



Impact of Policy Measures

Sustainable and Secure Buildings Act:
Report on the policy measures as required
by Section 6(2) (a) to (d)

February 2007

Department for Communities and Local Government: London

On 5th May 2006 the responsibilities of the Office of the Deputy Prime Minister (ODPM) transferred to the Department for Communities and Local Government

This report has been produced by BRE under a contract placed by the Department for Communities and Local Government. Any views expressed in it are not necessarily those of the Department.

Department for Communities and Local Government
Eland House
Bressenden Place
London
SW1E 5DU
Telephone: 020 7944 4400
Website: www.communities.gov.uk

© *Queen's Printer and Controller of Her Majesty's Stationery Office, 2007*

Copyright in the typographical arrangement rests with the Crown.

This publication, excluding logos, may be reproduced free of charge in any format or medium for research, private study or for internal circulation within an organisation. This is subject to it being reproduced accurately and not used in a misleading context. The material must be acknowledged as Crown copyright and the title of the publication specified.

Any other use of the contents of this publication would require a copyright licence. Please apply for a Click-Use Licence for core material at www.opsi.gov.uk/click-use/system/online/pLogin.asp, or by writing to the Office of Public Sector Information, Information Policy Team, St Clements House, 2-16 Colegate, Norwich, NR3 1BQ. Fax: 01603 723000 or email: HMSOlicensing@cabinet-office.x.gsi.gov.uk

If you require this publication in an alternative format please email: alternativeformats@communities.gsi.gov.uk

Department for Communities and Local Government
PO Box 236
Wetherby
West Yorkshire
LS23 7NB
Tel: 08701 226 236
Fax: 08701 226 237
Textphone: 08701 207 405
Email: communities@twoten.com
or online via the Department for Communities and Local Government website:
www.communities.gov.uk

February 2007

Product Code: 06 BD 04403

CONTENTS

EXECUTIVE SUMMARY	5
1 INTRODUCTION	6
2 APPROACH	8
2.1 Introduction	8
2.2 Sources of information	8
2.3 Scope of reporting requirements	8
3 SECTION 6(2)(a) TO (d) REPORT	11
3.1 Introduction	11
3.2 Section 6(2)(a) “building regulations made during the period . . .”	11
3.3 Section 6(2)(b) “proposals current at the end of the period . . .”	11
3.4 Section 6(2)(c) “effects or likely effects of regulations or proposals . . .”	13
3.5 Section 6(2)(d) “proposals considered . . . for the setting of targets . . .”	17
APPENDIX A	
SUSTAINABLE COMMUNITIES	20

Executive summary

The Sustainable & Secure Buildings Act 2004 extends the purposes of the Building Act 1984 so as to improve the sustainability of the building stock in England & Wales in respect of energy efficiency, preventing waste, furthering the protection of the environment, facilitating sustainable development and furthering the prevention and detection of crime. Section 6(2)(a) to (d) of the Act requires DCLG to submit a biennial report to Parliament on the effects (or likely effects) of building regulation measures that are planned under the SSBA as well as those which have already been introduced in the two-year reporting period. Further, Section 6(2)(e) requires changes in the energy used by the building stock as well as the extent construction waste is reused and recycled to be determined and reported upon.

This report focuses on the reporting requirements under Section 6(2)(a) to (d). As a first step it discusses the sources of information consulted to fulfil these reporting requirements, and then reviews the text of the SSBA so as to clarify the exact scope of the biennial report. One of the key conclusions is that because many of the Building Regulations are made for the purposes of health and safety, many of the effects fall outside the biennial report's scope. However, most Building Regulations do have wider environmental impacts and these can be reported upon. All Building Regulation changes in the two-year reporting period are therefore covered in this respect.

The key amendment covered in this report, however, is the changes to Part L *Conservation of fuel and power*. This and the supporting Approved Document have undergone substantial revisions in order to improve the energy efficiency of both new and existing buildings. These changes are reported on in terms of the number of affected buildings, the overall energy, cash and carbon savings and the specific energy efficiency targets that have been set.

1 Introduction

Section 1(1) of the Sustainable & Secure Buildings Act (SSBA) 2004 extends the purposes of the Building Act 1984 to cover:

- (b) *“furthering the conservation of fuel and power,*
- (c) *preventing waste arising, undue consumption and the misuse or contamination of water,*
- (d) *furthering the protection or enhancement of the environment,*
- (e) *facilitating sustainable development, or*
- (f) *furthering the prevention and detection of crime.”*

The SSBA 2004 re-states clauses (b) and (c) from the Building Act 1984 for drafting reasons (i.e. they are existing purposes) – it is clauses (d) to (f) that provide new powers. Clause (a) of Section 1(1) of the Building Act 1984 is concerned with regulations for the purposes of health, safety and welfare and convenience of persons in and around buildings.

