

## **EXECUTIVE NOTE**

### **The Building (Scotland) Amendment Regulations 2006 (S.S.I. 2006/534)**

The above instrument was made in exercise of the powers conferred by section 1 of the Building (Scotland) Act 2003 (“the 2003 Act”). The instrument is subject to negative resolution procedure.

#### **Background**

The SSI amends the Building (Scotland) Regulations 2004 (“the 2004 Regulations”) which apply to the design, construction or demolition of a building, the provision of services, fittings or equipment in or in connection with a building, and the conversion of a building. Construction applies widely, and includes alteration and extension as well as new building. Conversion is restricted to prescribed changes of intended use or occupation. With the introduction on 1 May 2005 of the new system of building standards under the 2003 Act, the 2004 Regulations were the first to be expressed in terms of “functional standards”. What was introduced was a change of procedure as opposed to technical content, in effect a level transposition of the previous standards.

At the start of the new system, therefore, there was little technical change in order to limit the confusion for construction clients, architects and contractors.

There has been, in effect, a standstill in technical revisions since 2002, a situation which has generated something of a backlog of standards which needed to be reviewed.

#### **Policy Objectives**

The amended Regulations represent an essential updating of standards and guidance relative to Partnership Agreement commitments on energy conservation levels as well as European Directive implementation (Energy Performance of Buildings Directive and Construction Products Directive). Additionally, changes are required as a result of other significant pieces of legislation which have an impact on the building standards system (e.g. the Disability Discrimination Act). Since the introduction of the Building (Scotland) Act 2003, this is the first major amendment which requires changes to Building Regulations as well as to the Technical Handbooks and specifically covers:

- Standards and guidance on section 1 (Structure) – including an updated and expanded edition of the Small Buildings Guide.
- Standards and guidance on section 4 (Safety) – mostly relating to accessibility of buildings but also includes changes to section 3 (Environment) standards on facilities in dwellings and sanitary provision.
- Standards and guidance on section 6 (Energy), including changes to section 3 (Environment) standards on heating, ventilation, condensation and fuel storage; and covers how the Energy Performance of Buildings Directive impacts on the regulations.

## **Consultation**

The draft Regulations and guidance documents were subject to extensive public consultation (over 500 organisations and interested parties) between 1 March and 26 May 2006 and the process of making changes to building regulations included consultation with a significant number of organisations representative of all professional interests within the construction industry. We have ensured that consultation has taken place with all relevant professional organisations/institutes, construction research bodies, designers, housebuilders, technical specialists and those responsible for the administration of the building standards system.

Main consultees included:

Building Research Establishment (BRE) Scotland  
Building Standards Advisory Committee  
Chartered Institute of Architectural Technologists  
Energy Action Scotland  
Friends of the Earth Scotland  
Homes for Scotland  
Inclusion Scotland  
Institution of Structural Engineers  
National House-Building Council  
Royal Incorporation of Architects in Scotland  
Royal Institution of Chartered Surveyors in Scotland  
Scottish Association of Building Standards Managers  
Scottish Building  
Scottish Consumer Council  
Scottish Disability Equality Forum  
Scottish Local Authorities  
Scottish Renewables Forum

## **Financial Effects**

For a detailed assessment of the financial effects of the changes to Regulations and guidance, it will be necessary to scrutinise the separate Regulatory Impact Assessments.

Structure (Technical Handbook section 1):- Generally cost neutral but see item 5 (para 5.2) of Section 1 RIA.

Safety (Technical Handbook section 4):- The revision of mandatory standards and guidance on the accessibility of buildings is likely to incur significant costs. Due to the disparate issues addressed in relation to both non-domestic and domestic buildings, these costs have been assessed separately and are covered in detail in item 5 of the Section 4 RIA.

Energy (Technical Handbook section 6):- The costs of the amendments to Section 6 are difficult to quantify except in broad terms. Item 5 of the Section 6 RIA comprises the necessary detail on costs.

**FINAL REGULATORY IMPACT ASSESSMENT (Ref: 2005/52)**

**REGULATORY IMPACT ASSESSMENT  
AMENDMENTS TO SECTION 1: STRUCTURE OF THE TECHNICAL HANDBOOKS FOR  
WAYS OF COMPLYING WITH THE BUILDING (SCOTLAND) REGULATIONS 2004**

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# REGULATORY IMPACT ASSESSMENT AMENDMENTS TO SECTION 1: STRUCTURE OF THE TECHNICAL HANDBOOKS FOR WAYS OF COMPLYING WITH THE BUILDING (SCOTLAND) REGULATIONS 2004

## 1.0 PURPOSE AND INTENDED EFFECT

### 1.1 Objective

This final Regulatory Impact Assessment (RIA) addresses amendments to the functional standards and technical guidance on structure within the Building (Scotland) Regulations 2004 and the supporting Section 1 of the Technical Handbooks. The principal aim of the amendments are set out below :

- a. to ensure that the nature of the ground and the stability of other buildings are taken into account;
- b. to ensure that the structural guidance on small buildings is relevant to current Scottish construction practice; and
- c. to update the guidance to Standard 1.2 on disproportionate collapse

These amendments will apply to new buildings and to existing buildings being converted, altered or extended from 1 May 2007. A summary of proposed amendments to standards and guidance are provided in **Annex A**

### 1.2 Background

The Small Buildings Guide (SBG) was originally developed to provide designers of small buildings of traditional masonry construction a deemed to satisfy method of satisfying Part C of the Building Standards (Scotland) Regulations 1990, last updated in 1994. A BSAC Working Party to review Part C - Structure and the SBG was suspended in April 2002 awaiting the Building Standards review in Scotland.

With the implementation of the new Building (Scotland) Act 2003 on 1 May 2005, the status of the SBG changed to guidance and a report was prepared reviewing the SBG in the context of the existing and new Building (Scotland) Regulations, reviewing alternative options and preparing recommendations and implementation proposals. The report concluded that the SBG was significantly out of date and identified the following issues:

- a. continuing need for simple structural guidance for small buildings;
- b. need to take account of recent snow and wind loadings research results on account of climate change;
- c. need to update to current standards including European product codes;
- d. the guidance required to be updated to reflect current Scottish construction practice in particular:
  - ensure that SBG is more accessible to target users;
  - use of stainless steel or non ferrous wall ties to deal with the increased incidence of driving rain resulting from climate change;
  - additional guidance for wall ties for increased wall cavity widths to allow compliance with Section 6 – Energy; and
  - new guidance for timber frame wall construction.

In addition, the need to update Standard 1.1 – Structure and associated guidance was identified to emphasise that buildings must be designed and constructed:

- taking into account the nature of the ground; and
- without impairing the stability of other buildings.

Standard 1.2 was revised under the Building (Scotland) Regulations 2004 so that disproportionate collapse was applicable to all buildings and there is a need to expand the guidance to this standard in line with this.

### 1.3 Rationale for Government Intervention

Earlier versions of the Scottish Building Regulations and guidance explicitly required that ground conditions be taken into account in the design and construction of buildings. To ensure the present and historical intent of covering instability arising from ground movement is explicit, Standard 1.1 has been revised. The revision to the standard is worded to cover the nature of the ground rather than identifying specific hazards.

Historically there has been no requirement in the Scottish Regulations to ensure the stability of adjacent buildings whereas this is explicitly covered in England, Wales and Northern Ireland Building Regulations. If the design and construction of a new building does not take into account adjacent buildings and attendant geotechnical conditions, there could be a risk of collapse of or damage to that building with consequent risk to public safety.

With the change to functional standards of the Building (Scotland) Regulations 2004, Standard 1.2 removed the exemption of buildings of less than 5 storeys from being protected from disproportionate collapse in the event of damage occurring to any part of the structure. At present there is no guidance for buildings up to 4 storeys meaning that designers and verifiers have to seek alternative guidance for these buildings such as provided in the Approved Documents which support the England & Wales Building Regulations. There is a need in terms of public safety to expand the guidance on this subject to provide guidance which supports the full scope of Standard 1.2.

For England & Wales, the December 2004 revision to Approved Document A extended the equivalent standard and guidance to cover all buildings based on new research by Allott & Lomax. This categorises all buildings on a risk basis and applies appropriate levels of additional protection relative to the assessed risk to the building category in accordance with the forthcoming Structural Eurocode BS EN 1991-1-7 Accidental Actions.

The present Scottish guidance deals with the means of reducing the sensitivity of the building to disproportionate collapse in the event of an accident providing advice on the need to tie together horizontal and vertical components of the building. The removal of the application limit considerably expands the range of buildings brought under control and is categorised according to building type and use. For example, high rise hotels, high rise flats, assembly buildings and grandstands clearly require a different degree of protection than for low rise buildings or storage warehouses.

The guidance to Standard 1.2 has been re-written to give clear advice on measures to achieve structural robustness for various categories of buildings, adopting the principles of risk analysis such that designers can categorise buildings, taking into account both the risk of the hazard and its consequences on the basis of the Allott & Lomax research. The amended guidance divides buildings into four Risk Groups:

- **Risk Group 1** – does not require any special measures to be taken and includes buildings such as houses up to 4 storeys, agricultural buildings and buildings into which people do not normally go;
- **Risk Group 2A** - require a measure of tying together of members horizontally and includes buildings such as 5 storey houses, hotels up to 4 storeys and assembly buildings;
- **Risk Group 2B** - require both horizontal and vertical ties and include buildings such as houses, flats and shopping centres up to 15 storeys; and
- **Risk Group 3** - require to be assessed systematically by identifying hazards and risks and designing the structure to resist excessive damage should an incident occur and includes buildings such as grandstands and high risk storage or high risk process buildings.

Clearly, the risk that an extreme event will occur, be it explosion or other incident, is not of itself decreased simply by these measures. Nor can they ensure that demolition or building alteration will be carried out in accordance with best practice. However, it is intended that the consequence of such an incident will be considerably reduced. It is envisaged that the number of fatalities and serious injuries might be reduced by one half.

It is estimated that incidents of major uncontrolled collapse of buildings leading to death or injury take place on average at a rate of roughly one per annum on a UK wide basis. More common are instances of limited uncontrolled collapse not necessarily leading to death or injury, the extent and consequences of which remain influenced by lack of structural robustness. Such incidents cover a wide range of buildings and over a twenty year period the cost of damage to buildings in Scotland is estimated to be in the region of £200,000 per annum.

By the combination of bringing all buildings within control with regard to Standard 1.2 and providing clearer guidance on measures to reduce the risk of disproportionate collapse, it is estimated the costs to property and buildings will be reduced by one half.

The Small Buildings Guide is more than 10 years out of date with both UK wide and Scottish building practices. The citation of British Standards which are withdrawn or obsolete could exacerbate this problem and lead to buildings being constructed to outdated standards.

From consultations held with building standards officers and industry, there is a continuing need for this type of guidance to assist those persons experienced in construction practice and those who have to assess applications for warrant for low risk structural work without reference to chartered engineers. The removal of this guidance would lead to increased costs to both industry and local authority verifiers.

#### **1.4 The Risks to be addressed**

The changes adopted for Section 1 will help to ensure that all buildings are designed and constructed with current Scottish construction practice taking into account the effects of climate change, the nature of the ground, ensuring the stability of other buildings and that the guidance fully supports building standards 1.1 and 1.2.

The changes will also ensure compliance with the Construction Products Directive, [Council Directive 89/106/EEC] by replacing outdated British Standards with European product standards ( BS EN's).

The revised Section 1 will assist with the implementation of Structural Eurocodes [design] in Scotland. Eurocodes will be introduced in 2007 and are expected to replace all relevant British Standards by 2010.

It is considered that the change to the building standards and supporting guidance will address these issues.

## **2.0 CONSULTATION**

### **2.1 Development Phase**

Before making or amending the building regulations, Scottish Ministers are required to consult the Building Standards Advisory Committee (BSAC) and such other bodies as are considered necessary to inform on the matters under consideration. This exercise has been carried out through a BSAC Working Party and discussions have taken place with local authority verifiers and industry [see section 6.0].

## **2.2 Public consultation**

An intermediate regulatory impact assessment formed part of a package issued for public consultation. This package sought general comment on proposals and was issued to a list of individuals and organisations previously identified as having an interest in building standards. A list of all consultees was appended to the consultation package. The full consultation package was made available on the Scottish Building Standards Agency website at: <http://www.sbsa.gov.uk/consul.htm>.

A summary of the consultation process and responses is noted under **Annex B**.

## **3.0 OPTIONS PROPOSED**

### **3.1 Options**

In considering how to address the objectives identified in 1.1, four options were considered:

Option 1 - Do nothing;

Option 2 - Remove the Small Buildings Guide from guidance;

Option 3 - Update the present Small Buildings Guide;

Option 4 - Revise Standard 1.1 and improve guidance on disproportionate collapse and small buildings.

### **3.2 Sectors and groups affected**

Sectors and groups affected include:

- a) All those involved with the structural aspects of building design and construction would have to familiarise themselves with the new standards and guidance through training etc.;
- b) Builders who would have to modify their standard building types and construction detailing. Where relevant, they would need to seek amended and/or replacement Scottish type approvals and possibly sooner than they had otherwise intended;
- c) Building materials and component manufacturers would need to make changes to their products and literature to suit;
- d) Persons procuring new buildings or building work that would need to bear the extra cost of the work.
- e) Local authority verifiers would have to train staff in areas of the structural standards and guidance where the scope has been extended or revised.

## **4.0 BENEFITS**

### **4.1 Option 1**

Doing nothing will inhibit advances in technology and Scottish construction practice. In particular, the Small Buildings Guide is more than 10 years out of date. It does not take account of renewable materials such as timber or take account of climate change. There is also the added risk of buildings being constructed to outdated standards.

This option does not explicitly require ground conditions or the potential effects on adjacent buildings to be taken into account [see 1.3].

This option does not provide guidance on disproportionate collapse for buildings up to 4 storeys and therefore does not cover the full range of buildings in Standard 1.2.

### **4.2 Option 2**

This option will have a negative impact on industry and in particular Small and Medium Enterprises [SMEs]. From the consultation responses, there is a clear desire from local authorities and industry to use structural guidance for small buildings.



This option does not explicitly require ground conditions or the potential effects on adjacent buildings to be taken into account [see 1.3].

This option does not provide guidance on disproportionate collapse for buildings up to 4 storeys and therefore does not cover the full range of buildings in Standard 1.2.

#### **4.3 Option 3**

Option 3 is an improvement by updating the Small Buildings Guide to comply with current British Standards but would not cover timber frame construction which is the construction form used in Scotland for a large percentage of houses and small non domestic buildings and does not take into account climate changes.

This option does not explicitly require ground conditions or the potential effects on adjacent buildings to be taken into account [see 1.3].

This option does not provide guidance on disproportionate collapse for buildings up to 4 storeys and therefore does not cover the full range of buildings in Standard 1.2.

#### **4.4 Option 4**

With this option, the Small Buildings Guide would be updated as in Option 3 above and would be expanded into the Small Buildings Structural Guidance to take into account the technical and other changes made to British and European Standards, developments in technology and practice in Scotland, UK and Europe including providing guidance on timber frame construction which represents over 63% of the new starts in the volume housing market in 2004 and a large proportion of the single build and extension markets in Scotland, taking into account climate changes thereby assisting the UK Government in meeting its 60% target for carbon emission reductions in the UK.

This option would through Standard 1.1 explicitly require ground conditions and the potential effects on the stability of adjacent buildings to be taken into account .

Extending the guidance to cover all buildings will help compliance with Standard 1.2 i.e. protection of buildings against disproportionate collapse. This will improve the structural integrity of the built environment in Scotland.

Option 4 will also ensure harmonisation with current design standards and guidance on Structural Eurocodes in line with the Construction Products Directive.

### **5.0 COSTS**

#### **5.1 Costs to Scotland arising from updating Section 1 : Structure**

The particular issues on structural safety addressed by these amendments are :

- Protecting new buildings from collapse or deformation resulting from unsafe ground conditions below the building;
- Ensuring the stability of other buildings resulting from construction of new buildings in their vicinity
- The guidance on disproportionate collapse will lead to a reduction in the occurrence of damage occurring to any part of the structure of the building and will reduce the extent of any resultant collapse. It is estimated that the harm to life in terms of deaths and injuries will be reduced by one half as a consequence of the reduction in severity and extent of damage arising from an incident and a decrease in damage to buildings and property together with a saving of incidental costs to business such as loss of use of premises.

The value of each fatality prevented is taken to be £900,000, of each serious injury £100,000 and of each minor injury £8,000. In terms of harm to persons, the proposals

will deliver benefit deriving from the prevention of 0.1 death, 0.2 serious injuries and 0.6 significant minor injuries per year, that is to say approximately £120,000 per annum.

In terms of damage to buildings and property, the annual cost resulting from preventable disproportionate collapse is estimated to be in the region of £200,000. The proposals are estimated to reduce this by half leading to a benefit arising of £100,000 per annum.

Benefit also arises from the reduction in loss of use of premises assessed at approximately 30% of the costs associated with the damage to buildings and property amounting to £30,000 per annum.

Overall option 4 is estimated to deliver in the region of £250,000 per annum.

### **Health**

There is no health issues associated directly with the structure standards and therefore no welfare associated costs .

### **Welfare**

There is no welfare issues associated directly with the structure standards and therefore no welfare associated costs .

### **Sustainability**

The introduction of guidance for timber frame walls and wall ties for wider cavities will allow designers to improve the energy performance of buildings and assist the UK Government in meeting its 60% target for carbon emission reductions in the UK.

## **5.2 Cost of implementation**

### **Option 1**

The option to do nothing has no implementation costs but this would not best serve the public interest for the reasons given in 4.1.

### **Option 2**

The option to withdraw Small Buildings Guide from guidance has no implementation costs but this would not best serve the public interest for the reasons given in 4.2.

### **Option 3**

The option to revise present Small Buildings Guide would have minimal implementation costs as the guidance would be simply an updating of the existing information but this would not best serve the public interest for the reasons given in 4.3.

### **Option 4**

The costs of the proposed amendments to Section 1 by revising Standard 1.1 and providing improved guidance to Standards 1.1 and 1.2 are generally cost neutral but particular costs are assessed under Recurring Costs below.

There is another issue of who will bear these costs. The construction industry will clearly face the primary impact of changes to the regulations. However, the changes will affect all firms in the industry, and the cost of all new building work. It is expected that a significant proportion of the additional costs to the industry would be passed on to the purchasers of new buildings and to the owners of existing buildings undergoing construction work.

### **Non-recurring costs**

It is suggested that there are also costs which would apply only in the first years following amendment and could be only marginally greater than costs which are already ongoing e.g. staff development [see 7.2].

## Recurring costs

In addition to the costs described above, there would be the following recurring costs:

- a. The revision to Standard 1.1 and associated guidance including taking into account ground conditions and ensuring the stability of other buildings re-emphasises an aspect of the existing standard and imposes a requirement which is required by existing design standards which is accepted good design and construction practice. As such these revisions are broadly cost neutral .
- b. The change to Standard 1.2 which brought buildings less than 5 storeys under the disproportionate collapse regulation was introduced as part of the Building (Scotland) Regulations 2004 and therefore does not represent a change to the requirements. The introduction of guidance to support that previous change recommends that buildings at risk are made sufficiently robust by providing ties in floors or in floors and columns, between members. In most buildings vertical ties in columns may be omitted if the damage consequent upon an extreme incident can be shown to be less than 70m<sup>2</sup> per storey. In a large number of commercial and residential buildings, for example, hotels containing relatively small rooms repeated on each floor, the damage following the incident may by virtue of the small structural compartments be clearly less than 70m<sup>2</sup>, obviating the need for vertical ties and reducing the measures necessary.

