be undertaken during the consultation.

## Summary of costs and benefits

The following sections of the report provide discussion of the objectives of measures and detailed options including information on the costs and benefits. Table RIA1.1 provides a breakdown of the costs for the implementation of the Code minimum standards. Table RIA1.2 identifies the benefits of some of the measures.

<b>Table RIA1.1: Summary of costs of implementation of Code minimum standards</b>		
<b>Theme and option</b>	<b>Cost per dwelling</b>	<b>Annual costs for public sector housing</b>
Energy efficiency (conservation of fuel and power) <sup>1</sup>	None	None
Water efficiency (use of potable water)	None	None
Surface water management	£400	£6.9m
Waste management during construction	£40	£0.7m
Waste management during occupation and use	£100	£1.7m
Materials (with log book option b)	£15	£0.3m
Assessment and evaluation	£53	£0.9m
<b>Total</b>	<b>£608</b>	<b>£10.5m</b>
<b>Notes</b>		
1 No costs in addition to compliance with Part L of the 2006 Building Regulations that already applies to new dwellings		

<b>Table RIA1.2: Benefits of implementation of code minimum standards</b>		
<b>Theme and option</b>	<b>Benefit per dwelling</b>	<b>Benefits associated with public sector compliance</b>
Water efficiency	£53	£0.9m

## Energy Efficiency (Conservation of fuel and power)

The Code minimum standards reflect the objective that the Code should be cost-effective, practical and flexible enough to be achievable by all.

Part L1A 2006 Building Regulations has been the subject of a separate RIA and assessed as being at the limits of this objective.

It is proposed that the Code minimum standard for energy efficiency (conservation of fuel and power) will be Part L1A 2006 Building Regulations. Therefore the Code minimum standard has no additional costs or benefits in this regard.

Uniquely the two options – do nothing and compliance with the Code minimum standard – are the same for this element of the Code.

The Regulatory Impact Assessment for Part L can be found on the ODPM website <http://www.odpm.gov.uk>.

## Water Efficiency (use of potable water)

### Options

Two options have been considered:

- Option A – Do nothing
- Option B – Voluntary Code for Sustainable Homes, minimum standard of no greater than 125 litres per head per day.

### Option A – Do nothing

In a “do nothing” scenario, continued reliance would be placed on the Water Supply (Water Fittings) Regulations 1999 to minimise waste from appliances and through plumbing design. There are savings to be made by enforcement, but this alone would not maximise water savings in buildings.

### Option B – Voluntary Code minimum standard

Per capita consumption is a measure commonly used by the water industry to calculate likely water usage. Setting a target value would give an indication of the likely reduction in water usage that would be required. However, per capita consumption is dependent upon the frequency of use (behaviour), the size of the building, the occupancy of the building, as well as the products incorporated in the building.

The Code minimum standard of 125 litres per head per day (125l/h/d) represents a challenging but achievable target based on the most water efficient technology. However, the influence of occupancy rate means that if new developments are likely to have a lower than average occupancy (i.e. below 2.4 persons per household), then the target will be much more difficult to meet. Recent social trends seem to indicate that average occupancy is reducing.

## Costs and benefits

### Sectors and groups affected

Manufacturers could be affected by the cost of additional testing of products and/or the need to develop more water efficient products. However, it has been assumed for the purposes of this RIA that manufacturers are already undertaking flow rate testing as part of product development and additional costs will not be incurred.

There should be a positive effect on water availability.

### Race equality assessment

The options proposed do not require any change in users' habits and therefore will not impact unfairly on any particular groups of society.

### Health impact assessment

It is important that any provision for the conservation of water should not reward efficiency to the point where sanitation is compromised. The proposed provisions aim to reduce consumption of water by appliances rather than change users' habits.

### Rural considerations

Credit could be given to the use of alternative water sources (e.g. rainwater collection, private supplies, etc.) which might benefit rural communities.

## Breakdown of costs and benefits

### *Option A – Do nothing*

#### Economic

The costs and benefits of the options are evaluated against the Option A “do nothing” option and so, by definition, the costs of Option A are zero. However, the “do nothing” option would result in significant long-term costs since water demand would continue to increase unchecked, leading to ever more expensive engineering solutions to meet demand for water.

#### Environmental

The environmental cost of water consumption is linked to water abstractions and, therefore, less water retained in the environment. With the Do Nothing option, there will be a continued increase in pressure on water resources. There will be more occurrences of low flows in rivers, which may damage wildlife habitats. The increased quantities of water treated and distributed will result in more energy and chemicals use, thereby resulting in higher carbon emissions and increased pollution.

#### Social

This option would retain consumer choice of products for inclusion within the home.

## *Option B – Voluntary Code minimum standard*

### **Economic**

#### *Benefits*

The financial benefits can be estimated from the cost of water and the volume of water saved assuming that the Code minimum standard target is achieved, that the average occupancy is 2.4 persons per household and that current average water usage in England and Wales is 154 l/h/d.