Section 6(1) of the Act requires DCLG to submit a report every two years to Parliament (the first period being November 2004 to November 2006) on the progress of the building stock in England & Wales towards the purposes in Section 1(1)(b) to (e) above. The focus of this biennial report is therefore to document the progress towards sustainability in buildings as opposed to documenting progress in preventing and detecting crime in buildings. Although crime can potentially be considered as an aspect of sustainable development, it will not be considered further in this document.

The scope of the biennial report is set out in Section 6(2) of the Act, the text of which is reproduced in Box 1 below.

Box 1. Text of Section 6(2) of the Sustainable and Secure Buildings Act 2004
<p><i>“A report under this section [i.e. Section 6] must (in particular) deal with:</i></p> <ul style="list-style-type: none"> (a) <i>Building Regulations made during the period for any of these purposes [i.e. Section 1(1)(b) to (e) as listed above];</i> (b) <i>proposals current at the end of the period to make Building Regulations for any of these purposes;</i> (c) <i>effects of likely effects of regulations or proposals dealt with in the report under paragraphs (a) and (b) [i.e. the two paragraphs immediately above];</i> (d) <i>proposals considered by the Secretary of State during the period for setting of targets for any of these purposes in relation to:</i>

- (i) *buildings in England and Wales; or*
- (ii) *services, fittings or equipment provided in or in connection with such buildings;*
- (e) *overall changes during the period in:*
 - (i) *the efficiency with which energy is used in buildings in England and Wales;*
 - (ii) *levels of emissions from such buildings that are emissions considered by the Secretary of State to contribute to climate change;*
 - (iii) *the extent to which such buildings have their own facilities for generating energy;*
 - (iv) *the extent to which materials used in constructing, or carrying out works in relation to, such buildings are recycled or re-used materials.”*

DCLG has commissioned BRE to provide support in the production of the biennial report to Parliament (BRE proposal 116383). To address the reporting requirements under Section 6(2)(e), BRE has proposed a set of Key Performance Indicators (KPIs) to provide initial benchmarks for the building stock in England & Wales in respect of items (i) to (iv) above, which can then be used to measure changes in performance during each two-year reporting period. This is discussed in more detail in a separate report¹.

The purpose of this report, therefore, is to address the reporting requirements set out in Section 6(2)(a) to (d). Section 2 covers the approach used and consists of a description of the sources of information consulted and a discussion of Section 6(2) in terms of its interpretation and the assumptions made in order to clarify the scope of the biennial report. Section 3 is the report as required under Section 6(2)(a) to (d).

An earlier draft of this report was prepared in October 2006 to accord with the end of the two-year reporting period (November 2006). But, given that there is an inevitable time lag for statistical data to be compiled and published, the time period for producing the aforementioned KPI report was extended to include as much up-to-date information as practically possible. Therefore, the opportunity has been taken to update this report too.

¹ Hartless, R. *et al* “Sustainable and Secure Buildings Act 2004: Biennial Report to Parliament: Baseline KPIs”. BRE Output 233925, January 2007.

2 Approach

2.1 Introduction

The requirements set out in Section 6(2)(a) to (c) are to report on all changes to the Building Regulations that have been made or are proposed in each two-year period and to report on their effects or likely effects. Section 6(2)(d) imposes a further requirement to report on targets that are set for buildings and their associated services, fittings and equipment. It is therefore sensible to consider the sources of information that can be consulted to meet these reporting requirements as well as clarifying exactly what the scope of the report will be.

2.2 Sources of information

The most useful vehicles to help achieve the reporting requirements are the Regulatory Impact Assessments (RIAs) that need to be prepared whenever Government departments propose regulatory changes which will have an impact on business, industry, charities etc. RIA is a tool to help Government departments develop effective regulations as it provides a framework to consider the impacts – both positive (e.g. reducing health and safety risks, improving the environment etc.) and negative (e.g. additional cost burdens) – resulting from changes to regulations. Guidance on preparing RIAs is provided by the Cabinet Office's Better Regulation Executive which also works across Government departments to remove unnecessary regulation and to help develop more effective regulatory instruments².

An RIA in support of proposed regulatory changes needs to evaluate all the associated costs and benefits, and these are considered under the sub-headings: economic, environmental and social. As such, an RIA in support of changes to Building Regulations (essentially changes to the requirements and the associated Approved Documents which provide technical guidance on meeting the requirements) will consider the effects and likely effects required in Section 6(2)³.

2.3 Scope of reporting requirements

In broad terms, 'effects' is taken to be improvements in energy efficiency, protecting and enhancing the environment and facilitating sustainable development as set out in Section 1(1)(b) to (e). In other words, the other purposes for which Building Regulations are made (i.e. ensuring the health, safety and welfare and convenience of persons in and around buildings) will **not** be considered in the biennial report. However, these are, of course, considered in the associated RIAs though.