Reinforced concrete buildings are usually found to have sufficient ties without requiring additional significant cost in design or construction if the structures are well detailed. Steel frame buildings are usually found to require few or no extra tie members provided that connections are appropriately detailed. Masonry and timber frame buildings may require the provision of specific additional ties, both horizontally into floor plates and vertically to increase flexural strength of load bearing panels. Buildings of such forms may be a dominant presence amongst those which are newly brought within the scope of regulations.

The additional annual building costs incurred are therefore estimated within the limits of current practice to be as follows. It will be appreciated that such analysis could be susceptible to variation arising from economic factors and from technical developments.

Concrete frame	£200 per building	50 buildings	£10,000
Steel frame	£500 per building	100 buildings	£50,000
Masonry/timber	£1000 per building	200 buildings	£200,000
Total			£260,000

- c. Revision of Small Buildings Guide to Small Buildings Structural Guidance:
  - Rewriting of document with aim of providing clearer advice and updating references would have no associated compliance costs;
  - Technical changes to guidance on strip foundations of plain concrete mainly by increasing the concrete strength from ST1 to ST2 grade will lead to a small increase in cement content and a reduction in aggregate content. A typical house might use some 5 cubic metres of concrete in strip footings and the cost increase per unit would be £7.50. However, in practice very few buildings are constructed with strip foundations of concrete grade ST1. Some 90% of new build housing is thought to be constructed under NHBC guidelines which already require the use of grade ST2. Of the remaining housing, approximately half may be expected to have simple strip footing foundations on non-aggressive soil. Based on 25,100 new houses completed per annum approximately 1,200 may be affected by the

proposed changes and the compliance cost therefore would amount to a total of £9,000 per annum;

- Use of stainless steel or other non ferrous wall ties generally reflects current good practice and as such is largely cost neutral;
- Increased width of cavities results from improved insulation requirements and as such is largely cost neutral in terms of Section 1;
- Introduction of timber frame walls guidance generally reflects current good practice and as such has no associated compliance costs;
- Introduction of raised tie and collared roofs guidance covers a relatively small number of buildings and has no significant associated compliance costs.

#### **Total compliance costs**

A central compliance cost for domestic and non domestic buildings of £269,000 total additional building costs for the Scottish building industry, as a whole, is assessed each year for new building work

## **6.0 COST/BENEFIT SUMMARY**

### **6.1 Summary of benefits**

The aim of this review is to determine whether or not the proposed changes to structural requirements can be delivered through changes to the Scottish building regulations

Option 1 - Do nothing - does not fulfil the revision requirements ;

Option 2 - Withdraw Small Buildings Guide - does not fulfil the revision requirements

Option 3 - Revise present Small Buildings Guide - does not provide the necessary upgrade to standards and guidance;

Option 4 - Revise Standard 1.1 and improve guidance on disproportionate collapse and small buildings - fulfils all the requirements by covering ground conditions and stability of other buildings and expanded guidance following current Scottish construction practice including disproportionate collapse of all buildings attracting additional costs but offsetting savings arising from reduced deaths and injuries and repair and disruption.

#### **Estimated costs for each option**

<b>Option</b>	<b>Cost/annum ( £k)</b>	<b>Benefits/ Disadvantages</b>	<b>Net ( £)</b>	<b>Cost</b>
<b>1</b>	Nil	Increase in substandard construction		Nil
<b>2</b>	Nil	Increase in substandard construction		Nil
<b>3</b>	3.7-9	Decrease in substandard construction .	3,750-9,000	
<b>4</b>	263-269	£250k saving, decrease in substandard construction , good current guidance	13,000-19,000	

## 6.2 Summary of implementation costs preferred option 4

Item	Unit Cost	Cost/ annum	Benefits
Revision to Standard 1.1		Cost neutral	Non quantifiable benefit from clarification. Decreased risk of substandard construction and consequent effect on health and safety
Rewrite Small Buildings Structural Guidance		Cost neutral	Non quantifiable benefit from improved clarity while not inhibiting construction and technology advances
Change to plain concrete foundations	£7.50 / house (Range 500 to 1,200 houses)	Additional £3750 - £9,000	Decreased risk of substandard construction and consequent effect on health and safety
Change to stainless steel wall ties		Cost neutral	Reflects current good practice giving long-term resistance to corrosion
Change allowing wider cavities		Refer to RIA for Section 6: Energy	Allows improved insulation to help government targets on energy conservation and climate change
Introduction of timber frame wall guidance		Cost neutral	Non quantifiable benefit providing guidance reflecting good practice with no associated compliance costs. Decreased risk of substandard construction and consequent effect on health and safety.
Removal of application limit to Standard 1.2	£200 /concrete building £500 /steel building £1000/masonry/ timber building	£10,000. £50,000. £200,000.	Increase in building structure robustness. Reduced deaths and injuries to persons, and cost of repair to industry and scale of disruption and consequential loss following an accident.
Total cost/benefit		Range £263k to £269k	Avoidance of death and injury, £120k. Avoidance of damage to buildings and consequential loss, £130k plus other non-quantifiable benefit

## **7.0 SMALL FIRMS IMPACT TEST**

### **7.1 Preliminary Impact Test**

Assessment has been based on Option 4 as Options 1 to 3 have no cost implications for small firms, including micro-businesses (those which employ less than 10 full-time employees). It is considered that the proposals to change the regulations apply in a proportional and equitable way. Only those firms that choose to erect, alter extend or convert buildings will be subject to the proposed changes.

### **7.2 Assessment**

A number of small firms were interviewed during the consultation process. The firms represented a cross section of the construction industry including developers, architects, structural engineers and timber frame manufacturers. All firms broadly welcomed the new standards and guidance.

The change to the wording of Standard 1.1 was not seen as significant but reinforced current best practice. The improved guidance to support standard 1.2 would however have a cost implication. This increase in cost would be borne initially by the developer and then passed on to the building owner.

Some small firms commented that the introduction of guidance on timber frame will create an additional training burden however they accepted that this would be offset against the need to appoint an approved certifier of structural design or submit structural calculations.

Architects confirmed that they are less likely to use the guidance on timber frame due to time constraints in the design process. Therefore, it is anticipated that the introduction of the new structural guidance for small buildings will not have significant impact on small businesses in the short term but is more likely to create business opportunities in the longer term.

The timber manufacturing / processing industry welcomed the guidance on the structural use of timber which will help to promote the development of environmentally sustainable and competitive forestry at home and in European member states.

In conclusion, the introduction of the new structural guidance for small buildings should lead to a more competitive market in design, manufacturing and processing which will reduce the anticipated costs borne by the consumer [see section 5.0 and section 6.0].

It is considered that these proposals will not present a significant impact on small businesses in Scotland but more likely to create additional business opportunities and stimulate economic growth.

## **8.0 “TEST RUN “ of BUSINESS FORMS**

There is no business forms proposed with any of the options.

## **9.0 COMPETITION ASSESSMENT**

### **9.1 Competition**

No significant areas of competition, restriction or imbalance have therefore been identified.

The proposed changes are not expected to have any significant effect on competition, other than the positive impact in 7.2 above.

### **9.2 Manufacture**

The proposed guidance on compliance is written mainly in terms of performance, rather than by prescribing products or materials. This offers the designer the flexibility to select the products and materials which best suit the design of the building. As mentioned earlier, the timber frame manufacturing / processing industry welcomed the new guidance on the structural use of timber which will help to promote the development of environmentally sustainable and competitive forestry at home and in European member states.

### **9.3 Implementation**

The proposed changes will affect any party carrying out work to create a new building or alter an existing building. Changes required to building practice will apply equally to all forms of development. Based on the recommended option, no disadvantages to any party, existing or emergent, have been identified.

### **9.4 Alternatives**

Section 1 guidance consists largely of performance measures which allow different ways of meeting the standards.

## **10.0 ENFORCEMENT, SANCTIONS AND MONITORING**

### **10.1 Background**

The proposed changes will form guidance given within the Scottish Building Standards Agency Technical Handbooks. These documents give guidance on compliance with the Building (Scotland) Regulations 2004.

All matters relating to enforcement, sanctions and monitoring will be carried out under the existing processes, which form the building standards system in Scotland, as set out under the Building (Scotland) Act 2003. Parties responsible for operation of this system are the 32 Scottish local authorities, appointed as verifiers under the Act, and the Scottish Building Standards Agency.

### **10.2 Enforcement and sanctions**

Generally, work subject to the Building (Scotland) Regulations 2004 requires to obtain a building warrant before work commences and to have a completion certificate accepted once works are finished. Exclusions are set out under Schedule 3 to Regulation 5 of the Regulations.

Where a building warrant is required, proposals are subject to the scrutiny of verifiers (local authority building standards departments) who have enforcement powers under the Act to ensure compliance with the Regulations.

### **10.3 Monitoring.**

The Scottish Building Standards Agency reviews the implementation of any changes made to building standards legislation to monitor the effectiveness of said changes and to ensure that subsequent reviews can be made on an informed basis.

In line with Scottish Executive policy, any implemented changes will be subject to a revised RIA within a 10-year period.

The SBSA will monitor the effectiveness of the changes by means of a Review RIA to ensure that subsequent reviews can be made on an informed basis.

The Review RIA will take this Final RIA as its starting point and update the assessment made in the light of the implementation of the regulation. The Review RIA will consequently be able to provide an accurate assessment of the impact rather than an estimate.

## **11.0 IMPLEMENTATION & DELIVERY PLAN**

Details of implementation and delivery are given within **Annex C**.

## **12.0 POST-IMPLEMENTATION REVIEW**

Aside from monitoring of changes, as noted in item 10.3, the following points are noted.

Continuous monitoring of the implementation of proposals is available through feedback from local authority Verifiers, designers, developers and property owners. These parties are in regular contact with the technical officers within the Agency and the queries they raise offer a broad view of how proposals are being implemented and if intent is being achieved. They also identify areas where objectives may be unclear and allows clarification of these objectives as part of the ongoing review process. Issues raised in this manner become a matter of record and are used to inform in the continued development of building standards and guidance.

In 2010, the British Standards which are cited in the guidance are scheduled for withdrawal leaving the Structural Eurocodes as the main design references in Section 1 in line with the Construction Products Directive and further changes may be necessary at that stage.

## **13.0 SUMMARY AND RECOMMENDATION**

This final RIA presents realistic estimates of the costs and benefits to individuals, businesses and to society that would result following the implementation of option 4.

The results of the RIA are robust and support the regulatory changes.

**It is recommended that the Minister endorse this Regulatory Impact Assessment.**

## **14.0 DECLARATION AND PUBLICATION**

I have read the Regulatory Impact Assessment and am satisfied that the benefits justify the costs.

**Signed:-** .....

**Date:-** .....

**Johann Lamont MSP  
Deputy Minister for Communities**

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## ANNEX A

### SUMMARY OF PROPOSED CHANGES

#### 1. Standard 1.1

To ensure the present and historical intent of covering instability arising from ground movement is explicit; Standard 1.1 will be revised to include the nature of the ground to fit in with the functional wording rather than identifying specific hazards. A new requirement will also be introduced to ensure the stability of adjacent buildings which aligns with building regulations in England, Wales and Northern Ireland.

The guidance to Standard 1.1 has been expanded and includes references to bodies such as the British Geological Survey and the Coal Authority for information on underground cavities, mine workings and other geotechnical information.

#### 2. Standard 1.2

Standard 1.2 has not changed, however the guidance has been expanded to help protect the built environment and improve public safety in and around all buildings.

The guidance is based on research recommending additional measures appropriate to the level of risk of disproportionate collapse. For example;

- i. **Risk Group 1** – does not require any special measures to be taken and includes buildings such as houses up to 4 storeys, agricultural buildings and buildings into which people do not normally go;
- ii. **Risk Group 2A** - require a measure of tying together of members horizontally and includes buildings such as 5 storey houses, hotels up to 4 storeys and assembly buildings;
- iii. **Risk Group 2B** - require both horizontal and vertical ties and include buildings such as houses, flats and shopping centres up to 15 storeys; and
- iv. **Risk Group 3** - require to be assessed systematically by identifying hazards and risks and designing the structure to resist excessive damage should an incident occur and includes buildings such as grandstands and high risk storage or high risk process buildings.

#### 3. The Small Buildings Guide

To support Standard 1.1, the Small Buildings Guide (Second Edition) will be replaced by section 1: structure [annexes 1A-1F] of the Domestic Technical Handbook. This will ensure that the guidance is more accessible to users than the present Small Buildings Guide. The key changes are as follows:

- a. document re-written providing clearer advice and updated references;
- b. improved navigation including flow diagrams and worked examples;
- c. greater emphasis on the limitations;
- d. clearer advice on when to obtain specialist advice;
- e. updated guidance on snow and wind loadings resulting from climate change;
- f. changing concrete strength from ST1 to ST2 for strip foundations of plain concrete;
- g. new guidance for eccentric foundations and extensions to existing buildings;
- h. revised guidance on masonry wall heights in accordance with BS 6399: Part 2;
- i. recommending the use of stainless steel or non ferrous wall ties to deal with the increased incidence of driving rain resulting from climate change;
- j. providing additional guidance for wall ties for increased wall cavity widths, allowing more wall insulation to be installed which in turn will help government targets on energy conservation and climate change;
- k. introducing guidance on timber frame walls recognising home grown timber as well as European classifications;
- l. improved guidance on notches and holes in timber floor, roof and wall members;
- m. new guidance introduced on raised tie and collared roofs.

## **ANNEX B**

### **CONSULTATION SUMMARY**

Written notification of the consultation exercise was made to 505 individuals, organisations and interested parties listed on the SBSA consultation list, together with the 94 statutory consultees contained on the SBSA standard distribution list. Notification by email was also made to some 250 individuals and organisations who have registered an interest in building standards through the SBSA website, and receive regular update e-newsletters.

The consultation documents were made available on the SBSA website as an electronic download, with paper copies posted to all individuals or organisations requesting a hard copy.

29 responses have been received of whom 10 of the consultees requested that their comments should remain confidential or did not give consent to their views being made public.

Given the wide range of stakeholders that are affected by proposals, it was anticipated that a more comprehensive response would be made to consultation proposals. However, the majority of key stakeholders have responded which allowed a detailed analysis to be carried out.

**Respondees are summarised by group and listed below.**

#### **Contractors, Manufacturers & Developers(4)**

Cala Homes  
James Walker (Leith) Ltd  
Miller Homes  
Stewart Milne Group

#### **Designers(1)**

David R Murray & Associates

#### **Interest Groups & Advisory Organisations(3)**

Homes for Scotland  
NHBC (2 responses)

#### **Local Authorities(9)**

Scottish Association of Building Standards Managers  
Angus Council Building Standards  
City of Edinburgh Council  
Glasgow City Council Environmental Protection Services  
Inverclyde Planning Services, Building Standards  
Midlothian Council , Building Standards  
Stirling Council Building Standards Service  
South Ayrshire Council, Building Standards  
South Lanarkshire Council , Building Standards

#### **Other Statutory Bodies (4)**

Forestry Commission  
Historic Scotland  
Scottish Prison Service Estate Development ,  
SEPA

**Professional and Trade Bodies(8)**

Chartered Institute of Architectural Technologists

Concrete Block Association

CROSS

Institution of Structural Engineers

Royal Incorporation of Architects in Scotland

Royal Institution of Chartered Surveyors in Scotland

The Glass and Glazing Federation

The Concrete Centre

UK Timber Frame Association

**ISSUES ARISING FROM PUBLIC CONSULTATION**

A detailed summary of comments on specific questions asked as part of the consultation and on numerous other points, arising from the consultation process were noted for specific consideration.

A list of these is included in the Section 1 Consultation Report, published in September 2006 and available online at: [http://www.sbsa.gov.uk/current\\_standards/PreviousConsultations.htm](http://www.sbsa.gov.uk/current_standards/PreviousConsultations.htm).

## **ANNEX C**

### **IMPLEMENTATION & DELIVERY PLAN**

#### **Delivery and communication**

The proposed changes will be taken forward in the form of guidance contained in the Technical Handbooks produced by the Scottish Building Standards Agency. This guidance will be introduced as part of the annual amendment to the SBSA Technical Handbooks and implementation will be carried out under existing processes which form the building standards system in Scotland, as set out by the Building (Scotland) Act 2003.

The SBSA Technical Handbooks are the primary reference source for compliance with building standards and, as such, are used by designers and others involved in the building process to ensure compliance with the Scottish building regulations. When carrying out work that is subject to the building standards, it is the duty of the relevant person (normally the owner of the building) to comply with the requirements of the regulations.

The changes adopted for Section 1 will help to ensure that all buildings are designed and constructed to current Scottish construction practice, the nature of the ground will be taken into account and the stability of adjacent buildings is recognised. The guidance contained in Section 1:Structure of the technical handbooks takes cognisance of climate change and will assist Government in meeting its targets on energy conservation.

The changes will also ensure compliance with the Construction Products Directive, [Council Directive 89/106/EEC] by replacing outdated British Standards with European product standards ( BS EN's).

The revised Section 1 will assist with the implementation of Structural Eurocodes [design] in Scotland. Eurocodes will be introduced in 2007 and are expected to replace all relevant British Standards by 2010.

Publication in this form is the established method of introducing changes to the building standards system and ensures that information on changes reaches those involved in works that are subject to building standards. This information is made available in paper form, as a priced publication, or free of charge, as an electronic download from the Scottish Building Standards Agency website, [www.sbsa.gov.uk](http://www.sbsa.gov.uk).

#### **Implementation**

The proposed changes will form part of the building standards system in Scotland, produced and maintained, on behalf of Ministers, by the Scottish Building Standards Agency and operated and enforced by the 32 Scottish local authorities.

Most work which is subject to the Building (Scotland) Regulations 2004, as amended, requires a building warrant before commencement and to have a Completion Certificate accepted once finished. Such work is subject to the scrutiny of local authorities verifiers. Local authorities also have enforcement powers under the Act to ensure compliance with the regulations.

#### **Implementation period**

The changes to the guidance within the Scottish Building Standards Agency Technical Handbooks are relevant where any party responsible for a building carries out new building work. Where such work is not proposed, the proposed changes will not have any effect on either the party or the building.

Proposed changes will be published online by the 8<sup>th</sup> of January 2007 with hard copy documents following on 12<sup>th</sup> February 2007. Guidance will come into effect on the 1<sup>st</sup> of May

2007 and be applicable to all building warrant applications made on or after that date. This will provide the minimum 12 week implementation period required for any such change.

**Promotion**

Any changes to the building standards system are publicised by the SBSA through the Agency website, seminars and articles in relevant publications.