If the Code minimum standard is achieved, the quantity of water saved will equal 25 m<sup>3</sup> per dwelling per annum, for homes with average occupancy. Reduced water consumption will lead to the following financial benefits:

1. occupiers' average water and sewerage bills reduced by £48 per dwelling per annum (18% of the average bill). This assumes a typical volumetric rate for water of 90pence/m<sup>3</sup> and for sewerage of 100pence/m<sup>3</sup>. As volumetric rates are likely to increase over the next 5 years (projected rise of 18% over this period) these savings are likely to increase year on year;
2. reduced operating costs for water and sewerage companies of £5.01 per dwelling per annum. This is based on the average typical marginal operating cost for water (including chemicals and pumping) of 7.5 pence/m<sup>3</sup> and for sewerage of 12.5 pence/m<sup>3</sup> applied to the reduction of 25 m<sup>3</sup>;
3. deferred capital investment in capacity schemes, leading to reduced costs to water and sewerage companies and, ultimately, reduced water and sewerage bills for all customers. This element is difficult to quantify as it depends on each water company's demand forecast and the timing and nature of any planned schemes to increase future supply. It is also highly inter-related with other benefits, since a deferment in capital investment will lead to reduced bills in the longer term through the five-yearly price setting mechanism.

#### *Costs*

It is not clear whether water efficient appliances will be more expensive than conventional appliances, particularly in the long run as the market for such products matures. According to an Environment Agency report, there is rarely a correlation between cost of fittings/appliances and water efficiency. In some cases, the cost of more water efficient products is lower than conventional alternatives. Where water efficient products are more expensive, this may often be due to better design or additional features. If water efficient appliances are found to be currently more expensive, the potential short term increases in costs to developers will reduce as the expanded market for water efficient goods drives down unit prices. And so the costs of these Code minimum standards are assumed to be zero.

#### *Summary of benefits*

Saving per dwelling for minimum standard water/sewerage cost savings of £48 + water utility operational costs of £5.01.

<b>Table RIA3.1: Benefits of implementation of Code minimum standard for water efficiency (use of potable water)</b>		
<b>Theme</b>	<b>Benefit per dwelling</b>	<b>Annual benefits associated with public sector compliance</b>
Water efficiency (use of potable water)	£53	£0.9m

## Environmental

The environmental benefit of reduced water consumption is gained through reduced water abstractions and, therefore, more water retained in the natural environment. This would reduce pressure on water resources. There will be fewer occurrences of low flows in rivers, benefiting wildlife habitats. The reduced quantities of water treated and distributed will result in less energy and chemicals use, thereby resulting in less carbon emissions and less pollution.

The amount of benefit obtained will be proportional to the quantity of the reduced abstraction, equal to the quantities of water calculated in the economic benefits section above augmented by 20% to allow for system leakage. So the annual savings in water abstraction from the Code minimum standard would be 30 m<sup>3</sup> per dwelling.

The environmental costs are primarily concerned with the additional energy required to develop, manufacture and operate new water efficient technologies. For Code minimum standard, this will be negligible since the technology required to realise the water savings is predominantly already available.

## Social

The benefits to society of reduced water consumption are primarily concerned with the pressure on water available in the environment, as described above. There will be more water available for recreation and navigation of waterways. The reduced pressure on water resources may mean that additional development is possible in areas that would otherwise be constrained by the reduced availability of water supply.

There may be perceived social costs where consumer choice of water fittings and appliance products is restricted. However, this is likely to be minimal.

## Surface Water Management

### Options

Two options have been considered:

- Option A – Do nothing
- Option B – Voluntary Code for Sustainable Homes, minimum standard of run-off being no worse than the original condition for the development site.

### Option A – Do nothing

Doing nothing would fail to provide additional emphasis on addressing storm water issues.

The existing controls in the planning system (see PPG25 Development and Flood Risk) and through Requirement H3 of the Building Regulations would continue to be the only measures in place with a relatively limited impact on storm water management practices.

Current drainage requirements are based on performance assessment measured against undeveloped greenfield conditions, or the existing situation where development is taking place in the existing urban environment. In the past this has related only to peak flow rate and until only recently little has been done to reduce total runoff volume. This is difficult to address with the development scale techniques currently used as shown and may be more effectively addressed at building scale.

### Option B – Voluntary Code minimum standard

As current Building Regulations and Planning requirements already require storm water management controls at the development scale, sustainability issues are already largely being addressed. The threshold for options at the building scale can therefore be considered to reflect current best practice.

The Code's minimum standard for surface water management allows flexible and innovative approaches to meeting storm water sustainability targets.

A variety of additional options which are not mandatory are available to reduce runoff volumes from buildings, the preference for using any of these options being a function of social, topographic building and site characteristics.

### Costs and benefits

Drainage costs at the development scale are extremely variable as the drainage solution is dictated by greenfield conditions and hydrological region. Studies carried out in comparing Sustainable Drainage Systems (SUDS) with traditional pipe drainage and underground storage indicates that SUDS are generally no more expensive and that issues of land take and compliance with other policies (PPG3 *Housing*) influences drainage design more than the issue of cost.

Options at the development scale are already considered best practice, but it is considered that the introduction of this Code will facilitate the implementation of best practice, effectively

resulting in additional costs and benefits. It is estimated that the level of implementation of best practice might increase by 10%.

