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Consultation Document

2012 consultation on changes to the Building Regulations in Wales Part L (Conservation of fuel and power)

Section one - The consultation proposals

Revision 1 - Minor amendments

Date of issue: **31 July 2012**
Action required: Responses by **23 October 2012**

Overview

The Building Regulations and the associated statutory guidance set out in Approved Documents seek to ensure buildings meet certain standards for minimum health, safety, welfare, convenience and sustainability.

This document covers proposals for changes relating to Part L (Conservation of fuel and power).

This consultation is aimed primarily at firms, individuals and their representative bodies within construction and construction-related industries and the building control bodies that enable the building control system to operate. Specific elements may be of interest to members of the public.

How to respond

A response form is provided at Annex B of this document.

Consultees are invited to e-mail responses to:
enquiries.brconstruction@wales.gsi.gov.uk

Those who prefer to submit a paper copy of their response should send these to:

Building Regulations Consultation
Construction Unit
Environment and Sustainable Development Directorate
Welsh Government
Rhyd y Car Offices
Merthyr Tydfil
CF48 1UZ

Further information and related documents

Large print, Braille and alternate language versions of this document are available on request.

Contact Details

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Data Protection

How the views and information you give us will be used.

Any response you send us will be seen in full by Welsh Government staff dealing with the issues which this consultation is about. It may also be seen by other Welsh Government staff to help them plan future consultations.

The Welsh Government intends to publish a summary of the responses to this document. We may also publish responses in full. Normally, the name and address (or part of the address) of the person or organisation who sent the response are published with the response. This helps to show that the consultation was carried out properly. If you do not want your name or address published, please tell us this in writing when you send your response. We will then blank them out.

Names or addresses we blank out might still get published later, though we do not think this would happen very often. The Freedom of Information Act 2000 and the Environmental Information Regulations 2004 allow the public to ask to see information held by many public bodies, including the Welsh Government. This includes information which has not been published. However, the law also allows us to withhold information in some circumstances. If anyone asks to see information we have withheld, we will have to decide whether to release it or not. If someone has asked for their name and address not to be published, that is an important fact we would take into account. However, there might sometimes be important reasons why we would have to reveal someone's name and address, even though they have asked for them not to be published. We would get in touch with the person and ask their views before we finally decided to reveal the information.

 WG16539

REVISION 1 – MINOR AMENDMENTS HIGHLIGHTED IN RED

The Foreword

As part of its commitment to tackling climate change and its duty to promote sustainable development the previous Welsh Government stated it's aspiration that all new buildings in Wales should be zero carbon. As a step on the road to zero carbon, in June 2010 the Welsh Government announced its intentions to improve the energy performance of new housing through Building Regulations for Wales by 2013. Functions under the Building Act 1984 including those to make Building Regulations were transferred to Welsh Ministers on the 31st December 2011.The Welsh Government's current Programme for Government for the period 2011-2015 sets the goal of strengthening Building Regulations to achieve a 55% improvement in energy efficiency over 2006 levels (40% over 2010 levels).

In advance of the transfer of Building Regulations, national planning policy on sustainable buildings came into effect on 1st September 2009 (Planning Policy Wales). This set an expectation of BREEAM 'Very Good' with an 'Excellent' score for energy for non domestic buildings and a Code for Sustainable Homes score of level 3 with extra credits for energy for new housing. Where the Welsh Government is providing grant funding a BREEAM Excellent score is expected for non domestic buildings. In addition to achieving an Excellent score for new schools local authorities are achieving an Energy Performance Certificate (EPC) rating of minimum 'B' rating for all other refurbishment works.

This consultation fulfils our commitment to develop higher energy efficiency standards. We are very mindful in bringing forward proposals that increased standards will raise costs at a time when housebuilding in particular is facing challenges and where many sites are not viable for development with current market conditions. We have therefore examined what we can do to mitigate the impacts of these higher standards while maintaining the aim of progressing quickly towards zero carbon.

In the consultation paper, we propose to:

- phase the introduction of the higher standard for new dwellings so that it begins to take effect in 2015 rather than earlier;
- remove the existing planning requirements for use of the Code for Sustainable Homes; and
- take steps to simplify the application of the new standards.

These mitigating measures need to be seen in the wider context of the supportive framework we are putting in place for construction in Wales:

- We will shortly publish the outcome of our Independent Advisory Group's report on improving the operation of the planning system in Wales, which will lead to actions that offer greater investment certainty for developers and simpler processes.
- We have recently published our Housing White paper, with a range of investment proposals for housing in Wales for both the private and public sector.
- We have established a Construction Industry Panel to steer the economic support we give to the sector, which will strengthen our focus on improving supply chains and skills in the sector in Wales.
- We will make clear that in the current economic conditions, requests for contributions from developers for wider social or economic infrastructure need to be realistic.

We are seeking views in this consultation on the following options:

1. Higher standards of energy performance for new and existing buildings, the options being:
2. A phased 40% improvement in Part L 2010 for new housing with an effective date of January 2015, or a staged 25% improvement in 2014 followed by a review in 2016 to increase standards to zero carbon before the end of the decade;
3. 20%, 10% or 11% improvement on Part L 2010 for new non domestic buildings;
4. Improved standards where existing buildings are renovated or extended; and
5. The withdrawal of the sustainable buildings planning policy national minimum standard as soon as practically possible, with an increased emphasis instead on master planning for strategic sites through the Local Development Plan.

In addition, in chapter 2 we describe related activities aimed at supporting and developing the industry.

Through 2011 and 2012 we have worked with a variety of stakeholders including the newly established Building Regulations Advisory Committee for Wales, the Wales Low Zero Carbon Hub and professional and trade bodies to develop detailed proposals for consultation. The hub has held 8 stakeholder events throughout Wales providing an opportunity for discussion on and to inform the proposals in this consultation.

Through the Social Housing Grant development programme, a number of pilot projects have been undertaken to Code for Sustainable Homes (CSH) levels 4 and 5 to help understand the implications of higher standards. An initial report on the projects has been published (http://wales.gov.uk/topics/housingandcommunity/housing/publications/sushomespilotinterim/?lang=en), further technical analysis and post completion monitoring is planned for 2012.

The consultation Regulatory Impact Assessment which accompanies these proposals assesses the costs and benefits of the policy options. Whilst this looks at impacts at a societal level we have, in addition, considered the potential impacts on other policy areas specifically in relation to new housebuilding activity. This stems from a Ministerial commitment given to consider the cumulative impact of policies and to take account of current and future prospects for the housing market.

These proposals represent a significant and deliverable step towards minimising the impact that the built environment has on energy use and resulting climate change emissions. The proposals reflect concerns over the risk of reliance on technologies and design approaches for which experience in the UK is limited, but nevertheless will have ‘upskilling’ implications to which the industry will need to respond.

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Chapter 1

Introduction

1.1 Background

1. Building Regulations control certain types of building work, principally the erection and extension of buildings and provision or extension of certain services or fittings, chiefly to ensure that buildings meet certain standards of health, safety, welfare, convenience and sustainability.

2. Compliance with the Building Regulations is the responsibility of the person carrying out the work and the building control system helps to ensure that the required level of performance has been met. The role of a building control body, either the local authority or a private sector Approved Inspector, is to act as an independent third-party check to help achieve compliance. As an alternative to third-party checking by building control, some types of work may be self-certified as being compliant by installers who are registered as a member of a competent person self-certification scheme and have been assessed as competent to do so.

3. Building Regulations greatly influence how our buildings are constructed and used. As such, they help to deliver significant benefits to society. Regulation can also impose costs on both businesses and individuals. The “functional” nature of the Building Regulations, by having regulation setting out the broad requirement rather than prescribing how it must be achieved, seeks to minimise this cost and also ensure innovation is not hindered. Guidance in the Approved Documents that accompany the Regulations then sets out some of the ways that these requirements can be met although it does not have to be followed if the required level of performance can be shown to be achieved in a different way. This approach provides clarity for building control bodies and industry alike.

4. To avoid the risk of unnecessarily onerous and costly standards being imposed on industry it is important that a proper cost/benefit assessment and consultation with industry has been undertaken by Government to assess what reasonable minimum standards are appropriate.

5. It is also important to ensure that the Building Regulations regime remains current and fit-for-purpose. That is why the Welsh Government undertook an exercise in the latter half of 2010 and in 2011 to determine what changes were necessary to the Building Regulations in Wales.

1.2 The consultation

6. This consultation contains proposals for Part L changes (Chapters 2, 3, 5 & 6), an outline of proposed changes to planning policy in Wales (Chapter 4) and a discussion on issues for future regulations (Chapter 7). The proposals are accompanied by draft changes to the Part

L Approved Documents[1] for Wales including a proposed template for revised presentation of the Approved Documents based on AD L1B. The consultation also refers to proposed revisions to the domestic and non domestic Building Services Compliance Guides and a summary of proposed changes to the National Calculation Methodology (NCM) for both homes and non domestic buildings (Chapter 3). These are available from www.communities.gov.uk/publications/planningandbuilding/brconsultationsection2. Whilst these have been subject to separate UK Government, Department of Communities and Local Government (DCLG) and Department of Energy and Climate Change (DECC), consultation, views are welcomed to inform future revisions. Cross-references are included in this document where relevant.

7. The Welsh Government has published a Regulatory Impact Assessment (RIA). The RIA is an important part of the consultation, as its analysis has shaped the proposals. Consultees are encouraged to read the impact assessment and respond to the relevant questions.

8. All documents can be found at: www.wales.gov.uk/buildingregulations / www.cymru.gov.uk/rheoliadauadeiladu.

9. The Building Regulations in Wales are supported by the NCM, which is used to calculate building energy performance for compliance checking purposes. These are the Standard Assessment Procedure (SAP) used for homes, and the Simplified Building Energy Model (SBEM) or approved Dynamic Simulation Model software tools, used for non domestic buildings. Changes are periodically made to these tools to ensure that they remain fit for purpose to support the Building Regulations and other Government policies. Responsibility for SBEM and SAP lies with DCLG and the DECC respectively. The Welsh Government participates in reviews of the NCM.

10. Welsh consultation versions of SAP and SBEM software (cSAPw and cSBEMw) will be published alongside this consultation and can be used by consultees to model the effects of these proposals[2].

11. In addition, the Centre for Research in the Built Environment (CRIBE) at Cardiff University School of Architecture has published a Beta version of a SAP 'what if' tool based on the 2012 consultation version which consultees may find useful when considering the impact of the housing proposals (http://www.lowcarboncymru.org/interactive_tools.html). The Centre would welcome feedback on the tool (for contact details see website).

12. Two consultations by DECC are also key to these proposals. Firstly, DECC has published proposals for revised carbon dioxide (CO_2) emission factors for different fuels[3]. These have an important impact on the Welsh Government's analysis of different options for reducing emissions from buildings, and on developers' choice of technologies to use to meet the standards.

13. Secondly, DECC consulted earlier in the year on the framework for delivering the Green

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[1] The four Approved Documents offer guidance on the regulations for new dwellings (L1A), existing dwellings (L1B), new buildings other than dwellings (L2A) and existing buildings other than dwellings (L2B).

[2] http://www.2013walesncm.bre.co.uk

[3] http://www.decc.gov.uk/en/content/cms/consultations/sap/sap.aspx

Deal[4]. The proposals on changes to the requirements for works to existing buildings have important links to the Green Deal (see Chapter 5.9).

14. Consultees are asked to reply to this consultation using the response form at **Annex B** (available electronically at www.wales.gov.uk/buildingregulations / www.cymru.gov.uk/rheoliadauadeiladu. which contains questions on this document and also on the RIA and draft guidance (Approved Documents).

[4] http://www.decc.gov.uk/en/content/cms/consultations/green_deal/green_deal.aspx

Chapter 2

Context

15. Under the Climate Change Act 2008, the UK has committed to legally binding greenhouse gas emissions reduction targets of at least 34% by 2020 and at least 80% by 2050 (relative to 1990 levels), with legally binding five-year carbon budgets governing the trajectory to the 2050 target.

16. The Welsh Government Climate Change Strategy for Wales sets a target of a 3% year on year reduction of greenhouse gas emissions in areas it controls. The supporting Delivery Plan for Emission Reduction sets out the policies and programmes that will help meet the 3% target. The Plan sets out the actions being taken in Wales and highlights key UK and EU policies and wider contributions. The transfer of Building Regulations to Wales presents a further tool with which the Welsh Government can influence reduction of emissions in the built environment both in terms of new buildings and the existing stock.

17. Around 45% (27% from homes and 18% from non domestic) of UK carbon dioxide emissions come from buildings, principally space heating and cooling, water heating, lighting and other fixed systems[5] – energy uses which are covered by the Building Regulations. Energy used by industrial processes and plug-in appliances (computers, white goods, televisions, etc.) is not covered by the Regulations except in so much as it impacts on the energy performance of the building. Construction is a key element of the Welsh economy providing jobs, investment and wider benefits. The Welsh Government is providing a range of businesses support, development activities and actions. These will help to develop skill, supply chains and bring technological innovation to market through, for example the Low Carbon Research Institute connecting academia with industry. The Construction Sector Panel, private industry experts advising Welsh Ministers, is currently identifying blockages and advising upon policy changes to improve the regulatory and legislative background which will reflect the interests of businesses in the Sector.

18. The proposals for new housing are set against what remains a difficult economic climate. In introducing changes we are mindful of the need to not only provide certainty for business planning but also to manage transition. In addition policies and processes other than Building Regulations have a major influence on development activity, the key of which is the planning regime and related polices. The introduction sets out intentions for a wider review of the system and Chapter 3 proposes specific changes in relation to the sustainable building policy.

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[5] Meeting the energy challenge: A White Paper on energy – May 2007 http://www.decc.gov.uk/en/content/cms/legislation/white_papers/white_paper_07/white_paper_07.aspx. See also the Carbon Plan at http://www.decc.gov.uk/en/content/cms/tackling/carbon_plan/carbon_plan.aspx.

19. It is proposed to delay introduction of the Regulations for new housing. Traditionally a 6 month period is provided from publication to implementation. It is proposed to extend this to 12 months for new housing. The proposed delay is a direct response to the problems of the housing market. Publishing revised standards early provides both clarity and time for both manufacturers and developers to prepare. The proposals for new non domestic buildings and existing buildings are less significant.

20. The references to 2013 in this consultation are to the proposed publication date of revised Approved Documents. The individual implementation timetable is set out under 2.5

2.1 New buildings

21. Chapter 3 sets out the Welsh Government's intentions for achieving zero carbon; that we expect all new homes and non domestic buildings in Wales to be built to zero carbon (and nearly zero energy) standards by 2020. Options for changes to the Regulations to be published in 2013 represent a significant step towards that objective and in the case of new housing represent in our view what a zero carbon home can reasonably be expected to achieve on site. Ahead of 2020 we will therefore look at other mechanisms for compensating for the residual emissions required to be reduced to deliver zero carbon.

