

WRITTEN EVIDENCE SUBMITTED BY UK GREEN BUILDING COUNCIL (IB 12)

Introduction to the UK-GBC

The UK Green Building Council (UK-GBC) is an independent, membership-based, not-for profit organisation committed to dramatically improving the sustainability of the built environment by radically transforming the way it is planned, designed, constructed, maintained and operated.

A crucial feature of our work is the time limited ‘task groups’ we convene. These working groups bring together experts from within the membership with diverse perspectives - and often competitors - to work collaboratively to address a given challenge. Sharing expertise means that projects have access to a greater knowledge-base than any one organisation could possess alone.

Introduction to the Association for the Conservation of Energy

The Association for the Conservation of Energy aims to reduce overall energy demand to ensure a secure and sustainable energy future. Through our lobbying, campaigning and research we help to achieve sensible and consistent policy, legislation and targets. ACE works to raise a positive awareness of energy conservation and encourage increased investment in all energy-saving measures.

Summary

1. In the Cabinet Office briefing on the Queen’s Speech, the Government undertook to use the Infrastructure Bill to propose the enabling powers for the ‘allowable solutions’ mechanism (a flexibility mechanism to allow off-site carbon saving) needed to deliver ‘zero carbon homes’ from 2016. In the House of Lords, these enabling powers were introduced in what is now Clause 32 of the Bill. We support the use of appropriate allowable solutions (originally proposed by a UK-GBC Task Group in 2008¹) to support the delivery of a robust zero carbon standard and therefore support the need for the powers provided for by Clause 32.
2. However, in the June Cabinet Office briefing, the Government also proposed the minimum ‘carbon compliance standard’ to be achieved on the site of the home, before allowable solutions can be used. The proposed standard is significantly lower than that previously agreed by all relevant parties, including the housebuilding industry. We believe that there is no justification for diluting the previously agreed standard and that it should be restored.
3. By proposing a lower on-site standard, the Government is forgoing the huge benefits to the UK economy from supporting a world class green building sector creating growth and exports, from reduced natural gas imports and from lower energy bills resulting in higher expendable family income.
4. In a current consultation the Government has also proposed an exemption for ‘small sites’ from a significant element of the zero carbon definition. This would result in house buyer confusion and fragmentation of the supply chain. We do not believe there is a justification for any exemptions from the definition of zero carbon homes.

Introduction

5. The UK’s buildings account for 37% of total greenhouse gas emissions, with 66% of buildings’ emissions from homes. The UK is committed to reducing emissions by 50% in 2025 and at least 80% in 2050. Some of the most cost effective potential carbon savings exist in the buildings sector and Government is looking to this sector to deliver significant levels of carbon savings.
6. The commitment made in 2007 to make all new homes zero carbon by 2016 will form a central part of that strategy, alongside the commitment to zero carbon commercial buildings by 2019.
7. The Infrastructure Bill proposes enabling powers to be inserted into the Building Act 1984 to allow Building Regulations to make provision for ‘allowable solutions’ (a flexibility mechanism to allow off-site carbon saving schemes), the final piece of primary legislation needed to deliver the zero carbon homes policy. Housebuilders will have the option to use off-site carbon

¹ <http://www.ukgbc.org/resources/publication/uk-gbc-task-group-report-definition-zero-carbon>

saving schemes rather than more effort on-site once the minimum on-site carbon compliance standard has been reached.

Housing supply: no barrier to zero carbon homes

8. It is widely understood that there is a pressing need to supply a large number of new homes for families across the UK. It is clear that house building must remain financially viable for the private sector which will deliver a large proportion of the housing needed. In responding to the urgent need for new homes, quality and efficiency must not be compromised. Families must be able to afford to heat and light their homes in the future.
9. The typical additional cost of building a zero carbon semi-detached house has halved since 2011 and is expected to fall further by 2020 when most homes will actually need to be built to this standard.² This must be compared to the reduction in the annual energy bill for families for generations to come. The annual bill for a family living in a zero carbon 3 bedroom semi-detached home will be £1,220 less than for a Victorian home.³
10. The additional cost of building zero carbon homes is falling continuously as the supply chain evolves and the issue of urgent housing supply need not undermine the vision of all new homes being zero carbon by 2016.