In fact, many of the Building Regulations and associated Approved Documents focus on these original purposes, and any impacts in respect of the purposes in Section 1(1)(b) to (e) will be incidental to their

² Further information on the Better Regulation Executive and RIA can be found at:
<http://www.cabinetoffice.gov.uk/regulation/>

³ All of the Building Regulations RIAs can be found on the DCLG website at:
<http://www.communities.gov.uk/index.asp?id=1130926>

main aim. However, policy appraisal now requires wider environmental impacts be given full consideration so they are increasingly included in supporting RIAs, and as such these effects will be included in the biennial report. There is, though, perhaps a need to consider carefully what effects are covered by the purposes in Section 1(1)(b) to (e) and thereby should be reported on. Taking each of the purposes in turn therefore:

- ***“Furthering the conservation of fuel and power”***

This is fairly straightforward in that it relates to energy efficiency in (and associated carbon emissions from) buildings and is simply a restatement of the existing purpose in Section 1(1)(b) of the Building Act 1984. Technical guidance on ways to achieve the associated requirements has been available in Approved Document (AD) L *Conservation of Fuel and Power* and this has recently gone through a substantial revision.

- ***“Preventing waste arising, undue consumption and the misuse or contamination of water”***

This is a restatement of the existing purpose in Section 1(1)(c) of the Building Act 1984. Although these powers have not been that widely used to date there are some Building Regulation requirements in these areas, and technical guidance on meeting these requirements is given in AD(H) *Drainage and Waste Disposal* and AD(J) *Combustion Appliances and Fuel Storage Systems*.

- ***“Furthering the protection or enhancement of the environment”***

This is the first of the new purposes. As might be expected this is potentially a broad area and could include topics covered, for example, by BREEAM (BRE Environmental Assessment Method) which is a tool to review and improve the environmental performance of buildings⁴. (The homes version of BREEAM is EcoHomes.) The topics considered are: energy, water, pollution, materials, transport, ecology and land use, health and well-being. A number of these areas (e.g. energy, water, health and pollution) are covered by existing Building Regulation purposes, although the performance levels of BREEAM/EcoHomes exceed the Building Regulation requirements. The environmental impacts considered in RIAs in support of changes to the Building Regulations have generally been energy efficiency/carbon emissions, efficient use of resources, waste and pollution of air, land and water, and these cut across many (if not all) of the Approved Documents.

- ***“Facilitating sustainable development”***

This is the other new purpose which encompasses furthering and protecting the environment as discussed above, but it also goes much wider. An in-depth discussion of what is meant by ‘sustainable development’ is beyond the scope of this document. However, DCLG has a responsibility to develop ‘sustainable communities’ and as such has provided some useful guidance on what is meant by this which can be used here. The full text is given in Appendix A, but the long definition DCLG gives is:

“Sustainable communities are places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all.”

⁴ For further information on BREEAM and EcoHomes see the BRE website at:
<http://www.bre.co.uk/service.jsp?id=51>.

It then goes on to list the components of a sustainable community:

- Active, inclusive and safe
- Well run
- Environmentally sensitive
- Well designed and built
- Well connected
- Thriving
- Well served
- Fair for everyone.

These are explained in more detail in Appendix A. Many of the components necessary for a sustainable community go beyond that which can be delivered by a building alone, but some are already dealt with by Building Regulations and BREEAM/Ecohomes, particularly the 'environmentally sensitive' component and, to a lesser extent, the 'well designed and built' and the 'well connected' components. Given the very broad scope of sustainability, all of the Approved Documents could potentially be considered but, to date, RIAs have generally only highlighted the protection or enhancement of the environment as noted above. This is an area that should be given greater consideration in future RIAs though, particularly as the enabling powers provided by Section 1(1) of the SSBA 2004 are used to make new regulations.

A further assumption about the scope of the reporting requirements of the biennial report is that the 'effects' will **not** include consideration of any additional cost burdens. For example, the fuel (and cash) savings and reduction in carbon emissions resulting from a requirement to install more efficient boilers in new buildings will be reported on, but the additional capital cost of these boilers will not. These costs are considered in the relevant RIAs though.

One final point relating to scope is the wording in Section 6(2)(d). The wording for this clause refers to "*proposals considered by the Secretary of State during the period for the setting of targets*" for the purposes in Section 1(1)(b) to (e) for buildings or their services, fittings etc. Firstly, it is interesting to note that the word 'proposals' is used, i.e. it seems to exclude targets that have actually taken effect during the two-year reporting period. Therefore, to maximise this aspect of the report it is assumed that targets that are either proposed or have taken effect in the period are to be reported upon. Secondly, whereas reporting on the effects of changes to the Building Regulations will include wider environmental impacts, the reporting of the targets set will only focus on those that have been specifically set for the purposes in Section 1(1)(b) to (e). Finally, it is not immediately obvious what is meant by 'targets' in this context, so this will be taken to mean any performance levels set down in ADs necessary to meet the requirements of the Building Regulations.