22. Chapter 7 discusses some of the issues for future consideration which whilst not directly related to the 2013 changes are informing thinking on those changes.

2.2 Compliance and performance – new homes

23. In England, recent research on achieving 2016 emissions targets for zero carbon homes [6,7] has proposed that action is needed by industry and Government to investigate and tackle the risk of a discrepancy between the energy performance of new homes as calculated at the design stage and their as-built performance.

24. There are also concerns, often anecdotal, about the poor level of compliance with Part L of the Building Regulations (whether wilful or due to lack of awareness or technical factors in the construction process). This is a different issue to that of discrepancy between calculated design and as-built performance, but the two are linked, and action to address one may help deal with the other.

25. These issues are equally relevant to Wales. It is our intention to work with the UK Government and other administrations, industry, building control bodies and others to improve our understanding of the issues and to develop practical proposals to address non compliance. Chapter 5 describes the results of surveys and discussions undertaken as part of our review and includes proposals for early action. In addition to the proposed action to improve compliance set out below, we have committed to improving the knowledgebase of actual technical performance through post completion monitoring. This will assist in moving towards 'as built' rather than 'as designed' standards, the recommendation of the UK Zero Carbon Hub.

[6] http://www.zerocarbonhub.org/resourcefiles/CC_TG_Report_Feb_2011.pdf.
[7] Zero Carbon Hub Carbon compliance for tomorrow's new homes: A review of the modelling tool and assumptions. – Topic 4: Closing the Gap Between Designed and Built Performance http://www.zerocarbonhub.org/resourcefiles/TOPIC4_PINK_5August.pdf

2.3 Existing buildings

26. Previous Building Regulation amendments have strengthened energy efficiency standards where work is undertaken to existing properties. Current analysis indicates some potential to further raise performance standards for extensions and domestic replacement windows and potential improvements in controlled services like non domestic lighting.

27. The Building Regulations already place a requirement for additional – consequential – energy efficiency improvements on extensions and the initial provision or increased capacity of fixed building services in buildings over 1000m^2. This consultation looks at options for extending these requirements where notifiable building work is already planned and Green Deal finance is available as a way to help the building owner to meet the requirements.

28. The Green Deal is the UK Government's policy designed to significantly reduce emissions from existing buildings through promoting an increase in retrofit activity. The Green Deal will create a new financing mechanism to enable private firms to offer domestic and non domestic consumers energy efficiency improvements to their buildings at no upfront cost, and to recoup payments through a charge in instalments on the energy bill. DECC consulted on the introduction of the Green Deal and new Energy Company Obligation between November 2011 and January 2012. The framework for the Green Deal is due to be in place in October 2012. The Welsh Government, from climate change, fuel affordability and economic activity perspectives, wishes to ensure Wales takes the opportunities presented by the Green Deal.

2.4 Development of these proposals

29. In developing these proposals the Welsh Government is grateful for the input and support from industry and other stakeholders. Through the activities of the Wales Low/Zero Carbon Hub and Constructing Excellence Wales, the stakeholder events programmes in North and South Wales have provided opportunities for us to test thinking and analysis, in addition to the advice provided by the Building Regulations Advisory Committee for Wales (BRACW) in its meetings between January and May 2012. BRACW membership is shown at **Annex A.**

30. Representation at the stakeholder events included, among others, house builders, social landlords and non domestic developers, architects, engineers, the products/services industry, non-governmental organisations and the Wales Low/Zero Carbon Hub. We are extremely grateful for the views and feedback received.

2.5 Timetable for introduction of the changes

31. The proposed timetable for the introduction of changes is set out below.

July 2012	Consultation commences (12 weeks)
November 2012	Regulations to implement the EU recast of the Energy Performance in Buildings Directive
December 2013	Regulations to implement changes to Part L and Publication of Approved Documents
June 2014	New build non domestic standards and performance standards for works to existing buildings come into force (subject to transitional arrangements)
January 2015	New build standards for dwellings come into force (subject to transitional arrangements)

Chapter 3

Main proposals – new buildings

3.1 New homes

32. New homes are already required to deliver beyond Part L 2010 standards. Our national planning for sustainable building policy expects all new homes seeking planning permission to achieve an overall minimum Code for Sustainable Homes (CSH) level 3 with higher levels for both energy efficiency and CO_2 emissions (expressed through a minimum number of energy/CO2 'credits'). Over the build mix it is estimated that this results in an 8% improvement of CO_2 emissions on Part L 2010.

33. The potential change in the standards for new homes has been considered in the context of a future move to zero carbon standards, as an intermediate step it would need to be meaningful, drive innovation and aid learning. For example we do not want to set standards which rely on a particular technology that then effectively becomes redundant going forward.

34. In addition, we have considered the approach to target setting. As targets become more stringent, we wish to ensure that the challenge is reasonably equitable across dwelling types. Furthermore, we have looked to simplify the target setting approach for building industry to implement.

35. In developing these proposals, we have relied heavily on the input and views of the stakeholder engagement events held throughout Wales and the Building Regulations Advisory Committee for Wales' detailed comments. These proposals are complemented by our proposed changes to national planning policy for Wales, (see Chapter 4).

3.1.1 Setting the 2015 targets

36. The Welsh Government has already stated its preference for a 40% reduction in carbon dioxide emissions compared to Part L 2010 (equivalent of a 55% reduction compared to Part L 2006).

37. In addition, we provide an alternative option of a 25% reduction in carbon dioxide emissions compared to Part L 2010 (equivalent of a 44% reduction compared to Part L 2006). This is broadly equivalent to achieving the carbon target for Code Level 4 (credit ref - ENE1).

38. The intention, set out in chapter 7, is that by setting a 40% reduction now (the preferred option), no further reduction in carbon emissions would be required on-site to meet a zero carbon policy. In contrast, a 25% reduction is seen as an intermediate step. Whilst the capital costs are less for the 25% reduction option, the RIA suggests that it is overall more expensive to the economy as a whole and a less cost-effective means of reducing carbon

emissions. Furthermore, there is a significant risk that technology solutions to achieve a 25% reduction (e.g. the use of more efficient services) would not be the preferred choice when subsequently achieving a 40% reduction – hence steering developers and the supply chain in the wrong direction.

39. We provide a comparison of the costs of these two options. However, first we describe the change in the carbon target setting methodology.

3.1.2 The carbon target setting methodology

40. The current target setting methodology for new dwellings involves comparing the carbon emissions for the actual building with carbon emissions for a notional building of the same size and shape as the actual building but built to a historic (2002) set of elemental standards with a fixed percentage improvement in carbon emissions.

41. There are two key issues with this approach:

    a. The fixed percentage improvement in carbon emissions imposes disproportionate costs on certain building types due to their relative ease in meeting the carbon target. Previously it has not been necessary to differentiate domestic standards because the fabric/services performance target has been set at a level which has been achievable by all building types. As standards are raised, there is a benefit to recognising the differing abilities of building types to cut energy demand and carbon emissions – for example, apartments and mid-terrace houses have the natural advantage of lower external floor/wall/roof area per dwelling (and thus lower heat loss) than semi-detached and detached houses and this makes it harder for apartments and mid-terraced houses to reduce carbon emissions through simply increasing the thermal performance of the fabric.

    It is assumed that this differentiation will become even more important as regulations requiring greater carbon reduction lead to the use of renewable technologies because the cost-effectiveness of using renewable energy technologies in different building types varies considerably: for example the roof space available for photovoltaic panels is proportionately higher per dwelling in a detached house than in a tall thin apartment block.

    b. This approach simply provides the designer with a target emission rate (TER) to achieve. Whilst this approach provides the designer substantial flexibility within the constraints of backstop fabric and services performance values, it does not provide the designer with any indication of what the compliant solution could be. Feedback throughout the stakeholder engagement was that the target setting methodology should both be simpler and based on an elemental set of fabric and services specifications that would either provide a compliant solution or a starting point for iteration to a design optimum.

42. To address the first issue, we propose an aggregated approach to carbon target setting. The carbon reduction differs by dwelling type based on the ease that it can abate carbon. The carbon reductions across the different dwellings types are determined such that in aggregate they should achieve the 25% or 40% improvement. This requires a prediction of the mix of dwelling types to be built in the future(e.g. detached houses, apartments).

43. Furthermore, to simplify the approach for the designer, we propose that the carbon target for each dwelling is based on a common recipe of elemental specifications for fabric, services and an amount of photovoltaic (PV) panels to be installed on the roof. The recipe is consistent in fabric and services for the two target options proposed, varying only in the energy output defined as kilowatt peak (kWp) of photovoltaic panels to be installed on the roof. Details of the recipes' specifications are given in the Proposed Changes to the Technical Guidance documents – both in Approved Document L1A and, in more detail, in the National Calculation Methodology.

44. In order to achieve the proposed carbon targets, the recipes include an amount of PV. PV was included as a proxy for Low and Zero Carbon technologies (LZCs) and it is suitable in a wide variety of dwelling types, so that the recipe would represent a practical and technically achievable solution in many cases. Developers do not need to build to the recipe specifications; they retain the choice of developing their own design solution to deliver the same or better carbon performance. This means that they are also not required to include an amount of PV if they can achieve the required carbon performance in an alternative way.

45. There are two key advantages of the recipe approach.

    a) The recipe is itself a compliant solution. It is a set of elemental specifications that if constructed to, will meet Part L. This should particularly aid the smaller developer. The developer is still permitted to deliver alternative building designs as long as they achieve the same, or better, carbon performance. In this case, the recipe provides an initial design to iterate an alternative compliant building specification from.

    b) Different dwelling types need to achieve a similar level of building performance – making the challenge more equitable across the different types.

46. The quantity of PV in the recipes is expressed as a percentage of the building foundation area. This percentage is the same for all dwelling types whatever their footprint. An advantage of taking this approach is that it is simple to understand and apply. Furthermore, it avoids problems with taller multi-storey buildings such as apartment blocks; if the amount of PV was related to the total floor area of the building it could result in impractical amounts of PV and limited technical options for meeting the carbon target. Foundation area rather than ground floor area is chosen to take account of dwellings with rooms over garages and communal space on the ground floor of apartments.

47. An alternative approach would be to align with that proposed for new non domestic buildings. In this case, the amount of PV is based on a proportion of the gross internal floor area, with a practical cap based on what can be reasonably installed on the roof of the building. This approach is designed such that the amount of PV is more closely correlated with the size and cost of the building. If this were applied to new dwellings, the amount of PV for two-storey dwellings would be similar in both approaches. However in this alternative approach, single storey dwellings (e.g. bungalows) would tend to require less PV and taller dwellings (townhouses and apartment buildings) would tend to require more PV. We seek views on the preferred approach of selecting the amount of PV in the recipes.

48. A further feature of the recipe approach is that the elemental specification is similar for all fuel types. This is to avoid homes off the gas grid (off-gas) being at a disadvantage, where if they use a more carbon intensive fuel (e.g. LPG or oil) the amount of PV, required to meet the

carbon reduction target, could be impractical to install.

49. As a result, the recipes for each fuel type include the same level of fabric and service efficiencies and the same amount of PV. The main difference is the required system efficiency for each fuel, which is appropriate for the heating system type. Hence the specification for dwellings constructed off-gas with oil or LPG would not be more demanding than dwellings heated with gas. For electrically heated homes, a heat pump with a specified coefficient of performance (COP) has been selected such that the CO_2 emissions would be similar to a gas boiler heated home. It is noted that this would tend to make it expensive to deliver compliant solutions with direct electric heating compared to other fuel types, due to the significantly poorer system efficiency of direct electric heating compared to a heat pump. One significant exception is that for dwellings heated with biofuels, no additional PV is needed to meet the carbon target as biofuels are considered to be a very low carbon fuel (in SAP 2012).

50. By adopting this approach to different fuel types, there is no need for a separate fuel factor. The fuel factor was introduced in 2006 to provide some relief for those who have to use more carbon intensive fuels than gas, either because gas is not available or is not preferred because of (for example) the potential risks of installing a safe gas supply in a high rise apartment block. In the proposed approach, the fuel factor is effectively integrated into the recipes for the different fuels. The recipes can be viewed as more equitable – the recipe for each fuel requiring a similar challenge in terms of building specifications and each requiring a similar level of energy efficiency. The recipe associated with each fuel type results in a different carbon target in SAP.

51. A recipe approach (with some differences) was introduced in 2010 for new non domestic buildings. The approach proposed here is very similar to that introduced in Scotland for dwellings in 2007.

52. The tables below show the approximate reductions in CO_2 emissions and increases in capital costs over and above current national planning policy standards for both options.

53. As can be seen from the first of these tables, the approach adopted of setting the same recipe for different building types and fuels, and thus a similarly challenging target for all new dwellings, results in a variable carbon saving from Part L 2010. The recipe has been selected such that across the predicted build mix, an overall reduction of 25% or 40% improvement is achieved. Further information on the build mix assumed in these calculations is provided in the consultation Impact Assessment.

Table 3.1: Target improvement for different dwelling and fuel types

Dwelling Type	Fuel Type	Target improvement	
		25% CO_2 Saving	**40% CO_2 Saving**
Detached House	Gas	27%	44%
End of Terrace House	Gas	23%	39%
Mid-Terrace House	Gas	22%	41%
4 storey apartment building[1]	Gas	11%	20%
End of Terrace House	Oil	8%	23%
End of Terrace House	LPG	15%	31%
End of Terrace House	ASHP[2] default / 2013 COP	52%	62%
4 storey apartment building[1]	Direct Elec / ASHP[2] 2013COP	44%	50%
Aggregate % reduction from 2010		**25%**	**40%**

[1] Average improvement for apartments in a four storey building

[2] Air Source Heat Pump

Table 3.2: Increases in capital costs

	Mid terrace house	End of terrace house	Detached House	4-storey apartment block	Average cost per dwelling
25% reduction	**£2,000**	**£3,000**	**£5,100**	**£1,800**	**£3,300**
40% reduction	**£2,800**	**£3,900**	**£6,600**	**£2,300**	**£4,200**

Question 1

Do you agree with the Government's preference for a CO_2 saving of 40% reduction in carbon dioxide emissions compared to Part L 2010?

Question 2

Do you agree with the proposal for an 'aggregate' approach to CO_2 target setting for new homes in 2015

Question 3

Do you agree with the proposal for a compliant option based on a consistent recipe of elemental specifications for fabric, services plus an additional CO_2 saving equivalent to an amount of

photovoltaic (PV)?

Question 4

The main difference between the recipes is the required system efficiency for each fuel, which is appropriate for the heating system type. By adopting this approach to different fuel types, there is no need for a separate fuel factor. Do you agree with the proposed approach?

Question 5

For the CO_2 savings proposed, are the recipe specifications a sensible way of achieving them?