On-site standard

11. The Government has proposed, in the Cabinet Office briefing on the Queen's Speech in June and on a number of occasions subsequently, a zero carbon standard for new homes that is significantly lower than that already agreed through cross-industry consensus: "*The Zero Carbon Home standard will be set at Level 5 of the Code for Sustainable Homes, but the legislation will allow developers to build to Level 4 as long as they offset through the allowable solutions scheme to achieve Code 5.*"⁴
12. The carbon savings from a zero carbon home come from three sources⁵:
 - 1) Energy efficiency of the fabric of the building e.g. insulation of the walls, the roof etc
 - 2) Low/zero carbon heat and power technologies in or on the site of the home e.g. photovoltaics
 - 3) "allowable solutions" - i.e. the optional use of off-site schemes where further effort on-site is prohibitively costlyThe first two of these make up the on-site or carbon compliance standard.
- 13) The previously agreed minimum on-site standard was defined by a cross-industry Task Group coordinated by the Zero Carbon Hub.⁶ The Task Group was made up of representatives from the housebuilding industry bodies (National House Building Council, Federation of Master Builders, Home Builders Federation, House Builders Association), major housebuilding companies, the wider construction industry, consumer and green groups and observers from BIS, CLG and DECC (a full list of the Task Group members is in annex A).
- 14) The minimum on-site standard, to be achieved before 'allowable solutions' can be used, requires homes to be built to achieve a maximum predicted emission of carbon dioxide (or equivalent) measured per square metre per year of 10 kg in the case of detached houses, 11 kg for attached houses and 14 kg for flats.⁷ The standard was coined in this way to provide a clear link to Government's carbon reduction strategy. When broadly compared with current standards the proposed standards would require a minimum CO₂ reduction over 2006 Building Regulations standards of between 56% and 60% for homes, and 44% for flats.⁸ Government now proposes a standard (Code Level 4) of only a 44% reduction across the stock.

² ZCH and Sweett Group, Feb 2014, [Cost analysis: meeting the zero carbon standard](#).

³ NHBC Foundation and ZCH (Feb 2014). [Zero carbon housing: annual energy running](#).

⁴ The Queen's Speech 2014: background and briefing notes.

⁵ <http://www.zerocarbonhub.org/zero-carbon-policy/zero-carbon-policy>

⁶ <http://www.zerocarbonhub.org/zero-carbon-policy/zero-carbon-policy>

⁷ Up to 4 storeys.

⁸ The zero carbon hub standard applies to the built performance of the home. Building Regulations standards measure the performance of the home as designed. It is accepted that when built the home performs less well than predicted through the design calculation. The percentage improvement over 2006 Building

- 15) The available evidence and industry opinion indicates that the previously agreed Zero Carbon Hub standard is still both technically and commercially workable. No further evidence has been presented by Government to the contrary.
- The standard proposed by the Zero Carbon Hub was agreed by a cross-industry Task Group following 18 months of intensive work. It considered the standard to be eminently workable when it was defined in 2011.
 - The techniques and technologies required to meet this standard are already being delivered at volume in the market. Over 73,000 homes have already been built to Code level 4 or above⁹ and solar PV has been fitted to over 600,000 existing homes supported by the Feed in Tariff¹⁰.
 - Since 2011 the additional costs of meeting the standard have more than halved, meaning that the Zero Carbon Hub standard is not only workable but now more cost-effective. Further cost reductions are expected to 2020.¹¹
 - A 2013 public consultation by DCLG revealed that 70% of the respondents supported the use of the Zero Carbon Hub standards. Some of those who disagreed did so because they felt the standards should go further. *“There was a consensus that the research of the Zero Carbon Hub is well balanced and is the only substantial source of data available”*.¹²
- 16) Rob Lambe, Managing Director, Willmott Dixon Energy Services (a UK-GBC Member) commented: *“Since the original Zero Carbon announcement Willmott Dixon has been supportive of setting a long term trajectory and enabling industry to commit resource with confidence. The definition developed by ZCHub has proved a pragmatic balance between cost, technical deliverability and real performance and one that has been embedded within our business and has been delivered on a range of sites. A watering down now from this definition undermines those companies that have invested in developing / proving their approaches and has no justification.”*
- 17) As a future standard, the proposed lower ‘Code level 4’ minimum is already looking out of date. Code level 4 is the standard that many local authorities have been requiring on all new homes for some time. It is also the standard that three of the UK’s largest house builders have shown can be achieved through improved efficiency of the building fabric (improved insulation and glazing) and efficient services, not requiring renewable energy technologies.¹³ These Code level 4 are described as *“homes that are not radically different from current solutions favoured by developers, and therefore provide a range of robust, low-risk technical solutions.”* What is more, these housebuilders have confidently stated that they expect to be able to build these Code level 4 homes, when delivering at scale, to the same price as it currently costs to build not to the current (2013) Building Regulations but the previous Regulations introduced in 2010 (Code level 3).
- 18) It is also important to recognise the fact that the new zero carbon standard will affect the majority of homes not in 2016 but nearer to 2020. This is because the majority of homes built in England are not built to the Regulations of the current day. Compliance with Building Regulations is fixed at the time the plans are processed through planning. Significant time can then elapse through the granting of planning permission, financing the development, building and finally completing the homes for sale. Banks of land are held by house builders to ensure an adequate pipeline of land supply over potentially long planning and commencement times. At recent house building levels the large house builders tend to hold land to cover around 4 to 5 years of continued activity.¹⁴ Therefore the proposed ‘Code level 4’ on-site standard might be almost a decade out of date by the time many homes are built to that standard.