Some of the costs associated with drainage for buildings will be off-set by reductions in the development drainage costs.

Costs at the building scale are relatively easily determined, though assumptions need to be made regarding the type of application for determining a national housing cost.

Costs and benefits are not just financial. Social awareness of the value of water and the water environment will be enhanced by the application of the Code.

## **Sectors and groups affected**

The following groups are likely to be affected by the proposals:

- developers building new housing to the standards in the Code
- sewerage undertaker who might otherwise receive additional storm water into their sewer systems
- owners and occupiers of buildings who will have responsibility for ongoing maintenance of any systems installed within the curtilage of the property.
- designers producing designs for new developments who may require new skills.

## **Race equality assessment**

The options proposed do not require changes in users' personal habits and therefore do not impact unfairly on any particular groups of society.

## **Health impact assessment**

There may be potential health impacts in the use of rainwater, however this is currently thought to be minimal for the applications envisaged.

## **Rural considerations**

Improved storm water management is equally easily accommodated in rural and urban areas. In densely urbanised areas the use of building scale solutions may be constrained.

## **Breakdown of costs and benefits**

### ***Option A – Do nothing***

#### **Economic**

There would be no additional financial costs with this option. Note that “do nothing” already requires compliance to sustainable drainage criteria at the development scale.

The cost of damage as a result of property flooding and/or the cost of provision and maintenance of flood defences are likely to continue to rise.

## Environmental

There are already many environmental benefits in meeting current best practice with the “do nothing” option, but this is achieved at development scale storm water control.

## Social

There are no social implications with this option as drainage solutions at present do not require home-owner involvement. There can, however, be significant costs to society resulting from flooding where storm water management is not effective.

### *Option B – Voluntary Code minimum standard*

## Economic

### *Benefits*

The impact of flooding on households means that alternatives to discharging surface water to a public sewer need to be sought.

With volume reduction there would be benefits to users from reduced sewerage charges if surface water is not discharged from a building to a public sewer. However all options except infiltration in permeable soils will require overflow provision. As the use of infiltration is already common practice, the reduction in sewerage charges will not be significant at the national scale.

### *Costs*

The Code minimum standard is an improvement on the “do nothing” as proposals at this level are set at current best practice. The existence of the Code may inform industry and ensure best practice is applied.

Storm water management, excluding pipe network costs, requires considerable storage provision costing between £100,000 and £150,000/ha. Assuming the Code results in an increase of 10% in storage uptake and that building drainage provision provides £1000/ha savings against this, the additional cost is in the order of £10,000/ha. On the assumption of 25 houses per hectare (gross) this amounts to an estimate for Code minimum standard of £400 per dwelling.

<b>Table RIA4.1: Costs of technical implementation of Code minimum standard for surface water management</b>		
<b>Theme</b>	<b>Costs per dwelling</b>	<b>Annual costs associated with public sector compliance</b>
Surface water management	£400	£6.9m

## Environmental

The additional environmental benefits in achieving Code minimum standard relate to bringing an increased number of developments up to current best practice level.

## Social

There are no social implications with Code minimum standard as drainage solutions at present do not require significant home-owner involvement. There are social and health benefits from reduced flooding.

## Waste Management during construction

### Options

Two options have been considered:

- Option A – Do nothing
- Option B – Voluntary Code for Sustainable Homes, minimum standard of adopting and implementing site waste management plans (with measurement).

### Option A – Do nothing

If the Code does nothing on the issue of construction waste management, it will not:

- tackle an area that is generally acknowledged to be a problem;
- encourage action in an area which the industry recognises as having the potential to deliver quick wins in terms of cost savings;
- do anything to reduce the pressures on landfill space or fly-tipping.

### Option B – Voluntary Code minimum standard

The Code minimum standard for waste during construction is informed by the DTI and Defra work on Site Waste Management Plans (SWMP). However, this RIA starts from the premise that there is no current regulatory requirement for SWMPs. It considers the Code minimum standard for waste during construction being set so:

- a) a SWMP will be produced for all projects above a pre-determined minimum project value (set for now at £200,000); and
- b) that all remaining sites will be required to at least consider a tick-box approach to recycling opportunities and keep a record of waste sent to landfill.

## Costs and benefits

### Sectors and groups affected

Developers, owners and contractors will be affected by the cost and extra burden of producing SWMP and achieving targets set within them.

## Race equality assessment

No impacts identified.

## Health impact assessment

None identified.

## Rural considerations

Activities leading to greater recycling may lead to more on-site crushers particularly for larger sites, although these would be regulated.

Better control of waste on site should reduce the number of vehicle movements from site.

## Breakdown of costs and benefits

### *Option A – Do nothing*

#### Economic

There would be no financial costs with this option.

#### Environmental

This option would see landfill remaining a disposal option resulting in the premature exhaustion of landfill sites.

#### Social

There would be no social costs with this option.

### *Option B – Voluntary Code minimum standard*

The RIA of this option is informed by the work of Defra and DTI on site waste management plans. The £200,000 threshold has been based on work in progress and factors:

- if the minimum project value at which a SWMP is required is set too low the cost of completing a SWMP relative to the value of the work might be disproportionate. DTI has identified that a minimum value of £200,000 accounts for 30% by number and 90% by value of construction projects;
- the level of detail within a SWMP could range from basic level information following a tick-box approach to the greater burden of a more detailed SWMP that requires volumes of waste sent to landfill to be measured.