Question 6

In approaching the selection of an amount of PV to be installed on dwellings do you prefer:

a. Fixed percentage of building foundation area, or

b. Proportion of gross internal floor area with a practical cap

3.1.3 Setting mandatory energy demand targets

54. As the carbon emissions target is ultimately performance-based, it allows flexibility in how it is achieved. However, we wish to ensure that it is achieved though efficient fabric performance. Reducing energy demand from our homes helps wider policy issues of security of energy supply and fuel poverty. Focusing efforts on the comparatively long-lived building fabric helps to 'future proof' the homes. Increased fabric energy efficiency means homes will be less likely to require difficult and expensive refurbishment upgrades at a later date.

55. Part L 2010 included limiting fabric parameters in guidance. The proposed changes to these as part of the 2013 Part L requirements are two-fold:

    a) to make the limiting fabric standards more stringent to accord with the more stretching carbon emissions targets, and

    b) to make the limiting fabric parameters mandatory as with more stretching fabric standards having them as guidance only may not achieve the aim of a "fabric-first" approach where the initial focus is on reducing heat losses through the building envelope.

56. An alternative approach considered was to implement the Fabric Energy Efficiency Standard (FEES) methodology proposed by the UK Zero Carbon Hub and introduced into the Code for Sustainable Homes (ENE 2 credit). However, it has not been included at this time as there was significant feedback from stakeholder engagement for a focus on an elemental approach to Part L target setting (within the context of a performance target) so that the targets would be easier for SMEs to both understand and comply with. Continuing to use limiting fabric parameters achieves this desire whereas FEES is a purely performance based approach.

Question 7

Do you agree that the limits on design flexibility 'backstop' values for fabric elements ~~and fixed~~

~~building services~~ in new homes should be changed from the current reasonable provision in the technical guidance to become mandatory?

Question 8

Do you agree with the changes to the ‘backstop’ values proposed?

Question 9

Do you have any other comments on the proposed changes to Approved Document L1A or the domestic National Calculation Methodology? Please make it clear which issue each comment relates to by identifying the relevant paragraph number.

Question 10

The Impact Assessment makes a number of assumptions on fabric/services/ renewables costs, new build rates, phase-in rates, learning rates, etc for new homes. Do you think these assumptions are fair and reasonable?

Question 11

Overall, do you think the impact assessment is a fair and reasonable assessment of the potential costs and benefits of the proposed options for new homes? Please justify your view and provide alternative evidence if necessary.

3.2 New non domestic buildings

57. As for new homes, a ~~2013~~ 2014 change for new non domestic buildings should be seen as one step on a trajectory towards zero carbon. However, since an overall target for zero carbon on-site standards has not yet been set, the emphasis has been on setting challenging on-site targets based on an assessment of what levels of improvement would be cost-effective to introduce from ~~2013~~ 2014. The potential for further steps for on-site standards will be considered as part of the next review planned for 2016.

58. New non domestic buildings are also expected to achieve a minimum carbon standard through the national planning for sustainable buildings policy. Such buildings are expected to achieve BREEAM 'Excellent' with higher level for the reduction of carbon emissions (expressed through a minimum number of energy credits). The effect is to deliver buildings with an EPC of 40.

59. Also as with new homes, the appropriateness of a Fabric Energy Efficiency Standard (FEES) has been evaluated for non domestic buildings in Wales reflecting a desire to see energy efficiency explicitly regulated separately from low carbon energy supply. It is considered however that an absolute energy efficiency target such as FEES is not workable for non domestic buildings due to the difficulty in making a small number of targets appropriate to the vast array of non domestic building types.

60. Instead, it is proposed to introduce a *relative* energy efficiency standard that only considers the efficiency of fabric and services, in addition to the target emission rate. The proposed metric for this new standard is primary energy and the main purpose of this primary energy standard is to encourage reductions in energy consumption prior to reductions in carbon emissions through the use of low carbon energy supply systems (the so called fabric first approach).

61. Primary energy is energy which has not undergone any conversion or transformation process. As an example, for grid electricity primary energy is the total amount of raw fuel used in its generation and therefore includes transformation losses. Primary energy factors account for the relative impact of different *delivered* energy consumption on resource consumption (mainly fossil fuels). Under the Recast of the Energy Performance of Buildings Directive (EPBD), member states are required to report on the energy performance of buildings in terms of primary energy.

62. The primary energy consumption target (TPEC) is introduced in addition to the target emissions rate (TER) and is, like the TER, a *relative* standard based on comparison with output from a concurrent notional building (the recipe). This approach is very similar to that adopted by the Republic of Ireland in 2008, however in order to minimise "greenwash" it is proposed that all electricity demand will be valued at the grid primary energy factor for the purposes of calculating the actual building's primary energy consumption, regardless of whether some or all of the delivered electricity is derived from renewable sources on site.

63. Importantly, it is proposed to retain the target emission rate (in kg.CO_2/m^2/year) as a means of allowing for the inclusion of sources of renewable energy.

64. The Welsh Government would welcome views on its target setting approach, in particular the

proposal to introduce a primary energy target.

Question 12

Do you agree with the proposal for ~~2013~~ 2014 for non-domestic buildings to explicitly regulate energy efficiency separately from low carbon technologies through the assessment of primary energy consumption (PEC)? Does PEC seem like a reasonable basis for standards setting?

3.2.1 Options

65. For new non domestic buildings it is proposed to retain the principle of differentiated standards, first introduced in 2010. We expect that this approach will continue to deliver cost savings compared with a requirement for all buildings to meet the same level of reduced energy consumption.

66. As stated above this means that standards will continue to be based on a recipe of elemental standards in the National Calculation Methodology which deliver a bespoke Target Emission Rate (and now also Target Primary Energy Consumption) when applied to the actual building (size, shape, use) under consideration. In 2010 there were two main recipes – one for top-lit buildings (principally warehouses) and one for side-lit (most other buildings).

67. To develop options for ~~2013~~ 2014 standards, the analysis has used the same principle but with greater differentiation between building types. As standards are pushed harder, there is a strong argument, for example, that fabric standards can be relaxed in buildings that are predominantly cooled. The recipes are explained in the proposed changes to the technical guidance: National Calculation Methodology.

68. Two overall packages of fabric and services recipes have been considered for analysis; a lower package and a higher package. The lower package delivers a 7% reduction in primary energy on buildings built to 2010 standards in aggregate across the build mix. This lower package would see air-tightness improved in predominately heated buildings (with the exception of warehouses). In predominantly cooled buildings lighting and terminal unit fan efficiency is improved.

69. The second, higher, package of recipes delivers a 10% reduction in primary energy on buildings built to 2010 standards. This sees further improvements to fabric in predominately heated buildings and a further improvement to terminal unit efficiency in predominantly cooled buildings.

70. The Welsh Government would welcome views on these lower and higher packages of fabric and services recipes as set out in the proposed changes to the National Calculation Methodology.

Question 13

Which package of fabric and services should be selected: 7% or 10%? Please give reasons for your choice

Question 14

Do you foresee any particular issues for certain categories of building to meet the TPEC or TER?

71. The analysis then assessed how renewable generation technologies could be incorporated into the notional buildings for the purpose of setting the target emission rate. As for homes, photovoltaic panels (as a percentage of floor area) were used as a ***proxy***. It is important, perhaps more so than for homes, to stress that this is a proxy and designers could choose different ways (further fabric and services improvements or renewables) to meet the standard.

72. Two possible ways of calculating the PV proxy were considered; either as a percentage of roof area or as a percentage of floor area (as it has been examined for homes). Floor area is preferred as a metric since the area of PV proposed is more proportionate to the cost and energy consumption of the building but with the caveat that the notional building PV area is capped at 50% of roof area.

73. An important principle behind the PV approach to target setting is that it continues the concept of the notional building as a recipe. A building designer could, in principle, match the U-values and building services efficiencies in the notional building and the area of PV and pass Criterion 1 (subject to demonstrating this through the NCM). However, the Welsh Government is sensitive to the possibility that this approach may give the (wrong) impression that PV is the Government's preferred renewable technology in building projects. For this reason the Welsh Government wishes to consult on whether the PV percentage should be expressed, in compliance software, in terms of a fixed carbon reduction (in kg.CO_2/m^2/year) calculated according to floor area but without any reference to PV.

Question 15

Which approach should be utilised to incorporate the contribution of low carbon technologies into the setting the Target Emission Rate (TER), for non domestic buildings:

- Fixed carbon reduction (in kg.CO_2/m^2/year)
- Percentage of roof area of PV
- Percentage of floor area of PV
- Other

Please give reasons for your choice

74. Four possible PV areas have been considered, 0%, 1%, 5% and 6% of floor area[8].

75. The notional buildings packages (lower and higher) can then be combined with these areas of PV to give 8 overall possible targets for Criterion 1. The costs and benefits of four of these targets are reviewed in the impact assessment accompanying this consultation and three are subsequently presented for consultation as follows:

Table 3.3: Options considered for consultation

Consultation Target	A	B	C

[8] Assumed to be monocrystalline PV with an area of 7m2 per kWp and an output of 850 kWh/kWp

Fabric and Services Recipe	Lower	Higher	Higher
Aggregated Primary Energy Reduction	7%	10%	10%
Aggregated CO_2 Reduction without renewables	8%	11%	11%
Proposed PV added to notional building as proxy for renewables	1% PV	No PV	5% PV
Aggregated CO_2 Reduction with PV percentage added	10%	11%	20%

76. **Consultation targets A and B achieve 10% and 11% emission reductions respectively on 2010**. Hence, the overall reductions are similar for both options. However, target B achieves the reduction without the need for any PV proxy amount of renewable energy since it makes use of the higher energy efficiency recipe. Target A requires 1% PV area in combination with the lower energy efficiency recipe.

77. **One consultation target, target C, is offered achieving a 20% aggregate improvement on Part L 2010**. Target C combines the higher fabric and services package with 5% PV. This is the Welsh Government's preferred option for consultation.

Question 16

The proposals explain the Government's preference for a 20% aggregate improvement in CO_2 performance standards for new non-domestic buildings from ~~October 2013~~ June 2014. Which option do you prefer and why.

- No change
- Target A: 10% aggregate improvement (1% PV)
- Target B: 11% aggregate improvement (No PV)
- Target C: 20% aggregate improvement (5% PV)

78. As explained above, the incorporation of PV in the notional building does not oblige designers to use photovoltaic panels, or to use renewable energy technologies. However, the more detailed cost curves (see Appendix 1 of the RIA) demonstrate that in all of these examples, renewable energy technologies are among the cost-effective ways to meet the target for a 20% aggregate improvement.

79. The 20% uplift, which is the Welsh Government's preferred option, gives the highest long-term benefits to business through significant energy savings for building occupants, and results in over twice the carbon savings of the 11% option. The full analysis on these costs and benefits is set out in the Regulatory Impact Assessment – see in particular the main costs and benefits summarised in tables 2.14 and 2.15.

80. This will provide a significant learning step for non domestic buildings in the trajectory towards zero carbon, since as well as taking fabric and services standards close to the limits of likely 'zero carbon' levels, renewables will also start to be used in most instances. Given the preference for a standard for new homes based on fabric and services efficiencies, this

would also provide incentives for innovation in the renewable energy technology market, helping to reduce longer term costs for both the domestic and non domestic sectors.

81. That said, the modelling has to date focused on seven main building types[9] which dominate the new build mix, and has looked only at standard examples of these types. Before a decision is taken on the final ~~2013~~ 2014 targets, more work is needed to examine the effects of both the uplifts in a wider range of circumstances. We would be particularly keen to gather information from consultees on the following issues:

    a. Size of building, for example to test the theory that energy performance improvements are more challenging in smaller buildings due to a proportionately higher heat loss through construction joints.

    b. Differences between sectors, to understand whether some sectors are likely to be more sensitive to increases in new build costs at the time when the 2013 changes will take effect.

    c. Renewables potential in different buildings, to understand how the introduction of building-integrated renewables could / should be managed, and what barriers and opportunities are involved in the use of building-integrated renewable energy technologies.

Question 17

Do the proposed ~~2013~~ 2014 notional buildings as set out in the changes to the National Calculation Methodology seem like a reasonable basis for standards setting? Please provide comments on the method used to develop the notional buildings and particular elements of one or more of the notional buildings, if relevant.

82. A number of attendees at stakeholder events expressed the view that small buildings of a domestic nature (that are often built by SMEs) should be treated as domestic buildings in order to improve the understanding of and compliance with regulatory requirements and to reduce administrative burden on this sector. Since the activities that take place in these buildings are not suitable for assessment under SAP and because they will have to produce on-construction EPCs (as non domestic buildings) using SBEM or equivalent, Welsh Government is of the view that small buildings should remain under the auspices of Part L2A. However, there is a strong argument that these buildings should be built to similar fabric and services standards to domestic buildings since the construction techniques employed to build them are essentially domestic in nature. The Welsh Government would therefore like to consult on whether a further recipe should be created for buildings under 250m^2 which is aligned with the proposed domestic recipe.

83. These small buildings of a domestic nature are “domestic” due to their size – community centre or GP surgery, or elderly persons’ home – and the construction methods applied, but not by default because they are “places where people live”. For example, student accommodation may be in a large multi-storey, building and more aligned to a multi-store office block in construction than a house, and therefore <u>not</u> domestic in nature.

[9] These are: Primary School, Office, Hotel, Warehouse, Community Hospital, Multi-Residential (care home), Retail

Question 18

Do you think that a further recipe should be created for buildings under 250m^2 and aligned with the proposed domestic recipe? Are there particular reasons why smaller buildings find compliance with the non-domestic recipes difficult? Please justify your views.

84. The supporting document on proposed technical changes explains these options and the target setting process in more detail, in relation to the NCM and notional buildings for ~~2013~~ 2014, and outlines proposed changes to the Approved Documents. SBEM will continue to be managed by the Department for Communities and Local Government. Their recent consultation on Part L 2013 in England (http://www.communities.gov.uk/publications/planningandbuilding/brconsultationsection2) includes proposals on changes related to SBEM, including:

    a. A new process to allow innovative and low carbon technologies to be considered for incorporation into SBEM. A similar process already exists in SAP in 'Appendix Q'

    b. Proposals on setting up an impartial and expert sounding board for the development of the software (an 'Integrity Group') to support future developments of SBEM. It is anticipated that this group might comprise of experts in energy modelling and the application of SBEM, on the assumption that group members would be willing to declare commercial interests and act impartially.

85. The Welsh Government would also like to consult on a further change to the target setting approach. A report by the Carbon Trust[10] which examines how the UK can get to the 80% target cut in carbon emissions by 2050 emphasises the importance of absolute demand reductions in new buildings through such measures as lower carbon servicing strategies. The UK renewables resource is finite and hence would not be able to meet ever increasing building energy demands. The Carbon Trust report recommends that two thirds of buildings built between now and 2020 need to be narrow plan and naturally ventilated in order to meet national carbon targets. However, at present the Part L methodology does not incentivise natural ventilation or mixed-mode servicing since the notional building has the same servicing strategy as the actual building.

