The Scottish Government

FINAL BUSINESS AND REGULATORY IMPACT ASSESSMENT

SUSTAINABILITY LABELLING FOR BUILDINGS –

AMENDMENT OF THE BUILDING (SCOTLAND) REGULATIONS 2004 AND ACCOMPANYING STANDARDS AND GUIDANCE FOR SECTION 7: SUSTAINABILITY OF THE TECHNICAL HANDBOOKS

BUILDING STANDARDS DIVISION

FEBRUARY 2011

BUSINESS AND REGULATORY IMPACT ASSESSMENT

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1.0 TITLE OF PROPOSAL

Sustainability labelling in new buildings - proposed amendment of the Building (Scotland) Regulations 2004 and accompanying standards and guidance for Section 7: Sustainability of the Technical Handbooks.

2.0 PURPOSE AND INTENDED EFFECT

2.1 Objective

The aim of the amendment is to embed in the Scottish building regulations a requirement for the sustainability labelling of new buildings.

In achieving the above, the following objectives are identified:

- to recognise the level of sustainability achieved by the 2010 building regulations (**bronze** level);
- to allow planning authorities a simple route to achieving their obligations under Section 72 of the Climate Change (Scotland) Act 2009 (**bronze active** level);
- to encourage the adoption of even more demanding sustainability standards with optional higher levels of achievement (**silver** and **gold** levels);
- to adopt a sustainability labelling system that can operate within the scope of the building standards system in Scotland;
- to encourage consistency between local authorities in supplementary planning guidance on sustainable construction; and
- to give simple benchmarks that can be referred to when local authorities aspire to developments that meet a higher measure of sustainability.

2.2 Background

The Building (Scotland) Act 2003 introduced the intent of building regulations to further the achievement of sustainable development. Currently, this intention to further the achievement of sustainable development is embedded in the building standards system in Scotland, but it is not explicit. The proposals would provide a requirement for new buildings to achieve a specified level of sustainability and a statement of the level of sustainability achieved would be affixed to the building.

For domestic buildings, criteria for each level would cover a wide range of sustainability issues including home working, accessibility, provision for bicycle storage, water conservation, low & zero carbon energy generating technologies, energy and carbon dioxide emissions. The criteria for labelling for non-domestic buildings, including central and local government buildings, comprises only of carbon dioxide emissions, at this stage.

Sustainability labelling does not need to be an additional burden on development because the initial level of award (bronze and bronze active) would recognise that a development has already achieved a measure of sustainability by simply complying with the 2010 building regulations.

In 2007, Scottish Ministers appointed an expert panel to review the way forward for buildings to continue to contribute positively to Scottish and UK targets to reduce CO_2 emissions and address the risk posed by Climate Change. The

recommendations of this expert panel were published in December 2007 as The Sullivan Report – 'A Low Carbon Building Standards Strategy for Scotland'.

In April 2007 the Code for Sustainable Homes was introduced in England and Wales, providing a voluntary system of measuring the sustainability of new homes with a view to improving their sustainability. The Code has been welcomed by industry as it signals the future direction of some areas of Building Regulations.

2.3 Rationale for Government Intervention

Calls are being made for a system of national aspirational targets in Scotland. With aspects of sustainability being further embedded into building standards for all new buildings, an approach that offers continuity whilst also signalling and rewarding aspirational design is considered advantageous.

The English voluntary Code for Sustainable Homes (CSH) has growing awareness, but the CSH creates its own assessment regime and the need to maintain assessors' competency. If an approach to recognising sustainable design as part of the normal regulatory process becomes the chosen route to achieve a level of sustainability, valuable designer resources can concentrate on core design work instead of preparing information for a separate checking or scoring process.

With building standards becoming more demanding in October 2010, coinciding with the curtailment of Scottish Planning Policy 6 (SPP6), there are signs local authorities are less inclined to create their own carbon reduction targets that would apply to individual buildings. Certainly one revised set of local authority standards for Sustainable Building indicates this more measured approach. Indeed, Scottish Planning Policy guides planning authorities to look to Building Standards when preparing policies on the requirement for low and zero-carbon generating technologies to be applied to new buildings. A proposal to further embed sustainability could provide a system that could be used consistently throughout Scotland aligning with the house-building industry's calls.

Linking with the Scottish Sustainable Communities Initiative (SSCI) reinforces connections across the Directorate for the Built Environment and positions sustainable buildings within a wider context of Scottish Government work supporting the creation of Sustainable Communities. The derivation of the branding from the SSCI logo strengthens the point that sustainable buildings belong within sustainable communities.

3.0 CONSULTATION

3.1 Development Phase

During the development stage for a sustainability labelling system in Scotland Building Standards Division (BSD) worked with a number of government divisions and bodies, representative organisations of the construction industry and research bodies to help formulate proposals.