## Economic

### *Benefits*

There is widespread recognition in the industry that measures to reduce waste provide opportunities for cost savings, both from reduced waste costs and from reduced material wastage.

House-builders have reported waste disposal costs alone of 0.3% of project value (CIRIA Report C633). Assuming typical dwelling cost of £76,000, waste disposal costs of 0.3% and wasted material costs of 0.5% yield a cost of over £600/unit.

### *Costs*

The costs resulting from the Code minimum standard are calculated from the anticipated costs to industry of the SWMP requirements.

Defra estimates based on a draft RIA, and released at a recent consultation seminar are reproduced in Table RIA5.1.

<b>Table RIA5.1: Introduction of SWMP – tick-box approach – all construction sites</b>					
<b>Minimum value</b>	<b>No. of firms affected</b>	<b>No. of projects</b>	<b>Estimated ave. cost of SWMP</b>	<b>Total cost to industry</b>	<b>Ave. cost per firm</b>
Nil	6,160	81,532	£50	£4,076,600	£661
£100K	3,601	31,149	£50	£1,557,450	£433
<b>£200K</b>	<b>2,918</b>	<b>22,653</b>	<b>£50</b>	<b>£1,132,650</b>	<b>£388</b>
£300K	2,483	18,099	£75	£1,357,425	£547
£500K	1,963	13,171	£100	£1,317,100	£671

Source Defra draft partial RIA

Table RIA5.1 is based on all construction sites. Defra's preliminary estimate of cost for the time involved in accommodating the requirements of the SWMP is shown in the shaded column. This assumes a simple tick-box approach to the SWMPs (approximately one hour for a middle or senior manager to produce a simple SWMP for small sites) and not comprehensive implementation of all SWMP requirements. These costs have not been substantiated further. Further evaluation will be required in the context of a full RIA. Equivalent statistics on house building sites are shown in Table RIA5.2

Table RIA5.2: Introduction of SWMP – tick-box approach – house building sites					
Minimum value*	No. of firms affected*	No. of projects*	Estimated ave. cost of SWMP	Total cost to industry	Ave. cost per firm
Nil	2,541	23,650	£50	£1,182,500	£465
£100k +	1,633	13,040	£50	£652,000	£399
<b>£200k +</b>	<b>1,311</b>	<b>10,053</b>	<b>£50</b>	<b>£502,650</b>	<b>£383</b>
£300k +	1,094	8,196	£75	£614,700	£562
£500k +	870	6,093	£100	£609,300	£700

\* Source: Statistics Division DTI

The Defra draft partial RIA does not presently contain information on fuller implementation. We estimate this would require 1 day at sites above the proposed £200k threshold, rising to 2 days for the largest developments. This is based on the estimated time required to consider the questions set out in Annex A of the SWPM and analyse waste transfer notes, waste carrier billings, weigh bridge tickets etc. These figures will be revisited in a full RIA. A simpler tick-box approach would be required for sites below the threshold – for instance, at least identifying recycling opportunities plus, where possible, measuring waste sent to disposal. These estimates are shown in Table RIA5.3.

Table RIA5.3: Introduction of SWMP with measurement					
Minimum value	No. of firms affected	No. projects	Estimated inspection cost @ £50/hr	Total cost to industry	Ave. cost per firm
Nil	2,541	23,650	£50	£1,182,500	£465
£100k +	1,633	13,040	£50	£652,000	£399
<b>£200k +</b>	<b>1,311</b>	<b>10,053</b>	<b>£350</b>	<b>£3,518,550</b>	<b>£2,684</b>
£300k +	1,094	8,196	£350	£2,868,600	£2,622
£500k +	870	6,093	£700	£4,265,100	£4,902

Without any other introduction of SWMPs, the Code would place requirements on all sites and introduce an additional cost. Taking a “typical” site of 50 units, corresponding to an assumed implementation cost of £700, the average cost per unit becomes £15. However, considering the costs across a range of site bands, a range of costs of £25 – £107 per unit can be derived, with an average of £40 per unit. The calculation of these costs, which represent between 4 and 18% of the combined waste and materials costs assumed earlier, are shown in Box RIA 5.1 below.

<b>Table RIA5.4: Summary of costs – £/home</b>		
<b>Approach</b>	<b>Ave unit cost</b>	<b>Cost range</b>
Code minimum standard: Full SWMP above threshold £200k and tickbox below.	Approx £40/unit	Range £25 – £107

<b>Table RIA5.5: Costs of technical implementation of Code minimum standard for waste management during construction</b>		
<b>Theme</b>	<b>Costs per dwelling</b>	<b>Annual costs associated with public sector compliance</b>
Waste management during construction	£40	£0.7m

### Environmental

There will be some reduction of waste to landfill from both better control and increased awareness.

### Social

Closer management of waste on and off site will lead to less incidents of fly-tipping which result in degradation of the local environment.