**FINAL REGULATORY IMPACT ASSESSMENT (Ref: 2005/53)**

**ACCESS TO, AND USABILITY OF, BUILDINGS –  
REGULATORY IMPACT ASSESSMENT ON AMENDMENTS TO SECTION 4: SAFETY  
AND SECTION 3: ENVIRONMENT OF THE TECHNICAL HANDBOOKS FOR WAYS OF  
COMPLYING WITH THE BUILDING (SCOTLAND) REGULATIONS 2004**

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**ACCESS TO, AND USABILITY OF, BUILDINGS –  
REGULATORY IMPACT ASSESSMENT ON AMENDMENTS TO SECTION 4: SAFETY AND  
SECTION 3: ENVIRONMENT OF THE TECHNICAL HANDBOOKS FOR WAYS OF COMPLYING  
WITH THE BUILDING (SCOTLAND) REGULATIONS 2004**

**1.0 PURPOSE AND INTENDED EFFECT**

**1.1 Objective**

This final Regulatory Impact Assessment (RIA) addresses the proposal to introduce revisions to the standards within the Building (Scotland) Regulations 2004 and to guidance within Sections 4 (Safety) and 3 (Environment) of the SBSA Technical Handbook, in relation to access to, and usability of, buildings.

The principal aim of this review is to ensure that buildings better address the varying needs and abilities of the people who use them and that barriers to access and usability are removed through legislation, in a practical and cost effective manner, to ensure that buildings and their environments are more inclusive and can be reached, used and enjoyed by the population of Scotland.

The review also considers existing UK legislation and, in particular, seeks to support and complement the aims of the Disability Discrimination Act 1995 & 2005 (DDA) in respect of accessibility of the built environment.

Consideration of this review is an appropriate response to the Scottish Executive's policy on equality and social inclusion and to update technical issues that have been held in abeyance by the introduction of the Building (Scotland) Act 2003 and the new system of building standards in Scotland, which began in May 2005.

Amendments to the building standards system would apply, from May 2007, to all new buildings and existing buildings, where works to convert, alter or extend are proposed. A summary of amendments to standards and guidance are provided in Annex A.

**1.2 Background**

Standards relating to provisions for disabled people within non-domestic buildings (Part T) were introduced into the Scottish building standards system in 1984. In 2000, these standards were integrated within the main body of standards and additional accessibility standards were introduced for accessible dwellings (Part Q). These have subsequently been transferred to the SBSA Technical Handbooks.

Standards and guidance for non-domestic buildings presently require buildings to be accessible to all, including people who may have a disability. However, a significant portion of present guidance is based upon good practice recommendations that have now been improved upon. In addition, limitations on access within buildings apply, particularly within smaller properties, which do not accord fully with the aims of providing inclusive environments.

The process of integrating guidance within the building standards should continue to promote understanding that accessibility for all is a basic need in any building and that the view of accessible solutions as additional provisions, made only to benefit disabled people, is no longer tenable. Following a social model of disability, it should instead be recognised that it is barriers that exist within a building that are a disabling element, not the impairment of the building user. All people are disabled by their environment to some extent - improving that environment will lessen the disability.

The 'visitability' standard introduced under Part Q of the Technical Standards in 2000 made a general requirement that all dwellings were provided with level or ramped access to the dwelling and sought an accessible WC and minimum corridor and door widths on the entrance storey within the dwelling. Exemptions to the access to, but not within, dwellings were possible for low-rise flats and townhouses.

At present, social (public) housing in Scotland is designed to a barrier free standard<sup>1</sup> as a condition of funding whilst private housing meets the less onerous 'visitability' standard under the Scottish building standards. The result is that the housing stocks of registered social landlords are better able to meet the varying needs of the Scottish population than accommodation provided by the private sector. The latter forms the majority of new homes built in Scotland each year.

The profile of housing tenure in Scotland is changing in a relatively linear fashion. Since 1981, the market share of privately rented accommodation has remained constant at around 7%, whilst rented public housing has decreased from 56% to around 27%. Owner occupation has risen from 37% to 66% over the same period, though this may include shared equity, or purchase of properties, made through the public sector route.

Private sector dwellings meet the a 'visitability standard' and provide a wide choice and varied provision for the vast majority of building users, sometimes offering levels of facility that exceed present building standards. Those issues that do remain are primarily related to the provision of space to consider reduced mobility of occupants and allow for flexibility of use. These are addressed through this revision of the building standards, to enable occupation and use by as wide a range of people as possible. This includes consideration of use, by a person in a wheelchair, of the basic facilities necessary to enable occupation.

### **1.3 Rationale for Government Intervention**

In addition to the duty to ensure that building standards remain relevant and address the needs of the population, the following drivers for change have been identified.

#### **TO RESPOND TO DEVELOPMENTS IN GOOD PRACTICE**

Between 1997 and 2001, and with government support, the British Standards Institute prepared and published BS 8300 – 'Design of buildings and now their approaches to meet the needs of disabled people – Code of practice'. Principally addressing issues in non-domestic buildings, this document is now widely accepted as the principle reference document for information on the provision of accessible environments that address the needs of disabled people. The date of publication prevented inclusion within the 6<sup>th</sup> Amendment of the Technical Standards in 2001. An opportunity now exists to update standards and guidance to recognise current good practice, where this is appropriate within the context of the building standards system.

#### **TO ENSURE PARITY WITH OTHER COUNTRIES WITHIN THE UK**

In respect of non-domestic buildings, a review is considered essential to ensure parity with other countries within the UK is maintained. A review of regulations and guidance on access has been carried out in England and Wales, resulting in the publication, in May 2004, of a revised Approved Document M – 'Access to and use of buildings'. This brought guidance on matters covered by the building regulations broadly in line with the recommendations of BS 8300: 2001. Similarly, in Northern Ireland, a public consultation has been carried out in 2005, resulting in the publication in September 2006 of a revised Technical Booklet R, with similar result.

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<sup>1</sup> "Housing for Varying Needs, Parts 1 & 2", published by Communities Scotland (1999).

## SUPPORTING EXISTING UK LEGISLATION

In relation to non-domestic buildings, review is also necessary to support and complement existing UK anti-discrimination legislation by responding more appropriately to the aims of, and duties imposed under, the Disability Discrimination Act 1995. At present there is disparity between the guidance within the building standards and recognised good practice for accessibility. Although the scope of matters covered by the building regulations is less than the range of issues that may be considered relevant under the DDA, building users and owners should benefit from guidance that reflects recognised good practice.

Similarly, building owners and operators should be assured that compliance with building regulations is more likely to contribute to meeting their duties under the Act.

## PROVIDE HOUSING TO MEET THE NEEDS OF SCOTLAND'S POPULATION.

The government is committed to delivering high quality housing that is well designed, minimises impact on the environment and better supports individuals and families with varying needs. With increasing life expectancy, it is also recognised that the needs of an increasingly ageing population should be addressed within this.

The 2002 Scottish House Condition Survey (SHCS) estimated that there were just under 2.2 million dwellings in Scotland. Of this total, it is estimated that are a total of 49,000 properties (2%) categorised as 'housing for older people' and 21,000 (1%) categorised as 'housing for people with disabilities within the public sector. Within the private sector, the majority of housing built since 2000 (up to 100,000 units or 4.5%) is built to the 'visitability' standard and may also be categorised as 'housing suitable for ambulant disabled persons'.

The SHCS also records the following statistics:

- just over one third of households have at least one member with a long term illness or disability (17% of whom recorded a mobility or physical impairment); and
- one household in ten includes a person who uses a mobility aid; and
- a quarter of households include at least one member who can be classified as belonging to a Community Care grouping.

These three groups will be subject to significant overlap but present strong evidence of the level of demand that exists within the Scottish Population for more accessible dwellings.

### **1.4 The Risks to be Addressed.**

Building regulations exist to ensure the health safety, welfare and convenience of persons in and around buildings. Proposals recognise a clear need to consider the manner in which access to, and within, buildings is provided, to ensure that both buildings and the services or facilities they provide remain available to the population of Scotland.

It is also considered important that the work on delivering inclusive environments, which commenced with the introduction of Part T to the building standards in 1984 is continued, to support Scottish Executive policy on equality and social inclusion, to recognise to developing needs of Scotland's people and to:

- maintain an acceptable level of amenity and convenience in buildings; and
- address specific safety issues related to access and usability of buildings; and
- ensure that buildings are more adaptable and better able to address the changing needs of building users, providing a positive contribution to a sustainable environment.

As significant an improvement as this cannot be done without financial implications. The cost of providing more accessible buildings and dwellings should be balanced against the benefits that will accrue to building users over the life of a building and, for example, should not contribute disproportionately to the cost of dwellings, at the risk of undermining the affordability of homes.

## **2.0 CONSULTATION**

### **2.1 Development Phase**

Before making or amending the building regulations, Scottish Ministers are required to consult the Building Standards Advisory Committee (BSAC) and such other bodies as are considered necessary to inform on the matters under consideration. This exercise has been carried out through a BSAC Working Party.

### **2.2 Within Government**

The Scottish Building Standards Agency has a standard distribution list for consultations. Government organisations and departments with a policy interest in proposals are contacted in respect of these proposals and consultation documents made available to these bodies.

This includes direct contact and discussion with the following government bodies:

SE Enterprise and Industry Division; SE Equalities Unit; SE Health, Primary Care Division; SE Health, Community Care Division; SE Planning Division; SE Private Sector and Affordable Housing Policy Division; SE Regeneration, Fuel Poverty and Supporting People Division; SE Social Housing Strategy and Finance Division; SE Social Inclusion Division; SE Sustainable Development Strategy Team; Communities Scotland; Historic Scotland; HM fire Service Inspectorate; Buildings Division – Office of the Deputy Prime Minister; Building Regulations Unit – Department of Finance and Personnel, Northern Ireland.

### **2.3 Public consultation**

An Intermediate RIA, which contained the majority of the information presented in this document, formed part of a package issued for public consultation. This package sought general comment on proposals and was issued to a list of individuals and organisations previously identified as having an interest in building standards.

The consultation package was also made available on the [Consultations Page](#) of the Scottish Building Standards Agency website.

A summary of the consultation process and responses is noted under Annex B.

### **2.4 Europe**

Proposals to amend guidance under the Building (Scotland) Regulations 2004 were notified to the European Commission under the provisions of Technical Standards & Regulations Directive 98/34/EC. This Directive seeks to prevent the creation of new technical barriers to trade and lays down a procedure for the provision of information in the field of technical standards and regulations. The standstill period imposed by the Directive was completed on 28<sup>th</sup> September 2006. No representations on proposals have been received.

## **3.0 OPTIONS PROPOSED**

### **3.1 Options**

In considering how to address access and usability of buildings, a range of three options have been identified.

- **Option 1**  
Do nothing.
- **Option 2**  
Increase awareness of the need for inclusive design and introduce best practice guidance documents for adoption and application on a voluntary basis.
- **Option 3**

Introduce revised and updated building standards guidance on access and usability of all buildings, recognising current good practice where such is appropriate for implementation within the building standards system in Scotland.

### **3.2 Sectors and groups affected.**

Options 1 and 2 do not impose mandatory requirements and therefore cannot be considered to have any effect on any specific sector or group.

The proposals under Options 3 will affect any individual or organisation responsible for a building, where works subject to the building standards are carried out as part of a new building or as part of alteration, extension or conversion of an existing building.

They will affect all parties with a responsibility for the development, ownership or management of such a building. They will have no effect on any individual or organisation where such work is not proposed to, or as part of, a building. It is not considered that the proposed changes will affect any group disproportionately, though it is recognised that the wider application of the need for unassisted access between storeys will have a greater effect on the development of smaller non-domestic premises of more than one storey.

All parties would have to meet higher standards with respect to accessibility within buildings. This will apply equally across all sectors, noting that standards and guidance differ in application between domestic or non-domestic buildings.

These parties would require to bear or transfer any additional costs imposed by proposals and those involved with building design and construction would have to familiarise themselves with the new standards and methodologies through training. In addition:

- Local authority Verifiers may have to provide additional training to staff on standards and guidance on access and usability of buildings as scope has been extended. Liaison with local access groups may also be further developed.
- Developers would have to modify existing standard building types to address issues raised. This is particularly relevant to houses. Where relevant, amended Scottish type approvals (approval of a building form for use anywhere in Scotland) may be required.

## **4.0 BENEFITS**

### **4.1 Option 1 - Benefits**

This option offers no benefits. There would be no improvement to the accessibility of new or altered buildings and barriers to access and usability that presently exist would remain.

This would result in no improvement in levels of usability or social inclusion present within the built environment, except where provided through voluntary application of existing good practice guidance, through compliance with other legislation (for example, the Disability Discrimination Act, for non-domestic premises) or as a condition of funding (for example, barrier-free housing sought by Communities Scotland).

### **4.2 Option 2 - Benefits**

Any benefits gained by the introduction of a voluntary code would be wholly dependant on the level of use of any such code. Benefits would, at best, be identical to those possible under Option 3 in Item 4.3, but applicable only to those buildings produced in compliance with the recommendations of such voluntary guidance. Without mandatory status, benefits would be limited and such guidance would not, for example, further address the issues raised in non-domestic buildings by the Disability Discrimination Act

### **4.3 Option 3 – Benefits**

The principal benefit of Option 3 is that, as a change to the building standards, proposals will be applied, through an existing monitoring and enforcement system, to ensure that improvements are made to the accessibility of buildings. Specific benefits under this Option can be quantified under the following categories:

#### BENEFITS TO THE POPULATION OF SCOTLAND

It is recognised that improvements to access will be of principal benefit to those members of the population that are considered to have a disability or impairment but that such improvements will also benefit any person who, due to age, stature, gender or circumstance, may find difficulty in negotiating barriers within the built environment. This is the principle of inclusive design, change for the benefit of everyone. Benefits will include:

- increased opportunity to play a full role in both society and the economy through removal of barriers to access; and
- support towards improved legal rights of access to the built environment. This will increase annually as a greater proportion of building stock is provided or altered to meet revised standards; and
- access to a wider range of housing, for sale or rent, that will suit the needs of the individual and better address changing circumstances throughout any period of occupation; and
- dwellings that will permit independent use for longer, postponing the need to move into a care environment.

#### BENEFITS TO BUSINESS

- Increased customer base for premises providing goods, facilities or services; and
- Premises that have greater potential to adapt to changing requirements; and
- Greater certainty of meeting duties under the Disability Discrimination Act when making alterations to or forming premises; and
- Potential reduction in accidents caused by less suitable means of access; and
- Improved public image through provision of accessible premises.

#### BENEFITS TO GOVERNMENT

- Furtherance of existing policies on equality, opportunity and social inclusion; and
- Furtherance of the continued development of sustainable buildings; and
- Reduced cost of adapting dwellings to meet the individual care needs of people; and
- Increase potential for successful community care through provision of dwellings that can better accommodate people with reduced mobility or a long-term illness or who are convalescing after medical treatment.

There will be more certainty in relation to duties under the Disability Discrimination Act as minimum standards for all building work will more closely reflect accepted good practice, improving what may be considered 'reasonable adjustment' to the physical environment of a building.

#### **4.4 Summary of Benefits**

The aim of this review is to determine whether or not improvements to the standard of accessibility of new buildings in Scotland can be delivered through changes to the Scottish building regulations.

- Option 1 (do nothing) is not considered to offer an appropriate response to this issue as no improvement to the accessibility of buildings subject to the building standards would be realised. Improvements would only continue to occur, as at present, in response to duties under other legislation. It would result in lesser standards for access to non-domestic buildings in Scotland compared to the rest of the UK and would not address present uncertainty in meeting duties under DDA legislation

- Option 2 (publish and promote good practice guidance) would offer information that could be readily adopted by those involved in building work to provide more accessible buildings. However, a significant body of such guidance already exists and, although status of official government guidance may encourage adoption, there is little evidence to suggest that there would be a significant increase to present levels of voluntary compliance with good practice within Scotland.
- Option 3 (Amend the standards and guidance in Scottish building regulations) would ensure that all new, altered, extended or converted buildings in Scotland were designed and constructed in accordance with standards appropriate to better address the needs of all building users, without exclusion. It would ensure that buildings delivered that are more accessible and inclusive. Although presenting a significant cost implication, it is offers appreciable and consistent benefits and, further, provides appropriate response to Government policy on equality, opportunity and social inclusion.

## 5.0 COSTS

### 5.1 Option 1 – Cost of implementation

This option imposes no implementation costs.

### 5.2 Option 2 – Cost of implementation

The development costs for production of voluntary codes of practice would form part of the work of the Scottish Building Standards Agency. Development costs related to such a code would therefore be borne by government, as would the cost of publishing and distribution. As with the building standards, such documents would be in the public domain and made available free of charge. As such, no revenues would be derived from this option.

This option would impose costs through funding of advertising and awareness campaigns. However, these would not be borne directly by the public. No values have been assessed, as costs will be proportional to extent of any proposed promotional campaign.

### 5.3 Option 3 - Cost of implementation

The revision of mandatory standards and guidance on the accessibility of buildings would incur significant costs and an approximation of potential costs is possible. Due to the disparate issues addressed in relation to both non-domestic and domestic buildings, these costs have been assessed separately, as follows:

#### NON-DOMESTIC BUILDINGS

As noted in item 1.3, the proposals within Option 3 of this document relate very closely to changes made to building standards for non-domestic buildings within Part M of the Building Regulations 2000, introduced in England & Wales in May 2004. As part of this process, the Office of the Deputy Prime Minister produced a detailed cost assessment of proposals within a Regulatory Impact Assessment<sup>2</sup> prior to consultation in 2002. The cost of implementing changes was calculated at £120m for new buildings and £69m for alterations, extensions and conversion of existing buildings (2000 prices) which equates to approximately 0.8% of the total output for the affected construction sectors at that time of £24,145m.

Detailed breakdowns of output against specific building types are not available for Scotland. Whilst there are small but significant variations between both detail of proposals and the building standards systems in Scotland and England & Wales there is considered to be sufficient similarity in scope and intent of proposals to permit use of this same percentage figure against works in Scotland. This would permit the following assessment of implementation costs.

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<sup>2</sup> [Final RIA, AD M](#), ODPM, 2004

<b>Element</b>	<b>Cost</b>
Output of construction in Scotland for year 2004	£8,610m
Less cost of:	
Infrastructure projects	- £799m
New housing	- £2,466m
Repair and maintenance to housing	- £1,477m
<b>Total output for affected construction sectors</b>	<b>£3,868m</b>
<b>Assessment of annual additional cost (0.8%) to affected sectors (following methodology of England &amp; Wales Part M RIA)</b>	<b>£30.9m (2004)</b>

A projection of these costs to the implementation date of 2007 would suggest an adjusted cost in the region of £32.9m per annum at that time.

#### MODERATION

This assessment represent a partial over-assessment of implementation costs as the figures for England & Wales assign a higher percentage cost for compliance to material alterations, which were not previously covered by building regulations.

In Scotland, these works are presently covered by legislation and therefore additional compliance costs would be reduced to the difference between present and proposed standards. Complete exclusion of assessment of costs for material alterations to existing buildings would reduce the percentage additional cost to 0.5%.

All that can be stated in confidence is that the cost of implementation would lie between £19.3m (0.5%) and £32.9m (0.8%).

Proposed variations from consultation guidance will have only minimal effect on these figures. The level of variation in construction output possible in any one year renders assessment of any potential reduction difficult to quantify. It is, however, reasonable to state that the finalised guidance will not result in a net addition to the costs noted above.

There is an overlap between works that would be necessary to meet building standards and those deemed appropriate to meet duties under Part 3 of the Disability Discrimination Act 1995.

A proportion of this cost has been anticipated within the RIA for Part 3 of the DDA<sup>3</sup> which anticipated a total policy cost in the region of £606m to £1.2Bn should adjustments to all existing buildings covered by the Act take place in 2004. Placing this assessment over a period of five years implementation would equate to an annual cost to the UK of between £112m to £229m.