86. The Energy Performance Certificate (EPC) methodology already incentivises a lower carbon servicing strategy in that the reference building (the EPC equivalent of the notional building) is mixed-mode regardless of whether the actual building is naturally ventilated or air-conditioned. The advantage of such an approach is that buildings with inherently lower carbon servicing strategies are credited with the carbon saving. Such an approach could be introduced into the National Calculation Methodology for Part L however it is acknowledged that some buildings may need to be serviced in a particular way for legitimate functional or environmental reasons (e.g. for clinical purposes in healthcare buildings) and many city centre buildings have noise and air-quality constraints, but are close to a transport hub reducing car use).

87. We would welcome views on these proposals.

[10] Building the Future Today, Carbon Trust 2009

Question 19

Although we recognise that some buildings may need to be serviced in a particular way for legitimate functional or environmental reasons, should Part L incentivises a lower carbon servicing strategy (as with the current Energy Performance Certificate methodology), by basing the notional building on mixed-mode ventilation?

Question 20

Do you have any other comments on the proposed changes to Approved Document ~~L1B~~ L2A or the non-domestic National Calculation Methodology? Please make it clear which issue each comment relates to by identifying the relevant paragraph number.

Question 21

The Impact Assessment makes a number of assumptions on the costs of fabric/services/ renewables, new build rates, etc for new non-domestic buildings. Do you think these assumptions are fair and reasonable? Please justify your views.

Question 22

Overall, do you think the impact assessment is a fair and reasonable assessment of the potential costs and benefits of the proposed options for new non-domestic buildings? Please justify your view and provide alternative evidence if necessary.

3.3 Cumulative impact of policies

88. In March 2011 a joint industry/Welsh Government report, presented to the Council for Economic Renewal, made the following recommendation: *that the Assembly Government uses the worked examples on land values as a case study for its project to examine the cumulative impact of regulation generally and specifically in relation to the work underway aimed at developing changes to devolved Building Regulations. Other relevant work will include the outcomes of the Registered Social Landlords (RSL) pilot programme aimed at achieving code levels 4 and 5 of the Sustainable Homes.*

89. In relation to Building Regulations the key considerations were the proposed revisions to Part L (fuel and power) and the related issue of domestic fire suppression systems (sprinklers). In May 2012 the Welsh Government published a statement on its intentions for domestic sprinklers together with a cost benefit analysis undertaken by the Building Research Establishment (http://wales.gov.uk/newsroom/planning/2012/120530lifesavingsprinklers/?lang=en).

3.3.1 Viability modelling

90. As part of the development of these consultation proposals for Part L we have considered the impact on the viability of housing development of the options proposed together with costs of installing domestic sprinklers against a background of current policy requirements.

91. Analysis of typical development costs and the impact of the proposed increase in standards was undertaken to assess the impact of higher costs on existing developer planning

contributions. The mix of financial contribution and affordable housing provision will be influenced by the characteristics of individual developments including density and site conditions and the economic micro-climate. Assessments were therefore made of planning contributions based on local plan and supplementary planning guidance taking account of actual development data obtained from house builders and planning authorities. The Three Dragons toolkit was used to assess the impact on Affordable Housing contributions and land values. Costs were assessed against a baseline of current sustainable buildings planning policy as set out in Technical Advice Note 22 with/without domestic sprinklers (as a proposed new Welsh ~~g~~Government requirement).

92. Three local authority areas were considered, Cardiff, Conwy and Rhondda Cynon Taf and the impact assessed for 5, 25, 50 and 100 dwelling developments.

93. Analysis was based on historic information from the National House Building Council (NHBC) percentile values for the year 2010:

- Detached: 30%
- End Terrace: 38.5%
- Mid Terrace: 10.5%
- Apartments: 21%

94. The build mix for the viability testing matches that used in the Carbon Targets. Whilst individual site mixes will vary the mix above is generally considered representative.

95. The conclusions were:

- Sprinklers are responsible for 3-4% of reduction in land value
- The difference in impact between 25% and 40% improvement on Planning Policy Wales is 3-4%, the biggest impact occurs with the change to 25% improvement.
- In many situations, based on viability considerations, developers have already negotiated lower levels of affordable housing than required by the local plan or supplementary planning guidance.
- The greatest impact of higher construction costs will be felt in medium size (25 and 50 unit) developments as an affordable housing contribution is often not expected on smaller sites (<10) and planning contributions as a proportion of total costs are less on the largest sites.
- Higher construction costs are likely to be accommodated in higher land value areas (Cardiff, Newport, Swansea) for both the 25% and 40% improvement through realistic reductions in planning contributions, developers profit and/or the land value paid to the land owner.
- Data indicated viability issues already exist in the lowest value areas. Where currently viable any additional cost is likely to significantly reduce an already low affordable housing contribution. In some cases, for both the 25% and 40% options, in addition to no contribution to affordable housing a reduction in developers profit or land value would be required if the development was to be considered viable

96. The impact on capital costs is given in the table below.

Table 3.4: Representative incremental costs for a private sector semi-detached dwelling

	25%	**25% with sprinklers**	**40%**	**40% with sprinklers**

Increased costs	£3038	£6113	£3854	6929
Increase in total development costs	9%	18%	11%	21%
% of selling price*	1.64 – 2.16%	3.30 – 4.35%	2.08 – 2.74%	3.74 – 4.93%

*Prices based on currently available developments with an allowance for price discounting

97. The tables below show the estimated reduction in land value for the 5, 25 and 50 options based on the assumed development mix and achieving a viable scheme. The approach taken has been to vary the affordable housing level to produce the minimum decrease in land value. Actual affordable housing contributions are shown in brackets. In practice a lower developer return combined with a reduction in land value may be required to provide a level of affordable housing and secure a viable scheme. Changes have been rounded to the nearest whole percentage point.

Table 3.5: A 5 dwelling development

	% land value reduction against current policy		
	Rhondda Cynon Taf	**Conwy**	**Cardiff**
25%	7% (0%)	5% (30%)	4% (0%)
40%	9% (0%)	9% (28%)	5% (0%)
Sprinklers	3% (0%)	9% (30%)	2% (0%)
25%+sprinklers	10% (0%)	9% (16%)	6% (0%)
40%+sprinklers	12% (0%)	9% (13%)	6% (0%)

Table 3.6: A 25 dwelling development

	% land value reduction against current policy		
	Rhondda Cynon Taf	**Conwy**	**Cardiff**
25%	13% (0%)	10% (0%)	7% (0%)
40%	15% (0%)	12% (0%)	8% (0%)
sprinklers	10% (0%)	4% (30%)	2% (0%)
25%+sprinklers	22% (0%)	14% (0%)	8% (0%)
40%+sprinklers	25% (0%)	17% (0%)	10% (0%)

Table 3.7: A 50 dwelling development

	% land value reduction against current policy		
	Rhondda Cynon Taf	**Conwy***	**Cardiff**
25%	12% (0%)	2% (0%)	7% (0%)
40%	15% (0%)	5% (0%)	8% (0%)
sprinklers	4% (0%)	0% (3%)	2% (0%)
25%+sprinklers	16% (0%)	7% (0%)	9% (0%)
40%+sprinklers	18% (0%)	10% (0%)	10% (0%)

Question 23

Overall, do you think the assessment of the impact on development is broadly fair and reasonable? Please justify your view and provide alternative evidence if necessary.

Chapter 4

National Planning Policy Review

4.1 Improving and streamlining the planning system

98. The planning system must become more efficient and effective, with timely and consistent decision making. Over recent years we have seen a trend for the planning system to become burdened by the delivery of other policy agendas, including European legislation. This has increased complexity, lengthened the planning process and increased costs. We want to develop the most efficient planning decision process as possible to support sustainable economic recovery. Work continues to improve the planning application process and later this year we will refresh national planning policy on economic development and consult on a new technical advice note, recognising that greater consideration should be given to the impact of regulation and policy on the financial viability of development. We will only provide the jobs and housing if development is financially viable.

99. The Legislative Statement 2011-16 includes a commitment to introduce a Planning Bill to make the planning system more transparent and accessible. We will be publishing a White Paper in 2013 to set out our proposals. Over the past year we have been preparing the evidence base for the White Paper. This has included the establishment of an independent review to consider options on how to deliver the planning system in the future. We set up an Independent Advisory Group to submit recommendations for the future delivery of the planning system. The group has now reported to the Welsh Government and the report will be published in the autumn, together with other key evidence which will inform the Planning White Paper and subsequent Bill.

4.2 Future of the Planning for Sustainable Buildings Policy

100. There are actions that we can take to improve the planning process in the short term, particularly where there are more effective instruments such as Building Regulations to deliver on our low carbon building agenda. The transfer of Building Regulations to Wales therefore provides a timely opportunity to review our Planning for Sustainable Buildings (PfSB) national planning policy contained in Planning Policy Wales and to consider in the first instance whether there is still the need for a national planning policy on sustainable building.

4.2.1 Background

101. In May 2009 the Welsh Government published the PfSB national planning policy, separate guidance was published in Technical Advice Note 22 Planning for Sustainable Buildings (2010). The policy may be material to decisions on individual planning applications

determined by the 25 Local Planning Authorities (LPAs) across Wales. The policy is made up of three parts, as follows:

> **Part A** - *Designing for climate change*. Policy to reinforce the need to give further emphasis on the design of new developments to tackle the causes of climate change and adapt to the current and future effects of climate change.
>
> **Part B** - *National Development Control Policy*. Policy which expects new homes and major new non-residential developments to achieve a minimum sustainable building standard under the Code for Sustainable Homes and BREEAM[11].
>
> **Part C** - *Strategic Sites*. Policy that expects LPAs to identify opportunities for higher sustainable buildings standards for strategic sites and include relevant policies in their Local Development Plan (LDP).

102. Part B came into effect on 1 September 2009. It expects new homes seeking planning permission to achieve Level 3 under the Code for Sustainable Homes[12] (plus 6 credits in 'Energy/CO2' for schemes registered under Version 2[13], and 1 credit in 'Energy/CO2' for schemes registered under Version 3[14]) and for new major non-residential developments seeking planning permission to achieve 'Very Good' under BREEAM ('Excellent' under 'Energy/CO2'[15]). For further information on the PfSB policy and TAN22 please see our website[16].

103. The Code and BREEAM schemes were utilised in national planning policy as they rewarded buildings for incorporating a range of key sustainability features within the design of new buildings above that of the regulatory minimum (and in areas not covered by regulation). This includes reducing energy consumption, minimising and recycling waste, reducing potable water demand, reducing the impact of flooding, as well as reducing carbon intensive travel by providing cycle storage. Many of the features complement existing national planning policies on facilitating sustainable development.

104. The policy was introduced as part of the Government's approach to tackling climate change through the planning system and to help facilitate our zero carbon aspiration. At the time no decision had been reached over the transfer of Building Regulations functions to Welsh Ministers. The PfSB policy introduced a higher carbon and sustainability standard for new buildings against a regulatory minimum that at the time the Welsh Government had no control over, using a national standard for homes (the Code) and BREEAM, both of which are not owned by the Welsh Government.

4.2.2 Way Forward

105. We now have a more effective instrument through Building Regulations at our disposal toset a minimum building standard in relation to energy and carbon emissions. It is right that we

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[11] BREEAM is the Building Research Establishment Environmental Assessment Method, which is used to assess the environmental performance of new buildings. See www.breeam.org

[12] The Code for Sustainable Homes is a national sustainability standard for the design and construction of new homes in England, Wales and Northern Ireland and is administered by the Department for Communities and Local Government (CLG). See www.communities.gov.uk

[13] Under Version 2 this requires a 31% improvement in carbon emissions over Part L 2006.

[14] Under Version 3 this required an 8% improvement in carbon emissions over Part L 2010.

[15] Under BREEAM 2008 this requires an EPC rating of 40.

[16] See www.wales.gov.uk

consider the role of the PfSB policy in view of these new powers. We are keen to ensure that the planning and building control systems complement each other and deliver on our low carbon ambitions without unnecessary duplication and burden on all parties involved in the delivery of new homes and buildings in Wales. We are therefore interested in the views of all stakeholders on the future of the PfSB national planning policy.

106. If we continue with our PfSB policy as it currently stands then there is a danger that this duplication may add additional burdens to the delivery of low carbon buildings across Wales. We are acutely aware that there are many issues that need to be considered in how we take forward the policy, some of these are presented below in order assist discussion on a way forward.

4.3 Main Proposal

107. Our proposed changes to Part L will deliver a minimum carbon standard for all new buildings across Wales at a consistent level. We do not see the benefit in a separate process, through planning, which will duplicate the calculation and assessments (and additional costs) of the carbon performance of a new buildings, which may in some instances go beyond the regulatory minimum.

108. We therefore propose to **remove** the national development management policy expecting a minimum Code/BREEAM standard (Part B), but **retain** the expectation for LPAs to assess strategic sites for opportunities to meet higher standards (Part C). This approach presents a fair balance between securing low carbon buildings through a more effective mechanism - Building Regulations, whilst refocusing attention on maximising the opportunities for higher standards on strategic sites , tested through the Local Development Plan process. We are currently minded to introduce these changes at the earliest opportunity, but would welcome views on whether these changes should be introduced in 2013 or phased alongside the commencement of Building Regulations (See Chapter 2).

109. While our focus has been on delivering low carbon building we recognise that there are other sustainability benefits that these standards bring in areas such as water efficiency, materials and health and wellbeing. We do not want to lose these positive features that make up a sustainable building and so we will also look to opportunities to secure some of the key features within future Building Regulations to reward buildings that go beyond the regulatory minimum, rather than relying on a separate assessment process such as the Code for Sustainable Homes and BREEAM. We would welcome comments on what elements of these schemes could be retained without unnecessary cost or duplication.

Question 24

What role should planning play in facilitating higher carbon standards? Should it focus on facilitating site wide energy opportunities that will be needed as we move towards zero or near zero carbon buildings;

Question 25

What are the implications from future (and regular) changes to the Code for Sustainable Homes and BREEAM on the implementation of the policy?;

Question 26

Are the costs of assessment and certification now disproportionate to the costs and benefits of achieving a minimum sustainable buildings standard level?;

Question 27

What should be the role of local planning authorities in setting local standards above and beyond Building Regulations? How can we ensure there is a level playing field of standards across Wales?;

Question 28

What do you see as the positive/negative impacts of removing Part B of the policy expecting buildings to ~~the~~ be certified against the Code/BREEAM?;

Question 29

Is there a better, alternative way to reward and secure sustainable buildings (above the regulatory minimum) other than using national planning policy? What opportunities are there for future changes to Building Regulations?;

Question 30

To what extent are duplication of standards and approval systems an issue? Would the removal of the PfSB policy assist in reducing duplication;

Question 31

What opportunities are there for higher standards to be delivered on strategic sites identified as part of the Local Development Plan?;

Chapter 5

Main proposals – existing buildings

110. This chapter looks at changes to the application of the Building Regulations to existing buildings in two areas. Firstly we have looked at the potential to raise the standards for controlled works in existing buildings, where this can be shown to be cost-effective.