Scottish Ministers were required to consult the Building Standards Advisory Committee (BSAC) and such other bodies as are considered necessary to inform on the matters under consideration, before making or amending the building regulations. This exercise has been carried out through a BSAC Working Party. It should also be noted that during this process the Public Services Reform (Scotland) Act 2010 came into force, and as a result of this, BSAC was dissolved. However, the working party continued unchanged after this process. Along with government officials and BSAC members, the working party comprised of, a local authority verifier, a local authority planner, private sector organisations representing the construction industry and a sustainability architect.

Over four meetings, this group shaped the proposals ready for discussion with Scottish firms and other stakeholders.

3.2 Within Government

Building Standards Division had direct contact and discussion with the following divisions and agencies during the development phase.

- SG Housing Markets and Supply;
- SG Housing Investment;
- SG Social Housing;
- SG Housing Access and Support;
- SG Built Environment – Planning;
- SG Architecture and Place;
- SG Energy Markets;
- SG Climate Change;
- SG Renewable Energy;
- Historic Scotland;
- Buildings Division – Communities and Local Government;
- Building Regulations Unit – Department of Finance and Personnel, Northern Ireland; and
- Construction Unit, Welsh Assembly Government.

Discussions were held with the above divisions and agencies before and during the sustainability labelling working party which informed the development of the proposal.

3.3 Business consultation

In developing proposals, 2 'satellite' stakeholder groups were held to better assess the costs and/or benefits to business and further refine the proposals. A number of stakeholders attended these groups including:

6 businesses working in the construction sector;
Local authorities;
8 organisations representing the construction sector;
6 research bodies; and
Energy Saving Trust

One event was primarily aimed at the business sector. The profile of the Scottish firms attending this event was a mixture of builders, architects and construction professionals and included:

One large international business with 2 offices in Scotland;
One large UK business with an office in Aberdeen;
One medium size regional business based in Stirling;
One medium size regional business based in Glasgow;
One small business based in Glasgow; and
One micro business in East Lothian.

3.4 Public consultation

A partial Business and Regulatory Impact Assessment formed part of a package issued for public consultation between 2 November and 24 December 2010.

Views and opinions on the proposals were sought from over 500 key stakeholders and users of the building standards system in Scotland. Public, private and third sector organisations, Non-departmental public bodies (NDPBs) and individuals were advised of the consultation by letter and that the documents were accessible on the Building Standards website. E-mail notification of the consultation was also made to around 1500 organisations and individuals who have registered for the BSD newsletter. There were 60 responses from the following consultees:

Stakeholder Group	Response (%)
13 Professional Organisations/Trade Associations	22
8 Local Authorities	13
8 Designer/Consultants	13
6 NDPB or Agencies	10
6 Individuals	10
5 Research & Development (R&D)/ Universities	8
4 Manufacturers	7
3 Utilities/ resource suppliers	5
2 Contractor/Developers	3
2 Others	3
2 Interest Groups	3
1 Housing Association	2

A list of all consultees is appended to the consultation package which remains available on the Building Standards Division section of the Scottish Government website (http://www.scotland.gov.uk/Topics/Built-Environment/Building/Building-

standards/publications/pubconsult). The Final Consultation Report is attached as Annex C.

The consultation responses have been shared and discussed with the Working Party in January 2011. The public feedback was generally positive, with some revisions to guidance text and some changes to the emphasis within the technical content of the guidance underway in response. For example the 'Bronze Star' level is re-named 'Bronze Active' after stakeholder input. But overall, the consultation responses do not alter the view that this proposal is an effective option to meet the objective of furthering sustainable development by use of the Scottish building regulations.

Proposals to amend guidance under the Building (Scotland) Regulations 2004 require to be 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. A standstill period on further development is imposed by the Directive until after this consultation process is completed on 9 February 2011.

4.0 OPTIONS

Option 1 – Do nothing.

Option 2 – Introduce the English Code for Sustainable Homes, modified to Scottish needs.

Option 3 – Introduce an amendment to embed in the Scottish building regulations a requirement for the sustainability labelling of new buildings.

4.1 Sectors and groups affected

Sectors and groups affected can be categorised as:

a) Persons procuring or occupying new buildings, who may bear any additional costs associated with adopting improved measures of sustainability in new buildings. Although dependent on approach adopted, it is not anticipated that a large section of the population will be affected. It is important to note that achieving higher levels is optional, therefore no additional cost burden is imposed on development by this policy.

b) Developers, who would have to review existing building specification, construction detailing and, potentially, methods of working. As noted in (a) it is not anticipated that a large number of developers will be affected.

c) Those involved with the sustainability aspects of building design and construction, who would have to familiarise themselves with any revised standards and methodologies.

d) Local authority verifiers, who may need to arrange training of staff on changes to standards and guidance, to ensure these can be verified at design submission and during construction where necessary.