Allowing a cautious view of the degree of overlap, implementation costs for current UK legislation can be seen to discount in the region of one third of this projected cost of £32.9m.

#### DOMESTIC BUILDINGS

There are two cost areas that must be considered – the cost of provision of facilities or building components that are not presently required and the cost associated with any increase in floor area of a dwelling as a result of proposals.

<sup>3</sup> [DDA - Access to goods, services and facilities RIA](#)



It is difficult to quantify the latter, as proposals constitute a further shift in the ethos of house design, building on the previously introduced visitability standard. To some degree it is the skill of the designer that will decide exactly how efficiently these proposals can be incorporated within new designs for dwellings. The following have been considered:

#### EFFECT BY SECTOR

Implementation of proposed changes will have a greater effect in the private sector than the public sector housing. Public sector housing in Scotland presently meets barrier-free standards and therefore meets many of the criteria being sought. Costs are therefore adjusted for public sector housing, effectively discounting cost of features, and apportioned between sectors. Further assessment will be progressed with Communities Scotland, who have provided anticipated provision in 2006/07 at 7,100 units.

#### PROVISION OF FEATURES

Costs have been apportioned in the past for the implementation of Lifetime Homes criteria, most recently by the Northern Ireland Housing executive<sup>4</sup>. This considered an additional unit cost for provision of Lifetime Homes features, excluding any effect on dwelling area, of £165 to £545 for social housing and £182 and £529, for two or three bed housing. Subject to more detailed analysis, an approximation of compliance costs of £200 for a flat or single storey dwelling and £600 for other dwelling has been assigned to cover provision of additional facilities proposed within guidance that relate to Lifetime Homes Standards and alterations to external circulation.

#### EFFECT ON BUILDING AREA

In addition, a figure per square metre has been allowed for increase in net floor area that a dwelling that may potentially be required to provide new facilities and enhanced access to existing facilities without compromising space within unaffected areas. For this assessment, this is set at:

- £730 for single storey houses, £640 for two-storey houses and above and £620 for flats in the private sector; and
- £640 for single storey houses, £560 for two-storey houses and flats in the public sector

Any area increase may be significantly mitigated by the manner in which changes to dwellings are addressed. It is considered that redesign, based upon the principals of the guidance, rather than simple amendment of existing designs, will deliver dwellings that maintain amenity within unaffected areas without significant increase in floor area. An allowance of 0.4 m<sup>2</sup> to 1.2 m<sup>2</sup> for flats and single storey houses and 1.8 m<sup>2</sup> to 4.0 m<sup>2</sup> for houses of two storeys or more has been assigned as an initial estimate.

#### ASSESSMENT

Recognising the steady growth of house building and intended targets for social housing in Scotland, a total number of new dwellings can be projected for 2007, together with the proportion of flats and single or multiple storey houses<sup>5</sup>, the following assessment can be made. For the purposes of this exercise, distribution of building type is considered the same for both private and public sector.

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<sup>4</sup> Lifetime Homes in Northern Ireland (O'Brien, Blythe, McDaid, 2002)

<sup>5</sup> 2003 figures, NHBC quarterly statistics

Element	Unit cost (private)	Private	Unit cost (public)	Public	Total Cost
		Lower/upper		Lower/upper	
Projected number of dwellings p/a (2007)	-	20,000	-	7,100	27,100
Cost for increased area – flats @ 32% of build	£248 to £744	£1.6m to £4.8m	£224 to £672	£0.5m to £1.5m	
Cost for increased area – bungalows @ 6% of build	£292 to £876	£0.3m to £1.0m	£256 to £768	£0.1m to £0.3m	
Cost for increased area – houses @ 62% of build	£1,152 to £2,560	£14.3m to £31.7m	£1,008 to £2,240	£4.4m to £9.8m	
Cost for additional facilities – flats @ 32% of build	£200	£1.3m	-	-	
Cost for additional facilities – bungalows @ 6% of build	£200	£0.3m	-	-	
Cost for additional facilities – houses @ 62% of build	£600	£7.4m	-	-	
<b>Assessment of annual additional cost per annum (2007)</b>		<b>£25.2m to £46.5m</b>		<b>£5.0m to £11.6m</b>	<b>see below</b>

This gives an estimated implementation cost of between £30.2m and £58.1m.

This represents an average additional cost per dwelling for the construction of homes to the new standard, of between £1,260 and £2,325 in the private sector and £700 and £1,630 in the public sector.

It should be noted that these costs may be further mitigated by present development that, on a voluntary basis, addresses some or all of the issues arising from proposed changes.

Research has been carried out to support the above costings<sup>6</sup>, assessing a small number of standard dwelling types on a 'worst case' basis – considering how to adapt existing designs to meet consultation proposals. These have identified a range of costs, from less than £200 for a typical two-bedroomed flat, between £200 and £1000 for larger house types and just over £3,000 for a small 2-bedroom terraced house or 3-bedroom townhouse.

The costs for the small house and townhouse are at the upper end of the costs assessed in the above table. It is recognised that additional cost will be mitigated further by redesign of dwellings rather than localised alteration of existing building forms.

#### 5.4 Summary of Implementation Costs.

Option	Non-domestic Buildings (£m)	Domestic Buildings (£m)	Total Cost (£m)
1	-	-	<b>NIL</b>
2	-	-	<b>N/A</b>
3	<b>19.3 to 32.9</b>	<b>30.2 to 58.1</b>	<b>49.5 to 91</b>

<sup>6</sup> Research into the impact of proposed changes to guidance in support of standards to facilitate the use of dwellings – SBSA May 2006 - [www.sbsa.gov.uk](http://www.sbsa.gov.uk)

These costs are direct annual economic costs to those who carry out work building, altering, extending or converting buildings. They are based upon projected to 2007 at current values for construction work.

It is not proposed to assign a monetary value to the social benefits offered by proposals, nor to directly identifiable benefits that will accrue in the following areas:

Non-domestic premises -

- Increased marketability and revenue to buildings offering goods, facilities or services from increased client base
- Reduced time and travelling costs to accessible facilities
- Reduction in potential cost of injury from negotiating less accessible premises

Domestic premises -

- Reduced cost of future alterations
- Reduced need for future adaptation
- Reduction in cost of support services
- Savings from reducing the need to move to another property or into a care environment
- Increase in value and marketability of more accessible properties

Instead, these issues are identified for consideration, as consequential benefits that will offset the implementation costs of proposals to an unspecified degree.

## **6.0 SMALL FIRMS IMPACT TEST**

### **6.1 Extent of Investigation**

Proposed changes to domestic buildings will have no significant effect on SMEs. Discussions on proposals for non-domestic buildings took place during and after the period of public consultation. Particular emphasis was given on the effect on micro-businesses (less than 10 full-time employees).

A random sample of small businesses (16), was canvassed to act as an initial sounding board. Findings were then discussed with the Federation of Small Businesses.

Options 1 and 2 impose no regulatory change, therefore interview and analysis were based upon Option 3. Comments were invited on general issues raised by non-domestic proposals. It is noted as significant that the proposals are only relevant where building works are carried out. They will, therefore, not affect small firms in existing premises where no such work is carried out. In this respect, proposals apply equally to all buildings and do not disadvantage any particular sector of the population.

### **6.2 Assessment**

At present, responsibility under the Disability Discrimination Act applies to both employers (a reactive duty under Part 2) and to providers of goods, facilities, services or premises (a proactive duty under Part 3). these require that premises are made as accessible as is reasonably practicable, to prevent discrimination against disabled people. Proposals generally reflect current good practice for accessibility, recognising and complementing duties under the DDA applied to both existing and new buildings.

Proposals extend the range of issues building standards address and revise prescription on many existing topics. Some issues will now apply to a larger proportion of buildings as present exemptions based on building area have been reduced. Consequentially, a larger number of smaller buildings may be affected and, within this number, the cost of meeting recommendations may be proportionally greater. This could affect those taking occupation of such premises, which will include small businesses.

However, any additional cost:

- will deliver premises that are better suited to the needs of both occupants and visitors, reducing any potential need for further alterations; and
- relates to measures that may already be considered appropriate under existing duties imposed by the Disability Discrimination Act; and
- will remove a degree of uncertainty from works where meeting duties under the DDA is a material consideration.

The main concern raised in consultation was that proposed changes should recognise the problems of providing access within small buildings and that, ideally, solutions be in proportion to the size of premises.

Whilst this concern is recognised, it is considered that exemption from basic provisions is not possible. For buildings to be inclusive, guidance must be applied consistently with any exemption being related to building function. Any exemption from provision on the basis of building size or affordability is therefore difficult to qualify.

It is considered important to record the concern that small businesses often have to deal with a raft of small additional requirements or changes, which generally have a cost or resource implication. However, in response to this particular issue, the benefits derived from the provision of a more accessible building should be recognised, as noted above.

### **6.3 Summary**

Proposals improve access to and within all buildings. As these issues deal principally with provision of space and specific facilities, these may form a greater proportion of the overall accommodation within a small building than within a larger one. As many SMEs operate from smaller premises, this will be a factor to consideration for future development.

This issue is recognised but is not considered an argument against improving accessibility of such premises. Where considered supportable, exemptions from general provisions can be considered. However, it must be recognised that, to deliver intent, any such exemptions for most issues will be significantly less than under present building standards.

## **7.0 TEST RUN OF BUSINESS FORMS**

7.1 No new business forms are to be implemented as part of these proposals.

## **8.0 COMPETITION ASSESSMENT**

### **8.1 Competition.**

No significant areas where issues of competition, restriction or imbalance will arise have been identified.

### **8.2 Manufacture.**

In non-domestic buildings, there will be an increase in the provision of building products manufactured and marketed to address specific access matters, such as unassisted travel between levels, sanitary facilities and assistive aids. This has been somewhat preempted by the full implementation of Part 3 of the Disability Discrimination Act in 2004, which has already resulted in an increase in the level of provision of such products within both new and existing buildings. It is not anticipated that there will be any significant effect arising from the additional provision of such features prompted by introduction of the proposed guidance.

In domestic buildings, changes are primarily related to provision of space within dwellings and greater emphasis on the provision of usable facilities and, although presenting a stronger bias towards future installation of assistive aids, do not rely on the provision of specific building elements as greatly as non-domestic guidance. This, again, should have no significant effect on competition.

### **8.3 Implementation.**

The changes will affect any party carrying out work to create a new building or alter, extend or convert an existing building. Changes required to building practice will apply equally to all forms of development, where a building is entered and use made of the facilities within (though with a division between domestic and non-domestic buildings). Based on the recommended option, no disadvantages to any party, existing or emergent, have been identified.

### **8.4 Alternatives**

Proposals, either in the form of a voluntary code or mandatory standards and guidance would consist largely of performance measures, which allows different ways of meeting the requirements. This provides for both flexibility and innovation in proposed solutions to intent.

## **9.0 ENFORCEMENT, SANCTIONS AND MONITORING**

### **9.1 Background**

Of the three options proposed, only the recommended option, Option 3, would be subject to enforcement or sanctions. Under these proposals, changes would form part of an amendment of standards within the Building (Scotland) Regulations and to the content of the Scottish Building Standards Agency Technical Handbooks, which provide guidance on compliance with the Building (Scotland) Regulations.

All matters relating to enforcement, sanctions and monitoring will be carried out under the existing processes, which form the building standards system in Scotland, as set out under the Building (Scotland) Act 2003. Parties responsible for operation of this system are the 32 Scottish local authorities, appointed as Verifiers under the Act, and the Scottish Building Standards Agency.

### **9.2 Enforcement & Sanctions.**

Generally, a building warrant is required for most works subject to the Building (Scotland) Regulations. This must be obtained before work commences and a Completion Certificate accepted by the local authority once works are finished. Works that do not require building warrant are set out under Schedule 3 to Regulation 5 of the Regulations.

Where a building warrant is required, design proposals and siteworks are subject to the scrutiny of Verifiers (local authority building standards officers) who have enforcement powers under the Act to ensure compliance with the Regulations. As a revision and addition to the guidance provided in support of the Building (Scotland) Regulations, the proposals will be assessed by Verifiers as part of this present system.

This is a significant alteration to the content of the building regulations. As is the case with any broadening of the scope of the standards, it is anticipated that this will affect the resources required by Verifiers to ensure that changes are implemented and enforced.

### **9.3 Monitoring.**

The Scottish Building Standards Agency reviews the implementation of any changes made to building standards legislation to monitor the effectiveness of said changes and to ensure that subsequent reviews can be made on an informed basis.

In line with Scottish Executive policy, any implemented changes will be subject to a revised RIA within a 10-year period.

## **10.0 IMPLEMENTATION & DELIVERY PLAN**

10.01 Details of implementation and deliver are given within Annex C.

## **11.0 POST-IMPLEMENTATION REVIEW**

11.01 Aside from monitoring of changes, as noted in item 9.3, the following points are noted.

Continuous monitoring of the implementation of proposals is available through feedback from local authority Verifiers, designers, developers and property owners. These parties are in regular contact with the technical officers within the Agency and the queries they raise offer a broad view of how proposals are being implemented and if intent is being achieved. They also identify areas where objectives may be unclear and allows clarification of these objectives as part of the ongoing review process. Issues raised in this manner become a matter of record and are used to inform in the continued development of building standards and guidance.

As the proposals implemented by this review relate directly to the accessibility of the built environment, it is anticipated that this monitoring may also form part of activities undertaken to meet the duties of the Agency, as a public body, under public sector duty to promote disability equality (Disability Equality Duty) introduced by the Disability Discrimination Act 2005. This would involve contact and feedback with a wider range of individuals and organisations, particularly those with a declared interest in accessibility issues.

## **12.0 SUMMARY AND RECOMMENDATIONS**

### **12.1 Summary**

The summary of benefits and costs remains unchanged from the intermediate RIA and are noted in full under Items 4 & 5. Proposals have been modified in response to public consultation as identified in Annex B.

### **12.2 Summary Costs and benefits table**

The summary of benefits and costs remains unchanged from the intermediate RIA and are noted in full under Items 5. Proposals have been modified in response to public consultation as identified in Annex B.

Option	Total benefit per annum	Total cost per annum
<b>Option 1</b> - Do nothing.	No benefits	No costs
<b>Option 2</b> - Increase awareness of the need for inclusive design and introduce best practice guidance documents for adoption and application on a voluntary basis.	<p>Economic - may deliver buildings that are more accessible to users and reduce cost and potential need for future adaptation. Where applied, may add value to new building stock by offering facilities to a wider range of users and occupants.</p> <p>Environmental – where applied, may contribute to the delivery of a more accessible, equitable and sustainable built environment.</p> <p>Social – where applied, may remove disabling elements from within buildings subject to legislation and contribute to more inclusive environments, reducing social exclusion caused by such issues.</p> <p>All benefits dependant on voluntary subscription to proposed guidance.</p>	<p>N/A -</p> <p>Wholly dependent on scale and form of public awareness exercise</p>
<b>Option 3</b> - Introduce revised and updated building standards guidance on access and usability of all buildings, recognising current good practice where such is appropriate for implementation within the building standards system in Scotland.	<p>Economic – will deliver buildings that are more accessible to users and reduce cost and potential need for future adaptation. Adds value to new building stock by offering facilities to a wider range of users and occupants.</p> <p>Environmental – will contribute to the delivery of a more accessible, equitable and sustainable built environment. Benefits will extend to all new and altered buildings.</p> <p>Social – will remove disabling elements from within buildings subject to legislation and provide more inclusive environments, reducing social exclusion caused by such issues.</p>	Implementation costs assessed at £49.5m to £91m per annum based upon present levels of construction.

### 12.3 Conclusion

Considering additional information presented during consultation, it is the considered view that **Option 3** provides the most appropriate solution to meet the objectives set out in clause 1.1, to ensure that buildings better address the varying needs and abilities of the people who use them and that barriers to access and usability are removed. Legislation through the building standards system provides the optimum solution for implementation of protective measures

This is considered a necessary revision of standards and guidance to ensure that building standard remain relevant and fit for purpose and to further the wider Scottish Executive agenda on equality and social inclusion by delivering buildings and homes that are more inclusive and sustainable.

This option ensures that the intended aims can be implemented in a structured manner, as part of the process of statutory permissions applied when creating or altering aspects of the built environment.

It is further considered that the costs associated with implementation are reasonable. Option 3 alone has costs apportioned against proposals and these are seen as representative of the benefits to be gained by continuing to ensure that buildings are designed and constructed in a form that allows access and use by as great a proportion of the population as possible. The changes proposed by regulation are commended as the appropriate level at which good practice should be applied within a mandatory framework, to all buildings, to deliver this. Option 3 is also recommended for the following reasons:

- Options 1 will not result in any change to the level of accessibility in buildings and is therefore not a consideration.
- Option 2 may only offer a means of improving the level of accessibility of buildings but, as a voluntary code, any benefit is dependant on uptake and this cannot be guaranteed outwith a legislative framework

#### **12.4 Recommendation.**

Introduce revised and updated building standards guidance on access and usability of all buildings, recognising current good practice where such is appropriate for implementation within the building standards system in Scotland.

**It is recommended to introduce standards and guidance under the Building (Scotland) Regulations 2006 and the May 2007 edition of the Scottish Building Standards Agency Technical Handbooks for domestic and non-domestic buildings.**

### **13.0 DECLARATION AND PUBLICATION**

**I have read the Regulatory Impact Assessment and I am satisfied that the benefits justify the costs.**

**Signed:-** .....

**Date:-** .....

**Johann Lamont  
Deputy Minister for Communities**

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## ANNEX A

### LIST OF CHANGES

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#### OPTION CHOSEN

- **Option 3**

Introduce revised and updated building standards guidance on access and usability of all buildings, recognising current good practice where such is appropriate for implementation within the building standards system in Scotland.

The following is a short, clause-by-clause summary of the changes proposed, post-consultation, in respect of access to and usability of buildings.

#### **DOMESTIC GUIDANCE**

##### **3.11 FACILITIES IN DWELLINGS - change to standard**

Standard now addresses amenity of occupant in respect of apartments and kitchen.

##### **3.11.2 Enhanced apartment**

Introduction of guidance to ensure that one apartment on a principal entrance storey will address the varying needs of occupants.

##### **3.11.3 Kitchens**

Introduction of guidance to ensure that a kitchen will address the varying needs of occupants.

##### **3.11.4 Height of activity spaces**

Revised guidance on extent of application of height of activity spaces.

##### **3.12 SANITARY FACILITIES – change to standard**

Convenience of use now addressed by Standard

##### **3.12.1 Sanitary facilities**

Removal of guidance on criteria for provision of additional WC when extending.

##### **3.12.2 Accessible sanitary accommodation**

Revised guidance on size of accessible WC on principal entrance storey; Guidance on activity spaces for sanitary facilities; introduction of guidance on provision of accessible bathing facilities on principal entrance storey.

##### **3.12.3 Access to sanitary accommodation through apartments**

Clarification of means of access to accessible sanitary accommodation through apartments.

##### **3.12.5 Addition, alteration and removal of sanitary accommodation**

Revised guidance to reflect changes to other clauses to the standard.

##### **4.1 ACCESS TO BUILDINGS - change to standard**

Removal of limitation for a house with no apartments on the entrance storey

##### **4.1.1 Car Parking**

Revised guidance on size and provision of accessible car parking spaces; additional guidance on the use of tactile paving at drop kerbs.

##### **4.1.2 Car parking within the curtilage of a dwelling.**

Introduction of guidance on use of driveways as an accessible route.