3 Section 6(2)(a) to (d) report

3.1 Introduction

As noted above, the first reporting period covers November 2004 to November 2006 and so the focus of the biennial report is the Building Regulation changes (essentially those to requirements and the associated Approved Documents) made or proposed during this two-year period, and then to review their effects or likely effects within the scope of the reporting requirements described in section 2.3.

3.2 Section 6(2)(a) “*Building Regulations made during the period . . .*”

Reviewing the changes in the two-year period November 2004 to November 2006 indicates the following Building Regulation changes have been made:

- Part A – Structure (December 2004)
- Part C – Site preparation and resistance to contaminants and moisture (December 2004)
- Part E – Resistance to the passage of sound (Robust details as an alternative to pre-completion testing) (December 2004)
- Part F – Ventilation (April 2006)
- Part L – Conservation of fuel and power (April 2006)
- Part P – Electrical safety (April 2006)

With the exception of Part P – which is a relatively new requirement that first came into effect in January 2005⁵ – all of these changes were to long-standing requirements of the Building Regulations.

The main point to note, though, is that only the changes to Part L are specifically for one of the purposes required by the biennial report (i.e. the other changes focus on health and safety) although, as discussed above, many of them will have an environmental impact.

3.3 Section 6(2)(b) “*proposals current at the end of the period . . .*”

Reviewing the proposed changes to Building Regulations the following have been identified:

- Part B – Fire safety. The Approved Document was subject to extensive review throughout 2004-06⁶ and a new edition is to be enacted in April 2007.

⁵ Part P subsequently underwent changes to clarify what types of electrical work were notifiable under the Building Regulations as well as the testing and inspection requirements of building control bodies. The two original requirements were also modified to a single requirement P1 which calls for reasonable provision for the design and construction of electrical installations. This revised version came into force in April 2006.

⁶ The public consultation for Part B took place from July to November 2005 and can be found on the DCLG website at: <http://www.communities.gov.uk/index.asp?id=1162820>

- Water efficiency – Following a Ministerial commitment given in March 2006⁷, Defra and DCLG have jointly been working on proposals to make water efficiency standards mandatory in new homes, existing homes and in respect of the domestic uses of non-household buildings. Consultation is expected to take place before the end of 2006, and the intention is to deliver mandatory standards for new homes at least by amending the Building Regulations 2000.

The proposed changes to Part B are primarily for the purpose of health and safety, although again they will have environmental impacts. Those with regard to water efficiency are obviously more focused on environmental impacts.

In addition though, there is the Code for Sustainable Homes, the development of which is being led by DCLG. The Code is a development of EcoHomes and is intended to improve the sustainability (including minimum standards for energy and water efficiency) of new homes. However, in its current format, the Code will not be introduced through the vehicle of Building Regulations as it is a voluntary initiative, but it does signal the future direction of Building Regulations and DCLG is considering making the Code mandatory in future. Nevertheless, English Partnerships and the Housing Corporation intend to achieve Level 3 of the Code (the Code has six levels running from Level 1 which is a basic entry level to Level 6 which is a demanding zero carbon level) which is designed to be equivalent to the EcoHomes 'Very Good' standard and which new housing funded by these bodies already achieves.

A public consultation exercise on the Code took place from December 2005 to March 2006⁸. In the light of this consultation exercise, the Code was developed in terms of the issues considered within the Code (some of which are outside of the remit of EcoHomes) as well as the specific technical requirements. A revised version of the Code⁹ was launched in December 2006 as part of a package of measures towards zero carbon development including an overarching consultation *Building a Greener Future*¹⁰ which will run from December 2006 to March 2007.

However, because these developments are currently not to be introduced through the vehicle of the Building Regulations (and, indeed, they fall outside of the current reporting period) they will not be included in the biennial report to Parliament.

⁷ Ministerial commitment was given initially in a press release on the Code for Sustainable Homes consultation outcomes which can be found on the DCLG website at: <http://www.communities.gov.uk/index.asp?id=1002882&PressNoticeID=2093>. It was repeated in an open letter from David Miliband to the PM, published on the Defra website in mid-July <http://www.defra.gov.uk/news/latest/2006/climate-0711.htm>

⁸ The public consultation for the Code for Sustainable Homes can be found on the DCLG website at: <http://www.communities.gov.uk/index.asp?id=1164141>

⁹ The explanatory booklet *Code for Sustainable Homes – A step-change in sustainable home building practice* can be obtained on the DCLG website at <http://www.planningportal.gov.uk/england/professionals/en/1115314116927.html>. Technical guidance on complying with the Code will be published in April 2007.

¹⁰ The *Building a Greener Future* public consultation can be found on the DCLG website at <http://www.communities.gov.uk/index.asp?id=1505157>

3.4 Section 6(2)(c) “effects or likely effects of regulations or proposals . . .”

Part A – Structure

The main purposes of Part A are the health and safety of persons in and around buildings so it has limited impact under the purposes in Section 1(1)(b) to (e).