4.2 Benefits

In Scotland, many broad measures of sustainability are already embedded in building standards, however, benefits of these proposals include:

- rewarding progress in sustainable buildings that address issues of well-being and flexibility in design; and that link with encouraging the creation of more sustainable communities via planning, placemaking and architectural design policy;
- encouraging reduced energy demand in new buildings linking with the Government's agenda to prevent and tackle fuel poverty;
- signposting the possible future direction of building standards;
- supporting the Government's Greener Scotland agenda through improvements to the built environment;
- encouraging lower carbon emissions from new buildings linking directly with the Government's agenda to tackle climate change; and
- promoting more efficient use of resources such as energy and water.

In considering how to further the achievement of sustainable development by implementing a new labelling system for new buildings in Scotland, three options are identified.

Option 1 – Do nothing

The Scottish Government is committed to the objective of a Greener Scotland. Doing nothing would not assist in furthering the achievement of sustainable development. Accordingly, no benefits are identified which relate to the intended objective.

Option 2 – Introduce the English Code for Sustainable Homes, modified to Scottish needs. The Code for Sustainable Homes is a tradable environmental assessment method for rating and certifying the design and construction of new homes.

There have been some calls for the adoption of the English Code for Sustainable Homes in Scotland. The adoption of a pre-existing system would be more recognisable throughout the UK, where an awareness of the 'brand' name already exists. Benefits include:

- setting a standard to allow industry to achieve aspirational upper levels of sustainability, which would be officially recognised;
- reducing carbon dioxide emissions and energy demand from new buildings when constructed to higher levels of the Code.
- supporting the Government's agenda to tackle climate change and promote sustainable development in Scotland.

- the technical document to support the applicant contains broad comprehensive guidance including aspects such as sustainable material specification
- Larger UK house builders would benefit from some form of consistency.

However it should be borne in mind that modification of the existing English Code would be required, to align it with the possible future direction of Scottish needs.

Option 3 – Introduce an amendment to embed in the Scottish building regulations a requirement for the sustainability labelling of new buildings.

There are a number of recognisable benefits to implementing a system for the sustainability labelling of new buildings through this route. These are:

- achieving recognition of the level of sustainability achieved by meeting the 2010 building regulations, without additional costs.
- many requirements of more sustainable design and construction are already within several sections of the Technical Handbooks. This approach is evolutionary, a logical development of existing mandatory standards.
- providing home buyers, directly, with information on the level achieved.
- setting standards to allow industry to achieve aspirational upper levels of sustainability, which would be officially recognised.
- providing a simpler approach compared to the more complex and tradable assessment process associated with the English Code for Sustainable Homes.
- creating a 'level playing field' for all of industry, not disadvantaging either smaller or larger businesses.
- reducing carbon dioxide emissions and energy demand from new buildings, when constructed to the silver and gold levels.
- supporting the Government's agenda to tackle climate change and promoting sustainable development in Scotland.
- allowing planning authorities to demonstrate progress against Section 72 of the Climate Change (Scotland) Act. This could be used consistently throughout Scotland, aligning with the house-building industry's calls to have consistency across Scotland.
- reducing use of finite natural resources and promoting development and adoption of systems that incorporate renewable energy sources.

4.3 Costs

Option 1
'Do nothing'.
This option presents no implementation costs

Option 2
'Introduce the English Code for Sustainable Homes, modified to align with Scottish needs'

This option would introduce a Scottish version of the English Code for Sustainable Homes technical guidance document, which is approximately 300 pages long, and would result in additional costs and complexity of assessment for developers.

Development Costs
Initial start-up costs to modify the technical guidance document are estimated at around £50,000 for Scottish Government. Also, proposals will result in an additional cost of carrying out a code assessment. An estimate of the cost of code assessment, including both design and post-construction stage, may range from around £2,000 for a single dwelling to around £120 per dwelling in a larger development where there are greater numbers of dwellings and different design types are repeated. This equates to an average cost of around £140 per dwelling. This cost does not take account of the additional training costs to develop a pool of assessors in Scotland. Assessor training in England and Wales currently costs approximately £1, 000 for each assessor.

The cost associated with achieving the level up from building standards compliance would be expected to be broadly equivalent to those in Option 3 paragraph 5.

Option 3
'Introduce an amendment to embed in the Scottish building regulations a requirement for the sustainability labelling of new buildings'

Achievement of the bronze level would simply mean compliance with the 2010 building regulations. Sustainability labelling would not add to capital construction costs, beyond the cost of meeting the levels of the building regulations. The 'bronze active' option allows planning authorities a simple route to achieving their Section 72 Climate Change (Scotland) Act 2009 obligations, with either no or relatively little additional cost as compliance checking would be incorporated within the building standards verification role. Achievement of the silver and gold levels would be optional under the building standards system, but again there would be no cost increase other than to those who demonstrate their environmental commitment and decide to build to this level.

However, adoption of the higher levels of the labelling system in local development plan policy or supplementary planning guidance by local authorities could impose costs on developers, which has yet to be assessed against the arrangements that occur at present, including the implementation of

SPP6 and sustainable construction policies of individual authorities. It is expected that developers would prefer the consistency given by a national labelling system.