##### **4.1.3 Accessible routes**

Guidance recommending level or gently sloping routes before use of ramps; Additional guidance on provision of complimentary steps on ramped routes to more than one dwelling; additional guidance on reasonably practicable access to a single house.

##### **4.1.4 Surface of an accessible route**

Existing guidance under separate clause.

- 4.1.6 Width of accessible routes**  
Revised guidance on minimum width; guidance on provision of passing places where width of route is less than 1.2 m; 900 mm width now applies to single dwelling only; addition of guidance on gates.
- 4.1.7 Accessible Entrances – all buildings**  
Revised guidance on minimum door width to a single dwelling and entrance platt size; addition of guidance on provision of door closers and illumination at all accessible entrances.
- 4.1.8 Accessible Entrances - Common Entrances**  
Revised guidance on entrance platt size and vision panels, introduction of guidance on weather protection and intercom systems.
- 4.1.10 Alterations affecting the access to an existing dwelling.**  
Revised guidance to reflect changes to other clauses to the standard; intent unchanged.
- 4.2 ACCESS WITHIN BUILDINGS - change to standard**  
Safe and convenient access now throughout a dwelling, with unassisted access throughout one level.
- 4.2.1 Horizontal circulation within common areas of a building containing flats and maisonettes**  
Addition of guidance on widening of corridors to provide passing places.
- 4.2.2 Lobbies within common areas of a building containing flats and maisonettes**  
Revised guidance on size and provision of accessible lobbies
- 4.2.3 Doors within common areas of a building containing flats and maisonettes**  
Introduction of guidance on doors within common areas, maintaining level of accessibility provided by external entrance door.
- 4.2.4 Vertical circulation within common areas of a building containing flats and maisonettes**  
Clarification of where a passenger lift need not be installed; additional guidance on provision of passenger lifts.
- 4.2.5 Accessibility within a storey of a dwelling.**  
Application of recommendations for corridor and door width to all storeys; revised guidance on minimum door width.
- 4.2.6 Access between storeys within a dwelling**  
Clarification on where a stair need be provided.
- 4.2.7 Unassisted access between levels of storeys within a dwelling**  
Introduction of guidance on provisions for future stairlift.
- 4.2.8 Split level storeys.**  
Clarification of provisions within split level storeys, reflecting other guidance to this standard.
- 4.2.9 Dwellings with limited accommodation on an entrance storey**  
Introduction of guidance to ensure the accessibility of accommodation within 'townhouse' or upper villa flat dwelling forms.
- 4.2.10 Alterations and extensions**  
Revised guidance to reflect changes to other clauses to the standard; intent unchanged
- 4.3 STAIRS AND RAMPS – no change to standard**
- 4.3.2 Rise, going, tread and pitch of stairs**  
Note on private stairs that should be classed as any other stair, relating to clause 4.2.9.
- 4.3.3 Width of stair flights and landings**  
Revised guidance for width of a private stair; removal of reference to stair within a storey; guidance on provision of second handrail to a private stair.
- 4.3.5 Risers and treads**  
Note on private stairs that should be classed as any other stair, relating to clause 4.2.9.
- 4.3.6 Stair landings.**  
Existing guidance consolidated.

- 4.3.7 Warning surfaces to landings of external steps**  
Introduction on guidance on use of tactile paving in external situations.
- 4.3.11 Pedestrian ramps**  
Revised guidance on maximum length of flight for a given gradient; Additional advice on use of gradients of less than 1 in 20.
- 4.3.12 Width of ramp flights and landings**  
Revised guidance on width of external ramp flights and landings; additional guidance of use of ramp landings as passing places.
- 4.3.13 Ramp landings**  
Revised guidance on length of ramp landings.
- 4.3.14 Handrails to stairs and ramps**  
Introduction of guidance on visual contrast of handrails; additional guidance on handrail profiles; guidance on provision of second handrail to a private stair.
- 4.4 PEDESTRIAN PROTECTIVE BARRIERS – no change to standard**
- 4.4.1 Location of pedestrian protective barriers**  
Introduction of guidance on guarding to changes of direction on an access route adjacent to a change of level – previously only on landings.
- 4.4.2 Design of pedestrian protective barriers**  
Clarification on differing requirements for flights and landings.
- 4.4.3 Guarding to the edge of ramps.**  
Revised guidance on guarding of ramp edges, previously under Standard 4.3
- 4.6 ELECTRICAL FIXTURES – no change to standard**
- 4.6.2 Lighting in common areas of domestic buildings**  
Introduction of guidance on lighting levels within common areas
- 4.6.3 Entryphone systems**  
Additional guidance seeking provision of door entry systems
- 4.6.4 Socket Outlets**  
Revised guidance on provision of socket outlets.
- 4.8 DANGER FROM ACCIDENTS – no change to standard**  
Standard 4.8e (manual controls to windows and rooflights) now applies to domestic buildings
- 4.8.1 Collision with projections**  
Additional advice on avoidance of obstructions and form of guarding to be provided; permitted obstructions
- 4.8.2 Collision with glazing**  
Additional guidance on location of areas of vulnerable glazing; guidance on identifying unframed glass doors.
- 4.8.5 Access to manual controls**  
Introduction of guidance on height and location of controls to windows, rooflights and ventilators. Introduction of guidance on height and position of electrical fittings.

## **SUMMARY OF CHANGES - NON-DOMESTIC GUIDANCE**

- 3.12 SANITARY FACILITIES – change to standard**  
Convenience of use now addressed by Standard
- 3.12.3 Provision in residential accommodation**  
Additional guidance clarifying where en suite facilities should be provided.
- 3.12.6 General provision within all sanitary accommodation.**  
Introduction of additional guidance common to all sanitary accommodation
- 3.12.7 General provision within toilets**  
Additional guidance on separation of toilet facilities from food preparation or dining areas; introduction of guidance on minimum size of a WC cubicle; revision of size of enlarged WC cubicle.

- 3.12.8 Accessible toilets**  
Revised guidance on size and form of accessible toilets; Removal of exemption allowing only ambulant accessible toilet in smaller buildings – provide wheelchair accessible toilet in all new buildings..
- 3.12.9 Location of accessible toilets**  
Revised guidance on location of accessible toilets
- 3.12.10 Accessible bathrooms and shower rooms**  
Introduction of guidance on the provision of accessible bathing facilities within buildings (previously applied only to residential buildings).
- 3.12.11 Changing cubicles**  
Revised guidance on the provision of changing cubicles
- 3.12.12 Baby changing facilities**  
Introduction of guidance on provision of baby changing facilities
  
- 4.1 ACCESS TO BUILDINGS - change to standard**  
Removal of limitation for a house with no apartments on the entrance storey
- 4.1.1 Car Parking**  
Revised guidance on size and provision of accessible car parking spaces; additional guidance on the use of tactile paving at drop kerbs.
- 4.1.2 Setting down points**  
Existing guidance under separate clause; additional guidance on maintaining width of level path to rear of drop kerbs
- 4.1.3 Accessible routes**  
Additional guidance on accessible routes between accessible entrances of different buildings; guidance recommending level or gently sloping routes before use of ramps; Additional guidance on provision of complimentary steps on ramped routes.
- 4.1.4 Surface of an accessible route**  
Existing guidance under separate clause.
- 4.1.6 Width of accessible routes**  
Revised guidance on minimum width; guidance on provision of passing places where width of route is less than 1.2 m; Additional guidance on gates.
- 4.1.7 Accessible Entrances**  
Recommendations for a principal entrance applied to other specified entrances; additional guidance on provisions at accessible entrances; additional guidance on intercom systems and vision panels.
- 4.1.8 Manual entrance doors**  
Guidance on manual doors in addition to 4.1.7; additional guidance on provision of protection from the elements.
- 4.1.9 Powered Entrance Doors**  
Introduction of guidance on powered entrance doors
- 4.1.10 Accessible thresholds**  
Existing guidance under separate clause.
  
- 4.2 ACCESS WITHIN BUILDINGS - change to standard**  
Safe and convenient access now throughout a dwelling, with unassisted access throughout one level.
- 4.2.1 Access within buildings.**  
Revised guidance requiring all storeys, regardless of area, to be accessible – limitations for residential buildings, car parking and fixed seating retained; clarification of guidance on areas within a storey than need not be provided with ramp or lift access.
- 4.2.2 Corridors**  
Addition of guidance on widening of corridors less than 1.8 m wide to provide passing places.
- 4.2.3 Floor surfaces**  
Addition of guidance on internal floor surfaces.

- 4.2.4 Lobbies**  
Revised guidance on size and provision of accessible lobbies
- 4.2.5 Internal doors**  
Revised guidance on minimum width of doors; additional guidance on glazed vision panels.
- 4.2.6 Door closing devices**  
Introduction of guidance on maximum forces applied by closing devices.
- 4.2.7 Vertical circulation between storeys**  
Intent unchanged; additional guidance on provision of passenger lifts and powered lifting platforms; relates also to 4.2.1
- 4.2.8 Vertical circulation within storeys**  
Clarification of means of access between levels within a storey; relates also to 4.2.1.
- 4.2.9 Sleeping accommodation within residential buildings.**  
Introduction of guidance on provision of wheelchair accessible bedrooms within residential buildings.
- 4.2.10 Fixed counter installations at service points**  
Introduction of guidance on accessible reception desks and bar/serving counters.
  
- 4.3 STAIRS AND RAMPS – no change to standard**
- 4.3.3 Width of stair flights and landings**  
Revised guidance for stairs wholly within a unit of shared residential accommodation.
- 4.3.6 Stair landings.**  
Existing guidance consolidated; additional advice on obstructions on landings within units of shared residential accommodation.
- 4.3.7 Warning surfaces to landings of external steps**  
Introduction on guidance on use of tactile paving in external situations.
- 4.3.10 Pedestrian ramps**  
Revised guidance on maximum length of flight for a given gradient; Additional advice on use of gradients of less than 1 in 20.
- 4.3.11 Width of ramp flights and landings**  
Revised guidance on width of external ramp flights and landings; additional guidance of use of ramp landings as passing places.
- 4.3.12 Ramp landings**  
Revised guidance on length of ramp landings.
- 4.3.13 Handrails to stairs and ramps**  
Introduction of guidance on visual contrast of handrails; additional guidance on handrail profiles.
  
- 4.4 PEDESTRIAN PROTECTIVE BARRIERS – no change to standard**
- 4.4.1 Location of pedestrian protective barriers**  
Introduction of guidance on guarding to changes of direction on an access route adjacent to a change of level – previously only on landings.
- 4.4.2 Design of pedestrian protective barriers**  
Clarification on differing requirements for flights and landings.
- 4.4.3 Guarding to the edge of ramps.**  
Revised guidance on guarding of ramp edges, previously under Standard 4.3
  
- 4.7 AIDS TO COMMUNICATION – no change to standard**
- 4.7.1 Hearing enhancement systems**  
Wider range of situations where a hearing enhancement system should be provided; additional guidance on forms of system.
  
- 4.8 DANGER FROM ACCIDENTS - change to standard**  
Standard 4.8e (manual controls to windows and rooflights) now applies to domestic buildings

**4.8.1 Collision with projections**

Additional advice on avoidance of obstructions and form of guarding to be provided; permitted obstructions

**4.8.2 Collision with glazing**

Additional guidance on location of areas of vulnerable glazing; guidance on identifying unframed glass doors.

**4.8.6 Access to manual controls**

Introduction of guidance on height and location of controls to windows, rooflights and ventilators. Introduction of guidance on height and position of electrical fittings.

**4.10 FIXED SEATING – no change to standard**

**4.10.1 Variety in provision of fixed seating**

Provision of removable seating in auditoria of up to 600 seats in addition to wheelchair spaces; armrests, where present, to be removable at ends of rows.

## **ANNEX B**

### **CONSULTATION SUMMARY**

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Notification of the consultation exercise was issued to 505 individuals, organisations and interested parties listed on the SBSA consultation list, together with the 94 statutory consultees on the SBSA standard distribution list. Emails were also sent to some 250 individuals and organisations who have registered with the SBSA website. The consultation documents were published on the SBSA website as an electronic download, with paper copies posted to all individuals or organisations requesting a hard copy.

As of 26 August 2006, 43 responses have been received. One respondent has requested that their comments should remain confidential. A further seven respondents have yet to give formal consent to their comments being made public.

Given the wide range of stakeholders affected by proposals, it was anticipated that a greater number of responses would be made to consultation proposals. However, most key stakeholders, or representatives of their areas of interest, have offered response. This is sufficient to allow assessment on a comprehensive range of topics. Several key stakeholders who had not responded were contacted further and a response invited.

Respondents are summarised by group and listed below.

- Contractors, Developers & Manufacturers (7)
- Designers (2)
- Interest Groups & Advisory Organisations (11)
- Individuals (1)
- Local Authorities (11)
- Other Statutory Bodies (4)
- Professional & Trade Bodies (7)

#### **ISSUES ARISING FROM PUBLIC CONSULTATION**

A detailed summary of comments on specific questions asked as part of the consultation and on numerous other points, arising from the consultation process were noted for specific consideration. A list of these is included in the Section 4 Consultation Report, published in September 2006 and available online at: [http://www.sbsa.gov.uk/current\\_standards/PreviousConsultations.htm](http://www.sbsa.gov.uk/current_standards/PreviousConsultations.htm). Although not exhaustive, this summarising the main points raised and is representative of issues raised.

#### **CHANGES MADE FOLLOWING PUBLIC CONSULTATION**

As a result of the consultation process, the following changes were made to proposals:

##### **DOMESTIC BUILDINGS**

Standard 3.11 – Facilities in Dwellings

- Clarification of proposals to ensure space provision in enhanced apartment and kitchen
- Removal of guidance on glazing heights for visual amenity within enhanced apartment
- Expanded guidance on alteration and extension of dwellings

Standard 3.12 – Sanitary Facilities

- Amendments and improved guidance on activity spaces to accessible sanitary facilities
- Revised guidance on alteration and extension of dwellings

Standard 4.1 – Access to Buildings

- Guidance on length of access reverts back to current limit

#### Standard 4.2 – Access within Buildings

- Guidance on provision for future platform lift in dwellings removed
- Revised guidance on improved access to upper floor of dwellings where key accommodation not on ground floor

#### Standard 4.6 – Electrical Fixtures

- Improved lighting levels to common areas

#### Standard 4.8 – Danger from Accidents

- Revised guidance on location of protective barriers
- Introduction of guidance on height of electrical fixtures

### **NON-DOMESTIC BUILDINGS**

#### Standard 3.12 – Sanitary Facilities

- Accessible toilet now provided in all buildings, small buildings exemptions removed.
- Additional guidance on location of accessible toilets
- Improved guidance on provision of accessible bathrooms, shower rooms and changing facilities

#### Standard 4.1 – Access to Buildings

- Guidance on length of access reverts back to current limit

#### Standard 4.2 – Access within Buildings

- Areas within a storey where lift access is not needed further restricted.
- Clarification on provision at fixed reception points

#### Standard 4.7 – Aids to Communication

- Revised guidance on additional locations where a hearing enhancement system should be provided.

#### Standard 4.8 – Danger from Accidents

- Revised guidance on location of protective barriers
- Introduction of guidance on height of electrical fixtures

#### Standard 4.10 – Fixed Seating

- Revised guidance on provision of wheelchair spaces in smaller auditoria and sightlines

These changes are reflected in the text of the final guidance, summarised within Annex A.



## **ANNEX C**

### **IMPLEMENTATION & DELIVERY PLAN**

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#### **DELIVERY AND COMMUNICATION**

The proposed changes will be taken forward in the form of guidance within the Scottish Building Standards Agency Technical Handbooks. This guidance will be introduced as part of the annual amendment to the SBSA Technical Handbooks and implementation will be carried out under existing processes, which form the building standards system in Scotland, as set out by the Building (Scotland) Act 2003.

The SBSA Technical Handbooks are the primary reference source for compliance with building standards and, as such, are used by designers and others involved in the building process to ensure compliance with the Scottish building regulations. Inclusion of new guidance on access to, and usability of, buildings within these documents will ensure that the intent – that new and altered buildings are more inclusive – is achieved to best effect.

The guidance to the standard will illustrate the most common way of meeting the requirements of the functional standard and, thus, complying with the Building (Scotland) Regulations 2006. When carrying out work that is subject to the building standards, it is the duty of the relevant person (normally the owner of the building) to comply with the requirements of the regulations.

Publication in this form is the established method of introducing changes to the building standards system and ensures that information on changes reaches those involved in works that are subject to building standards. This information is made available in paper form, as a priced publication, or free of charge, as an electronic download from the Scottish Building Standards Agency website, [www.sbsa.gov.uk](http://www.sbsa.gov.uk).

#### **IMPLEMENTATION**

The proposed changes will form part of the building standards system in Scotland, produced and maintained, on behalf of Ministers, by the Scottish Building Standards Agency and operated and enforced by the 32 Scottish local authorities.

Most works subject to the Building (Scotland) Regulations 2006 requires to obtain a building warrant before commencing and to have a Completion Certificate accepted once finished. Such works are subject to the scrutiny of local authorities as Verifiers of the system, who also have enforcement powers under the Act to ensure compliance with the Regulations.

#### **IMPLEMENTATION PERIOD**

The proposed changes to the guidance within the Scottish Building Standards Agency Technical Handbooks are relevant to any party responsible for a building intends to carry out building work that is subject to building regulations. Where such works are not proposed, the proposed changes will not have any effect on either the party or the building.

Proposed changes will be published online by the 8<sup>th</sup> of January 2007 with hard copy documents following on 12<sup>th</sup> February 2007. Guidance will come into effect on the 1<sup>st</sup> of May 2007 and be applicable to all building warrant applications made on or after that date. This will provides the minimum 12-week implementation period required for any such change.

#### **PROMOTION**

Any changes to the building standards system are publicised by the SBSA through the Agency website, seminars and articles in relevant publications. In addition, the SBSA would seek to promote changes to the standards and guidance in association with organisations who have an expressed interest in building design and accessibility issues, together with other key stakeholders who have been involved in development of guidance and in the consultation process.

**FINAL REGULATORY IMPACT ASSESSMENT (Ref: 2005/51)**

**REGULATORY IMPACT ASSESSMENT ON AMENDMENTS TO SECTION 6: ENERGY  
(INCORPORATING AMENDMENTS TO SECTION 3: ENVIRONMENT) OF THE  
TECHNICAL HANDBOOKS FOR WAYS OF COMPLYING WITH THE BUILDING  
(SCOTLAND) REGULATIONS 2004**

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# REGULATORY IMPACT ASSESSMENT ON AMENDMENTS TO SECTION 6: ENERGY (INCORPORATING AMENDMENTS TO SECTION 3: ENVIRONMENT) OF THE TECHNICAL HANDBOOKS FOR WAYS OF COMPLYING WITH THE BUILDING (SCOTLAND) REGULATIONS 2004

## 1.0 PURPOSE AND INTENDED EFFECT

### 1.1 Objective

This final Regulatory Impact Assessment (RIA) addresses amendments to the functional standards and technical guidance on energy within the Building (Scotland) Regulations 2004 and the supporting Section 6 of the Technical Handbooks. The principle aim of the amendments is to reduce the CO<sub>2</sub> emissions that occur as a result of energy usage in heated/cooled new buildings and existing ones that are being converted, altered or extended. A secondary objective is to cause designers of buildings to give consideration to the incorporation of building integrated low and zero carbon energy generating technologies, such as solar water heating and photovoltaics. The main objective of incorporating the amendments to Section 3: Environment is to address the technical risks that could be associated with the amendments to Section 6.