The RIA identified a minor environmental benefit arising from the reduction in the area designated as being affected by the house longhorn beetle. The beetle is a wood-boring insect that attacks the sapwood of softwood used primarily in roof structures and so preservative is required to protect timber from such an attack. By reducing the extent of the designated area this will lead to a reduction in the use of preservative and thereby lessen its impact on the environment.

Part C – Site preparation and resistance to contaminants and moisture

As with Part A, the main purpose of Part C is health and safety, so it too has limited impact under the purposes in Section 1(1)(b) to (e). However, one of the main reasons for revising Part C was to bring the Approved Document into line with other guidance on moisture and land affected by contaminants. In both of these cases it should help to ensure more efficient use of resources and make buildings more sustainable. For example, the guidance on dealing with ground contaminants when new buildings are constructed was significantly revised, ostensibly from a health and safety perspective, but this also supports other Government policies with respect to increasing the development of brownfield sites (thereby reducing the dependence on greenfield sites) where contaminants are often present.

Part E – Resistance to the passage of sound (Robust details as an alternative to pre-completion testing)

The main revision of Part E came into effect in July 2003 (i.e. outside the current reporting period) but in December 2004 a new option for demonstrating compliance with Part E for new houses and flats was introduced. This option is known as the Robust Detail (RD) option and is an alternative to Pre-Completion Testing (PCT). RDs are high performance constructions for floors and walls that exceed those given in AD(E) and so are expected to give consistently good performance in terms of their resistance to the passage of sound. Therefore, builders have the option of using RDs as an alternative to PCT where a sample of new constructions are subject to acoustic testing and have to be remedied if they do not meet the required performance levels. Although RD constructions are generally more expensive than those in AD(E), there can be savings because testing is not required, and possible delays and costs arising from waiting for tests and undertaking any remedial works are avoided.

One of the main drivers for the original revision to Part E was to improve the compliance of floors and walls with the noise requirements, particularly in the light of the growth in flats and terraced housing in response to the Government’s planning requirements to increase housing densities¹¹. Although the Part E revision will have a positive environmental benefit in terms of more efficient use of resources and reducing the impact on greenfield sites, this revision is outside of the current reporting period and the recent amendment does not alter these impacts.

¹¹ Further details are provided in Planning Policy Guidance, PPG3 *Housing*, which can be found on the Planning Portal website at: <http://www.planningportal.gov.uk/england/professionals/en/1020432883668.html>

Part F – Ventilation

Again, the main focus of this Part is health and safety. However, the revision to Part F was linked to that of Part L because of the latter's requirements for improved airtightness of new buildings so as to reduce uncontrolled infiltration through the building envelope. Excessive infiltration can waste energy, and this route for energy use becomes increasingly important as Part L requirements for the thermal performance of building elements, heating system efficiencies etc. are made more demanding. However, reducing air infiltration in buildings may compromise indoor air quality and lead to a build-up of moisture unless adequate ventilation is provided by purpose-built ventilation openings (such as air-bricks, trickle ventilators etc.) or a mechanical alternative. It was with these issues in mind that the new ventilation provisions in Part F were developed.

Therefore, whilst revisions to Part F were not made for the purposes in Section 1(1)(b) to (e), they do support changes to Part L.

Part L – Conservation of fuel and power

As discussed above, this is the most important change and was made specifically under the purpose in Section 1(1)(b), although of course it has wide environmental benefits in that it leads to a reduction in carbon emissions. The introduction of the amendment to Part L was a commitment under the 2003 Energy White Paper.

Specifically, the Building and Approved Inspectors (Amendment) Regulations 2006 introduce a revised Part L into Schedule 1 of the Building Regulations and revoke current Parts L1 and L2. Four new ADs containing practical guidance are approved to support the revised Part L requirements – further details are given in Section 3.5 below. It also introduces new regulations and requirements to implement Articles 3 to 6 of the Energy Performance of Buildings Directive (2002/91/EC) (EPBD).

Full details of the impacts of the changes are given in the supporting RIA, which also covers the impact of the amendment to the technical guidance in AD(L) (2002) that came into effect in April 2005. This amendment made high efficiency condensing boilers (i.e. Band B or better) the norm for compliance with the Building Regulations whenever domestic boilers are replaced. Table 1 overleaf is adapted from the RIA and summarises the carbon and financial savings resulting from the Part L amendment.