Regulations therefore is a minimum improvement as these percentage improvements are in addition to the potential savings achieved by moving from an as designed to an as built standard.

⁹ <https://www.gov.uk/government/statistics/code-for-sustainable-homes-september-2014>

¹⁰ <https://www.gov.uk/government/collections/feed-in-tariff-statistics>

¹¹ ZCHub and Sweett Group, Feb 2014, [Cost analysis: meeting the zero carbon standard](#).

¹² [Government Response](#) to the Allowable Solutions: Next steps to Zero Carbon consultation July 2014.

¹³ <http://www.aimc4.com/>

¹⁴ [The Lyons Housing Review](#), 2014 p61.

- 19) In the face of this compelling narrative, which describes the industry's ability to deliver to the Zero Carbon Hub's recommended standard and the reduced costs of doing so, it is difficult to understand why the Government have proposed a lower on-site standard before the allowable solutions flexibility mechanism can be used.
- 20) It appears that Government is well behind the UK house building industry in its appraisal of capabilities, product innovation, cost of delivery and ambition.

Small sites exemption

- 21) At the beginning of the summer Government announced its proposal that "small sites, which are most commonly developed by small house builders, will be exempt". Last month more detail was released in a consultation which proposed a preferred option that sites of 10 units or fewer (with a maximum floor area of 1000m²) should be exempted from the carbon savings above the minimum on-site carbon compliance standard, coined as 'allowable solutions'.
- 22) Although the preferred option in the consultation is for an exemption from effort over and above the on-site standard, the Government does worryingly also consult on the possibility of a lower on-site standard for homes built on a small site, creating a two-tiered approach to Building Regulations.
- 23) We disagree with the key assertion in the consultation that, in exempting small sites from just the allowable solutions part of the definition, "*all new housing in England would meet a consistently high level of energy efficiency and carbon reductions. Consumers would save the same amount of money on their energy bills whether buying a home built on a small site.*" In this assertion, Government has overlooked the fact *off-site* carbon saving measures are just one option for housebuilders for delivering the carbon savings between the minimum on-site standard and the full zero carbon definition ('allowable solutions'). In fact, the first of the four delivery mechanisms that the Government has proposed for 'allowable solutions' is to save more carbon on the site of the home through improved performance or heat/power generation.¹⁵
- 24) It is hoped that housebuilders will only consider off-site measures if more energy efficiency or renewable energy on the site of the home is prohibitively costly. More carbon saving on the site of the home delivers greater bill savings to the householder and value to the asset. To assume that no house builders will attempt to deliver any further carbon savings (over the minimum on-site standard) on the site of the home is to overlook the basic economic sense of investment to add value to the asset and the increasing customer appeal of lower running costs, and technologies such as PV.
- 25) The allowable solutions mechanism was designed specifically to enable the costs of meeting the full zero carbon standard to be reduced for sites that are unfairly burdened due to physical constraints, such as size.¹⁶ Smaller building sites are specifically the types of development that the allowable solutions mechanism was designed to support towards delivering zero carbon. It therefore seems perverse that these sites are now to be exempt from the part of the definition designed to ensure they can cost effectively comply.
- 26) We see no reason why a development of 10 units should be treated differently from one of 11. Creating a disparity between the treatment of different sites opens up the possibility of unforeseen and undesirable outcomes, and possibly exploitation, where larger sites are broken down to qualify for the exemption. The artificial division or staging of sites to attract an exemption could slow down the building of new homes, as well as impact fundamental design, orientation and place-making principles.
- 27) The proposed exemption of sites of 10 units or fewer is shown by the figures presented in the consultation to affect as much as one fifth of all homes proposed (at 2013 rates). This is clearly a considerable proportion of the stock. We believe that an exemption for such a large proportion of the stock will create confusion in the house buying market. If a house buyer cannot expect the same standard of a new home built on a small site to that built on a large