A summary of the technical changes are set out in Annex A.

### 1.3 Background

It has been established for many years that carbon dioxide contributes to climate change. Buildings in use, account for more than 40% of the UK energy related CO<sub>2</sub> emissions. The UK Government have set a target for reducing the UK's CO<sub>2</sub> emission levels by 60% in the middle of this century, with significant progress being made by 2020. The Scottish Executive is committed to assisting the UK Government achieve this target.

As previously identified by Scottish Ministers, revisions to the energy standards for new building work could go some way towards this goal. This is borne out in the Partnership Agreement commitment, which states:

*"We will strengthen building standards to ensure that energy conservation levels improve to high and effective levels and consult on ways to ensure that new homes and public buildings increasingly incorporate solar power or other renewable energy sources."*

### 1.3 Rationale for Government Intervention

If the 60% CO<sub>2</sub> reduction target is going to be realised, CO<sub>2</sub> saving measures will need to be adopted. Scottish building regulations set standards for the health, safety and welfare of persons in and around buildings, furthering the conservation of fuel and power and furthering the achievement of sustainable development. These standards are truly minimum standards and nothing prevents buildings being designed and built to higher standards. However in the majority of cases, usually as a result of market forces, the 'minimum standard' is also considered to be the standard adopted. This occurs in most areas of the building regulations and Section 6: Energy is no exception. If the Government wishes to reduce CO<sub>2</sub> emissions from new buildings, it has to set energy standards at a sufficiently demanding level. This is because 'best practice' or even 'advanced practice' measures can only be relied upon occasionally to deliver aspirational CO<sub>2</sub> savings, where the market forces either do not apply, or apply in a different way from the norm.

#### **1.4 The Risks to be addressed**

The changes to Section 6 will primarily assist with the mitigation of climate change. They are essential to the development of the Government's UK Climate Change Programme and also the Scottish Executive's Scottish Climate Change Programme. Failure to implement changes to energy standards will impact heavily on both of these programmes. There are also some associated technical risks and these are identified below:

- a) Insufficient flexibility for designers to meet the climatic conditions and also architectural aspirations that can vary throughout Scotland;
- b) Conflict with other sections of the Technical Handbooks, such as Section 3: Environment, with increased rain penetration or for Section 5: Noise, as a result of increased flanking sound transmission;
- c) Increased condensation that causes unhealthy indoor air quality or damage to the building fabric;
- d) Reduction of indoor air quality caused by improved airtightness; (it is important to ensure that the aims of the ventilation standards and associated guidance are not compromised);
- e) High temperatures occurring in summer due to excessive solar gain or inadequate ventilation;
- f) Impractical changes that cannot be incorporated into normal building practice without excessive cost increases.

It is considered that within these amendments to the energy standards and supporting guidance that these matters have been addressed. Most importantly the inclusion of amendments to Section 3, namely standards 3.13 (heating), 3.14 (ventilation) and 3.15 (condensation) has made much of this possible.

Failure to introduce Standards 6.9 and 6.10 (Energy performance certificates and Inspection of air-conditioning), would introduce some legal risks as this would halt progress with implementation of EU Directive 2002/91/EC on the energy performance of buildings (EPBD). Infraction proceedings and significant monetary fines from the European Commission would be the likely impact.

### **3.0 CONSULTATION**

#### **2.1 Development Phase**

Before making or amending the building regulations, Scottish Ministers are required to consult the Building Standards Advisory Committee (BSAC) and such other bodies as are considered necessary to inform on the matters under consideration. This exercise was carried out through a BSAC Working Party.

#### **2.2 Public consultation**

The intermediate RIA formed part of a package issued for public consultation. This package sought general comment on proposals and was issued to a list of individuals and organisations previously identified as having an interest in building standards. A list of all consultees was appended to the consultation package. The full consultation package was made available on the Scottish Building Standards Agency website at: <http://www.sbsa.gov.uk/consul.htm>.

A analysis of the responses to the public consultation is in Annex B

### **3.0 OPTIONS PROPOSED**

#### **3.1 Options**

In considering how to address the issue of reducing carbon dioxide emissions from use of buildings, three options were identified.

**Option 1** – Do nothing;

**Option 2** – Promote energy saving and carbon dioxide reducing measures in new building work through additional information campaigns and subsidy;

**Option 3** – To improve energy saving and carbon dioxide reducing measures in new building work through regulation.

#### **3.2 Sectors and groups affected**

Sectors and groups that would be affected include:

- a) Persons procuring new buildings or building work who would need to bear the extra cost of the work;
- b) Builders who would have to modify their standard building types and construction detailing. Where relevant, they would need to seek amended and/or replacement Scottish type approvals and possibly sooner than they had otherwise intended;
- c) All those involved with the energy aspects of building design and construction would have to familiarise themselves with the new standards and methodologies through training etc.;
- d) Building services engineering contractors who would need to invest to increase the capacity for commissioning and testing buildings and engineering services;
- e) Building materials and component manufacturers would need to make changes to their products and literature to suit;
- f) Local authority verifiers would have to train staff in areas of the energy standards and guidance where the scope has been extended.

### **4.0 BENEFITS**

#### **4.1 Option 1**

As mentioned earlier, the Scottish Executive is committed to assisting towards a 60% target for carbon emission reductions in the UK. Doing nothing would not make any progress with regard to these reductions and would offer no benefits. Also, if the EPBD is not fully implemented by 2009, Scottish Ministers could be subject to infraction proceedings and the possibility of fines from the European Commission.

#### **4.2 Option 2**

Information is important to inform industry of the Government's targets for lowering energy use and how this can be achieved through the built environment. If reliance is wholly placed on this approach, there is a tendency for improvement action to be taken only by those who are wholly convinced that energy efficiency should be placed high on their agenda, even above commercial gains. For this to have broader appeal to industry, some incentive would be necessary. Subsidy is a

traditional approach, however there are several good reasons against this being the best option in terms of improved construction measures:

- a) Many of the gains from greater energy efficiency would fall as private gains to the individuals who occupy the buildings, in the form of reduced energy costs and increased comfort. It is not considered appropriate that public money should be used for new building work. There are instances however where owners/occupiers have insufficient funds available, and in these cases there are grants available.
- b) It is not clear that a subsidy would be effective in increasing take up of improvements. Many energy efficiency measures are already worthwhile purely from the private perspective of the agent that will be paying for the energy in that property. However, activity is much below this level.
- c) A subsidy or direct investment policy would be likely to be less efficient overall than regulation. With more demanding building regulations, the developer or person(s) commissioning the new building(s) has the incentive to meet the regulations at least cost.
- d) The Partnership Agreement commitment has been made to improve building standards.

Also, information and subsidy would not permit successful implementation of the EPBD. If this Directive is not fully implemented by 2009, Scottish Ministers could be subject to infraction proceedings and the possibility of fines from the European Commission. It is therefore considered that the benefits would be minimal with this approach.

#### **4.3 Option 3**

Amending Scottish building regulations has proved in the past to be a robust way of raising the energy performance of buildings.

The main benefits of this approach are that:

- a) There is a degree of certainty that all new building work to new and existing buildings will make them more energy efficient, with an associated reduction in CO<sub>2</sub> emissions. This will assist the UK Government in meeting its 60% target for carbon emission reductions in the UK.
- b) It is more equitable. All new heated/cooled buildings have to achieve minimum standards.
- c) Although the cost of building may be increased and such cost is passed onto the owner of the building, this extra cost is recouped (sometimes several times over) throughout the lifetime of the building. This is particularly relevant when viewed in conjunction with the current climate of rising energy costs for both domestic and non-domestic users.
- d) With the new functional standards supported by guidance, the opportunity to impart information to industry exists.

As stated previously, with more demanding building regulations, the developer or person(s) commissioning the new building(s) has the incentive to meet the regulations at least cost. It was thought that this would be the option that offered significant benefit, although there were costs to be considered.

## **5.0 COSTS**

### **5.1 Costs to Scotland arising from lower levels of energy performance in buildings**

In recent years Scotland has had good minimum standards of energy performance for buildings. Indeed the thermal insulation levels for new buildings, extensions and conservatories have been the best in the UK. It was therefore with the older, less energy efficient existing building stock where lessons could be learnt and the 'existing cost to Scotland' comparison could be made.

#### **Safety**

There are no safety issues associated directly with the energy performance standards. If there is likely to be conflict with other areas of the standards that deal with safety, for example Section 2: Fire, a degree of caution is applied and safety is given the higher priority. In respect of safety, lower standards of energy performance have no associated costs to Scotland.

#### **Health**

With older properties a combination of poor thermal insulation, inadequate ventilation and low levels of heating often resulted in problems such as condensation, dampness and mould growth, particularly in housing. These problems can give rise to health issues for occupiers such as asthma and hypothermia and have cost implications for the health service. It is considered that by amending part of Section 3, namely standards 3.13 (heating), 3.14 (ventilation) and 3.15 (condensation) together with Section 6 will reduce the possibility of these health associated costs arising for new buildings.

#### **Welfare**

It is often the case that poorer households live in the housing stock in the worst condition, including with respect to energy efficiency. It is also true that poorer households generally spend a greater proportion of their income on energy costs. Measures which reduce CO<sub>2</sub> emissions and at the same time improve the energy efficiency of the housing stock will ultimately be of the greatest benefit to the poorest households, even though they may not be the first to benefit from conditions applied to new buildings. It is considered that welfare associated costs will be reduced by applying more demanding energy and heating standards.

#### **Sustainability**

Reducing CO<sub>2</sub> emissions from and improving energy efficiency of buildings in use, are clearly not a true proxy for sustainability, they are only two measures (of many) that are encompassed by the term 'sustainability'. In general, there do not appear to be any compatibility issues with sustainability measures, i.e. when someone elects to do new building work, the outcome ought to be a reduction in carbon dioxide emissions and improvements in energy efficiency when the building is in use. Other than in the case of conversion of buildings (where the use of a building is being changed), the standards and measures for construction only apply to the new work and do not apply retrospectively. In general terms, these regulatory measures do not cause building owners to have to consider demolition of their existing buildings because they cannot bring them up to current standards.

#### **Carbon Dioxide**

It is important to realise that today's new buildings are tomorrow's existing buildings. The number of new buildings per annum may only account for 1% of the entire stock, but by the year 2050, the buildings built today could account for nearly 45% of the total. It is therefore vital that these make a significant contribution to reducing CO<sub>2</sub>



emissions. Regular review of the energy standards is required by the EU Directive on the energy performance of buildings, at intervals of no more than 5 years. With the UK Government's target of an overall 60% reduction in CO<sub>2</sub> emissions by the middle of this century, making significant future energy performance improvements to buildings will remain high on the agenda. When considering costs, the social cost of carbon should always be factored-in. In January 2002, a Government Economic Service working paper 'Estimating the Social Cost of Carbon Emissions' was published as a joint Defra-Treasury publication. This paper suggested £70/tC (within a range of £35 to £140/tC) as an illustrative estimate for the global damage cost of carbon emissions. Taking this as a value of £70 per tonne (at year 2000), per year of carbon savings, with an escalator of £1 per year being added. Assuming buildings have a 60 year life, every tonne of carbon saved by improved energy performance measures equates to a cost benefit of around £6588.

## **5.2 Cost of implementation**

### **Option 1**

The option to do nothing presented no implementation costs.

### **Option 2**

The option to provide information to industry presented minimal implementation costs, at around £30,000 for the cost of publishing guidance documents. The information on its own would be very similar to that which would be provided under Option 3. The costs of subsidy for new building work would however be a different matter and would result in considerable expenditure for the Government. The reasons against this approach have been identified in 4.2 above. Any subsidy would have to be significant to make it attractive for developers to provide additional investment and adopt improvement measures that offer the equivalency of the carbon savings that can be attributed to Option 3 below. For the purpose of this RIA the subsidy costs are assessed as 25% of the Option 3 implementation costs with £9.25m per annum assigned to the Government that would be borne in the long term by the taxpayer. The remaining 75% (£27.75m per annum) would fall to developers and builders and in the long term would be passed onto persons procuring new buildings. If this option was adopted, a fine tuning of subsidy levels would need to be carried out.

### **Option 3**

The costs of the amendments to Section 6 are difficult to quantify except in broad terms. For example, in the guidance, the move to a methodology based compliance route from the different compliance options which are currently presented attaches a degree of uncertainty to the task of comparing like with like.

There is another issue of who will bear these costs. The construction industry will clearly face the primary impact of changes to the regulations. However, the changes will affect all firms in the industry, and the cost of all new building work. It is expected that a significant proportion of the additional costs to the industry would be passed on to the purchasers of new buildings, and to the owners of existing buildings undergoing construction work, (however as stated previously one of the benefits of the new regulations will be savings by the occupier on fuel bills).

### **Non-recurring costs**

It was suggested that there are also costs which would apply only in the first years following amendment and could be only marginally greater than costs which are already ongoing – e.g. product or staff development. The burden on the larger construction and manufacturing firms may be smaller because of economies of scale

and an existing awareness of the issues contained within the amendments. However there was no degree of certainty regarding this, as many of the changes to work on existing dwellings, for example, alterations and extensions, have been simplified at the same time as they have been made to be more energy efficient. Much of the construction sector work of small and micro-businesses fits into the alteration and extension market.

### **Recurring costs**

In addition to the costs described above, there were recurring costs to consider. With these amendments, costs of some of the features of the building (such as external walls and windows) can be expected to increase but others will either cost the same or (for instance space heating and air conditioning plant) become cheaper because of the reduced capacities needed. It was assessed that there would be a net increase of all of these in the short term, but that some would then disappear relatively quickly after the first year or so of implementation as experience in building design and construction, additional training, product innovation, and reduced wastage all take place.

The additional building cost resulting from the improved energy standards for a typical 100m<sup>2</sup> detached new dwelling was estimated to be around £1300 (when comparing a house with a gas boiler designed to the current elemental standards with the equivalent CO<sub>2</sub> target setting house) For smaller attached houses and flats with less external wall area it would be nearer £1000. If developers choose to build to greater standards of airtightness, costs could be reduced even further, however this would need to be offset against the cost of testing the representative sample of houses (reckoned to be around £10 to £15 per dwelling, if one in twenty are tested) and the provision of larger trickle vents which could amount to £50 per ventilator. For non-domestic buildings, the cost was estimated to be in the range of £10 to £20 per square metre of floor area, depending on the type of building and construction. In general the additional costs that arise as result of alterations and extensions to buildings will be proportional to new buildings, but in some instances they will be less. The most significant cost was for the installation of condensing boilers for new gas and oil-fired wet central heating systems in existing dwellings. The cost increase was expected to be around £200 per installation.

For dwellings, the inclusion of a humidistat operated fan in an area designated for the drying of washing would add around £40 to the cost of a dwelling. The changes to the domestic heating standard 3.13 in essence bring the guidance into line with what is already normal construction industry practice. In view of this it was considered that there were no significant costs associated with this measure. With regard to the introduction of a standard and guidance for biomass storage, it was considered that there would be no significant increase to existing construction costs. This was largely due to installation of biomass heating systems currently falling outwith mainstream building construction. This standard has been introduced as a pre-emptive measure anticipating that there could in the future be a demand for a biomass fuel industry.

### **Total compliance costs**

An average compliance cost for dwellings of £1,150 per unit and a central compliance cost for non-domestic buildings of around £15 per m<sup>2</sup> of floor area was estimated. Using these figures the total additional building costs for the Scottish building industry, as a whole, would be £37m each year for new building work. In following years these costs would continue to fall on the building industry or on the purchasers of the new buildings. Over 20 years, the total discounted value of the costs to new building work was estimated at £465m.

### 5.3 Costs/benefits summary

#### Summary of benefits

The aim of this review was to determine whether or not additional carbon dioxide reducing measures and improvement in the energy performance of buildings could be delivered through changes to the Scottish building regulations.

- Option 1 (do nothing) does not offer an appropriate response to this issue as no carbon dioxide or energy savings would be realised. Full implementation of EPBD would not be possible. This option is therefore not considered to be viable.
- Option 2 (information and subsidy) would offer savings, but information alone would only be embraced by those who are already convinced of the benefits. The factoring-in of subsidy to support the information would result in considerable costs being applied in a disproportionate way. Full implementation of EPBD would not be possible. This option is therefore not considered to be viable.
- Option 3 (Amend the energy standards in Scottish building regulations) would offer considerable carbon dioxide savings in an equitable way. In terms of monetary savings for occupiers of buildings, there are savings, but these tend to be less than in the past, as the law of diminishing returns start to apply.

#### Estimated carbon savings from Options 2 and 3

Building type	Build-rate per annum	Total carbon savings/annum	Carbon savings in 2020
Dwellings	23,000 units	3940.7 tonnes	0.359mtC
Industrial	400,000 m <sup>2</sup>	657.3 tonnes	0.060mtC
Commercial	300,000 m <sup>2</sup>	1395.5 tonnes	0.127mtC
<b>Total Carbon savings in 2020 =</b>			<b>0.546mtC</b>

Note: These savings may not be fully realised if Option 2 were to be adopted as there is no guarantee that all developers would choose to apply for a grant and commit to applying enhanced standards to their buildings.

#### Summary of implementation costs

Option	New domestic buildings (£m)/yr	New non-domestic buildings (£m)/yr	Total cost (£m)/yr
1	Nil	Nil	Nil
2	26.5*	10.5*	37*
3	26.5	10.5	37

\*An estimated 25% of this cost would be borne by the Government, however there is no guarantee that all developers would choose to apply for a grant and commit to applying enhanced standards to their buildings.

Since public consultation closed in May 2006, there have been changes made to the energy standards guidance that was proposed. However, the changes that have been made to the finalised guidance, affect the flexibility of approach to meeting the standards as opposed to levels of carbon saved. An example of this is that the trade-off for a less demanding backstop wall U-value against provision of low and zero

carbon energy generating technologies with little or no associated running cost, has been removed from the guidance

#### **5.4 Comparison of costs/benefits and recommendation**

This final RIA presents realistic estimates of the levels of carbon benefits that will be generated by the implementation of the amendments to building regulations as presented in summary form in the attached Annex A. The implementation costs to industry appear substantial at £37m per year (discounted value is £465m over twenty years). However even assuming the worst case, this will be recouped in monetary energy savings to the occupiers of buildings over the 60 year design life of buildings. From this, there are further net benefits available to individual occupiers who choose to effectively manage the energy use in their buildings. With regard to the social cost of carbon, there is a real cost benefit with £46.9m saved by 2020 and £114.1m saved over the full twenty years after implementation. These results appear to be robust to changes. Even if there are changes to assumptions on the valuation of costs and benefits, the outcome appears to support the regulatory changes.

It is therefore recommended that **Option 3** is adopted.

#### **6.0 SMALL FIRMS IMPACT TEST**

##### **6.1 Preliminary Impact Test**

Assessment has been based on Option 3 as Options 1 and 2 have no cost implications for small firms, including micro-businesses (those which employ less than 10 full-time employees). It is considered that the proposals to change the regulations apply in a proportional and equitable way. Only those firms that choose to erect, alter, extend or convert buildings will be subject to the proposed changes.