	Carbon ¹ saving in 2010 (Tonnes/year)	Annual savings per year in 2010 (£m/year)	Cumulative saving over lifetime of the measures ² (£m)
Flats and maisonettes	24,758		
Mid-terrace houses	14,207		
Semi-detached houses and bungalows	14,148		
Detached houses and bungalows	34,106		
All dwellings	87,219	37.8	273.8
Commercial and public buildings	127,681		
Industrial buildings	15,447		
All buildings other than dwellings	143,128	18.9	347.5
Dwelling extensions	10,769	4.6	29.6
Alterations, extensions and refurbishment (buildings other than dwellings)	256,500	29.9	474.4
Replacement domestic boilers (from April 2005)	411,441	175.2	405.9
Total	909,057	266.4	1,531.2
Notes:			
¹ To convert to a saving of carbon dioxide (CO ₂) simply multiply carbon figure by 44/12.			
² The present value of savings from reduced fuel consumption and reduced social costs of carbon emissions.			

Table 1. Summary of benefits (carbon and financial savings) arising from April 2006 amendments to Part L

In total, therefore, the April 2006 Part L amendments will lead to a total carbon saving of 0.91 Mt per year in 2010 (which is consistent with the estimated likely figure in the Government's Energy Efficiency Action Plan published in April 2004) which is equivalent to an annual cash saving of £266m in 2010. Overall, the amendment will lead to an improvement in the energy efficiency of new buildings (and hence a reduction in the carbon emissions they would otherwise produce) of around 20-25% compared to the previous Part L requirements.

In particular, the amendments apply to:

- 160,000 new dwellings constructed each year (equivalent to a floor area of 14.8 km²) which will lead to a carbon saving of 0.09 Mt per year in 2010,
- 14.4 km² floor area of buildings other than dwellings that is constructed each year which will lead to a carbon saving of 0.14 Mt per year in 2010,
- 150,000 dwelling extensions undertaken each year which will lead to a carbon saving of 0.01 Mt per year in 2010,
- 1.2 million domestic boilers replaced each year (the April 2005 amendment meant that in October 2005 some 80% of these boilers were Band B or better) which will lead to a carbon saving of 0.41Mt per year in 2010, and,
- alterations, extensions and refurbishments in buildings other than dwellings which will lead to a carbon saving of 0.26 Mt per year in 2010.

Further information on energy efficiency changes in the domestic and non-domestic building stocks during the two-year reporting period are contained in the report prepared in support of the reporting requirements under Section 6(2)(e)¹.

Part P – Electrical safety

As with the amendments to Parts A, C and F, this new Part P is focused on health and safety so its effects on the environment are incidental. In this respect, the reduction in risk of electrical fires (i.e. those arising from problems with fixed electrical wiring as well as fixed, non-portable and portable electrical appliances) through application of the new Part P is calculated to result in 1,500 fewer domestic fires each year. This will reduce the impact on the environment in a number of ways including: reduction in air pollution (less combustion products emitted to atmosphere), less water used to extinguish fires and a reduction of the risk of water run-off polluting watercourses.

Part B – Fire safety

Again, the focus of the amendments is health and safety, but as with the new Part P they will lead to a reduction in the risk of fire and the associated environmental impacts. As the changes fall outside of the current reporting period (they come into force in April 2007) they will be reported on more fully in subsequent Parliamentary reports.

Water efficiency

These proposed amendments are likely to be made through the Building Regulations under the purpose in Section 1(1)(c) and should lead to a reduction in the pressure on water resources. Further details are given in the public consultation documents¹². The consultation period is December 2006 to March 2007 (i.e. it is outside of the current reporting period) so the impacts of the proposed amendment will be discussed in subsequent Parliamentary reports.

¹² The public consultation on proposals to improve water efficiency in new buildings can be found on the DCLG website at: <http://www.communities.gov.uk/index.asp?id=1505175>

3.5 Section 6(2)(d) “proposals considered.... for the setting of targets . . .”

As discussed above, only the Part L changes have been made for the purposes in Section 1(1)(b) to (e) so only targets arising from this are considered here. The proposals with regard to water efficiency are concerned with setting minimum efficiency standards and could therefore be under Section 1(1)(c), but it is too early to specify what these will be.

Part L (New buildings)

The headline targets are the overall minimum energy performance requirements for new buildings (dwellings and buildings other than dwellings). These performance requirements are actually framed in terms of carbon emissions from new buildings calculated using an energy performance methodology, the scope of which is specified in the EPBD (in particular, Article 3). This covers item (i) in Section 6(2)(d) – see Box 1 above.

For new dwellings, the Target CO₂ Emission Rate (TER) is the minimum energy performance requirement and is the CO₂ emitted (in kg/year per m² floor area) as a result of the provision of heating, hot water, ventilation and fixed internal lighting. The TER is calculated using the 2005 edition of the Standard Assessment Procedure (SAP) or, for dwellings with a total floor area >450 m², using the Simplified Building Energy Model (SBEM). The TER is calculated for a notional dwelling which has the same size and shape as the proposed dwelling (and which is constructed according to reference values in SAP 2005) and then, once allowances for fuel type are made, an improvement factor of 0.2 (i.e. 20%) is applied. The proposed new dwelling’s CO₂ emission rate (DER) must not exceed the TER, and, given that the specification of the notional dwelling is one that broadly meets the requirements of the 2002 edition of Part L, this means that the 2005 edition requires a 20% improvement.