¹⁵ <https://www.gov.uk/government/consultations/next-steps-to-zero-carbon-homes-allowable-solutions>

¹⁶ The allowable solutions mechanism was originally proposed by a UK-GBC Task Group in 2008
<http://www.ukgbc.org/resources/publication/uk-gbc-task-group-report-definition-zero-carbon>

site, the value of a highly efficient new home will be undermined. Clear market signals are needed if the efficiency of homes is to be recognised in house prices.

- 28) Such an exemption would also create fragmentation in the supply chains delivering products and services for differently defined 'zero carbon' new homes. Fragmentation leads to a lower potential for cost reduction through the whole supply chain. With small builders making up the smaller part of the demand it is logical that this market will be less well served, suffering from smaller and slower cost reductions. Therefore a perverse outcome of higher costs for the smaller builder is created.
- 29) Simon McWhirter, Communications and Sales Director of small housebuilder HAB Housing (a UK-GBC member) commented, *"The industry has had eight years to plan for this target. Although the process around clarifying and ¹⁷refining the targets has been badly handled by government, not least with progressive weakenings of the zero carbon standard, it in no way means that the requirement to meet that standard now should be softened. To our knowledge small food producers don't get exemptions from food safety standards and car manufacturers can't avoid seat belt provision through claims of it being a difficult measure to fund or understand."*
- 30) We have yet to see any evidence that exemption from the zero carbon regulations would bring forward more house building activity from small builders. The business challenges for small house builders were summarised in a recent NHBC report (Oct 2014). The top barriers identified in a quantitative survey were: planning and process conditions, obtaining finance, availability and cost of land, and skilled labour and cost of labour. Legislation/red tape received only 4% of the responses (from 363 companies surveyed). The consultation document also identifies extra costs in terms of land acquisition and purchasing and availability of suitable small sites as barriers to small house builders. It is not clear how the exemption proposed will help to overcome the above listed significant barriers.

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¹⁷ <http://www.nhbcfoundation.org/Publications/Primary-Research/Improving-the-prospects-for-small-house-builders-and-developers-NF-57#>

Annex A: External members of the Zero Carbon Hub Task Group

The Task Group consisted of the following members:

Task Group Members:

Neil Cutland	AECB / Passivhaus Trust
David Ross	AECOM
Oliver Novakovic	BRE
Hywel Davies	CIBSE - Tech WG Chair
Ian Manders	Combined Heat & Power Association
John Tebbit	Construction Products Association
Liz Laine	Consumer Focus
Chris Baker	Davies Arnold Cooper
Steven Harris	Energy Saving Trust
Peter O'Connell	Federation of Master Builders
Melissa Taylor	Good Homes Alliance
Dave Mitchell	Home Builders Federation (HBF)
Jacqueline Fox	HBF / Barratt Developments
Derric Heyden	HBF / Barratt Developments
Michael Black	HBF / Bovis Homes
Dale Saunders	HBF / Taylor Wimpey
Jayne Lomas	Homes & Communities Agency
Roger Humber	House Builders Association (HBA)
Andrew Day	HBA / Countryside
Kirk Archibald	HBA / Fairview
Nigel Banks	Keepmoat
Paul Overall	Local Authority Building Control
Russell Reefer	Local Government Association
Robert Tudway	London Development Agency - Policy WG Chair
Neil Smith	NHBC
Stuart Pocock	Renewable Energy Association
Bill Gething	Royal Institute of British Architects
Richard Partington	Royal Institute of British Architects
Peter Rickaby	Royal Institute of British Architects
Anna Surgenor	UKGBC
Mark Driscoll	WWF
Zoe Leader	WWF

Observers:

Nick Scott	BIS
Peter Whittington	BIS
Simon Brown	CLG
David Craine	CLG
Paul Decort	CLG
Henry Demarta	CLG
Rosie Smith	CLG
Alan Christie	DECC
Paul McCloghrle	DECC
Steven Scott	Scottish Government
Francois Samuel	Welsh Assembly Government

In addition to the UK Green Building Council and the Association for the Conservation of Energy, this evidence is supported by:

- Campaign to Protect Rural England
- Energy Saving Trust
- RIBA Architecture.com
- WWF