For small firms in the construction industry, the move to a methodology based system of compliance for new buildings may create training issues. However this is mitigated to a certain extent by the simplified elemental approach for dwellings and, for the non-domestic sector, the exemption from the methodology approach for 50m<sup>2</sup> stand alone buildings. The majority of micro-businesses in the construction industry deal with the alteration and extension market. The proposals here still retain an elemental method to compliance and in most instances the guidance has been simplified. The majority of costs borne initially by these firms will be passed on to the building owners.

##### **6.2 Full Impact Test**

From preliminary work it was considered that these proposals would not present a significant impact on small businesses in Scotland.

In the intermediate RIA, a commitment was given to carry out a full small firms impact test (with a focus on micro-businesses) during the period of public consultation. During this time, the Building Research Establishment (BRE) were commissioned by the Scottish Building Standards Agency (SBSA) to do this work. The full report can be viewed at [http://www.sbsa.gov.uk/current\\_standards/consultsmallandmicrobusinessessectionsix.htm](http://www.sbsa.gov.uk/current_standards/consultsmallandmicrobusinessessectionsix.htm)

On the instruction of the SBSA, BRE contacted and interviewed five small businesses. They were as follows:

- Architectural Technologist (Sole Trader)
- Architectural Practice (5 employees)
- Building Contractor (Sole Trader)
- Building Services Engineering Contractor (10 employees)
- Building Contractor 3 (8 employees).

BRE held face to face interviews with a representative from each business. Each of the interviews followed a similar format. BRE provided an explanation of what the proposed key changes are to Section 6 and Section 3 and how they were likely to affect each of the interviewees. This was followed up with a discussion centred on key questions aimed at ascertaining the impact of these changes to each of them as a small business.

### **6.3 Summary of findings**

#### **Training for Staff**

The contractors felt that there would be no significant training requirements placed upon them as a result of the proposed changes. The architects felt that the increased use of the calculation methodology (SAP and SBEM) would result in them having to train staff as they would not wish to pass the work on to a third party.

#### **Cost to Customers**

All the businesses chosen for interview agreed that any additional costs associated with the changes to the building regulations will be passed on to the customer. The increased insulation levels, energy efficient light fittings and more efficient boilers will all increase the end cost to the customer. Some parties felt there would be repercussions from this and others thought the increase would be marginal and therefore there would be no great impact.

#### **Timing**

The architects felt that they would require some time in order to prepare for the proposed changes. The contractors reinforced this view by stating that 'all planning and design changes come from the architect, we carry out the work as instructed'. The contractors felt that more time may be required to install some measures but that the cost of this would be passed to the customer.

#### **Materials**

Some concerns were raised over the capability of manufacturers to keep up with the demand that these new standards would create. Concerns were also raised that if the correct materials were not readily available to the quality required, delays in projects could occur, impacting on the small business.

#### **Planning**

The contractors did not think that there would be any additional constraints put on them as a result of the proposed changes in terms of planning. The architects will have to make some changes when the building standards are first issued but it was assumed this would become common practice with time and the impacts would not be long term.

#### **Workers' Pay**

Overall it was felt that workers' pay would not be affected by the proposed changes but installation time may in some instances take longer. The increased labour costs associated with this would be passed on to the customer.

### **6.4 Assessment**

The amendments will introduce an additional burden in terms of:

- training and familiarisation for Architects and Architectural Technologists in the calculation methodology (SAP and SBEM); and
- production of materials and the supply of materials.

It is considered that neither of the above should be treated as an insurmountable barrier to the introduction of the amendments. In the case of the calculation methodologies, it is essential that they evolve further to set energy standards in Scottish building regulations in a different way to how they were used initially to implement Article 4 of the EPBD. Once the Article 7 energy performance certificates are implemented for new buildings, it will be untenable to 'reverse engineer' performance levels back to elemental measures. The switchover to using a calculation methodology will result in one-off training initially, with possibly minor familiarisation issues arising from minor developments/changes to software programmes. It is not expected that there will be radical changes in the future to these methodologies. Regarding the production and supply of materials, again any glitches are expected to be short-lived and will be mitigated by both the lead-in time to the introduction of the amended standards and guidance and also that revised energy measures will have existed in England and Wales for at least one year before the Scottish amendments are introduced.

All issues considered, it has been established that the amendments will not have a significant impact on small businesses in Scotland.

## **7.0 "TEST RUN" OF BUSINESS FORMS**

7.1 There are no business forms included with any of the options.

## **8.0 COMPETITION ASSESSMENT**

### **8.1 Competition**

No significant areas where issues of competition, restriction or imbalance will arise have been identified. The move towards methodology based standards and guidance for new buildings mean that there is greater design flexibility and that some poorer energy performing parts of a building can be compensated by elements of higher performance. The amendments are not expected to have any significant effect on competition.

### **8.2 Manufacture**

The guidance on compliance is written mainly in terms of performance, rather than by prescribing products or materials. This offers the designer the flexibility to select the products and materials which best suit the design of the building. The introduction of condensing boilers into the English and Welsh building regulations approximately a year ago will mean that industry will be geared up for manufacture by the time the proposed changes are implemented. For other products, for example insulation, where manufacturers may need to adjust their range of product thicknesses, it is intended that this will be reflected by the 3 month lead-in time between publishing standards and guidance and the subsequent implementation.

The standards and guidance give encouragement to the take up of building integrated low and zero carbon energy generating technologies such as solar water heating, photovoltaics and micro-wind turbines. Some of these technologies are not at a mature stage of development and consequently it has not been possible to introduce a mandatory standard as this could stifle innovation and adversely affect the ones that are less mature. During consultation, one manufacturer considered that the guidance as proposed would adversely affect their low carbon heating technology. The guidance has been subsequently amended.

### **8.3 Implementation**

The proposed changes will affect any party carrying out work to create a new building or alter an existing building. Changes required to building practice will apply equally to all forms of development. Based on the recommended option, no disadvantages to any party, existing or emergent, have been identified.

### **8.4 Alternatives**

As stated in 8.1 above, Section 6 guidance consists largely of performance measures which allows different ways of meeting the standards.

## **9.0 ENFORCEMENT, SANCTIONS AND MONITORING**

### **9.1 Background**

The amendments will replace existing guidance given within the Scottish Building Standards Agency Technical Handbooks. These documents give guidance on compliance with the Building (Scotland) Regulations 2004.

All matters relating to enforcement, sanctions and monitoring will be carried out under the existing processes, which form the building standards system in Scotland, as set out under the Building (Scotland) Act 2003. Parties responsible for operation of this system are the 32 Scottish local authorities, appointed as verifiers under the Act, and the Scottish Building Standards Agency.

### **9.2 Enforcement and sanctions**

Generally, work subject to the Building (Scotland) Regulations 2004 requires to obtain a building warrant before work commences and to have a completion certificate accepted once works are finished. (Exclusions are set out under Schedule 3 to Regulation 5 of the Regulations).

Where a building warrant is required, proposals are subject to the scrutiny of verifiers (local authority building standards departments) who have enforcement powers under the Act to ensure compliance with the Regulations. Where cases of non-compliance are referred to the Procurator Fiscal and persons found guilty of offences in terms of the Act, they are liable on summary conviction to a fine not exceeding level 5 on the standard scale (currently £5000).

### **9.3 Post-implementation review**

The Scottish Building Standards Agency reviewed the proposals after the public consultation. The Agency will monitor the impact and effectiveness of the amendments through its normal contacts with the industry and local authorities. In line with Directive 2002/91/EC on the energy performance of buildings, the amendments will be subject to a review within a 5 year period. Before May 2012 the Agency will have consulted publicly as a part of that review and in line with Scottish Executive policy, it will be accompanied by a further RIA.

## **10.0 SUMMARY AND RECOMMENDATION**

### **10.1 Summary**

The summary of benefits and costs remains unchanged from the intermediate RIA and are noted in item 5. The amendments have been modified since public consultation and discussed at a BSAC working party, with significant changes identified in Annex A.

## 10.2 Conclusion

From the information provided in this RIA, **it is proposed to adopt Option 3** and introduce amended standards and guidance pertaining to the Building (Scotland) Regulations 2004 in May 2007. The amended standards and guidance will improve the energy efficiency of new buildings and new building work and assist with matters affecting, heating, ventilation and condensation within new buildings.

### DECLARATION

**I have read the Regulatory Impact Assessment and I am satisfied that the benefits justify the costs.**

**Signed:-** .....

**Date:-** .....

Johann Lamont  
Deputy Minister for Communities

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## SUMMARY OF PROPOSED CHANGES

### Section 6 – at consultation

1. Section 6 energy has been substantially changed whilst retaining as much of the existing relevant guidance as possible. In particular the text of the former annexes on alterations, extensions, conversions and conservatories has been integrated into the appropriate guidance to the standards. The amendments introduce a means by which carbon savings in the region of 18-25% for new dwellings and 23-28% for new non-domestic buildings can be achieved, when compared with the current elemental measures. Specific savings will largely depend on the fuel type and the size and shape of each building.
2. Standard 6.1 and associated guidance is entirely new and replaces the previous Building Standards Circular on Energy. The guidance presents overall carbon dioxide emissions levels for both new dwellings and non-domestic buildings based on a methodology that is consistent with EU Directive 2002/91/EC on the energy performance of buildings (EPBD). The recommended calculation tools for use with the methodology are SAP 2005 and SBEM
3. The Target U-value and Carbon Index methods of compliance are no longer appropriate to new domestic buildings and have been replaced by the procedure in the guidance to 6.1. However, an Elemental Method type arrangement is offered in clause 6.1.5 under 'a simplified approach'. Extension work to existing dwellings will use both a traditional Elemental Method and a simplified Heat-Loss Method. For non-exempt conservatories a lesser standard of fabric insulation will no longer be appropriate for those which are unheated.
4. For non-domestic buildings, the Elemental and Heat-Loss Methods have been removed (except for stand alone buildings with a floor area of less than 50m<sup>2</sup> and extension work on existing buildings). In general, new non-domestic buildings will use an approach which is similar to the current Carbon Emissions Calculation Method (see paragraph 2 above).
5. The guidance supporting standards 6.2 (Building insulation envelope), 6.3 (Heating system), and 6.4 (Insulation of pipes, ducts and vessels) recommend minimum elemental levels. In the case of new-build the guidance is only for backstops (base minimum levels) because a more demanding compliance target is achieved through standard 6.1. For work on existing buildings the recommended levels are generally more demanding.
6. 'Accredited Construction Details (Scotland)' are referred to in the guidance to standard 6.2 on limiting air infiltration and reducing thermal bridging. They can also be used in conjunction with the calculation methodology referred to in paragraph 2 above. These details will be accessible from the SBSA website.
7. The guidance to standard 6.3 has been expanded to cover a more complete range of heating systems, including certain low and zero carbon heating technologies that are building integrated.
8. Standards 6.5 (Artificial lighting) and 6.6 (Mechanical ventilation and air-conditioning) now apply to dwellings and have been included due to the introduction of standard 6.1 and the changes to SAP 2005 to make it compliant with the EPBD.

9. The guidance to standards 6.7 (Commissioning building services) and 6.8 (Written information) is largely unchanged, except to remove the energy usage forecasting and include text on alterations, extensions and conversions and in the case of non-domestic buildings guidance on testing ductwork and on logbooks. Commissioning for ventilation cooling systems for dwellings are also included.
10. Standards 6.9 (Energy performance certificates), 6.10 (Inspection of air-conditioning), and 6.11 (Metering), are entirely new and all but the latter are required as a result of the EPBD.
11. The number of annexes are reduced. Those which are no longer appropriate have been deleted entirely. However, where the information has not been adapted and subsumed by the main guidance it can be accessed via the SBSA web-site. Certain other annexes have been retained, renumbered and revised/redrafted to suit the new standards. The adjustment to the existing annexes are as follows:
  - 6.A Tables of U-values and thermal conductivity, 6.B Worked examples of U-value calculations and 6.C U-values of ground floors and basements, are to be packaged together into an SBSA website accessible only document.
  - 6.D Thermal bridges at the edges of openings, 6.F Worked examples of the Target U-value Method, 6.H Alterations and extensions, 6.L Performance assessment methods for office buildings, 6.M Conservatories and 6.N Conversions, are to be removed altogether.
  - The following will all be revised and reworked to fit in with the proposed guidance. 6.E Compensating U-values for openings (to become 6.C), 6.J Heat Loss Method example (to become 6.B Compensatory approach for alterations, extensions and conversions), 6.G The SAP Energy Rating and Carbon Index (to become 6.E Energy ratings and certificates), 6.K Lighting calculations (to become 6.D) and 6.P Limited life buildings (to become 6.A Modular and portable buildings).
12. In addition, the defined term in Appendix A 'Insulation envelope' will be extended to the following:
 

Insulation envelope means the building elements which encapsulate the building or parts of the building which use fuel or power for heating or cooling the internal environment and will comprise all or some of the following:

  - a. Elements exposed directly to the outside air
  - b. Elements directly in contact with the ground
  - c. Floors directly in contact with a solum space
  - d. Elements that are buffered by certain parts of the structure
  - e. Separating elements where the thermal transmittance is considered to be zero.

## Section 6 – post consultation

1. A U-value summary diagram is included for domestic 'extensions'.
2. A block assessment procedure allows the Target CO<sub>2</sub> emissions to be averaged out over an entire block of dwellings and allows certain dwellings to make a larger contribution to overall compliance.
3. A maximum percentage of glazing for dwellings has been removed.
4. The trade-off between less onerous fabric insulation backstop measures and installation of low and zero carbon technologies with little or no associated running cost has been removed.
5. Large dwellings use the same calculation tool for calculation of Target CO<sub>2</sub> as small dwellings (SAP 2005)

6. Robust fabric insulation standards have been introduced as an option for heated communal areas of domestic buildings, instead of referring to the non-domestic Technical Handbook.
7. The guidance on solar hot water systems refers to direct systems as well as indirect systems.
8. Commissioning for mechanical ventilation and air-conditioning in domestic buildings has been included.
9. Metering is now only applicable to non-domestic buildings.

### **Section 3 Domestic– at consultation**

1. Standard 3.13 has been amended to include provision for maintaining suitable temperature within dwellings.
2. Clause 3.13.1 has been amended to add guidance on the provision of heating to all rooms in the dwelling.
3. Clause 3.13.2 has been added to provide guidance on alternative heating systems.
4. Clause 3.14.0 includes reference to drying of washing.
5. Clause 3.14.2 The guidance on control of humidity has been relocated more appropriately in guidance to standard 3.15 issued in the 2006 edition. This clause now provides guidance previously in 3.14.3, ventilation of dwellings. This has been added to, by the addition of greater trickle ventilation recommendations for dwellings built to a higher level of air tightness.
6. Clause 3.14.3 ventilation of conservatories has been improved to recommend to suggest increased ventilation areas and roof vents.
7. Clause 3.14.4 has been added to include guidance on ventilation of rooms in which washing will be dried.
8. Clause 3.14.5 has been expanded to include guidance on ducting of trickle ventilators, and to clarify that the trickle ventilation area is calculated on the simple geometric method.
9. Clause 3.14.7 has been slightly amended to clarify the existing guidance on ventilation provided where extensions or conservatories are built over existing windows.
10. Clause 3.14.8 The document cited with reference to control of Legionellosis has been updated.
11. Clause 3.14.9 has been expanded to include guidance on the provision of positive input air systems
12. Clause 3.14.10 has been amended to confirm that guidance on ventilation of garages over 60 m<sup>2</sup> is now more appropriately located in the non-domestic handbook.
13. Standard 3.23 has been enlarged to include provision for the inhibition of fire spread to woody biomass stores.

14. Clause 3.23.0 has been expanded to include information on woody biomass.
15. Clause 3.23.4 had been added to give guidance on the fire protection recommended for woody biomass stores.
- 16 Standard 3.24 has been enlarged to include provision for adequate storage areas for woody biomass.
17. Clause 3.24.0 has been expanded to include information on woody biomass.
18. Clause 3.24.4 had been added to give guidance on the storage area recommended for woody biomass stores.
19. In addition, it is also proposed to extend the defined term in Appendix A 'conservatory' to the following:  
 "Conservatory means a building attached to a dwelling with a door and any other building elements separating it thermally from that dwelling and having translucent glazing (including frames) forming not less than either:
  - a. 75% of its roof area and 50% of its external wall area; or
  - b. 95% of its roof area and 35% of its external wall area."

The change is primarily for dwellings with narrow facades (e.g. small terraced houses) and to allow external conservatory walls to be built within a metre of at least 2 boundaries.

### **Section 3 Domestic– post consultation**

1. Clause 3.14.4 The use of passive stack ventilation (psv) within a drying area has been added to the draft guidance.
2. Clause 3.14.4 The draft guidance has been altered to show the range of humidity levels for the operation of humidistats to be 50 to 65%.
3. Clause 3.14.8 The draft guidance has been amended with the removal of reference to BS 5720 which has been withdrawn, and the proposal will proceed in that manner.

### **Section 3 Non- Domestic– at consultation**

19. Clause 3.14.2 has been expanded to include guidance on ventilation of "tight" buildings and of wet rooms within buildings
20. Clause 3.14.3 has been expanded to explain that trickle ventilation size is calculated on the simple geometric method.
21. Clause 3.14.5 has been expanded to include guidance on ventilation of "tight" buildings and The document cited with reference to control of Legionellosis has been updated.
22. Standard 3.23 has been enlarged to include provision for the inhibition of fire spread to woody biomass stores.
23. Clause 3.23.0 has been expanded to include information on woody biomass.
24. Clause 3.23.4 had been added to give guidance on the fire protection recommended for woody biomass stores.

25 Standard 3.24 has been enlarged to include provision for adequate storage areas for woody biomass.

26. Clause 3.24.0 has been expanded to include information on woody biomass.

27 Clause 3.24.4 had been added to give guidance on the storage area recommended for woody biomass stores.

**Section 3 Non- Domestic– post consultation**

There were no significant alterations to Section 3 Non-Domestic

## **PART 1 - SECTION 6: ENERGY**

### **1. Introduction**

Comments were invited from 500 consultees of whom 69 have responded. This is considered to be a relatively low response rate, considering the implications of the new standards. One possible explanation is the many consultees were broadly content with the proposed standards and guidance and did not feel it necessary to comment further.

11 out of the 32 building standards managers from local authorities elected to comment. It may be that due the close working relation SBSA have developed with the local authorities that many consultees are broadly content with the proposed standards and guidance and did not feel it necessary to comment further. Also SABSM responded which represent the building standards managers of the 32 local authorities.

Only one design professional elected to respond however a number of Chartered Institutes representing Architects, Architectural Technologists, Building Services Engineers and Surveyors throughout the UK gave a positive response with detailed comments.

Generally respondees were in favour of the proposals and several commended what had been produced. Most of the comments therefore were concerned with fine tuning of the text to provide clarity, more flexibility or better guidance. A few were critical of some provisions while others felt some proposals did not go far enough.

From the responses, it is apparent that there is much support for improvements to energy standards but the main purpose of this summary is an attempt to highlight the principal areas of contention.

### **2. Breakdown of respondees into groups (number of respondees in brackets)**

Local Authority Building Standards (11)

Local Authorities (1)

Trade and Professional Bodies (23)

Contractors, Manufacturers & Developers (17)

Designers and consultants (2)

*Individuals (2)*

*Other Statutory Bodies (2)*

*Interest Groups / Advisory Organisations (11)*

### **3. Summary of responses to specific questions**

3.1A list of 14 specific questions that the Agency considered necessary for further consideration was put to consultees. A summary of responses to these questions is set out below including a brief summary of the main concerns raised. The responses will be fully considered as part of the review process as detailed on SBSA's website.