The approach for new buildings other than dwellings is broadly the same as this. The CO₂ emission rate (C_{notional}) is calculated for an equivalent notional building (which broadly meets the requirements of the 2002 edition of Part L) using SBEM or other approved model, and the TER is then given by the formula:

$$\text{TER} = C_{\text{notional}} \times (1 - \text{improvement factor}) \times (1 - \text{LZC benchmark})$$

The LZC benchmark provision is for low and zero carbon (LZC) energy sources such as solar hot water, wind turbines, photovoltaics etc. Improvement factors and LZC benchmarks are specified for different building services strategies for the proposed new building:

Building services strategy	Improvement factor	LZC benchmark
Heated and naturally ventilated	0.15	0.10
Heated and mechanically ventilated	0.20	0.10
Air-conditioned	0.20	0.10

For example, for an air-conditioned building the TER becomes:

$$\text{TER} = C_{\text{notional}} \times (1 - 0.20) \times (1 - 0.10) = 0.72 \times C_{\text{notional}}$$

which the building's CO₂ emission rate (BER) must not exceed. This represents a 28% improvement on the 2002 edition of Part L. By framing the requirements in this way, it is clear how the level of improvements is derived and steers designers to consider the provision of renewable energy alternatives, although these are not a requirement as the LZC benchmark can be achieved by making further energy efficiency improvements.

As well as these overall building targets there also other requirements for new buildings (dwellings and buildings other than dwellings) in terms of their services, fittings and equipment that also have to be met. This covers item (ii) in Section 6(2)(d) – see Box 1 above. There are:

- limiting U-values for thermal elements (i.e. walls, floor etc.) to minimise the risk of condensation;
- maximum air permeability of the building envelope to minimise excessive air infiltration;
- minimum standards for heating system efficiencies, controls and insulation of pipes, ducts and vessels;
- minimum luminous efficacy of fixed internal lighting;
- minimum standards for air cooling systems/units and air handling plant; etc.

It is not the intention to provide full details here as these can be found in the Approved Documents AD L1A (Dwellings) and AD L2A (Buildings other than dwellings).

Part L (Existing buildings)

There are also two ADs that cover work in existing buildings: AD L1B for dwellings and AD L2B for buildings other than dwellings. In both cases there are no headline targets that an existing building subject to building work has to achieve in terms of an overall energy performance, rather the requirements are framed in terms of the performance of services, fittings and equipment. These are the areas referred to in item (ii) of Section 6(2)(d).

For dwellings, there are a range of requirements to cover different types of building work that can be carried out on an existing dwelling. These cover:

- Controlled fittings:
 - maximum U-values for replacement doors, windows, roof windows and rooflights.
- Controlled services:
 - minimum standards for heating system efficiencies, controls and insulation of pipes, ducts and vessels when heating or hot water systems are replaced;
 - maximum specific fan power of mechanical ventilation systems that are installed or replaced;
 - minimum energy efficiency level for fixed household air-conditioners that are installed or replaced;
 - minimum luminous efficacy for replacement fixed internal lighting; etc.

- Thermal elements (i.e. floors, walls and roofs):–
 - maximum U-values for new elements in extensions;
 - maximum U-values for replaced elements in existing dwellings;
 - maximum U-values for elements that are renovated in existing dwellings (requirement only applies if the work applies to >25% of the element's surface area, is technically and functionally feasible and has a simple payback of 15 years or less); and;
 - maximum U-values for elements that are retained as part of a change of use of a building or are upgraded when they become part of the building's thermal envelope (again, requirement only applies if the work is technically and functionally feasible and has a simple payback of 15 years or less).

Again, full details can be found in the two ADs.

In relation to the above, the report prepared in support of the requirements under Section 6(2)(e)¹ summarises energy efficiency activity in the domestic stock over the two-year reporting period with regard to the uptake of: loft (roof) insulation, cavity wall insulation, double glazing, hot water tank insulation and energy efficient boilers.

For buildings other than dwellings, the situation in principle is very similar to that just outlined. Although there are some differences in technical detail and the area of coverage, a number of the targets (e.g. maximum U-values for controlled fittings and thermal elements) are the same. A key difference, though, is the 'consequential improvements' that can be undertaken when a building is refurbished or extended. This requirement implements Article 6 of the EPBD and applies to buildings with a total useful floor area >1,000m² where the improvements are technically, functionally and economically feasible (i.e. having a simple payback <15 years). Examples of consequential improvements are:

- Upgrading heating systems >15 years old by the provision of new plant or improved controls;
- Upgrading cooling systems >15 years old by the provision of new plant or improved controls;
- Upgrading air handling systems >15 years old by the provision of new plant or improved controls;
- Upgrading general lighting systems by the provision of new luminaires and controls;
- Installing energy metering; and,
- Increasing the LZC energy generating systems.