111. Secondly, we are proposing to extend the requirements for ‘consequential improvements’. This is the term used to describe the use of the Building Regulations to trigger a requirement for extra energy efficiency works in a building where other controlled work is already taking place. The reason for proposing these changes now is to recognise the urgency of reducing emissions from the existing building stock, and, in a time of rising energy prices, to make homes and non domestic buildings easier and cheaper to heat.

5.1 Performance standards for works to existing buildings

112. In discussions with stakeholders, some scope for improvement to existing standards was identified. Further details of the proposed standards are set out in the proposed changes to Approved Documents L1B and L2B.

113. It was particularly noted that with the introduction of the elemental fabric specifications in the domestic new-build recipe, and the mandatory limiting fabric parameters, there would be a large discrepancy between the fabric standards for a new dwelling and those for domestic extensions. We propose to set the standards for domestic extensions to be the same as for the mandatory limiting fabric parameters, which represents a significant improvement. Consideration was given to the improvement of standards for extensions further, up to the elemental values in the new-build recipe, but we were conscious that the recipe is a performance based approach and the elemental fabric standards are flexible as long as the limiting fabric parameters are achieved or exceeded. Furthermore, there may be practical and cost issues in achieving the same fabric performance as the new-build recipe in space constrained extensions.

114. Approved Document L1B and L2B offer a number of alternative approaches to meet the Requirements when constructing an extension to give greater design flexibility. Whilst alternative approaches are included for some other building works, it is less comprehensive. We have looked, where possible, to extend the alternative approaches offered for extensions to most other situations that change the carbon footprint of a building; for example, loft and garage conversions, renovations and material changes of use.

115. For extensions to non domestic buildings which are similar in nature to homes (e.g. care homes) we are proposing similar standards to those proposed for domestic extensions. For other non domestic extensions, standards would be raised to equal the fabric and services

specification in the relevant notional building corresponding to the 10% aggregate improvement.

116. Currently, when undertaking works to a building where there is a retained thermal element (e.g. which might be the case where converting a barn into a dwelling, or a warehouse into apartments), only if the thermal performance of the element is poorer than a threshold value is it recommended that the thermal performance is upgraded to at least a minimum standard defined in the Approved Document (the minimum standard being significantly better than the threshold value). As a result, if the thermal performance of the element is better than the threshold value, it does not need to be upgraded to meet the minimum standard (if it does not already meet this standard). Typically, a new building(s) is being created in such building works, and it is reasonable to expect that the performance of such a new building(s) should tend towards the standards required for other new dwellings. In this context, we propose that the threshold value should be dropped as a criterion for assessing the need for upgrade of the element. The thermal performance of any retained thermal element should simply be brought at least up to the minimum standard. The normal technical, functional and economic feasibility criteria will still apply to such works, but with the burden of proof on the developer to show why the minimum standards are too demanding in the particular case.

117. Currently a conservatory is exempt from the energy efficiency requirements where the heating system of the dwelling is not extended into the conservatory or porch. This allows a conservatory to be exempt but heated by an installed individual room heater or cooled by an individual room air conditioning unit. This seems unreasonable, as, if a conservatory is designed to be heated or cooled, it should not be exempt from the energy efficiency requirements. As a result, we propose to change the exemption such that it only applies where the conservatory is not to be heated or cooled. We are aware, in practice, that this would not stop occupants installing portables heaters or air conditioning units.

118. The proposal would be to introduce these changes in Approved Documents L1B and L2B alongside the other technical changes to the Regulations. We would be particularly interested to hear from smaller manufacturers and builders or their representatives on whether meeting these standards from 2013 onward would be technically and economically feasible.

~~**Question 32**~~

~~Do you agree with the proposal to raise performance standards for domestic replacement windows?~~

Question 33

Do you agree with the proposal to raise performance standards for domestic extensions?

Question 34

Do you agree with the proposal to raise performance standards for non-domestic extensions?

Question 35

Do you agree that the exemption for conservatories or porches should be removed where a individual room heater or air conditioning unit is installed. How effective would this change be in limiting energy use/emissions, are there other ways by which energy performance might be improved where conservatories or porches are installed?

5.2 Consequential improvements

119. This consultation is proposing options for extending and expanding the regulatory requirement[17] for consequential energy efficiency improvements in existing buildings.

120. The central proposal is that the Regulations would (for the triggers discussed below) only require consequential improvements which were technically, functionally and economically feasible[18].

121. In order to identify possible points at which requirements should be triggered, consideration has been limited to works which are already notifiable under the Building Regulations. This should ensure that only reasonably significant works are caught and minor property improvements (such as decorating or replacement of minor fixtures and fittings like a kitchen fan) are avoided.

122. The proposal is to require consequential improvements in the following scenarios.

123. **Extensions or increases in habitable space**. Consequential improvements are already required for buildings over 1000m^2 which have an extension added. However, this requirement excludes the vast majority of extensions and conversions carried out each year, most of which are in homes. We are therefore proposing to apply the requirements for consequential improvements to all existing buildings which undergo works to add an extension, and also apply them to increases in habitable space (i.e. loft and integral garage conversions).

124. **The initial provision of a fixed building service, or an increase to the installed capacity of a fixed building service only in buildings over 1000m^2.** These triggers are already in the Regulations. We do not propose to change these or extend these requirements to smaller buildings.

5.3 Consequential improvements for homes – domestic extensions

125. Around 10,000 domestic extensions, loft conversions and integral garage conversions are carried out per year in Wales[19]. These are works which generally result in increased energy use and carbon emissions from the home, and tend to be relatively high-value projects. The

[17] Regulation 28 already requires consequential improvements in certain circumstances in buildings over 1000m^2 (ie mostly large non domestic buildings).

[18] This is the approach taken in Regulation 28 at the moment for larger buildings.

[19] This estimate is derived from collation of data from Welsh LABCs.

rationale for introducing consequential improvements is therefore that upgrading the energy efficiency of the rest of the building will help to offset the increase in carbon emissions from the new extension, and also help mitigate some of the increase in fuel bills resulting from the new habitable space.

126. To simplify what consequential improvements should be required, we propose a package of standard energy efficiency measures, specifically:

    a. A defined minimum standard of loft insulation;

    b. The inclusion of cavity wall insulation, where appropriate; and

    c. A defined minimum standard of hot water cylinder insulation.

127. Carrying out these simple, cost effective improvements at the same time as the other works would 'future proof' the building, avoiding some of the disruption associated with having to install these measures at a later date. These energy efficiency measures are also seen as appropriate given the nature of the building works and proportionate given the costs of the building works. Where the building already meets one or more of these criteria, there will be no need to make further improvements to the existing building.

Question 36

Do you agree with the proposal to require consequential improvements upon extensions or increases in habitable space in existing homes below 1000m^2?

Question 37

The consultation explains that the regulatory requirement for consequential improvements upon domestic extensions or increases in habitable space would be limited to a list of measures comprising a minimum standard of loft insulation, hot water cylinder insulation and the installation of cavity wall insulation. Do you agree with this list of measures?

Question 38

What effect do you think the requirements for consequential improvements may have on the demand for repair, maintenance and improvement activity? Please use evidence to explain your answer.

5.4 Consequential improvements for non domestic buildings - non domestic extensions

128. We have assumed that in removing the 1000m^2 threshold for non domestic buildings, the arrangements for smaller extensions would mirror those for larger extensions e.g. the requirement would be subject to tests of technical, functional and economic feasibility, with a fixed percentage cost of the original works provided as a guide and with the same options available to businesses for assessing their requirements. Any improvement which is eligible

for the non domestic Green Deal, included in the SBEM list of Energy Performance Certificate recommendations or listed in Approved Document L2B could be used as a consequential improvement[20]. We would welcome views on these assumptions.

Question 39

Do you agree with the proposal to introduce consequential improvements upon extensions or increases in habitable space in non-domestic buildings under 1000m^2? Please explain your view.

Question 40

The consultation proposes that for non-domestic buildings, any measure from list which is used to generate Green Deal assessments, the list in SBEM used to generate Energy Performance Certificate recommendations and the existing list of typical consequential improvement measures from Approved Document L2B should be eligible to be a consequential improvement. Do you agree?

5.5 Building control process

129. Extensions, loft and integral garage conversions are all notifiable works, and the applicant would have direct contact with a building control body[21] – by submitting a building notice to the local authority, for example. Therefore it is assumed that the relevant building control body would alert the applicant to the potential requirement for consequential improvements and where necessary identify the requirements to be undertaken at this stage as is the case currently for buildings over 1000m^2. It would then be the responsibility of the homeowner or business, possibly in consultation with their builder or architect, to take steps to arrange the installation of the appropriate measures (if any were required). As an extension requires a broad range of works, it is likely that the builder(s) carrying out the work will be either capable of installing the consequential improvement measures, or have ways of arranging the work to be done without significant administrative cost or complication for the building occupier.

130. The expectation is that consequential improvements triggered by extensions, loft or integral garage conversions will be installed at the same time as the originally planned work, or soon after, and compliance will be assessed as currently by the relevant building control body before a final completion certificate for the project is issued. Because of this good fit with the current process, we do not envisage major problems with introducing these arrangements, but would welcome consultees' views on this.

Question 41

Do you agree with that there should not be major problems in extending the requirements for consequential improvements for the building control process? If you do foresee issues, what are they and how might these be addressed?

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[20] With the exception of the Green Deal, this is the approach taken now for consequential improvements in existing non domestic buildings over 1000m^2.

[21] Local authority building control or an Approved Inspector.

Question 42

Do you have any other comments on the proposed changes to Approved Document L1B? Please make it clear which issue each comment relates to by identifying the relevant paragraph number.

Question 43

Do you have any other comments on the proposed changes to Approved Document L2B? Please make it clear which issue each comment relates to by identifying the relevant paragraph number.

Question 44

Do you think that the impact assessment is a fair and reasonable assessment of the potential costs and benefits of raising the performance standards for ~~replacement domestic and~~ domestic/non-domestic extensions? Please justify your view and provide alternative evidence if necessary.

Question 45

Overall, do you think the impact assessment is a fair and reasonable assessment of the potential costs and benefits of the proposed requirement for consequential improvements in existing homes? Please justify your view and provide alternative evidence if necessary.

Question 46

Overall, do you think the impact assessment is a fair and reasonable assessment of the potential costs and benefits of the proposed extension of consequential improvements in existing non-domestic buildings? Please justify your view and provide alternative evidence if necessary.

Chapter 6

Compliance and Performance

6.1 Introduction

131. The 2010 review of Part L recognised the potential for discrepancy between the “as-designed” and “as-built” energy and carbon performance of buildings. Two classes of issue were identified. Firstly, direct non-compliance through the wilful or inadvertent substitution of substandard specifications or poor construction practices and secondly, under-performance that may occur even when regulatory guidance and procedures are followed diligently. Non-compliance and under-performance can be difficult to control since the in-situ performance of both fabric and services cannot always be detected using traditional inspection methods.

132. Under-performance has many impacts: the customer may not realise expected energy bill savings; the Welsh Government’s commitments to planned carbon savings will not be achieved; and industry may suffer reputational damage if buildings do not perform as expected.

133. To help tackle this problem, a number of measures were introduced in 2010 including guidance on tackling party wall heat loss, increased air tightness testing for new homes with ‘confidence margins‘ for those not tested, and improved procedures relating to design submissions to aid enforcement by building control bodies.

134. The Welsh Government believes that the regulatory environment should provide the incentives for industry to develop the processes and expertise it needs to ensure that the energy performance of the buildings it produces is achieved and assured as a matter of routine. This chapter sets out steps towards achieving that aim.

135. When considering these issues, it is important to note that the performance of all buildings is a function of both the building technology provided by the design and construction industry and those who manage and use the building. In calculating the performance of buildings for regulatory purposes, the national calculation methodologies assume a standard user regime and there is no intention in the proposals for 2013 to change this position. These proposals focus on ensuring a completed and well commissioned building is capable, under these standard operating conditions, of meeting the carbon targets set within the proposed changes to the Approved Documents and National Calculation Methodology.

136. The Welsh Government considers that regulation and enforcement should be a last resort. Getting it right first time avoids the disruption and costs associated with remedial action. Whilst building control inspection and mandatory sample testing provide a clear incentive, these need to be supported by voluntary action to improve practice, and appropriate skills supported by training and the provision of guidance.

6.2 Compliance and Performance Issues

137. To inform action in support of both better compliance with Part L 2013 and improved building energy performance, in late 2011 the Welsh Government requested stakeholder feedback via questionnaires, separately targeting the domestic sector and the non domestic sector. House builders/developers, contractors and building control bodies all participated to inform our knowledge of the issues.

138. Within the domestic sector, the key issues raised were:
    - The greater challenges facing SME builders in terms of understanding the requirements and determining least-cost compliant solutions, compared to larger developers who are supported by specialists;
    - The greater likelihood of SMEs developing bespoke rather than “pattern book” schemes; and
    - The need for improved guidance. The guidance should focus on illustrating compliant construction types and details.

139. There was also a call for the re-introduction of an elemental approach to compliance, rather than simply setting a performance-based carbon target.

140. It was noted that in some cases there is not enough understanding on site by contractors of the potential impact of poor construction practices on the resulting building’s energy performance. It was also perceived that there would potentially be greater non-compliance associated with more demanding Part L carbon requirements.

141. Finally, these stakeholders felt that it would be important to understand more about how buildings are performing in practice against Part L 2010, and to use this information to support future Part L updates.

142. Within the non domestic sector, the key issues were:
    - A lack of understanding of the design constraints imposed by Part L 2010 within client groups, and therefore an inappropriate brief;
    - Some difficulties with the software for non domestic buildings - SBEM. These included difficulty understanding which aspects have a more significant impact on overall performance than others, a lack of contractor access to design stage models, and the need to prepare different energy models to demonstrate Part L compliance and to achieve BREEAM CO_2 credits;
    - A desire to better understand how buildings designed to Part L 2010 requirements are performing in practice;
    - A potential increased risk of non-compliance with the introduction of more demanding Part L requirements;
    - The need for early notification of requirements prior to their introduction.

143. It was also noted that some non domestic buildings, such as those that are domestic in nature, are typically constructed by those who mainly build dwellings. Therefore Part L

requirements, which large developers understand quite readily, can be more challenging for these builders, and they are unlikely to have the support of a full professional team to assist due to the project scale. If possible, this should be recognised.