The verification of sustainability labels would be a new task for verifiers, and would require a degree of training initially but this would be no more than with other changes to building regulations and guidance. However, it is likely that the private sector would propose a scheme for Approved Certifiers of Design for Sustainability Labelling.

Development costs

Research was commissioned to assess the additional costs arising from the construction of buildings to the aspirational upper levels. The final report from this project for domestic buildings is published on the Building Standards Division website. The following cost assessment is based primarily upon the findings within these reports. Costs identified are non-recurring construction costs, incurred where a new building is created.

For a range of dwelling types, the percentage increase in costs in achieving the silver level, using compliance with the 2010 standards as a baseline, averages at 11% A mid-range example is a typical 4 bedroom detached house of 116m^2 constructed in the central belt of Scotland where the baseline cost estimate is £109,290. Achieving the full silver level in all aspects of sustainability would cost £119,920, an uplift of 9.73% or £92/m2.

Only those firms that choose to construct to optional higher levels of achievement will be subject to the proposed changes, and the average additional cost of assessing a dwelling would be around £80 based on the scaled fees for building warrant applications.

5.0 SCOTTISH FIRMS IMPACT TEST

As stated in "Consultation" on page 5, in January 2010, Building Standards Division (BSD) assembled a Working Party that included representatives from the house building and commercial property industry, architects with expertise in sustainable design, and construction research organisations. The group is chaired by a leading expert in sustainable design and construction outwith Scottish Government. The subject matter that the group examined evolved from previous standards that embed sustainability through the building standards system for all new buildings, as well as exploring the scope of how far optional higher levels within building standards could further the achievement of sustainable development.

The group's four meetings held during 2010 were instrumental in developing proposals for a new sustainability standard within the building standards system in Scotland. Between these meetings, organisations that represent private sector house builders and the property development industry in Scotland, consulted with their members who construct, sell, invest or survey buildings; and these consultations fed into the policy development.

Once a set of proposals was formed, in September 2010, BSD held "by-invitation" events where a wider group of individuals was selected who represent the design and construction industry (a profile of 6 Scottish firms is noted in "Consultation" on page 6), in particular those involved in the marketing of new homes. These face-to-face discussions at different venues gave the Scottish firms and other stakeholders an opportunity to further shape proposals prior to public consultation. A presentation of the draft proposals was followed by an open discussion where the Scottish firms and other stakeholders were given the chance to comment. With regard to levels of sustainable construction that are optional beyond the minimum Building Standards, developers express a preference to the consistency given by a national labelling system. It was agreed that these proposals could meet demands made by an industry sector who voluntarily choose to exceed the Scottish minimum standards and would benefit from official recognition of this achievement.

5.1 Competition Assessment

Assessment has been based on Options 2 and 3 as Option 1 proposes no change to regulation and imposes no actions that may incur costs for small firms, including micro-businesses (those which employ less than 10 full-time employees).

Option 2 introduces the English Code for Sustainable Homes and would result in additional costs for small firms, including micro-businesses. It is estimated that the cost of code assessment (assessing both the design and post-construction stage) may range from around £2,000 for a single dwelling to around £120 per dwelling in a larger development where there are greater numbers of dwellings, and design types are repeated. This equates to an average cost of around £140 per dwelling. This cost does not take account of the additional training costs to develop a pool of assessors in Scotland. Assessor training in England and Wales currently costs approximately £1,000 for each assessor.

Proposals within Option 3 use the existing building standards system and simply introduce optional improved performance levels, keeping training needs to a minimal level.

Guidance is being developed that is simple to follow and verifiable. Upper levels will be fixed so as buildings incorporate more aspects of sustainable design, lower levels would become redundant instead of being revised. Aiming for upper level recognition would be part of the normal building warrant application process; therefore sustainability labelling should be highly accessible to applicants of all sizes and business types, including SMEs. No separate assessor fee would be required.

Only those firms that choose to construct to optional higher levels of achievement will be subject to the proposed changes, and the average additional cost of assessing a dwelling would be around £80 based on the scaled fees for building warrant applications.

Many small builders work mainly on improving, converting or extending existing buildings. Whilst presenting a different and more complex challenge, applying

sustainability labelling to create aspirational benchmarks for sustainability improvements made whist converting existing buildings has been discussed and should be considered at a future date.

A direct enquiry was made with a national organisation representing landlords who rent out domestic property. They advised they have no view because the proposals have minimal impact on their members, in particular their micro-firm members, because it does not affect existing dwellings that constitute the large majority of properties that are let out.

In terms of manufacturing, for Option 3, guidance within building regulations would continue to prescribe performance standards which are not dependant upon use of particular products or materials. This offers the designer the flexibility and freedom to select those products and materials which best suit the design of the building, provided that the specified performance is achieved. Building performance levels identified within Option 3 can be achieved using products and materials that are already obtainable and widely understood.