Better management and storage of materials on site, together with better waste storage would have health and safety benefits. However, certain activities relating to the segregation and recycling of waste may have associated health and safety impacts which may need to be assessed.

**Box RIA5.1: Cost calculations and assumptions****Cost of Code minimum standard SWMP**

Site size	Time (hrs)	Hourly Rate
Sites below £200k	1	£50
Sites £200-£500k	7 full implementation SWMP	
Sites above £500k (ave £1.6m)	14 full implementation SWMP	

**Costs per unit based on site cost bands**

Cost band: Minimum value**	No. projects**	Number of sites in band	Assumed ave site cost £k	No. houses assuming £76k unit cost	Estimated implementation cost @ £50/hr	Ave cost per house
Nil	23,650	10,610	50	1	£50	£50
£100k +	13,040	2,987	150	2	£50	£25
£200k +	10,053	1,857	250	3	£350	£107
£300k +	8,196	2,103	400	5	£350	£67
£500k +	6,093	6,093	1,600	21	£700	£33
<b>TOTALS</b>		<b>23,650</b>				

mean average value of sites above £500k = £1.6m\*\*

max value £40m\*\*

\*\*Dti figures

**Derivation of unit cost based on above assumptions**

Cost band: Minimum value**	Number of sites in band	Assumed ave site cost £k	Total site band cost £m	Total number of houses*	Percentage of total	Implementation costs for band £m
Nil	10,610	50	530.5	10,610	7	£0.5
£100k +	2,987	150	448.05	5,883	4	£0.1
£200k +	1,857	250	464.25	6,096	4	£0.6
£300k +	2,103	400	841.2	11,046	7	£0.7
£500k +	6,093	1,600	9748.8	128,009	79	£4.3
<b>TOTALS</b>	<b>23,650</b>		<b>12032.8</b>	<b>161,644</b>		<b>£6.3</b>

Overall average cost per house £40

Average cost per site £268

Range of costs per house £25 to £107

\*Derived total within 2% of 158,000 total

## Waste Management during occupation and use

### Options

Two options have been considered:

- Option A – Do nothing
- Option B – Voluntary Code for Sustainable Homes, minimum standard of at least 0.8m<sup>3</sup> storage for each home.

### Option A – Do nothing

The provision of easily accessible recycling facilities is essential to the achievement of the current targets for recycling and recovery of household waste. Kerbside recycling is known to increase the volume of recycled waste collected due to ease of use for the householder and the accessibility of the service to groups of people such as the elderly, disabled or those without access to a car to take recyclables to a 'bring' site.

Limited space for kerbside recycling containers would mean there would be increased reliance on 'bring' schemes to achieve recycling targets. It is unlikely that waste collection authorities would achieve recycling targets without kerbside schemes.

### Option B – Voluntary Code minimum standard

The Code minimum standard is set to provide at least 0.8m<sup>3</sup> per dwelling. This would be in line with BS5906 *Code of practice for storage and on-site treatment of solid waste from building*. Increased provision for waste storage would enable a wider range of recyclables to be collected from householders and make it easier for waste collection authorities to comply with recycling targets.

## Costs and benefits

### Sectors and groups affected

The costs within a housing development would fall principally on the developer.

The provision of kerbside recycling facilities is particularly important for certain groups of people including the elderly, disabled, those without transport and those who live a long way from a 'bring' recycling facility e.g. rural communities.

### Race equality assessment

The options proposed do not require any change in users' habits and therefore will not impact unfairly on any particular groups of society.

### Health impact assessment

It is important that any provision for waste storage takes into consideration health and hygiene considerations. In providing extra space for waste storage the proposed provisions

would have a positive impact on hygiene. However, account would also need to be taken of the frequency of waste collection. If increased storage capacity was accompanied by reduced frequency of waste collection there may be health & hygiene implications for the storage of putrescible wastes, particularly in communal waste storage facilities in multiple occupancy units.

## Rural considerations

Improved kerbside recycling schemes would benefit those who live a long way from a 'bring' recycling facility e.g. rural communities.

## Breakdown of costs and benefits

### *Option A – Do nothing*

#### Economic

##### *Benefits*

There are no perceived benefits.

##### *Costs*

There are no direct financial costs associated with this option at present. However, as landfill space becomes less available and Landfill Tax continues to rise landfilling of household waste will become progressively more expensive for waste collection authorities. Current Landfill Tax is £18 per tonne and forecast to rise to £35 per tonne in the medium to long term.

#### Environmental

##### *Benefits*

There would be no environmental benefits associated with this option.

##### *Costs*

The environmental cost would be no relative decrease in the volume of waste consigned to landfill rather than being recycled.

#### Social

##### *Benefits*

There would be no social benefits associated with this option.

##### *Costs*

This option would do nothing to extend the provision of recycling facilities across sectors of the community.

### *Option B – Voluntary Code minimum standard*

#### Economic

##### *Benefits*

Financial benefits would be the potential reduced cost of waste disposal to landfill in future.

##### *Costs*

Research identifies costs for internal storage vessels of approximately £20 per dwelling, whilst external vessels would cost around £70 plus £10 for a hard-standing area. Overall costs would therefore be approximately £100 per dwelling.

