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, or obtained as hard copies from:

The Office of the Deputy Prime Minister
PO Box 236
Wetherby
West Yorkshire
LS23 7NB
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E-mail: 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

Response form for the consultation on proposals for introducing a *Code for Sustainable Homes*

Respondent Details	
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Organisation type *(tick one box only)*	
☐ Approved Inspector	☐ Manufacturer
☐ Architects	☒ Trade body or association
☐ Civil/Structural Engineer	☐ Private individual (unaffiliated)
☐ Commercial Developers	☐ Professional body or institution
☐ Consultancy	☐ Property funder
☐ House or property developer	☐ Research/academic organization
☐ Housing Association (Registered Social Landlords)	☐ Specific interest or lobby group
☐ Other non-governmental organisation	☐ Individual in practice, trade or profession
☐ Builder/other contractor (please specify)	☐ Journalist/media
☐ Local authority – Building Control	☐ Insurer
☐ Local authority – Environmental health	☐ Other *(please specify):*
☐ Local authority – other (please specify)	

Please use an X in answering the following questions

Is your response confidential? Yes ☐ No ☒

If so please explain why.

(See disclaimer on 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?

Comments: Yes ☒ No ☐

1.1 The proposed code is welcomed if it is used as a vehicle for innovation and allows the benefits of a variety of existing and innovative technologies to be used in housing.

1.2 We believe that the code should be used to provide a framework for the development of sustainable homes over an agreed timescale agreed between the ODPM and interested parts of the building and product manufacturing industries. The prospective use of a star or similar system to score the sustainablility of a home would help in this respect if targets were set, say, over the next 10-15 years or so. This could be developed further to set firm targets for the building of a set proportion of new dwellings to the different star rating levels in each year over the set implementation period. For example a target of 10,000 new dwellings to be built to start rating 3 in 2007; 50,000 to rating level 3, 20,000 to level 4 and 10,000 to level 5 by 2012; growing until all new build meets the level 5 at the end of the implementation period

1.3 The Code implemented in such a way would provide a framework which could provide the market stimulation for builders, that would initiate innovation by buildings product manufacturers and suppliers. This in turn would meet many of the objectives of the Code as presently outlined in the consultation.

1.4 BEAMA represents the producers of almost all the electrical equipement in housing, and as such has received a wide range of comments on the code, from a number of different perspectives. The code

provides many companies with great opportunities to expand their markets for sustainable products and services, however this can only be achieved if the assessment methodologies and the assumptions used throughout the code are equitable, taking into account ALL the factors that influence a product's and a building's sustainability.

1.5 Our main concern relates to the use of minimum levels of performance and the weighting of different measures. We believe fundamentally that the fabric of future housing should be the first element of housing to be improved to the maximum level. The fabric of a building is in place for the its lifetime, and dictates what building services can be used throughout it's life. For example a combination of the best, well controlled, gas based heating system and a good, but limited level of insulation and airtightness could meet the suggested code under today's calculation methods. However this approach restricts the types of heating system to gas based for the lifetime of the home, irrespective of the expected changes in generation carbon intensities over this period. If in this example the fabric of the dwelling is to the highest specifications, and an appropriate set of building services installed for the resulting energy demands we believe that the long term sustainability of the home will be significantely improved. - The long term objectives of the code MUST be considered over short term solutions that WILL NOT deliver the best long term sustainable objectives.

1.6 BEAMA members have the capability and desire to provide appropriate products for new homes to assist the objectives of sustainability. The specific areas of interest are:

- The use of appropriate monitoring and controls methodologies (1.6.1)

- The development of carbon and energy informed home occupiers (1.6.2)

- The role of electric heating systems as part of sustainable housing solutions (1.6.3)

- Appropriate ventilation strategies are used (1.6.4)

- The integration of home based renewables with electrical products (1.6.5)

- The use of smart products and services both for the energy and non energy aspects of the code (1.6.6)

- The installation of building services to future proof homes (1.6.7)

1.6.1 Assuming that all new housing will be insulated, irrespective of the type of heating, lighting and ventilation strategies employed there will increasingly be a need to control these technogies to ensure that they can operate together and most importantly interact effectively in the most sustainable way. For example in a very well insulated home there may be building services solutions using high performance heat pumps, solar thermal products, super high efficiency ventilation products, and inovative lighting products. To ensure that all these separate solutions operate to the best sustainable aims they must be used with advanced controls methods, perhaps employing smart housing and communications methods. BEAMA members are leading the development of these types of controls strategies for the future.

Again assuming a well insulated home, the major use of energy is likely to be the use of appliances probably outweighing the impact of heating and lighting. Clearly the development of lower energy and more sustainable appliances is essential, but the use of smart technologies to monitor and control these appliance is perhaps one of the best opportunities for managing energy use in the future. Examples of the development of smart appliances are increasing, including the involvment of BEAMA members. These developments should be considered and used in any developments of sustainable homes.