It is anticipated that manufacturers that contribute to this agenda will continue to develop and review the types of product and material offered as a response to improved standards. Similarly, achieving higher optional levels of sustainability will assist in stimulating the wider development, availability and application of newer, more innovative solutions. These points regarding manufacturers and freedom of product development would be broadly the same if option 2 were to be adopted.

The Office of Fair Trading was consulted in respect of this assessment and no issues were raised regarding concerns on competition. This is because the minimum level allowed by the current building regulations is already enforced and only optional proposals add to the minimum level.

In summary:

- From stakeholder engagement and enquiries it is considered that these proposals will not present a significant impact on small businesses linked with designing, constructing or occupying new buildings in Scotland.
- No significant areas where issues of competition, restriction or imbalance will arise have been identified.
- All businesses in the construction of completely new buildings in Scotland will be affected, but only by each needing to create, print and submit a new sustainability label alongside a building warrant completion certificate.
- The significant cost to business is the cost of additional construction costs, but only where they opt to construct to the optional higher levels of silver and gold.

5.2 Test run of business forms

There is a proposed modified business form associated with Option 3, which can be viewed at Annex A. It should be stressed that modifications only apply to those options for higher levels. The public consultation contained a specific

question on the sample revised form to which over 9 out of 10 consultees (who responded to this question) agreed the revised model form was clear. Positive views were also received on clarity of the sample sustainability label that was included in the consultation.

6.0 LEGAL AID IMPACT TEST

It is not envisaged that there will be any greater demands placed on the legal system by this proposal. Accordingly, it is not considered that there will be any effect on individuals' right of access to justice through availability of legal aid or on possible expenditure from the legal aid fund.

The Scottish Government Legal Team has been consulted on this subject.

7.0 ENFORCEMENT, SANCTIONS AND MONITORING

7.1 Background

The proposed changes within Option 3 will require amendment to the Building (Scotland) Regulations 2004 and the modification of the standards and supporting guidance given within the Technical Handbooks (issued by the Building Standards Division of the Scottish Government) that support the Regulations. The Technical Handbooks list the mandatory functional standards set out under regulation 9 of the Regulations and give guidance on ways of complying with these mandatory functional standards.

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 currently the 32 Scottish local authorities, appointed as verifiers under the Act, and the Building Standards Division, on behalf of Scottish Ministers.

7.2 Enforcement and sanctions

Work subject to the Building (Scotland) Regulations 2004 generally requires that a building warrant must be obtained before work commences and to have a completion certificate accepted once works are finished. Whether or not such work requires a building warrant is set out under Regulation 5 of the Regulations, the person responsible for the building or works, the 'relevant person' as defined in section 17 of the Building (Scotland) Act 2003, is required to ensure compliance with building regulations.

Where a building warrant is required, proposals are subject to the scrutiny of verifiers prior to approval of building warrant or acceptance of a Completion Certificate. Local authorities have enforcement powers under the Act to ensure compliance with approvals and the Regulations. Cases of non-compliance can be referred to the Procurator Fiscal and persons found guilty of offences in terms of the Act are liable on summary conviction to a fine not exceeding level 5 on the standard scale (currently £5000).

7.3 Monitoring

The objective of this exercise is to further the achievement of sustainable development by embedding in the building standards system in Scotland a requirement for sustainability labelling. Building regulations are applied within a legislative framework summarised in clause 10.1 above.

It is intended that a record of the sustainability label would be held on the relevant building standards register and that an analysis of levels achieved would be carried out with the co-operation of verifiers once the system has been established. The policy would be reviewed within 10 years.

8.0 IMPLEMENTATION AND DELIVERY PLAN

8.1 Implementation

The proposed changes will be taken forward by means of a new standard 7.1 and supporting guidance within the Technical Handbooks which support compliance with the Building (Scotland) Regulations 2004. Standard 7.1 and the supporting guidance will be introduced as part of the Building (Scotland) (Amendment) Regulations 2011 and implemented, on 1 May 2011, using existing processes, which form the building standards system in Scotland, as set out by the Building (Scotland) Act 2003.

The 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. A new section 7 of the Technical Handbooks will be published in advance of the implementation date to enable those affected to assess the impact of the changes.

The guidance to the standards will illustrate the most common way of meeting the requirements of the building standards and, thus, complying with the Building (Scotland) Regulations 2004 (as amended). 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 free of charge, as an electronic download from the Building Standards Division (BSD) website, www.scotland.gov.uk/Topics/Built-Environment/Building/Building-standards.

8.2 Implementation Period

The proposed changes to the guidance within the Technical Handbooks are relevant to any party responsible for a building who intends to carry out building work that is subject to building regulations.

Proposed changes will be published online in March 2011. Standard 7.1 and supporting guidance will come into effect on the 1 May 2011 and be applicable to all building warrant applications made on or after that date. Further, it is intended that a programme of dissemination events for stakeholders will be held around the period of introduction.