This does not include provision of enclosures that might be needed for bin storage or for access to the waste storage or waste collection point. These would vary considerably depending on the type of development and with the waste collection service and so are difficult to quantify.

<b>Table RIA6.1: Costs of technical implementation of Code minimum standard for waste management during occupation</b>		
<b>Theme</b>	<b>Costs per dwelling</b>	<b>Annual costs associated with public sector compliance</b>
Waste management during occupation and use	£100	£1.7m

#### Environmental

##### *Benefits*

The environmental benefits are increased rates of recycling and reduced amounts of household waste to landfill. The average household generates approximately 23.8 kg of waste each week (1.2 tonnes per annum). In 2003/4 17.7% of this was recycled and recent figures indicate that this has risen to 23% for 2004/5. The target is a 30% recycling rate for household waste by 2010 (figures from Defra).

##### *Costs*

There would be no environmental costs associated with this option.

#### Social

##### *Benefits*

This would enable more sectors of the community to participate in recycling schemes.

##### *Costs*

There would be no social costs associated with this option.

## Use of materials

### Options

Two options have been considered:

- Option A – Do nothing
- Option B – Voluntary Code for Sustainable Homes, minimum standard of producing an inventory of materials/products used.

### Option A – Do nothing

Doing nothing would fail to address pressures from, and concerns about, the emission of carbon dioxide and the consumption of natural resources inherent in the production of construction materials.

### Option B – Voluntary Code minimum standard

The government encourages the construction industry to regulate itself and implement measures to reduce its environmental burdens and a voluntary Code is consistent with this approach. The Code minimum standard is for a log book containing an inventory of the types and quantities of materials used in the construction.

The data may be measured:

- a) (Approach A) from a Bill of Quantities (BOQ) prepared by a quantity surveyor. This will determine the quantities of key materials. It will only provide an assessment of what has been used in the building and will not allow for wastage during the construction process.
- b) (Approach B) from materials orders by sub-contractors. This has the advantage of including wastage and recording the actual materials used. It has the disadvantage of creating a significant paper trail and data recorded in a variety of units. Guidance might be needed.
- c) (Approach C) The most effective approach from an environmental perspective would be to require a combination of a) for selected materials, b) allowing over-ordering and wastage to be explicitly recorded for these key items, whilst minimising paper handling.

Manufacturers could also be asked to supply guidance information about how to minimise the life time environmental impact of their products – from maintenance, repair, in use and at disposal. This might be recorded in a log book and so available for use by the building owner.

## Costs and benefits

### Sectors and groups affected

- Materials manufacturers and suppliers (Builders Merchants).

- Contractors and sub-contractors.
- Clients
- Procurement officers
- Contractors

### Race equality assessment

It is unlikely that any of the measures likely to be introduced under the Code will impact unfairly on any particular groups of society.

### Rural considerations

The measures proposed might impact on land-based extractive industries based in rural areas.

## Breakdown of costs and benefits

### *Option A – Do nothing*

#### Economic

There would be no financial costs with this option.

#### Environmental

The base line of existing requirements for all development is the Building Regulations. These do not currently include any consideration of the environmental impact of materials therefore the environmental costs from unsustainable forestry practices and illegal timber sourcing are likely to be higher if no action is taken.

#### Social

A do-nothing approach would be likely to result in greater CO2 emissions and resource use by manufacturers who will be likely to change more slowly in response to market forces influencing resource efficiency.

### *Option B – Voluntary Code minimum standard*

#### Economic

- a) Approach A will add an estimated 1 hour per development project to enable the contractor to ensure the BOQ is in an appropriate format for the client and an estimated 1 hour per project for the client to include the requirement for the BOQ in the specification and check that it has been received in satisfactory order.

Taking an hourly rate of £44, and a development of 50 dwellings, the estimate of cost for Approach A is £88 per project and £1.76 per dwelling.

- b) Approach B would add an additional 1 hour to every sub-contractor required to submit copies of their orders to the client. The impact upon the client/contractor responsible for

implementing the Code, the time required for checking and collating the inventory from sub-contractors order forms, for a single-design scheme, would typically be in the order of the equivalent of 2 days.

Taking an hourly rate of £44, a day-rate of £350, and a development of 50 dwellings, the estimate of cost for Approach B is £744 per project and £14.88 per dwelling.

- c) Approach C, a combined approach, might add an estimated 1 hour per project to enable the contractor to ensure the BOQ is in an appropriate format for the client and add an additional 1 hour to every sub-contractor required to submit copies of their orders to the client. The calculation has assumed 8 subcontractors per project. The impact upon the client/contractor responsible for implementing the Code, the time required for checking and collating the inventory from sub-contractors order forms, for a single design scheme, would typically be in the order of 1 person day. These figures are estimates based on experience.

If the cost to sub-contractors is considered negligible (less than £1 per dwelling), and assuming sub-contractors will absorb their own costs, taking an hourly rate of £44, a day-rate of £350, and a development of 50 dwellings, the estimate of cost to the development for Approach C is £394 per project and £7.88 per dwelling.