1.6.2 The 3 elements that make up a sustainable home in terms of energy and carbon are :

(i) insulate to best available

(ii) provide appropriate low carbon services and appliances

(iii) provide the building occupants with relevant information to enable them to minimise their use of these services.

The use of smart metering techniques and the the resulting provision of energy use data is set to become the basis of future energy efficiency strategies, in all homes. The Energy End use and ESCO Directive set to be implemented into UK law in 2008 is likely to demand the provision of energy use data for all new build homes.

The Ecohomes code does not recognise the use of smarter metering and the provision of energy use data for comsumer, but given the advent of new legislation in this area in 2008, the Code must include a recognition of the benefits.

The use of smarter metering is also likely to be used for the monitoring of household renewables, and for the faciltation of demand response methods. These aspects of the future use of energy in homes needs to be considered as part of any Code.

1.6.3 As highlighted earlier the decisions on building services for new homes are being driven by short term objectives rather than taking a longer term view. This is very clearly highlighted by the rather bias view taken under Ecohomes on heating and hot water solutions. We believe that the present policies are unacceptably disadvantaging the electrical heating and hot water sectors as detailed below:

(1) Affordability

Tentants/owners will incur significant on-costs of owning a gas system including £75 per annum gas safety checks (ref: National Landlords Association 2005) and on-going maintenance (British Gas maintenance and service combination contracts are sold at £192 per annum). An electric heating system will survive at least one boiler replacement (assuming a 10 year life span for a boiler). The attached supplement (appendix A) presents a table that credibly demonstrates an electric system has a lifetime annual cost per annum of £310 vs £630 for gas. This is a £320 saving per year over a system lifetime.

The on-cost of owning gas central heating has been a subject of debate within the Fuel Poverty Advisory Group in which questions are now being asked regarding how individuals with no personal savings or sufficient disposable income can cope with additional ownership costs.

(2) Carbon

The code must use carbon figures for electricity that are consistent across Government departments and their agents. For example the carbon intensity figure used for electricity within the present Eco Homes assessment is 23% higher than that used within SAP 2005. This anomaly is distorting the market between gas and electric and is unfair in competition terms. Electricity carbon intensity figures for Part L, SAP 2005 and the Code for Sustainable Homes should all be aligned at the rate of 0.422kgCO2/kWh.

The Energy Review will certainly push for lower carbon centralised generation plant. The knock on effect will be reduced carbon intensity figures for electricity and electric heat and hot water systems are 'renewable ready' as opposed to other forms of central heating provision. It is now likely that investment in renewables, nuclear or carbon sequestration will see a renaissance for electric heating in 10-15 years.

Specifically, we believe that in dwellings with low heat demand of say 1-2kW, it is questionable whether a gas system and its operational inefficiency will provide energy efficiency benefits over well controlled and responsive electric systems.

1.6.4 The suggested policy of setting the minimum requirements for fabric insulation should also be extended to the air-tightness of new buildings. This will ensure minimum levels of heat loss, hopefully for the majority of its life. Having achieved this the recognised best solution for providing the ventilation required is by low energy highly efficient electrical ventilation equipment. The assessment methods must recognise the holistic benefits of this approach against other uncontrolled and unreliable ventilation methods.

For higher fabric standards the following recommended ventilation solutions are recommended:

For fabric improvements set at 25% over 2006 Part L the minimum provision for ventilation should be:

Continuous Mechancial Extract Ventilation with Specific Fan Power (SFP) of 0.6 W/l/s

Mechanical Ventilation with Heat Recovery (MVHR) with SFP of 1 W/l/s and heat recovery efficiency of 86%

1.6.5 The use of more renewables as part of sustainable homes is almost certain to happen in the future - indeed in order to meet the higher suggested star ratings they will be needed. BEAMA would welcome such developments, and consideration must be given within the code to the integration between these zero carbon technologies and the electrical systems in homes. The design and installation of appropriate electrical distribution and safety systems must be considered to enable customer acceptance and safe installations. In addition many of the electrical building services solutions provided by members lend themselves to decentralised renewables deployment. Experience shows that for Part L 2006 compliance, developers are already planning for investment in low carbon technologies such as solar thermal and heat pumps, to be used in harmony with traditional electrical products. In addition, over the next 2-3 years, we are confident that there will be demonstration programmes to prove that the deployment of PV and wind generation with electric services will be appropriate solutions for sustainable homes. These could well be the basis of Best Practice heating and hot water provision beyond 2010.

The metering and control of the electrical energy from household renewables are also vitally important, and should be considered in the assessment methods for the code.