8.3 Post-implementation review

Continuous monitoring of the implementation of proposals is available through feedback from local authority verifiers, designers, manufacturers, developers and property owners. These parties are in regular contact with the technical officers in the Building Standards Division and the queries they raise will offer a broad view of how proposals are being implemented and if intent is being achieved. They may also identify areas where objectives may be unclear and allow 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 the continued development of building standards and guidance.

As part of the delivery plan a formal post-implementation review will take place **within** 10 years of these regulations coming into force. Provisions have been made in parallel with the introduction of sustainability labelling for the maintenance of relevant data records, to allow for future review.

9.0 SUMMARY AND RECOMMENDATION

9.1 Summary costs and benefits table

This is a new policy that is dependent on uptake by industry. There are no figures available for how many may choose to adopt higher levels. The summary and cost benefit table below shows a 3% uptake for the silver level and a 1% uptake for the gold level. Levels of uptake will be variable depending on market conditions.

Option	**Total benefit per annum:** **- economic, environmental, social**	**[1]Total cost per annum:** **- Assessment costs**
1 – Do nothing	No benefits	No costs
2 – Introduce the English Code for Sustainable Homes, modified to Scottish needs		
Scottish equivalent (aligned to bronze)	No benefits	No costs
Scottish equivalent	183 tonnes CO_2 per annum	£123,355
Scottish equivalent (aligned to gold)	123 tonnes CO_2 per annum	£42,346
3 - Introduce an amendment to embed in the Scottish building regulations a requirement for the sustainability labelling of new buildings		
Bronze level	No benefits	No costs
Silver level (scenario of 3% of new dwellings opt for silver)	183 tonnes CO_2 per annum	£31,562
Gold level (scenario of 1% of new dwellings opt for gold)	123 tonnes CO_2 per annum	£11,836

[1] Sustainability labelling would not add to capital construction costs beyond the costs of meeting the levels of the building regulations. The upper levels, including the aligned levels in the Code for Sustainable Homes are optional and therefore only incur additional costs when choosing to do so. Therefore, as the additional construction costs are the same for both options 2 and 3 and are optional, for the purposes of this impact assessment, only the assessment costs incurred are provided. Further information on the costs of achieving the optional upper levels can be found at the following web address 'Cost impact of

sustainability labelling for domestic buildings'. For Non-Domestic buildings it is expected that assessment costs will be comparable.

Considering additional information presented during consultation, it is the view that **Option 3** provides the most appropriate solution to meet the objective set out in paragraph 2.1 to embed in the Scottish building regulations a requirement for the sustainability labelling of new buildings

9.2 Recommendation

It is recommended that a new standard 7.1 and supporting guidance is introduced under the Building (Scotland) (Amendment) Regulations 2011 and the May 2011 edition of the Technical Handbooks for domestic and non-domestic buildings. These will be prepared for publication to this effect.

10.0 DECLARATION AND PUBLICATION

I have read the Business and Regulatory Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs I am satisfied that business impact has been assessed with the support of businesses in Scotland .

Signed by the accountable Minister.....

Keith Brown, Minister for Transport and Infrastructure

Date: 17 FEBRUARY 2011

Contact:
Stuart Watson
Building Standards Division,
Directorate for the Built Environment
Scottish Government,
Denholm House,
Almondvale Business Park
Livingston
West Lothian
EH54 6GA
Email: sm.watson@scotland.gsi.gov.uk

APPENDIX A

MODEL FORM A amended October 2005, April 2007, Jan 2009, May 2009, Proposed amendment including section 7 (see top of final page)

APPLICATION FOR BUILDING WARRANT

Building (Scotland) Act 2003
Application under section 9 for a warrant to construct, demolish or convert a building, or to provide services, fittings or equipment in or in connection with a building

Applicant
Name
Address

Post Code Tel No
FAX No e-mail

Duly authorised Agent (if any)
Name
Address

Post Code Tel No
FAX No e-mail

Owner (if different from applicant) (see note 1)
Name
Address

Post Code Tel No
FAX No e-mail

Location of building or site to which the application relates
Address

Post Code (if known)

Use of building
[If new building or an extension] Please state proposed use -

[If existing building] Please state –
1. current use -
2. proposed use –

Is this is a conversion in terms of the regulations? – (see annex 1) YES/NO*
[If YES] Please state which description of conversion applies -

State of work
Has the work which is the subject of this application already started? YES/NO*
(if YES, see note 2)

Has the work which is the subject of this application been completed? YES/NO*
(if YES see note 3)
Proposed work
Please give brief description of work, and state whether it is to construct (erect, extend, or alter) and/or convert; provide services, fittings or equipment; or demolish -

Staged Applications
If the application is to be staged, the stage(s) applied for should be indicated (this should be agreed with the verifier) -

Application for Demolition
If the application is for, or includes, the demolition of a building please state the period of time that the demolition works will be completed within- weeks/months*

Security matters
Do you consider any part of your proposals should not be open to public inspection on the building standards register? (see note 4.) YES/NO*
(If yes, the verifier will decide with you the extent of the restrictions)

Limited-life building
If the intended life of the building is to be five years or less from the date of completion, please state-
years.
(Less onerous requirements may apply. The warrant will include a condition requiring removal at the end of the stated intended life.)