Appendix A – Sustainable Communities

WHAT IS A SUSTAINABLE COMMUNITY?¹³

Short definition

Sustainable communities are places where people want to live and work, now and in the future.

Long definition

Sustainable communities are places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all.

The components of sustainable community: headlines

Sustainable communities are:

- Active, inclusive and safe
- Well run
- Environmentally sensitive
- Well designed and built
- Well connected
- Thriving
- Well served
- Fair for everyone.

The components of a sustainable community: in full

Sustainable communities embody the principles of sustainable development.

They:

- balance and integrate the social, economic and environmental components of their community
- meet the needs of existing and future generations
- respect the needs of other communities in the wider region or internationally also to make their communities sustainable.

¹³ The text in this Appendix was taken from the DCLG website (September 2006).

Sustainable communities are diverse, reflecting their local circumstances. There is no standard template to fit them all. But they should be:

(1) Active, inclusive and safe – *Fair, tolerant and cohesive with a strong local culture and other shared community activities*

Sustainable communities offer:

- a sense of community identity and belonging
- tolerance, respect and engagement with people from different cultures, background and beliefs
- friendly, co-operative and helpful behaviour in neighbourhoods
- opportunities for cultural, leisure, community, sport and other activities, including for children and young people
- low levels of crime, drugs and antisocial behaviour with visible, effective and community-friendly policing
- social inclusion and good life chances for all.

(2) Well run – *with effective and inclusive participation, representation and leadership*

Sustainable communities enjoy:

- representative, accountable governance systems which both facilitate strategic, visionary leadership and enable inclusive, active and effective participation by individuals and organisations
- effective engagement with the community at neighbourhood level, including capacity building to develop the community's skills, knowledge and confidence
- strong, informed and effective partnerships that lead by example (e.g. government, business, community)
- strong, inclusive, community and voluntary sector
- sense of civic values, responsibility and pride.

(3) Environmentally sensitive – *providing places for people to live that are considerate of the environment*

Sustainable communities:

- actively seek to minimise climate change, including through energy efficiency and the use of renewables
- protect the environment, by minimising pollution on land, in water and in the air
- minimise waste and dispose of it in accordance with current good practice
- make efficient use of natural resources, encouraging sustainable production and consumption
- protect and improve bio-diversity (e.g. wildlife habitats)

- enable a lifestyle that minimises negative environmental impact and enhances positive impacts (e.g. by creating opportunities for walking and cycling, and reducing noise pollution and dependence on cars)
- create cleaner, safer and greener neighbourhoods (e.g. by reducing litter and graffiti, and maintaining pleasant public spaces).

(4) Well designed and built – *featuring quality built and natural environment*

Sustainable communities offer:

- sense of place – a place with a positive 'feeling' for people and local distinctiveness
- user-friendly public and green spaces with facilities for everyone including children and older people
- sufficient range, diversity, affordability and accessibility of housing within a balanced housing market
- appropriate size, scale, density, design and layout, including mixed-use development, that complement the distinctive local character of the community
- high quality, mixed-use, durable, flexible and adaptable buildings, using materials which minimise negative environmental impacts
- buildings and public spaces which promote health and are designed to reduce crime and make people feel safe
- accessibility of jobs, key services and facilities by public transport, walking and cycling.

(5) Well connected – *with good transport services and communication linking people to jobs, schools, health and other services*

Sustainable communities offer:

- transport facilities, including public transport, that help people travel within and between communities and reduce dependence on cars
- facilities to encourage safe local walking and cycling
- an appropriate level of local parking facilities in line with local plans to manage road traffic demand
- widely available and effective telecommunications and Internet access
- good access to regional, national and international communications networks.

(6) Thriving – *with a flourishing and diverse local economy*

Sustainable communities feature:

- a wide range of jobs and training opportunities
- sufficient suitable land and buildings to support economic prosperity and change
- dynamic job and business creation, with benefits for the local community
- a strong business community with links into the wider economy
- economically viable and attractive town centres.

(7) Well served – *with public, private, community and voluntary services that are appropriate to people's needs and accessible to all*

Sustainable communities have:

- well-performing local schools, further and higher education institutions, and other opportunities for lifelong learning
- high quality local health care and social services, integrated where possible with other services
- high quality services for families and children (including early years child care)
- good range of affordable public, community, voluntary and private services (e.g. retail, fresh food, commercial, utilities, information and advice) which are accessible to the whole community
- service providers who think and act long-term and beyond their own immediate geographical and interest boundaries, and who involve users and local residents in shaping their policy and practice.

(8) Fair for everyone – *including those in other communities, now and in the future*

Sustainable communities:

- recognise individuals' rights and responsibilities
- respect the rights and aspirations of others (both neighbouring communities, and across the wider world) also to be sustainable
- have due regard for the needs of future generations in current decisions and actions.