1.6.6 The use of smarter products in general is likely to be a feature of future housing. The Code should recognise the benefits of these products in particular for energy efficiency, security and assisting elderly and disabled housholders to remain in the homes for longer. The main problem for this recognition is the lack of any rating schemes for the benefits that these Smart products and solutions can bring. BEAMA encourges the Code to recognise these benefits and encourage the development of appropriate rating schemes.

1.6.7 One of the biggest unsustainable aspects of all housing is the changes brought about by change of occupancy, or technology changes - often in the computing and entertainment areas. The installation of increased numbers of electrical sockets post installation is a common occurence. This action, usually as a result of the lack of sufficient electrical sockets at new build, very often leads to major disruption to the internal fabric of the building, and if the building is air-tight will almost certainly lead to a reduction in air-tightness. In addition as data communications becomes more prevelant in future housing the need to re-wire homes will become an increasing problem. The use of wire free

comunications can help in some respects but the future communications infrastructures are likely to be a mix on hardwiring and wire free.

The suggested solution to solve these problems is to install, at time of build, sufficient electrical infrastructures to allow for expansion in future years. Minimum levels of electrical services and the cabling structures would ensure that post build works would be reduced to a minimum whilst allowing a range of communications methods to be employed in the home well into the future.

It is worth noting that to gain many of the sustainable smart solutions for homes, communications infrastructure will be required.

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

Comments: Yes ☐ No ☒

The suggested six essential elements are a good starting point for discussion on what should be essential, what other elements should be considered, and what the relationship is between these. BEAMA believes that the last point is not at all well understood, and requires significantly more work before publication of the code.

Comments can be summarised thus:

Energy - Essential - see notes later

Water - Essential

Surface water management - No comment

Materials - no comment

Site waste management - Not essential - see notes later

Houshold waste management - Essential

Additional essential element - security - see notes

Additonal essential element - electrical infrastructure - see notes

Specific energy comments

We agree that the base level for energy efficiency is appropriate at 2006 Part L levels and that there should be incremental steps to improve the fabric efficiency of the dwelling/building. However, it should not be mandatory to require improvements in energy efficiency up to Level 3 for public funded development, or indeed any development. The consultation paper itself states that Part L is at 'the limit of what could be achieved in a cost-effective manner' as defined by the RIA. It also states that 'there is already a burden of regulation on house builders…'. Any mandatory requirement to improve energy efficiency performance of public funded new buildings would therefore constitute a 'back door' government regulation and if achievement exceeds cost effective boundaries then this would logically result in inefficient spend of public funds.

Through interviews with M&E Consultants and House Builders we have established the only way in which energy efficiency improvements can work without compromising the industry is to create back stop U values for fabric measures that ensure the fabric measures are not traded off against the services. This is a critical point as the services may change in the building as may its use, but the fabric will determine its long term sustainable footprint.

This point is not only valid in the context of securing the electric heat and hot water appliance manufacuring industry. The average UK SAP score for existing housing stock is 53.6 (source: DTI Energy Consumption Table 3.5/July 2005). This leaves plenty of margin for improving SAP scores through fabric and it is recent changes to Building Regulations that have lifted this average from a much lower figure in the 1990s. This proves the value of targeting fabric measures and is consistent with the widely acknowledged view of 'insulate before you heat'.

We believe an innovative option would be to link the Code for Sustainable Homes with the forthcoming Low Carbon Buildings Porgramme. An improved level of attainment for energy efficiency through fabric

improvements could be a minimum entry level for this Programme. This offers an incentive to consider a range of low carbon options for services but does not rely on mandatory measures.

Security

Security is an inreasing concern for all homes. We believe that it is of sufficient importance that it should be included as an essential element. This would include the design elements of the new home, and the installation of a base infrastructrure for any security equipment.

Infrastructure

Visible infrastructure should be added as a category to ensure future - proofed life extendability of the dwelling. Infrastructure is fundamental to the sustainability issue.

Site waste management

We would consider that site waste management should not be in the final star score as it would be a lifetime debit - it should be monitored by a separate construction site scheme.

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

Comments: Yes ☒ No ☐

Tradeable elements are a good idea but any points system should consider allocating appropriate rewards for non energy efficiency related elements to ensure developers and public funding organisations are not drawn towards energy efficiency as a single or core solution. We would advise that in allocating weighting, more emphasis be given to the management of surface water and water efficiency to address the current critical levels of water availability across the regions. This is particularly vital for the South East, a region which is a focus for an extended housing programme with public funding support. One water authority in the South East region has been given leave to compulsorily install water meters due to water scarcity and the wider region is under threat due to low water levels in the key reservoir of Bewl Water. This underlines the importance of giving a high weighting for water related elements.