Fire Authority
If the enforcing authority for the building (under Section 61(9) of the Fire (Scotland) Act 2005 as amended) is not the local Fire and Rescue Service please state the fire authority -

Planning – listed buildings
If the application concerns buildings listed as being of special architectural or historic interest or in a conservation area please state category –
(If in doubt, the planning authority can advise)
Please state if the building has any other historical importance. (e.g. association with significant historical person or event) –

Relaxation Direction
If the proposed work is the subject of a relaxation direction given by the Scottish Ministers please state reference number – and date -

Notices
Please indicate if this application is as the result of any of the following notices, and if so give the reference number –
Building regulations compliance notice
Building warrant enforcement notice
Defective buildings notice
Is the building subject to any Dangerous building notice? YES/NO*
(If YES, give the reference number)

Estimated value of works
£
(Please note that the verifier may seek evidence for this figure, and make comparisons with established independent indices of building costs).

Certificates of design
Do any certificates from approved certifiers of design accompany this application?YES/NO* (If YES, see annex 2)

Certificates of construction
Do you intend to use an approved certifier of construction and provide a certificate to accompany the completion certificate submission? (If YES see annex 3) YES/NO*

Small buildings structural guidance
Have the proposals been designed using the small buildings structural guidance contained within Section 1 of the Technical Handbooks? YES/NO*

Sustainability
(for warrants related to construction of new buildings only)
Have the proposals been designed to achieve any of the optional higher levels as contained in guidance within section 7 of the Technical Handbooks?

NO / YES

If YES, then please refer to ANNEX X [letter to be inserted]

Declaration
I/We* apply for a building warrant and declare –
1. that the work will be carried out in accordance with building regulations, and in accordance with the details supplied above and any necessary accompanying information (including annexes to this application, drawings, and specifications). (see note 6)
2. I am/we* are the owner of the building/That the owner of the building is aware of this application*
3. [Where the warrant involves a specified conversion] That after the conversion the building as converted will comply with building regulations.*

Signed – [applicant/duly authorised agent*](see note 7)
Dated -
*Delete as appropriate

Address to which you should send this application
[address including post code, and name, telephone, FAX and e-mail of a contact]

Notes.
1. The name and address of the owner is required as the Act requires the owner to be informed if a building warrant is granted.
2. If work has started, the regulations which apply are those at the date of this application, and the fee to be paid will be 25% higher because the verifier will require to inspect the work. Disruptive surveys may be needed to establish what has been constructed.
3. If the works have been completed an application for warrant is not appropriate and a completion certificate under the terms of Section 17 (4) of the Building (Scotland) Act 2003 should be submitted.
4. Security matters. Subject to the restrictions below, details of applications are made public in accordance with the procedural regulations, with information on the application available on line, and drawings etc. available for copy or inspection at local authority premises. The local authority may remove documents from the register if they are satisfied there are genuine security concerns. For those documents on the register there are also restrictions on their copying. The first restriction relates to non-residential buildings, prisons, a building where a person may be legally detained or otherwise held in custody, the Scottish Parliament or the Royal Private Estate and applies where the applicant has confirmed the disclosure or copying would raise security concerns. Details agreed between the verifier and the applicant will be withheld unless the owner of the building gives written permission for them to be released. Thus parts of applications for buildings such as banks may only be available with the owners written permission. The second restriction relates to all other residential buildings and copying is restricted to owners, occupiers or tenants, or prospective owners, occupiers or tenants of the relevant

building or an adjoining building. There will thus normally be no need to further restrict access to any details in relation to residential buildings.

5. Guidance on certificates from approved certifiers, and the drawings and other information that should accompany this application is given in the paragraphs at 3.2 in the Procedural Handbook issued by the Building Standards Division. This is available at www.scotlnd.gov.uk/bsd

6. Note that this includes a commitment to meet the requirements of regulations 13 to 15, which set requirements for how the public will be protected from the activities on site.

7. Even where signed by an agent, it is the applicant that is declaring that the work will be done in accordance with the regulations and details of application.

8. Where full information is not available, the verifier may decide to grant a warrant on condition that you provide further details before certain stages of work commence on site. The stages must be agreed with the verifier.

9. Any applicant aggrieved by the decision of a verifier to refuse a warrant may, within 21 days of the date of the decision, appeal to the sheriff by way of summary application.

WARNING – A building warrant does not exempt you from obtaining other types of permission that may be necessary, such as planning permission or listed building consent. Consult the local authority if in doubt.

Annex X [letter to be inserted] to Model Form A

In the case of multiple buildings where only some have been designed to achieve a higher level of sustainability in Section 7 or where some have been designed to achieve different higher levels of sustainability, then this annex above table will need to be repeated as necessary with the relevant buildings indicated beside each table.