<b>Table RIA6.1: Costs of technical implementation of Code minimum standard for use of materials with log book approaches A to C</b>		
<b>Theme</b>	<b>Costs per dwelling</b>	<b>Annual costs associated with public sector compliance</b>
Materials (with logbook approach A)	£1.76	£0.03m
Materials (with logbook approach B)	£14.88	£0.26m
Materials (with logbook approach C)	£7.88	£0.1m

The “worst-case” of these figures, those for logbook approach B, have been taken forward into the RIA summary of costs of implementation of Code minimum standards.

## Environmental

The creation of a log book of materials has no direct environmental benefits or costs. The environmental benefits lie in the concept that preparation of the log book will be preparation of the industry towards calculating whole building environmental impact.

## Social

There are no social costs associated with this measure.

## Competition Assessment

Preliminary investigations have not identified significant competition effects of the code proposals. These will be re-visited in the final RIA. Comments on this aspect are welcome.

## RIA Appendix – Assessment and evaluation

An outline assumption is that the cost of an assessment for a voluntary Code would be similar to that for an EcoHomes assessment.

Broad estimates indicate an assessment cost of £52.71 per dwelling with the following basis:

- comparison with data provided by an EcoHomes assessor (costs ranging between £1600 for 10 or fewer dwellings to over £5000 for 100 or more dwellings);
- with assessment mostly applied across the site, rather than for each dwelling or type of dwelling;
- assuming that each dwelling meets the standard of the lowest common denominator dwelling only;
- assuming that the client/design team collate data; but
- not, for this initial estimate, including post-completion verification (will be identified at full RIA stage); and
- leaving until after consultation the full RIA consideration of costs of central administration and management.

Table RIA.X.1: Estimates of costs of assessment for a voluntary Code		
Theme	Costs per dwelling	Annual costs associated with public sector compliance
Assessment	£52.71	£0.9m

# ANNEX G: List of principle organisations consulted

(A full list of all individuals, companies and other organisations to which this consultation documents has been sent (at the beginning of the consultation process) is available from [enquiries.br@odpm.gsi.gov.uk])

AEA Technology

Age Concern

Amicus

Architectural Association

Arup

Associated Self Build Architects Ltd

Association for Environment Conscious Building

Association for the Conservation of Energy

Association of British Insurers

Association of Building Component Manufacturers

Association of London Governments

Association of Building Engineers

Association of Consultant Approved Inspectors

Association of Consultant Architects

Association of Consulting Engineers

Association of Controls Manufacturers

Association of Independent Railways

Association of Municipal Engineers

Association of Plumbing & Heating Contractors

Association of Retirement Housing Managers

Audit Commission

Autoclaved Aerated Concrete Products Association

Barnado's

Basement Development Group

BBS Building Control Ltd

BM TRADA Certification Ltd

BRE (Scotlab)

BRE Certification Ltd

Brick Development Association

British Board of Agrement

British Chamber of Commerce

British Concrete Masonry Association

British Constructional Steelwork Association

British Council for Offices

British Electrical & Allied Manufacturers Association

British Institute of Architectural Technologists

British Institute of Facilities Management

British Masonry Society

British Photovoltaic Association

British Plastics Federation

British Plastics Federation - Windows Group

British Plumbing Fittings Manufacturers Association

British Precast Concrete Federation Ltd

British Property Federation

British Retail Consortium

British Rigid Urethane Foam Manufacturers Association

British Safety Council

British Standards Institution

British Swimming Pool Federation

British Waterways

British Woodworking Federation

Building Control Research Group

Building Control Wales

Building Services Research & Information Association

Carbon Trust

Cavity Foam Bureau

CBI

Celtech Consultancy Ltd

Central Heating Information Council

Centre for Accessible Environments

Centre for Exploitation of Science & Technology

CERAM Building Technology

Chartered Institute of Building - Northern Region

Chartered Institute of Environmental Health

Chartered Institute of Housing

Chartered Institute of Public Finance and Accountancy

Chartered Institute of Water & Environment Management

Chartered Institution of Building Services Engineers

Church Heritage Forum

Civil Engineering Contractors Association

Combined Heat & Power Association

Committee of Vice Chancellors & Principals of the Universities of England

Concrete Block Association

Concrete Industry Alliance

Construction Confederation

Construction Industry Council

Construction Industry Council (Wales)

Construction Industry Research & Information Association

Construction Industry Training Board

Construction Products Association

Construction Round Table

Consumers Association

Contract Flooring Association

Corporation of the Church House

Council for Aluminium in Building

Council of Mortgage Lenders

Council of Registered Gas Installers

Department for Education and Skills - Schools Premises Policy & Support Team

Department for the Environment, Food and Rural Affairs

Department for Regional Development - Northern Ireland

Department of Trade & Industry

Design Council

Disability Rights Commission

Disability Wales

Door & Shutter Manufacturers Association

East Midlands Electricity

Electrical Contractors Association

Electrical Electronic Telecommunication & Plumbing Union

Electricity Association

Energy Institute

Energy Systems Trade Association

Engineering Council

Engineering Equipment Users Association

Engineering Industries Association

English Heritage

English Local Authorities (Chief Executives, Housing and Planning Officers)