**3.2 Q1.** *General: Where numerical figures are necessary, more tables are now provided instead of the figures being embedded in the text. Do consultees prefer this approach?*

43 respondees supported the use of tables and there were no adverse comments on this proposal.

**3.3 Q2.** *Section 6.1: It is felt that the majority of dwellings are not complex buildings, to which a standard occupancy pattern applies. Consequently an elemental type approach is proposed in the guidance to standard 6.1 for dwellings (Clause 6.1.5). Do consultees agree with this option?*

37 respondees supported the proposal however several of them also considered this simple approach was still too complex and would require a high level of expertise to fully understand. There were 5 respondees who felt the proposal was not appropriate and that it did not give the flexibility of other approaches e.g. Target U-value Method.

**3.4 Q3.** *Section 6.2: It has been suggested that a 'U-value summary diagram' could be provided for the elemental U-values for extensions? (similar to diagrams in clause 6.2.1 of the existing Technical Handbook). Would consultees consider this helpful?*

34 respondees supported the use of such a diagram. Several thought the U values should be the same for all elemental areas. There were no adverse comments on this proposal.

**3.5 Q4.** *Section 6.2: SAP 2005 does not deal particularly well with dwellings that contain very large areas of glazing, when used in conjunction with a CO<sub>2</sub> emissions target. It has been suggested that guidance is given on an appropriate amount of glazing for dwellings. Would consultees consider this helpful? If yes, should it be either 40%, 50%, 60%, or another percentage? Please specify in the comments below.*

There was a mixed response for this question. 22 respondees supported the use of appropriate amount of glazing. Several stated percentages within the range 12.5% to 50% and they thought that a minimum percentage should be stated. 17 respondees thought that this proposal was not appropriate. Several respondees thought that this would restrict the designer's flexibility to design. Several respondees thought because of the Target Emission Rate (TER) within the calculation tools for domestic and non-domestic any limit on glazing was not necessary.

**3.6 Q5.** *Standard 6.2: In the guidance, it is proposed to offer a less onerous backstop external wall U-value (to the level proposed elsewhere in the UK) where building-integrated low or zero carbon energy generating technologies (LZCT) are adopted. This approach is only recommended when there are little or no associated running costs attached to the technology and at least a 10% reduction in carbon dioxide emissions is attributed to the LZCT. The intention behind this is to offer, greater flexibility to designers, increased housing or unit density, allow cost savings terms of wall construction costs and promote use of some of the less cost-effective LZCT. Do consultees agree with this approach?*

There was a mixed response for this question. 24 respondees considered this proposal inappropriate and the same number considered it appropriate.

**3.7 Q6.** *Section 6.3: The guidance has been expanded to include appliance efficiencies and controls for a wider range of heating systems such as solar, heat*

*pumps, etc. This does mean that this section is considerably longer than before. Do consultees agree that this guidance should be contained within the Technical Handbook? If no, should it be available on the SBSA website? Please specify in the comments below?*

32 respondees supported the use of this guidance within the Technical Handbooks. 6 considered it more appropriate to have information available on SBSA'S website.

**3.8 Q7.** *Standard 6.6: Warm air heating systems generally tend to be considered as old technology with manufacturing capacity generally confined to the replacement market. In view of this it is not proposed to give guidance on oil fired warm air heating systems?*

25 respondees supported this approach with several stating that there currently weren't a significant number of applications for warm air heating. 7 respondees thought that this proposal was not appropriate.

**3.9 Q8.** *Standard 6.6: In certain situations, it is either impossible or too costly to install a condensing boiler in an existing dwelling. In such cases it is proposed that the UK Government's condensing boiler installation assessment procedure is adopted as a way of justifying use of a non-condensing boiler.*

26 respondees supported this approach and 3 respondees thought that this proposal was not appropriate as the increased capital cost of condensing boilers could not justify the benefit in energy saving.

**3.10 Q9.** *Standard 6.6: It is proposed that standard 6.5 will now apply to new dwellings and the backstop given in guidance recommends 50% of this lighting is of the low energy type. It is considered that some of the non-dedicated compact fluorescent lamps give a quality of light, that is better than the dedicated fittings. Consequently it is proposed to offer an option of non-dedicated, dedicated or a mixture of both.*

27 respondees supported this approach. 9 respondees thought that this proposal was not appropriate. 1 respondee felt this approach would be a disincentive for developers to install dedicated low energy fittings as standard fittings.

**3.11 Q10.** *Standard 6.6: Certain types of dwelling can have a tendency towards high internal temperatures during summer months. In order to discourage the installation of air-conditioning, it is proposed that a check should be done using the procedure outlined in SAP and using associated software.*

34 respondees supported this approach and 2 respondees thought that this proposal was not appropriate. Several respondees felt this approach will require designers to be more aware of solar gain and shading, thermal mass and building orientation when considering the need to install air conditioning.

**3.12 Q11.** *Standard 6.6: It is proposed that a standard on metering is introduced. The principal reason for this is to ensure that occupiers in blocks of dwellings heated by community/block heating and each dwelling or unit in multiple occupancy buildings have a way of measuring heat/fuel used.*



30 respondents were satisfied that the Technical Handbook should be extended to cover metering. 6 respondents thought that this proposal was not appropriate. 2 respondents advised that this standard could put an end to the 'fuel included with rent' arrangements operated by some social landlords and result in homes being inadequately heated. 4 consultees indicated that 'smart' metering should be introduced.

**3.13 Q12.** *Standard 6.6: It is proposed that the U-value calculation information currently contained in existing Annexes 6.A, 6.B and 6.C be accessed solely from the SBSA web-site. Is this annex considered useful? (and therefore it will need to be revised to take account of more demanding U-value standards).*

28 respondents agreed the information currently on the Technical Handbook annexes should be accessed from SBSA's website. 14 respondents thought that this proposal was not appropriate as not all people will be able to access the information.

**3.14 Q13.** *Standard 6.6: Guidance currently contained in annexes on alterations, extensions, conversions and conservatories has been integrated into the relevant section of each standard. Do consultees agree with this approach?*

40 respondents agreed the information currently on the Technical Handbook annexes should be integrated into the relevant sections. No respondents objected to this proposal.

**3.15 Q14.** *Standard 6.6: It is proposed to give advice on testing ductwork for non-domestic buildings. Do consultees agree with this approach?*

27 respondents supported this approach. 2 respondents thought that this proposal was not appropriate and considered that mandatory testing should be implemented in line with Approved Document L in England and Wales.

#### **4. Additional comments**

**4.1** In addition to the 14 specific questions the Agency posed a further question; *Q15. General : Do consultees have any other comments on either sections 6 or 3?* 36 respondents provided additional comments on section 6, and the main points of contention are identified below. Comments on Section 3 follow in Part 2 of this report on page 26 and comments on the 'Accredited Construction Details (Scotland)' are included within the Appendix to this report on page 29.

**4.2 Carbon targets:** On the subject of Standard 6.1 – CO<sub>2</sub> target setting for new buildings there were various responses. 3 consultees advised that they were generally not demanding enough (1 specifically for dwellings) and 5 consultees suggested that dwellings could have a marginal improvement (by improving the loft insulation to 0.13 U-value). 1 consultee advised that the CO<sub>2</sub> target for electrically heated dwellings was too demanding. 2 respondents suggested aligning the notional building for non-domestic with England and Wales. 1 consultee recommended that target setting should apply to work on existing buildings and conservatories. 1 consultee wanted CO<sub>2</sub> targets to be set on a sliding scale for non-domestic buildings. 6 respondents proposed either an elemental approach or model designs for non-domestic buildings. 2 bodies requested that SAP should be used for communal heated areas within blocks containing dwellings instead of SBEM. 1 organisation suggested that for dwellings, 'block assessment' should be able to be carried out, with the CO<sub>2</sub> target averaged out for entire terraces of

houses and blocks of flats, similar to England and Wales. 3 consultees wanted to know how the targets were set for domestic with one of them concerned about the differences between the different fuel types. Other isolated comments included; 'biomass' should be better defined in the package of measures table and not necessarily include 'biogas', etc., extract fans should not be so general in this table and also conventions are needed for the 'simplified approach'.

**4.3 U-values:** There was a mixed response to the backstop/elemental U-values. 6 respondees felt that the U-values for conversions (change of use) need to be more demanding. 9 respondees felt that the U-values for extensions and the 'shell and fit-out' guidance were too onerous. 4 consultees made observations about conservatories, with 2 saying that the standards should not make it mandatory for designers to consider them as being heated and 2 advising that the thermal requirements for glass elements should be improved for all conservatories.

**4.4 Limiting air infiltration:** 10 respondees felt that the Agency should strengthen up on airtightness testing with some of them advocating that it should be mandatory.

**4.5 Heating:** 2 consultees suggested that greater detail is given with regard to time and temperature controls for heating, with one of them suggesting that the standard and guidance relates to control of secondary heating. 1 manufacturer is concerned that the guidance favours indirect solar water heating to the extent that development and sales of direct acting solar water heating will be adversely affected.

**4.6 Mechanical Ventilation and Air-conditioning systems:** 1 consultee proposed that air-conditioning and mechanical ventilation should be banned, unless it was absolutely essential.

**4.7 Other issues with the energy standards and guidance:** 8 respondees considered that the guidance – particularly for domestic compliance is too complicated. 4 consultees thought that this is the right time to introduce a mandatory standard for incorporation of micro-renewables in buildings and 2 considered that when buildings are extended there should be an obligation for the owners to do additional work. 2 consultees thought that the proposed insulation measures would increase the 'footprint' and make homes less affordable. 2 respondees thought that there was a lack of SAP software available to support the consultation and 1 had concerns that Scottish versions of software may not be available in time for the introduction of the measures. With regard to quality of building 6 respondees felt that there should be greater attention should be paid within the regulations to workmanship/quality of construction, with a few indicating that a greater responsibility for compliance should rest with the verifier. 2 consultees objected to the requirement to provide energy performance certificates for new buildings. On the issue of evolution of the energy standards, there were 3 comments. 2 respondees suggested that a 'route map' should be provided to indicate to industry, the future direction of the energy standards, with the other suggesting that aspirational standards are given in the guidance, for those who wish to go beyond minimum levels.

**4.8 Misconceptions:** In reading the consultation responses, it became evident that some consultees did not fully understand Scottish and European building legislation and key misconceptions are identified below.

- The Building (Scotland) Act 2003 places responsibility for compliance on the “relevant person” and in most instances this is the building owner.
- European Directive 2002/91/EC on the energy performance of buildings does not prescribe levels of energy performance that Member States need to ensure are met.
- In the Technical Handbooks, the mandatory standard precedes the guidance.
- The guidance in the Technical Handbooks is not mandatory.
- Changes that are made to building regulations are generally evolutionary rather than revolutionary, where possible they allow for industry adapt gradually. In the context of energy standards, there is a commitment to begin another review in five years time.
- The current review of Section 6 does not involve reviewing changes to procedures that would impact on how the other Standards are applied, e.g. mandatory tests and new building work being used as a ‘trigger’ for upgrading other parts of an existing building. A comprehensive review of the system was carried out between 1999 and 2003.
- The energy standards in Scottish building regulations were disengaged from fuel cost in 2002.
- The proposed Accredited Construction Details (Scotland) are guidance and not solely for use with new build and can be used in conjunction with work to existing buildings, e.g. extensions.
- Much design flexibility is given through the use of a methodology (SAP and SBEM).

## **PART 2- SECTION 3: ENVIRONMENT**

### **1. Introduction**

This section of the consultation covers proposed changes to parts of Section 3: Environment which are directly related to Section 6 Energy, such as ventilation. There were no questions contained within the consultation document which specifically related to Section 3 and as a result consultees were invited to give their comments on various matters within section 3 as they considered appropriate. A total of 10 responses were received during the consultation from the bodies indicated in 2, below. The comments received have proved helpful and as there were no serious concerns it is felt that the respondees were generally content with the proposals. A summary of the points raised at consultation are indicated in 3, 4, 5, 6 and 7, below.

### **2. Breakdown of respondees into groups**

Local Authority Building Standards (1)  
 Trade and Professional Bodies (2)  
 Contractor, Manufacturer & Developer (6)  
*Interest Groups / Advisory Organisations (1)*

### **3. Issues raised regarding domestic buildings**

#### **3.1 *Drying areas for washing***

- Concern raised regarding possibility of increase in condensation.
- Suggestion that the provision of a drying area should be presented as an area rather than a length.
- Suggestion that guidance on the use of passive stack ventilation (PSV) should be added to drying area guidance.

#### **3.2 *Ventilation***

- Suggestion that guidance be given on how to avoid producing moisture rather than how to remove it.
- Request that further guidance be provided on air filtration.
- Concern that 10000 mm<sup>2</sup> may be excessive for trickle ventilation.
- Suggestion that trickle ventilators should be designed using the equivalent method when applied buildings with a high degree of airtightness.
- Suggestion that there was a possible typographic error in that the area mentioned should be 10000 mm<sup>2</sup>.
- Request for further guidance about positive input ventilation systems, etc.

- Request that further guidance be provided on suitable lengths of ducting to extract fans.
- Clarification that BS 5720 has been withdrawn.
- Suggestion that there is no need for duplicate motors. Indicators to alert the failure of a extract fan system would be adequate.
- Suggestion that there appears to be a conflict between the ventilation guidance to conservatories with regard to the proportion of the floor area.
- Suggestion that the fans should be activated at a relative humidity of 70%.
- Suggestion that PSV could not be fitted with a manual over-ride.

#### **4. Issues raised regarding non-domestic buildings**

##### **4.1 Ventilation**

- Request that guidance be given on how to avoid producing moisture rather than how to remove it.
- Request whether more information could be provided on air filtration.
- Concern that 10000 mm<sup>2</sup> is excessive for trickle ventilation.
- Suggestion that trickle ventilators should be designed using the equivalent method.

#### **5. Miscellaneous issues**

- Request for the removal of the word 'ameliorate' to aid the use of plain English.

#### **6. Standard 3.23 Fuel Storage – Protection from Fire**

There were very few responses to the proposed changes to this standard and associated guidance. 2 respondees offered minor comments/suggested corrections on the container requirements for storage of woody biomass fuel. 1 other respondee offered useful minor comments on the storage of oil, which although not part of the consultation, have been included into the guidance. 1 of the respondees raised the issue of automated fire prevention safety systems and chimney design for biomass boilers. The issues raised for oil storage were mainly in connection with updated reference documents and clarification of fire protection criteria.

**7. Standard 3.24 Fuel Storage – Containment.**

Only three respondees offered comments on the revision of this standard and guidance. The main issues were references to the updating of various British Standard and oil industry reference documents and also the introduction of The Water Environment (Oil Storage) (Scotland) Regulations that came into effect on the 1<sup>st</sup> April 2006 after the consultation was issued.

## Accredited Construction Details (Scotland) – Summary of consultation responses

Review of the Building (Scotland) Regulations 2004

Section 6: Energy (Incorporating changes to section 3: Condensation, Heating and ventilation)

### General Comments

It is apparent from the responses received there is widespread support for the introduction of Accredited Construction Details (Scotland), in support of Section 6.

### Specific Comments

- One respondent mentioned the use of more appropriate diagrams.
- Several consultees consider the DPC and VCL detailing to be ineffective and noted the DPC was bridged by cavity fill and render..
- One respondent commented that non vented pitched roofs (breathable membranes) had not been included in the details.
- There were comments the vapour permeable membrane should have a vapour resistance in the timber frame wall of 0.6 Mn s/g.
- One respondent mentioned the use of sarking board and wanted clarification that it is possible to use a sheet material such as OSB, plywood or softwood planks. Another sought clarification whether or not it is possible to use an untearable roofing felt as an alternative to using sarking board.
- One respondent commented that solid joists were used in the timber frame detail and asked if engineered joists would be an acceptable alternative.
- One respondent sought clarification on how to obtain access to the supplementary guidance for those who do not have internet access. Another respondent commented that not all people will be able to access the details on the web page. *N.B. For those who do not have internet access, the Agency will make hard copies available, upon request.*
- Comment was made that the thermal conductivity not exceeding 0.025 W/mK was not generic enough.
- Several respondents mentioned the use of insulation below the dpc which would create a slip plane.
- Several consultees mentioned the use of full cavity wall insulation which is not included by NHBC in their Standards.

- Several consultees commented on the correction of the ventilation gap to 10mm for roof pitches above 15 degrees and 25mm gap for pitches below 15 degrees.
- Several comments were made regarding the introduction of ventilation to the gable ladder.
- One resposdee considers the beam fill to the flat roof/wall junction – construction (4.04) to be inappropriate as it is not possible to beam fill with the insulation in the position shown.
- Comments were received from the metal frame industry and bubble foil manufacturers on the omission of accredited details which include their products.



## IMPLEMENTATION & DELIVERY PLAN

### Delivery and communication

The proposed changes will be taken forward in the form of guidance within the Scottish Building Standards Agency Technical Handbooks. This guidance will be introduced as part of the annual amendment to the SBSA Technical Handbooks and implementation will be carried out under existing processes which form the building standards system in Scotland, as set out by the Building (Scotland) Act 2003.

The SBSA Technical Handbooks are the primary reference source for compliance with building standards and, as such, are used by designers and others involved in the building process to ensure compliance with the Scottish building regulations. Inclusion of new guidance on energy conservation measures and low and zero carbon technologies within these documents will ensure that the intent – reduction in CO2 emissions in new or altered buildings – is achieved to best effect.

The guidance to the standard will illustrate the most common way of meeting the requirements of the functional standard and, thus, complying with the Building (Scotland) Regulations 2004. When carrying out work that is subject to the building standards, it is the duty of the relevant person (normally the owner of the building) to comply with the requirements of the regulations.

Publication in this form is the established method of introducing changes to the building standards system and ensures that information on changes reaches those involved in works that are subject to building standards. This information is made available in paper form, as a priced publication, or free of charge, as an electronic download from the Scottish Building Standards Agency website, [www.sbsa.gov.uk](http://www.sbsa.gov.uk).

### Implementation

The proposed changes will form part of the building standards system in Scotland, produced and maintained, on behalf of Ministers, by the Scottish Building Standards Agency and operated and enforced by the 32 Scottish local authorities.

Most work which is subject to the Building (Scotland) Regulations 2004, as amended, requires a building warrant before commencement and to have a Completion Certificate accepted once finished. Such work is subject to the scrutiny of local authorities verifiers. Local authorities also have enforcement powers under the Act to ensure compliance with the regulations.

### Implementation period

The changes to the guidance within the Scottish Building Standards Agency Technical Handbooks are relevant where any party responsible for a building carries out new building work. Where such work is not proposed, the proposed changes will not have any effect on either the party or the building.

Proposed changes will be published online by the 8<sup>th</sup> of January 2007 with hard copy documents following on 12<sup>th</sup> February 2007. Guidance will come into effect on the 1<sup>st</sup> of May 2007 and be applicable to all building warrant applications made on or after that date. This will provide the minimum 12 week implementation period required for any such change.

### Promotion

Any changes to the building standards system are publicised by the SBSA through the Agency website, seminars and articles in relevant publications. In addition, the SBSA would seek to promote the issue of energy conservation measures and low and zero carbon technologies and the new guidance in association with relevant organisations, manufacturers and installers, together with other key stakeholders who have been involved in development of guidance and in the consultation process.