144. The Welsh Government has also undertaken preliminary consultation with the a cross-section of manufacturers involved in delivering equipment and products for low carbon dwellings being constructed in Wales, namely those involved in the Code 4 and 5 pilot programme. The purpose was to disseminate the standards that were being considered for Part L 2013 and gain assurance that what was being proposed could be achieved with the use of products and equipment which are already readily available. Specifically the discussion with the manufacturers has informed the setting of U-values for the domestic regulations, new and existing; the decision to wait for the implementation of the European performance directive for products before considering enhanced performance levels for services; and the setting of requirements for compliance on air permeability testing.

145. The Welsh Government agrees that there is value in analysing information about difficulties in delivering the design intent at the construction stage and about how buildings perform in use (physical properties and occupier influence). It acknowledges that the available evidence is based on a relatively small number of detailed scientific field studies, but is convinced that the risk of wider scale under-performance cannot be ignored and that the potential performance gap could be very significant. As such, action is needed to investigate and, where justified, make changes to better ensure that standards are met and evidence is produced to show as much.

146. As regulation is developed to meet the Welsh Government's goal for zero carbon dwellings and non domestic buildings, performance issues will need to be considered in more detail.

147. The Welsh Government is aware that there is a need for a greater volume of data on the energy and carbon performance of buildings. Although the detailed studies provide considerable insight into the nature of and reasons for under-performance, they do not provide a clear picture of the extent of the problem or of the performance distribution across building production as a whole. We intend to conduct our own studies looking at performance of the Code 4 and 5 social housing pilots, and to review studies of performance across the UK as more become available. An early report on the Welsh pilot housing is available at http://wales.gov.uk/topics/housingandcommunity/housing/publications/sushomespilotinterim/?lang=en

6.3 Proposed measures to improve compliance and performance

6.3.1 New Homes

148. In developing proposals for Part L 2013, we have taken on board the feedback received, from BRACW, the questionnaires and the stakeholder events, with the aim of improving both understanding and compliance.

149. Responding to the desire for a compliant specification to be set out within AD L1A, the carbon target is in the form of an elemental recipe which is both a compliant solution itself and sets a level of carbon performance which allows the flexibility of alternative compliant specifications. The recipe is based on consideration of what should be buildable by all, including SMEs, in different locations. A key exception will be if the defined renewable element cannot be achieved and performance will then need to be bettered elsewhere. The minimum acceptable performance of any single building element has also been revised in support of the proposed higher carbon target. This approach is discussed in Chapter 3.

150. We acknowledge the need to set out clear and concise guidance to help the smaller house builders in Wales to deliver the new standard. We intend to restructure the ADs in a way that is simpler to navigate and understand (see Section 6.4). Furthermore, an easy to understand document will be produced, setting out examples of client approaches and construction types. In addition we have already started discussions with manufacturers to ensure that industry plays its part in providing clear information on the performance of their products. We will use construction types and build forms in the document that represent typical solutions and dwellings in Wales.

151. With respect to on-site construction practices, Part L already requires an element of over design where air tightness testing is not undertaken. The performance problems identified above ~~in~~ suggest to us that the National Calculation Method should continue to include confidence margins until sufficient data is available to inform a change in approach.

152. Part L 2010 introduced the option of adopting an independently accredited quality assurance scheme approach for construction joint details, with a confidence margin applied if the details had not been subject to independent assessment. This approach was subsequently dis-applied from Part L 2010 and the confidence margin is excluded where no independent assessment has been made. Options for a quality assurance scheme for construction joint details are not included in this consultation AD L1A.

153. Once there is access to sufficient data to identify areas and approaches to improve the as-built performance and ensure it is more in line with as-designed, the Welsh Government will be able to consider any further measures that it could introduce.

154. In the meantime, the Welsh Government is interested in views on the development and use of a compliance checklist. This would be developed by us, in conjunction with the construction sector and building control bodies, to confirm a building's compliance with the Part L requirements. The ultimate objective of the checklist would be to reduce the risks of under-performance through highlighting performance requirements (building fabric, air tightness, and building services), indicating a need to have these aspects approved by building control bodies (BCBs) at particular points in the construction programme. This would allow the BCBs to provide advice at the same time as inspection, and the checklist would act as a reminder that energy performance should not be inadvertently compromised through the desire for capital cost optimisation. A house-builder would have the choice of using their own performance control system and checklist rather than following the Welsh Government's checklist; many of the larger house-builders, and indeed some energy

consultants, already adopt this approach.

155. To inform the regulatory compliance check, there are potentially two approaches:
    - Making a note of the exact materials specification that has been installed, or
    - Referring to the quality control system that is in place to ensure the design specification is delivered on site.

    The current intention is that the checklist would focus on the former approach. The latter approach could be introduced at a later date, informed by experience of the approach which DCLG has included within its consultation on Part L 2013 for England, described further below.

Question 47

For new dwellings, Welsh Government is proposing to develop a compliance checklist. Do you think such a checklist would be used sufficiently to warrant its development?

Question 48

If such a checklist was developed, what should it cover?

Question 49

If the checklist was taken forward, who should be involved in its development?

Question 50

Would any other approach be likely to prove more effective instead (such as a PAS[22] type approach)?

156. At this point the Welsh Government is not proposing to introduce a formal quality control system for new build housing, as is being proposed by DCLG for England. However, the Welsh Government does intend to participate in the development of such a scheme for use in England and to monitor its take-up and roll-out, assuming that the proposals in the Part L 2013 consultation for England are supported and adopted. These proposals are set out in detail in the DCLG consultation document, at http://www.communities.gov.uk/publications/planningandbuilding/brconsultationsection2 and are briefly summarised below.

157. In England, the Government believes that an agreed benchmark for a quality assurance approach could be beneficial in terms of reducing the performance gap between as-designed and as-built dwellings. It is anticipated that different industry sectors will develop sections of the quality assurance approach that are relevant to their sector, building on recognised best practice, existing voluntary standards, existing Competent Person Schemes and any additional elements that improve process. Each section would be designed to fit into a

[22] A PAS is a Publically Available Specification, and the PAS would set out a quality assurance approach

common set of principles and process standards so as to ensure that all achieve the same end. This could be done through the development of a Publicly Available Specification (PAS)[23] or similar code of practice or standard to codify good practice in the design and construction of homes[24]. Any standard would need to cover the life cycle of the house building process (design, procurement and supply, construction, commissioning and handover) thereby codifying the end to end process requirements for the design and production of homes. It could also be supported by a representative element of physical testing (on a sample basis) and feedback processes to aid continuous improvement. The ultimate aim is to incentivise the use of a new quality assurance process to achieve a better as-built performance for new homes.

158. The aim of a PAS would be to offer a way for developers to be deemed to have met Part L. One of the intended benefits of this route to compliance is the development of independent performance data through the requirement of greater testing and central collection of this data.

6.3.2 New non domestic buildings

159. The Welsh Government has taken on board the feedback and comments from those working in the non domestic sector, resulting in a number of actions and activities as discussed below:

- Continuing to adopt a recipe approach
- Revising the ADs
- Making adjustments to SBEM input/output data
- Commitment to briefings for clients
- Training
- Early notification of requirements.

160. Action in respect of briefings and training is addressed towards the end of this chapter.

161. As for the domestic sector, the Welsh Government wishes to make it clear for designers and contractors to understand how to achieve a Part L 2013 compliant building. In Part L 2010, a “recipe” approach, or “concurrent notional building”, was introduced, and it is proposed that this approach is continued with for Part L 2013. It is proposed that the recipe will be defined in AD L2A in addition to the overall carbon performance target. This approach has been described further in Chapter 3. Adopting the same specification in terms of building fabric and building services performance, together with a defined element of renewable energy, will in most cases, lead to compliance. The exception will be if the defined renewable element cannot be achieved and performance will then need to be bettered elsewhere.

[23] http://shop.bsigroup.com/Navigate-by/PAS/

[24] A PAS is a fast-track standard developed according to British Standards Institution guidelines. The advantage of a PAS is that it has all the functionality of a British Standard for the purposes of creating management systems.

162. Acknowledging the potentially greater compliance challenge for those constructing buildings of a domestic nature, who more typically construct housing, the Welsh Government wishes to make the requirements easy to understand and comply with, if an appropriate means can be identified. The proposals, and the definition of buildings of a domestic nature, have been included in Chapter 3 (paras 82 and 83).

Question 51

(a) Would it be preferable for these buildings to be able to achieve compliance through applying the recipe in AD L1A, in acknowledgement of the domestic nature of such buildings, rather than demonstrating compliance with AD L2A?

(b) What are the arguments in favour of and against this approach?

163. As for the domestic sector, it is the Welsh Government's intention to restructure the Approved Document, AD L2A, to simplify the language within it and improve the understanding of users (see Section 6.4)

164. In respect of SBEM, it is the Welsh Government's intention is to improve the understanding of the way a non domestic building has been modelled through changes to the transparency of the input/output data in the Welsh specific version. These changes should enable a contractor and a building control body to determine the key performance assumptions, the former to take them into account in their design, and the latter to assist checks on site.

165. Given the diversity of building types in the non domestic sector there is no intention to develop a compliance checklist. The changes to SBEM are felt to be a more appropriate approach to improve understanding and compliance.

166. The Welsh Government accepts the need for progress to be made in improving the in-use performance of non domestic buildings and will seek to access to monitored data from across the UK in respect of buildings constructed to Part L 2010 to inform future upgrades of Part L.

167. For 2013 we are suggesting that signposting guidance from within AD L2A might encourage developers to obtain and act upon feedback from their buildings in use. The BSRIA Soft Landings[25] approach provides a model process for briefing, design, construction and commissioning of buildings, including feedback from the first 3 years of use. The aim is that a recently completed building can be tuned to meet user needs and to ensure that energy and carbon performance is maximised. The process also provides for learning to be collated and applied in the design, construction and commissioning of subsequent buildings.

Question 52

Views and suggestions for addressing compliance and performance issues in new non domestic buildings, in addition to the measures outlined above, would be welcome.

[25] http://www.bsria.co.uk/services/design/soft-landings/

6.3.3 Existing Buildings

168. With regard to existing buildings, some stakeholders referred to a lack of clarity on the requirements imposed by consequential improvements, and the Welsh Government wishes to address this.

169. The proposed changes in respect of requirements for existing buildings, domestic and non domestic, and the means of demonstrating compliance, are discussed in Chapter 4.

170. The Welsh Government is proposing to redraft AD L1B and AD L2B to improve the clarity of understanding of requirements (see Section 6.4)

6.4 Re-structured Approved Documents

171. Due to the need to improve the understanding of the regulatory requirements and potential compliant design solutions, we propose the restructuring of the supporting Approved Documents, a sample of which is included within the consultation pack. The intention of the restructured Approved Documents is to make it easier to find the information required and then use simple language to explain how to comply with the requirements, avoiding unnecessary legal jargon. This means that the consultation pack includes two versions of AD L1B – one updated to incorporate the proposed higher standards of energy efficiency; and the other updated to incorporate the proposed higher standards of energy efficiency and also restructured, reformatted and reworded with the aim of improving clarity.

172. As can be seen, the newly formatted version of AD L1B provides a routemap towards the start for how to use the document. The Approved Document is structured by the type of building work – repeating text where necessary for ease of reading and to minimise the need to cross-reference different parts of the document. Commonly used parts of the Domestic Building Services Compliance Guide are included. Excerpts from the Building Regulations and definitions are moved to the appendices for review as needed.

173. We are interested in the views of the approach taken in the new ADL1B.

Question 53

Is the newly formatted ADL1B easier to understand and use?

Question 54

Are there any further amendments which you would recommend?

6.5 Education and training

174. Producing low carbon buildings that achieve the required energy and carbon performance is highly dependent on improvements in understanding, knowledge and skills in all sectors of the industry. However, the responsibilities for achieving this are widely distributed, with many agencies involved.

175. Early engagement of building control bodies and co-ordination between these people and planners will assist in streamlining the design and approval process.

176. In order to provide the necessary support to the Regulations it is proposed to work with industry partners, training providers, the construction professions, educational institutions and competency accreditation scheme providers, to develop a framework of education and training based on the following outline:

    a. **Regulation specific training programmes:** A limited amount of support will be provided directly by the Welsh Government. This will be targeted at supporting programmes being developed by professional construction bodies, building control bodies, developer organisations, and Competent Persons Scheme providers. This training could also address the key issues in understanding and delivering as-built performance and the critical requirements for feedback and testing, including in-use feedback.

    b. **Informing clients and funders:** As noted above, understanding the implications of low carbon design is important not only for those responsible for designing and delivering new buildings, but also for those funding, commissioning and occupying them. This should temper unrealistic expectations and avoid conflicting briefs. The Welsh Government will develop a plan for communicating with this audience, identifying key delivery agents.

    c. **Wider education and training programmes:** In its 2010 report on Low Carbon Construction[26], the BIS Innovation and Growth Team recognised the need to broaden and deepen the understanding of low carbon building performance in all parts of the industry. Achieving deeper understanding requires a shift in emphasis within built environment education. For new entrants and for existing practitioners there is a need to review existing provision and the marshalling of existing resources to ensure that low carbon performance has a higher priority. To achieve the improvement required, the Sector Skills Councils, universities and colleges, professional bodies and the education funding agencies should develop and maintain education and training to support the production of low and zero carbon buildings.

6.6 Research and development

177. It is the Welsh Government's intention to work with the other UK administrations on the topic of research and development. Given the level of change that is anticipated over the next 5 to 10 years it is crucial that the industry, supported by the various Governments, invests in research and development programmes. Examples of topics to be covered might include:
    a) Improving the evidence base on energy and carbon performance of buildings.
    b) Monitoring and review of the proposed PAS for new homes in England, considering how this might be further developed and applied in Wales in the domestic sector, and also in the non domestic sector.

[26] http://www.bis.gov.uk/assets/biscore/business-sectors/docs/l/10-1266-low-carbon-construction-igt-final-report.pdf

c) Measurement and testing processes. The range of the available testing methods is limited and needs further development if it is to be used effectively to verify as-built performance and to provide feedback while minimising the cost burden to developers. For example, there is potential for improved ways of testing of whole house heat loss and effective measurement of services as-installed performance.

d) Buildings in use: although the developer cannot control directly the way a building is used, the way a building is designed and constructed can have a profound influence on energy and carbon performance and better data is needed to improve guidance on user issues.

178. To enable industry to make the adjustments necessary, the feedback from research and development programmes should be disseminated widely across the industry and fed into education and training programmes.

6.7 The building control system

179. The Welsh Government now has responsibility for the building control system as part of the transfer of responsibility for the Building Regulations. There are a number of aspects which could therefore be reviewed with suggestions for change put forward. If and when this happens, the changes would be subject to a separate consultation.

180. The proposals for improvements to Part L set out in this consultation will have an impact on the building control system e.g. the proposed introduction of consequential improvements applying to domestic extensions.