English Partnerships

Environment Agency

Environmental Audit Committee

Environmental Industries Commission

Eurisol - Mineral Wool Association

Expanded Polystyrene Cavity Insulation Association

Faculty of Architects and Surveyors, CIOB

Federation of Authorised Energy Rating Organisations

Federation of Building Specialist Contractors

Federation of Master Builders

Federation of Plastering and Dry Wall Contractors

Federation of Small Businesses

Forestry Commission - Estate Management

Forum of Private Businesses

Friends of the Earth

Fuel Industry Association

Gas Consumer Council

Glass and Glazing Federation

GMB

Guild of Architectural Ironmongers

Guild of Incorporated Surveyors

Gypsum Products Development Association

Haslam Homes Ltd

Health & Housing

Heating & Ventilating Contractors Association

Heating Equipment Testing & Approval Scheme

Heating, Ventilating and Air Conditioning Manufacturers Association

House Builders Federation

House Builders Federation (Wales)

House of Commons Environment Select Committee

Housing Association Property Mutual

Housing Corporation

Incorporated Association of Architects & Surveyors

Incorporated Society of Valuers & Auctioneers

Institute of Clerks of Works of Great Britain Incorporated

Institute of Construction Management

Institute of Domestic Heating & Environmental Engineers

Institute of Energy and Sustainable Development

Institute of Housing

Institute of Plumbing and Heating Engineering, The

Institute of Quality Assurance

Institution of Civil Engineers

Institution of Electrical Engineers

Institution of Fire Engineers

Institution of Gas Engineers & Managers

Institution of Incorporated Engineers

Institution of Mechanical Engineers

Institution of Structural Engineers

Insulated Render and Cladding Association

International Association of Lighting Designers

Joint Committee on Mobility of Blind & Partially Sighted People

Joseph Rowntree Foundation

LABC Services

Law Society of England & Wales

Lighting Association

Lighting Industry Federation

Liquid Petroleum Gas Association

Local Government Association

Local Government Technical Advisers Group

London Borough of Barking & Dagenham

London District Surveyors Association

Manufacturers of Domestic Unvented Systems

Mastic Asphalt Council

Metal Cladding & Roofing Manufacturers Association

Modular & Portable Building Association

Morgan, Graham

Multiple Sclerosis Society

NAPIT (National Association of Professional Inspectors and Testers)

National Association of Citizens Advice Bureaux

National Association of Estate Agents

National Association of Local Councils

National Association of Shopfitters

National Association of Councils for Voluntary Service

National Audit Office

National Council for Voluntary Organisations

National Federation of Builders

National Federation of Residential Landlords

National Federation of Roofing Contractors

National Home Improvement Council

National House Building Council

National Housing & Town Planning Council

National Housing Federation

National Insulation Association

National Society For Clean Air

National Trust

National Union of Domestic Appliances & General Operatives

Neighbourhood Energy Action

Northern Electric

Office of Government Commerce

Oil Fire Technical Association for the Petroleum Industry

Persimmon plc

Phenolic Foam Manufacturers Association

Planning Exchange

Planning Officers Society

Plus Point (UK) Ltd

Polyethylene Foam Insulation Association

Precast Flooring Federation

Property Tectonics Building Standards Ltd

Renewable Power Association

Registered Social Landlords

Research Group of Greater London

Residential Landlords Association

Royal Academy of Engineering

Royal Commission on the Environment and Pollution

Royal Institute of British Architects

Royal Institute of Public Health & Hygiene

Royal Institution of Chartered Surveyors

Royal Institution of Chartered Surveyors (Wales)

Royal National Institute for the Blind

Royal National Institute for the Blind - Housing Service

Royal Society for the Promotion of Health

Royal Society of Architects in Wales

Royal Town Planning Institute

Scottish Executive

Scottish Homes

SEEBOARD

Shell UK - photovoltaics

Shelter

Single Ply Roofing Association

Small Business Bureau Ltd

Small Business Service

Society of British Gas Industries

Solid Fuel Association

Steel Construction Institute

Steel Window Association

Sustainable Development Commission

Tarmac Topfloor Ltd

Terrapin Ltd

Textile Services Association

The Association of Manufacturers of Domestic Appliances

The Concrete Centre

The North West Tenants and Residents Assembly

Thermal Insulation Contractors Association

Thermal Insulation Manufacturers & Suppliers Association

Timber Industry Alliance

Timber Research & Development Association

Timber Trade Federation

Tolley Construction Law Service

Town & Country Planning Association

Trades Union Congress - Construction Industry Committee

Trading Standards Institute

Traditional Housing Bureau

Transport & General Workers Union

UK Association of Frozen Food Producers

UK CARES

UK Climate Impacts Programme

UK Timber Frame Association

Union of Construction Allied Trades & Technicians

UNISON

Upkeep (Trust for Training & Education in Building Maintenance)

Vitreous Enamel Association

Waste Resources Action Programme (WRAP)

Water Heater Manufacturers Association

Water UK

Welsh Assembly Government

Welsh Development Agency

Welsh Federation of Housing Associations

Welsh Local Authorities (Chief Executives, Housing and Planning Officers)

Welsh Local Government Association

WWF – UK

Youth Hostels Association