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

Comments: Yes ☒ No ☐

BEAMA agrees with a scoring system as suggested but the categories and weighting need to be carefully evaluated. With 6 tradeable elements we are not certain that the points bands for each element will be wide enough to accommodate the required range of improvements. Ultimately, the issue of the points system will be determined by the points ranges for each tradeable element of the Code along with weighting.

A major problem with the adoption and use of any scoring systems is how individual and system solutions can be assessed. Although there are existing assessment methods available for boilers, basic controls, appliances etc, there are only very limited methods available for more advanced and new energy solutions, and almost none for non energy elements. For example a key way to improve the efficiency of building services, be they gas based, electical or renewable is to use advnced control systems. Some of these are already availabe on the market but their use in new homes, and exisiting, is hampered by the lack of an independent assessment methodology to rank the benefits of different technologies. For these types of products and other within the BEAMA scope the use of the scoring system must reconise existing assesment methods and encourage the development of new and additional methods.

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

Comments: Yes ☐ No ☒

A-G labelling schemes are well understood and therefore a similar approach with the Code would be advisable. However careful thought needs to be given to the design of the rating system. The point scoring system should be equitable across the categories to ensure a reasonable standard across the Essential Elements before extra points are earned. Optional points should be available to incentivise the buyer to trade up.

The comments made in section 1 are repated below on how the rating system could be used in an incremental way over future years:

1.2 We believe that the code should be used to provide a framework for the development of sustainable homes over an agreed timescale agreed between the ODPM and interested parts of the building and product manufacturing industries. The prospective use of a star or similar system to score the sustainablility of a home would help in this respect if targets were set, say, over the next 10-15 years or so. This could be developed further to set firm targets for the building of a set proportion of new dwellings to the different star rating levels in each year over the set implimentation period. For example a target of 10,000 new dwellings to be built to start rating 3 in 2007; 50,000 to rating level 3, 20,000 to level 4 and 10,000 to level 5 by 2012; growing until all new build meets the level 5 at the end of the implementation period

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

Comments: Yes ☐ No ☒

Not applicable to BEAMA - however consultation must extend beyond traditional house builders.

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?

Comments: Yes ☒ No ☐

There should be before, during and post-construction assessments.

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

Comments: Yes ☒ No ☐

It is difficult to comment on a draft RIA only covering the basic elements. However the following comments we believe are relevent and need to be included in further versions of the RIA

Energy:

Will require basic infrastructure, sustainability and extendability features - better monitoring, control, and reporting of usage; zone heating, supplier involvement in meter reading/understanding; efficient use of alternatives (CHP, microgeneration, photo-voltaics, wind, ground pumps etc.); lighting schemes with presence detectors, light sensors, weather compensators, window blinds and controls; automatic power-up and power-down on entry/exit and correct siting of heat supply.

Water efficiency:

Flow rate indicators on showers and taps, secondary storage, manifold systems, smarter appliances with external communications, adequate local isolation valves, thermostatic mixing & monitoring, leak detection and automatic shut-off.

Surface water management:

Space for the provisison of adequate tanks and pumps. Automatic control of harvested surface and rainwater, automatic irrigation systems.

Analysis and routing of clean, 'grey' and foul water.

Waste water monitoring, measurement and waste heat recovery.

Waste during construction:

Site waste management should not be included in the score for the individul dwelling but should be monitored by a separate construction site scheme otherwise a good sustainable home from a poorly managed construction site will be permanently penalised.

Waste during occupation and use:

For effective waste management significant improvements in Local Authority waste management infrastructure are required.

Intelligent security systems can be linked to power-down the heating system when the house is unoccupied thus extending the normal benefits of intruder detection, smoke and fire warning, etc.

Automatic meter reading with active supplier involvement could lead to positive water and energy savings.

Use of materials:

specification of the correct infrastructure is key to providing a future-proof dwelling that can be easily modified as technologies unfold and develop. Thus access to systems by conduits, trunking, ducts, etc will save materials on future upgrades and refurbishments.

Other:

RIA cost estimates are considered to be low.

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

Comments: Yes ☐ No ☒

Energy:

Water efficiency:

Surface water management:

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

Comments: Yes ☒ No ☐

Technologies and protocols change over time and a key feature of a sustainable home is a flexible and adaptable infrastructure which is viable and available to all services, giving a future-proofed dwelling.

These technologies can also be used to improve the sustainability of the existing housing stock by encouraging a single 'Intelligent Refurbishment' beyond which the building becomes economically sustainable.

All measures should be calculated 'per household', not 'per head'.

The final measures introduced should apply equally to England & Wales, Scotland and Northern Ireland to ensure consistent application by equipment manufacturers, specifiers, constructors asn home users.

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.