Question 55

How do the consultation proposals impact on the work of Local Authorities and Approved Inspectors. Please give positive and negative impacts.

Chapter 7

Future thinking

181. The aim of this chapter is to provide a context for the 2013 changes which will have a phased implementation which will be complete by 2015, and an indication of some of the issues which are not being considered directly in this review, but which may be developed in more detail in future reviews.

7.1 Zero carbon homes

182. Whilst from a technical perspective a zero carbon building can be defined as that incurring no net emissions per year. There are sound reasons why for both new housing and non domestic buildings this might be achieved through a combination of approaches not all delivered on-site. The 2009 UK Government consultation (http://www.communities.gov.uk/publications/planningandbuilding/zerocarbondefinition) set out a proposed hierarchy based around fabric efficiency, on site emissions targets and residual emissions met though offsetting funding investing in relevant emissions reduction/energy generation investment activity. This recognised technical, financial and health limitations to what could be reasonably delivered on site and that, from a regulatory perspective, energy use from appliances presented difficulties given their dependency on individual occupier decisions outside of the control of the designer/builder. Subsequent work by the Zero Carbon Hub has built on this with their work on the Fabric Energy Efficiency Standard and Carbon Compliance targets.

183. The Welsh Government endorses the principles behind the hierarchy and in the proposals contained in this consultation, believes that the preferred option, the 40% improvement, given available technology, skills, cost effectiveness and health and wellbeing concerns represents the regulatory minimum at which on-site improvement standards should be set for the foreseeable future.

184. We therefore intend, subject to a further review during 2015/16, not to pursue further on-site improvements through the Building Regulations but to focus our efforts on the potential for complementary offsetting investment, the ‘allowable solutions’ of the zero carbon triangle. Whilst that work has yet to start, there is an interest in using such funding to support activity in the existing housing stock.

7.2 Climate change adaption - Indoor air quality and summer overheating

185. One of the issues discussed both in Wales and the through the work of the UK Zero Carbon Hub has been the potential effect that tighter envelopes could have upon indoor air quality and indoor temperatures, as we take action to improve energy performance and reduce carbon emissions and in planning for potential climate changes. In 2010 the ventilation standards in Part F were improved and new requirements and guidance for

installation and commissioning of ventilation systems were introduced. Both the NHBC foundation and the UK Zero Carbon Hub have published reports on current understanding of ventilation issues, the health risks associated with poor air quality and the characteristics and implications of Mechanical Ventilation and Heat Recovery (MVHR). Whilst use of MVHR is increasing there remain concerns over its long term effectiveness, the implications for household behaviour and ongoing maintenance. For these reasons the proposals included in this consultation do not depend on MVHR but have been based on air leakage performance that will result in satisfactory air quality through the use of natural ventilation with mechanical purge extract (bathrooms and kitchens). We will monitor developments in this area but do not propose further reviews to reduce air leakage until sufficient confidence in the solutions exists.

186. We are aware that the UK Government, as part of its wider built environment resilience work, is reviewing the evidence on overheating in homes. We look forward to the results of that work which will help inform any need for intervention either through changes to Building Regulations and/or changes to the National Calculation Methodology and SAP.

187. The Welsh Government will look to engage with the UK Government over its work on the risk of overheating in homes. This work will, we hope, help inform whether there is a case for intervention, including possible future changes to other parts of the Building Regulations and/or changes to the National Calculation Methodology and SAP, alongside potential non-regulatory approaches. We will want to consider the issue of internal temperature in the round – including the potential impacts of cooling demand on energy efficiency, as well as immediate health impacts from overheating.

7.3 Non domestic standards – increasing the scope of the regulations

7.3.1 Zero carbon non domestic buildings

188. The term non domestic comprises a wide range of building types and uses. As a consequence the proportion and distribution of regulated energy use is varied and complex. It is acknowledged that the capacity of different building types and forms to reduce regulated energy is equally varied. This was the rationale for introducing the aggregate approach to target setting in the 2010 revision of Part L. The proposals included in this consultation build on that approach and in fabric terms probably represent as far as it is currently practical and cost effective to go. The EU Recast of the Energy Performance in Buildings Directive (see below) sets a target date of 2020 from which all new buildings should be ‘Nearly Zero Energy’ with significant use of renewable energy. In developing our policy for what should constitute zero carbon, non domestic, new buildings we will ensure the requirements of the Directive are met. It is our intention that Wales should move to zero carbon, subject to review in 2015/16 at the latest by 2020.

189. The Welsh Government subscribes to the definition of zero carbon that relates to regulated emissions i.e. those covered by the Building Regulations. It is further accepted that for the short to medium term, the next 5 to 8 years it is unlikely, without reductions in

grid generated emissions and significant technological change, that all current emissions can be dealt with on site.

190. Whilst there will be opportunities with major developments to look at distributed energy solutions much of the renewable energy required by proposed targets will be limited to the individual development and in many cases the individual building. Further improvements are likely to be constrained by physical constraints e.g. roof area limits on the amount of PV. As outlined below a range of opportunities and limitations for the variety of non domestic buildings points potentially to higher levels of emissions offsetting payments than is the case with new housing (see below).

191. The UK Government (DCLG) has carried out technical analysis on possible regulatory performance standards for energy efficiency and carbon compliance. That research was published in July 2011[27]. The Welsh Government recognises the value of this work and the initial conclusions reached on limitations for non domestic buildings. It also recognises the need for the home nations committed to zero carbon to work together on what are common technical issues.

7.3.2 Metrics

192. In line with the consultation proposals for new dwellings we propose retaining, for zero carbon non domestic buildings, the current approach of setting standards relative to concurrent notional buildings. The DCLG work revealed that absolute regulatory performance standards could be problematic for non domestic buildings for a number of reasons. Including:

a. the flexibility of the current approach allows the standards to reflect the huge variety of non domestic building types, and also activities within those types (so an absolute 'office' standard might fail to reflect the differences in intended use/occupation pattern between two very similar buildings)

b. it is debateable whether the Building Regulations are the right tool to drive efficient built form in the non domestic sector, when the use of regulation will make building more costly and potentially even impossible. For example, some buildings may need to be a particular form for legitimate functional or environmental reasons (e.g. a hospital needing adequate circulation space, or an office which uses a constrained site, but is close to a transport hub and reduces car use).

7.3.3 Energy efficiency standards

193. At present the only control on the efficiency of fabric and services in non domestic buildings is through the backstop standards in technical guidance (Criterion 2). While

27 www.communities.gov.uk/documents/.../pdf/1940106.pdf

these are generally followed, and seen as ‘de facto’ regulation, strictly speaking they are only guidance, and as ‘worst acceptable’ values they are some way back from what would be required to secure compliance with regulatory CO2 targets. One of the underpinning principles of zero carbon buildings has been to take a ‘fabric first’ approach and require a high (but cost-effective) level of fabric efficiency, and we have therefore been considering whether a stronger regulatory basis is needed for these standards.

194. This consultation proposes the introduction in Criterion 1 of a primary energy target (TPEC) in 2014 that excludes any contribution from on-site generation from renewable energy technologies. This therefore becomes a mandatory energy efficiency target providing assurance that a baseline level of fabric and systems efficiency has been achieved, and avoiding renewable energy systems being used to meet the regulatory CO_2 target at the expense of reasonably efficient fabric and systems.

195. It is the Welsh Government’s view that the primary energy target should become policy, and we will review the success and acceptance of such an energy efficiency standard in any future definition of zero carbon.

196. As discussed above it is expected that on-site renewable technologies will feature in any definition of zero carbon. The definition of nearly zero energy under the EPBD recast (see below) includes for a proportion of on-site renewable energy and this consultation proposes the retention of the target emission rate (in $kg.CO_2/m^2$) as a means of allowing for the inclusion of sources of renewable energy. Again, the Welsh Government will continue to review whether this is the most appropriate means of target setting under any definition of zero carbon going into 2020.

7.3.4 CO_2 targets

197. The Welsh Government subscribes to the definition of zero carbon for both new homes and non domestic buildings as being limited to emissions potentially covered by the Building Regulations – space heating, hot water and fixed lighting, for example.

198. In the case of non domestic buildings:

a. this is fair and consistent for developers, in particular for those building mixed-use developments;

b. it will avoid double-counting of energy use between the zero carbon standards and energy/carbon trading schemes such as the Carbon Reduction Commitment, and reduce the overlap with the EU Emissions Trading Scheme; and

c. it is a workable approach for a point-of-build standard, and avoids the need for regulation to cover multiple different standards for all the different non domestic building types and uses.

199. We are assuming that the National Calculation Methodology will continue to take account of plug-in loads where these affect fuel and power use (e.g. through heat gains).

The Welsh Government is unaware of any evidence that excluding unregulated energy will impact on the efficiency of building design, or result in perverse outcomes. In conjunction with the UK Government, who lead on the National Calculation Methodology, we will consider whether the way in which SBEM calculates these loads needs to be reviewed.

200. Further work is needed to understand where the appropriate boundary between on-site and off-site solutions lies. The capability for different non domestic buildings to incorporate renewables cost-effectively varies significantly with building form, intended use, location, aspect and other factors. Lower/less demanding on-site limits would not decrease the level of carbon saved (as 100% of regulated building emissions must be abated in all cases) but this could increase flexibility for developers/designers/portfolio owners to assess where and how it would be most cost-effective to abate these emissions. Higher/more demanding on-site limits could drive the market to innovate to find cost effective ways to deliver regulatory targets, but could also force some buildings towards non cost-effective renewables. This issue will be considered further in future reviews of the Regulations and in development work on any offsetting regime.

7.4 Directive 2010/31/EU - The Energy Performance of Buildings (recast)

201. In June 2010 the recast of the 2002 Energy Performance of Buildings Directive (Directive 2010/31/EU) was published in the Official Journal of the EU. The recast Directive includes a number of new provisions relating to energy performance standards for new and existing buildings, and changes to the Building Regulations, for example Regulation 28, will be a part of the UK's transposition of the Directive. Some of the technical requirements are covered in the draft amendments to the technical guidance and National Calculation Methodology which accompany this consultation.

202. The Directive also introduces new requirements in relation to 'nearly zero energy' buildings. A 'nearly-zero energy building' is defined in Article 2.2 as a building with very high energy performance, as determined in accordance with Annex 1 of the Directive[29]. It is the Welsh Government's initial view that the commitments to zero carbon buildings contained in these consultation proposals satisfy the Directive's requirement for Member States to ensure that all new buildings are 'nearly zero energy' buildings from 2020, and our definition of zero carbon can be equated to 'nearly zero energy'. Indeed the Building Regulations already provide the basic structure for compliance with the definition of 'nearly zero energy', as they cover all the parameters in Annex 1 of the Directive. The calculation of 'high' (but also 'cost-optimal') energy performance levels for buildings will be done as part of the development of the zero carbon standards and periodic Building Regulations reviews.

203. The second part of Article 2.2 sets an aspiration for 'nearly zero energy' buildings to

[28] Note that the Building Regulations under discussion here apply to England. Wales, Scotland and Northern Ireland are making separate arrangements for the relevant aspects of transposition.

[29] See Article 2.2 for the definition of a 'nearly zero energy building' and Article 9 for the main provisions: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:153:0013:0035:EN:PDF

have their remaining energy demand met by renewable generation. Again it is our intention that the zero carbon standards will meet this aspiration. Zero carbon buildings will have to meet on-site carbon emission standards which (though the Building Regulations are technology-neutral) will be met in most cases through a combination of energy efficiency measures and building-integrated renewables. While the allowable solutions regime is still in development, potentially it may include support for renewable energy schemes.

204. The Directive also requires Member States to set out intermediate targets for improving the energy performance of new buildings by 2015. The phased introduction of zero carbon standards has already begun in England and Wales, with the Part L 2010 changes, this review marks the next step towards 2020 in Wales. The Recast provides that Member States may decide not to apply the requirements for nearly-zero energy buildings in specific and justifiable cases where the cost-benefit analysis over the economic lifecycle of the building in question is negative. This fits well with our current approach to cost benefit analysis and standards will continue to be set on the basis of cost-effectiveness.

205. We are working with the UK Government in the preparation of the national action plan required by Article 9, which was submitted to the Commission in July 2012, to address how zero carbon equates to nearly zero energy status (and the timescales for delivery).

7.5 Future SBEM issues

206. Currently the methodology of calculation of the energy performance of buildings for non domestic buildings include the Government owned SBEM or approved Dynamic Simulation Models. The differing results between SBEM and approved Dynamic Simulation Model packages have been reduced as a result of successive SBEM updates. As long as comparative target setting procedures/metrics (as proposed for Part L 2013) are retained, this is tolerable. However, as performance standards move towards zero carbon (i.e. an ‘absolute’ 100% reduction in regulated emissions) the variability in results may become unacceptable.

207. Looking beyond 2013, the industry working group have recommended that consideration be given to moving towards a single core calculation procedure as the way of demonstrating compliance for all types of non domestic building. In developing this with industry we would need to consider the level of complexity required for regulatory purposes, and the importance of providing space for the market to compete (e.g. with added value functionalities). This is an area for consideration by the proposed SBEM Integrity Group.

7.6 Amendments to the Approved Document supporting Regulation 7 (Materials and Workmanship)

208. The EU Construction Product Regulations (Regulation 305/2011) came into force in April 2011 with most of its provisions applying from 1 July 2013. From that date most construction products will have to be tested against harmonised EU standards and CE marked in the UK.

209. The EU Regulations enter directly into UK law, without the need for transposing domestic regulations. However the current UK Construction Product Regulations 1991 (as amended) (SI 1991 / 1620 and SI 1994 / 3051) will need to be revoked and replaced by regulations providing for enforcement of the EU Regulation in the UK.

210. The Construction Products Directive aims to overcome the technical barriers to trade created where different countries in Europe have different standards, labelling approaches for the same products. The Directive introduced the concept of CE marking for construction products as a “passport”, enabling products to be placed legally on the market in any member state. Most EU Member States have made CE marking mandatory for all products within the scope of the Directive which are placed on their markets. In the UK, this is voluntary.

211. The new regulations seek to clarify, simplify and improve the credibility of the CE marking. Declarations of Performance and CE marking will become the main source of information on the performance characteristics of construction products from July 2013.

212. We propose to amend Approved Documents L1A, L1B, L2A and L2B to make reference to compliance with Materials and Workmanship requirements of the Approved Document to support Regulation 7. There are no changes to the Schedule 1 requirements of Regulation 7 itself. These proposed changes will be the subject of separate consultation.

Annex A

Building Regulations Advisory Committee for Wales

Chairman

Professor Phillip Jones	Welsh School of Architecture

Members

James Chambers	Powell Dobson Architects
Andrew Sutton	Building Research Establishment for Wales
James Player	Cowlin Construction Limited
Nigel Smith	Redrow Homes
Christopher Jones	Powys County Council Building Control
Christopher Lynn	Troup Bywaters + Anders
Andrew Thomas	Butler and Young Approved Inspectors
Alan Hunt	Pembrokeshire County Council

Co-opted Member

Peter Watton	National House Building Council

Government Observers

- Welsh Government officials
- Welsh Government consultants AECOM and Davis Langdon *an AECOM company*
- Colin King BRE Wales

Annex B

Consultation Response Form

Your name:

Organisation (if applicable):

email / telephone number:

Your address:

(i) Are the views expressed on this consultation an official response from the organisation you represent or your own personal views?

Organisational ☐ Personal Views ☐

(ii) Are your views expressed on this consultation in connection with your membership or support of any group? If yes please state name of group:

Yes ☐ No ☐

Name of group:

(iii) Please tick the one box that best describes your organisation:

Builders/Developers:	**Property Management:**
Builder / Main contractor: ☐	Housing association (registered social landlord) ☐
Builder/ Small builder: (extensions/repairs/maintenance, etc) ☐	Residential landlord, private sector ☐
Installer/ special sub-contractor ☐	Commercial ☐
Commercial developer ☐	Public sector ☐
House builder ☐	

Building occupier: Home owner ☐ Tenant (residential) ☐ Commercial Building ☐	**Building Control Bodies:** Local authority building control ☐ Approved Inspector ☐
Energy Sector ☐	**Fire and Rescue Authority** ☐
Designers/Engineers/Surveyors: Architect ☐ Civil/Structural engineer ☐ Building services engineer ☐ Surveyor ☐	**Specific Interest:** Competent person scheme operator ☐ National representative or trade body ☐ Professional body or institution ☐ Research/ academic organisation ☐
Manufacturer/ Supply Chain ☐	**Other** *(please specify)* ☐

(iv) Please tick the *one* box which best describes the size of your or your organisation's business?

Micro – typically 0 to 9 full-time or equivalent employees (incl. sole traders) ☐

Small – typically 10 to 49 full-time or equivalent employees ☐

Medium – typically 50 to 249 full-time or equivalent employees ☐

Large – typically 250+ full-time or equivalent employees ☐

None of the above (please specify) ☐

(vi) Are you or your organisation a member of a competent person scheme?

Yes ☐ No ☐

Name of scheme:

☐

(vii) Would you be happy for us to contact you again in relation to this consultation?

Yes ☐ No ☐

WG will process any personal information that you provide us with in accordance with the data protection principles in the Data Protection Act 1998. In particular, we shall protect all responses containing personal information by means of all appropriate technical security measures and ensure that they are only accessible to those with an operational need to see them. You should, however, be aware that as a public body, the Welsh Government is subject to the requirements of the Freedom of Information Act 2000, and may receive requests for all responses to this consultation. If such requests are received we shall take all steps to anonymise responses that we disclose, by stripping them of the specifically personal data – name and e-mail address – you supply in responding to this consultation. If, however, you consider that any of the responses that you provide to this survey would be likely to identify you irrespective of the removal of your overt personal data, then we should be grateful if you would indicate that, and the likely reasons, in your response, for example in the relevant comments box.

Questions:

New homes

1. Do you agree with the Government's preference for a CO_2 saving of 40% reduction in carbon dioxide emissions compared to Part L 2010.

No change to 2010 ☐

40% CO_2 saving ☐

25% CO_2 saving ☐

Something else (please explain below) ☐

Don't know ☐

Comments

2. Do you agree with the proposal for an 'aggregate' approach to CO_2 target setting for new homes in 2015? The CO_2 target for any individual dwelling varies depending on the ease with which the building can achieve the target, with the overall required CO_2 saving achieved when aggregated over the build mix.

Yes ☐ No ☐ Don't know ☐

Comments

3. Do you agree with the proposal for a compliant option based on a consistent recipe of elemental specifications for fabric, services plus an additional CO_2 saving equivalent to an amount of photovoltaic (PV). Please justify your choice.

Yes ☐ No ☐ Don't know ☐

Comments

4. The main difference between the recipes is the required system efficiency for each fuel, which is appropriate for the heating system type. By adopting this approach to different fuel types, there is no need for a separate fuel factor. Do you agree with the proposed approach?

Yes ☐ No ☐ Don't know ☐

Comments

5. For the CO_2 savings proposed, are the recipe specifications a sensible way of achieving them? Please justify your choice.

Yes ☐ No ☐ Don't know ☐

Comments

6. In approaching the selection of the amount of PV to be installed on dwellings, do you prefer?

Fixed percentage of building foundation area ☐

Proportion of gross internal floor area with a practical cap ☐

Don't know ☐

Comments

7. Do you agree that the limits on design flexibility 'backstop' values for fabric elements in new homes should be changed from the current reasonable provision in the technical guidance to become mandatory?

Yes ☐ No ☐ Don't know ☐

Comments

8. Do you agree with the changes to the 'backstop' values proposed? Please explain your decision.

Yes ☐ No ☐ Don't know ☐

Comments

9. Do you have any other comments on the proposed changes to Approved Document L1A or the domestic National Calculation Methodology? Please make it clear which issue each comment relates to by identifying the relevant paragraph number.

Comments

10. The Impact Assessment makes a number of assumptions on fabric/services/ renewables costs, new build rates, phase-in rates, learning rates, etc for new homes. Do you think these assumptions are fair and reasonable? Please justify your views.

Yes ☐ No ☐ Don't know ☐

Comments

11. Overall, do you think the impact assessment is a fair and reasonable assessment of the potential costs and benefits of the proposed options for new homes? Please justify your view and provide alternative evidence if necessary.

Yes ☐ No ☐ Don't know ☐

Comments

New non-domestic buildings

12. Do you agree with the proposal for ~~2013~~ 2014 for non-domestic buildings to explicitly regulate energy efficiency separately from low carbon technologies through the assessment of primary energy consumption (PEC)? Does PEC seem like a reasonable basis for standard setting?

Yes ☐ No ☐ Don't know ☐

Comments

13. Which package of fabric and services should be selected: 7% or 10%? Please give reasons for your choice.

7% ☐

10% ☐

Don't know ☐

Comments

14. Do you foresee any particular issues for certain categories of building to meet the TPEC or TER?

Yes ☐ No ☐ Don't know ☐

Comments

15. Which approach should be utilized to incorporate the contribution of low carbon technologies into the setting of the Target Emission Rate (TER), for non domestic buildings?

Fixed carbon reduction (in kg.CO_2/m^2/year) ☐

Percentage of roof area of PV ☐

Percentage of floor area of PV ☐

Other ☐

Don't know ☐

Please give reasons for your choice

16. The proposals explain the Government's preference for a 20% aggregate improvement in CO_2 performance standards for new non-domestic buildings from ~~October 2013~~ June 2014. Which option do you prefer and why?

No change ☐

Target A: 10% aggregate improvement (1% PV) ☐

Target B: 11% aggregate improvement (No PV) ☐

Target C: 20% aggregate improvement (5% PV) ☐

Don't know ☐

Please give reasons for your choice

17. Do the proposed ~~2013~~ 2014 notional buildings as set out in the changes to the National Calculation Methodology seem like a reasonable basis for standards setting? Please provide comments on the method used to develop the notional buildings and particular elements of one or more of the notional buildings, if relevant.

Yes ☐ No ☐ Don't know ☐

Comments

18. Do you think that a further recipe should be created for buildings under 250m^2 and aligned with the proposed domestic recipe? Are there particular reasons why smaller buildings find compliance with the non-domestic recipes difficult? Please justify your views.

Yes ☐ No ☐ Don't know ☐

Comments

19. Although we recognise that some buildings may need to be serviced in a particular way for legitimate functional or environmental reasons, should Part L incentivise a lower carbon servicing strategy (as with the current Energy Performance Certificate methodology), by basing the notional building on mixed-mode ventilation?

Yes ☐ No ☐ Don't know ☐

Comments

20. Do you have any other comments on the proposed changes to Approved Document L2A or the non-domestic National Calculation Methodology? Please make it clear which issue each comment relates to by identifying the relevant paragraph number.

Comments

21. The Impact Assessment makes a number of assumptions on the costs of fabric/services/ renewables, new build rates, etc for new non-domestic buildings. Do you think these assumptions are fair and reasonable? Please justify your views.

Yes ☐ No ☐ Don't know ☐

Comments

22. Overall, do you think the impact assessment is a fair and reasonable assessment of the potential costs and benefits of the proposed options for new non-domestic buildings?

Please justify your view and provide alternative evidence if necessary.

Yes ☐ No ☐ Don't know ☐

Comments

Cumulative impact of policies

23. Overall, do you think the assessment of the impact on development is broadly fair and reasonable? Please justify your view and provide alternative evidence if necessary.

Yes ☐ No ☐ Don't know ☐

Comments

National Planning Policy Review

24. What role should planning play in facilitating higher carbon standards? Should it focus on facilitating site wide energy opportunities that will be needed as we move towards zero or near zero carbon buildings?

Views

25. What are the implications from future (and regular) changes to the Code for Sustainable Homes and BREEAM on the implementation of the policy?

Views

26. Are the costs of assessment and certification now disproportionate to the costs and benefits of achieving a minimum sustainable buildings standard level?

Yes ☐ No ☐ Don't know ☐

Comments

27. What should be the role of local planning authorities in setting local standards above and beyond Building Regulations? How can we ensure there is a level playing field of standards across Wales?

Views

28. What do you see as the positive/negative impacts of removing Part B of the policy expecting buildings to be certified against Code/BREEAM?

Views

29. Is there a better, alternative, way to rewards and secure sustainable buildings (above the regulatory minimum) other than using national planning policy? What opportunities are there for future changes to Building Regulations?

Views

30. To what extent are duplication of standard and approval systems an issue? Would the removal of the PfSB policy assist in reducing duplication?

Views

31. What opportunities are there for higher standards to be delivered on strategic sites identified as part of the Local Development Plan?

Views

Existing buildings

.

~~32. Do you agree with the proposal to raise performance standards for domestic replacement windows? Please explain your answer.~~

~~Yes ☐ No ☐ Don't know ☐~~

~~Comments~~

33. Do you agree with the proposal to raise performance standards for domestic extensions? Please explain your answer.

Yes ☐ No ☐ Don't know ☐

Comments

34. Do you agree with the proposal to raise performance standards for non-domestic extensions? Please explain your answer.

Yes ☐ No ☐ Don't know ☐

Comments

35. Do you agree that the exemption for conservatories or porches should be removed where an individual room heat or air conditioning unit is installed? How effective would this change be in limiting energy use/emissions, or are there other ways by which energy performance might be improved where conservatories or porches are installed?

Yes ☐ No ☐ Don't know ☐

Comments

36. Do you agree with the proposal to require consequential improvements upon extensions or increases in habitable space in existing homes below 1000m^2? Please explain your view.

Yes ☐ No ☐ Don't know ☐

Comments

37. The consultation explains that the regulatory requirement for consequential improvements upon domestic extensions or increases in habitable space would be limited to a list of measures comprising a minimum standard of loft insulation, hot water cylinder insulation and the installation of cavity wall insulation.

Do you agree with this list of measures? ☐

Should this list be different (please explain below)? ☐

Another approach (please explain below) ☐

Don't know ☐

Comments

38. What effect do you think the requirements for consequential improvements may have on the demand for repair, maintenance and improvement activity? Please use evidence to explain your answer.

Increase demand ☐

Reduce demand ☐

No effect ☐

Don't know ☐

Comments

39. Do you agree with the proposal to introduce consequential improvements upon extensions or increases in habitable space in non-domestic buildings under 1000m^2? Please explain your view.

Yes ☐ No ☐ Don't know ☐

Comments

40. The consultation proposes that for non-domestic buildings, any measure from list which is used to generate Green Deal assessments, the list in SBEM used to generate Energy Performance Certificate recommendations and the existing list of typical consequential improvement measures from Approved Document L2B should be eligible to be a consequential improvement. Do you agree?

Yes ☐

No ☐

Prefer a different list (please specify) ☐

Don't know ☐

Comments

41. Do you agree that there should not be major problems in extending the requirement for consequential improvements for the building control process? If you do foresee issues, what are they and how might these be addressed?

Yes ☐ No ☐ Don't know ☐

Comments

42. Do you have any other comments on the proposed changes to Approved Document L1B? Please make it clear which issue each comment relates to by identifying the relevant paragraph number.

Comments

43. Do you have any other comments on the proposed changes to Approved Document L2B? Please make it clear which issue each comment relates to by identifying the relevant paragraph number.

Comments

44. Do you think that the Impact Assessment is a fair and reasonable assessment of the potential costs and benefits of raising the performance standards for ~~replacement domestic windows and~~ domestic/non-domestic extensions? Please justify your view and provide alternative evidence if necessary.

Yes ☐ No ☐ Don't know ☐

Comments

45. Overall, do you think the impact assessment is a fair and reasonable assessment of the potential costs and benefits of the proposed options for consequential improvements in existing homes? Please justify your view and provide alternative evidence if necessary.

Yes ☐ No ☐ Don't know ☐

Comments

46. Overall, do you think the impact assessment is a fair and reasonable assessment of the potential costs and benefits of the proposed options for consequential improvements in existing non-domestic buildings? Please justify your view and provide alternative evidence if necessary.

Yes ☐ No ☐ Don't know ☐

Comments

Compliance and Performance

47. For new dwellings, Welsh Government is proposing to develop a compliance checklist. Do you think such a checklist would be used sufficiently to warrant its development?

Yes ☐ No ☐ Don't know ☐

Comments

48. If such a checklist was developed, what should it cover?

Comments

49. If the checklist was taken forward, who should be involved in its development?

Comments

50. Would any other approach be likely to prove more effective instead (such as a PAS[30] type approach).

Yes ☐ No ☐ Don't know ☐

Comments

51a. Would it be preferable for buildings of a domestic nature to be able to achieve compliance through applying the recipe in AD L1A, in acknowledgement of the domestic nature of such buildings, rather than demonstrating compliance with AD L2A?

Yes ☐ No ☐ Don't know ☐

Comments

51b. What are the arguments for and against this approach?

Comments

52. Additional views and suggestions for addressing compliance and performance issues in new non domestic buildings would be welcome.

Comments

[30] A PAS is a Publically Available Specification, and the PAS would set out a quality assurance approach.

53. Is the newly formatted ADL1B easier to understand and use?

Yes ☐ No ☐ Don't know ☐

Comments

54. Are there any further amendments to the newly formatted ADL1B that you would recommend? If so, please provide details.

Yes ☐ No ☐ Don't know ☐

Comments

55. How do the consultation proposals impact on the work of Local Authorities and Approved Inspectors? Please give positive and negative impacts.

Comments

56. We have asked a number of specific questions. If you have any related issues which we have not specifically addressed, please use this space to report them:

Please enter here:

Responses to consultations may be made public – on the internet or in a report. If you would prefer your response to be kept confidential, please tick here: ☐