Please indicate which higher level aspects you request verification on for the following plot or building:

Address of plot or building:_____

	Bronze Active	Silver	Gold	Platinum
Carbon emissions				
Energy for space heating (domestic only)	Not applicable			Not applicable
Energy for water heating (domestic only)				
Water use efficiency (domestic only)				
Optimising performance (domestic only)				
Adaptability and flexibility (domestic only)				
Well-being and security (domestic only)				
Material use and waste (domestic only)				

APPENDIX B - RESEARCH

Research that has helped to inform the proposals in this consultation includes the following projects:

Cost Impact of Sustainability Labelling for Domestic Buildings

This published project analyses the cost impacts of proposals for a new Section 7 of the Domestic Technical Handbook. The project included the following steps:

- Define benchmarks for each of the selected buildings. Establish standard dwellings that only just comply with the 2010 mandatory building standards;
- Undertake capital cost analysis to provide estimates for revising the benchmark dwellings' designs to achieve each aspect in each upper level of sustainability;
- Undertake lifecycle cost analysis to provide cost estimates for ongoing resource use, in the form of energy, and the differences in running costs to occupants if aspects in each of the upper levels are achieved; and
- Make a comparison with a benchmark dwelling designed to 1990 standards.
- Investigate the national impacts of building to the higher optional levels

Develop Guidance For Occupiers On How To Live In A Low Carbon Home

The objective of this project is to propose and develop practical ways that information on optimizing performance should be given to the occupant of a new home as part of the sustainability labelling proposal. The research will enable detailed guidance to be drafted that is aimed at applicants who choose to meet an upper level in the aspect of 'Occupant Information', coded S5 and G5 in the sustainability standard. The output of the research has proved useful in identifying the key issues of guidance content and methods of communication with occupants that BSD will draw on in finalizing the guidance.

APPENDIX C – CONSULTATION REPORT

The Scottish Government

PROPOSAL TO INTRODUCE SECTION 7 : SUSTAINABILITY (SUSTAINABILITY LABELLING)

INTO THE SCOTTISH BUILDING STANDARDS

FINAL CONSULTATION REPORT

BUILDING STANDARDS DIVISION

FEBRUARY 2011

Contents

Directorate for the Built Environment
Building Standards Division
Denholm House
Almondvale Business Park
Livingston
EH54 6GA

Tel: 01506 600 400
Fax: 01506 600 401
e-mail: buildingstandards@scotland.gsi.gov.uk
web: www.scotland.gov.uk/bsd

Acknowledgements
Scottish Government is grateful to all of the respondents who contributed their views on these proposals to create this new section within building standards.

EXECUTIVE SUMMARY

During 2010 a working party drawn from industry was convened to assist in the development of a proposed new Section 7: Sustainability to the Technical Handbooks which support the Scottish building regulations. In September 2010 a much wider stakeholder group was invited to help shape the proposals followed by a public consultation which was carried out between 01 November 2010 and Christmas 2010. Consultation proposals were placed on the Building Standards Division (BSD) website and over 500 key stakeholders were invited to respond. Consultees were encouraged to respond on any aspect of the proposals but were specifically invited to comment on targeted issues.

There were 60 responses to the consultation. An analysis of the content of all the responses has been carried out by BSD of the Scottish Government and the key points have recently been discussed with the sustainability working party. The Division has considered the wide range of both general and detailed comments from consultation respondents.

The key feature of the proposals is that all new buildings submitted for building warrant must have a label that includes a statement of sustainability. The entry level for this label would be compliance with the 2010 technical standards and above this there would be at least two higher aspirational options

The majority of respondents' comments are in agreement that the approach set out, and the technical areas addressed can effectively further the achievement of sustainable development through the Scottish building regulations. There was recognition that the detailed guidance for domestic buildings to achieve the higher levels is well balanced within the terms of what building standards can achieve. The extent of how far building standards can further sustainable development should be more tightly defined as well as the links of this system with local authority planning. Consultation responses combined with life-cycle (running) and capital (construction) cost research completed for Scottish Government means some of the detailed guidance to meet the higher levels for some aspects (such as energy for water heating) will be reviewed.

The analysis of comments did not identify strong barriers or objections to the proposals, though some stakeholders questioned the introduction of proposals for non-domestic buildings that are only defined as higher levels in the aspect of carbon dioxide emissions at this stage. Scottish Government accept that a commitment to more development on sustainability for non-domestic buildings is required but introducing the system for all new buildings now still has many benefits. Because the higher levels are optional, no objections were given to introducing a monetary burden on development, an important positive point for these proposals in the current financial climate.

Scottish Government intends that the new regulation is introduced to further embed sustainable design and construction within the Scottish building regulations. Work will continue in the immediate future to clarify and improve the guidance that will be made available to prospective warrant applicants in advance of 01 May 2010 when the regulation to allow applicants to aim for higher levels of sustainability is due to be in force.

1. INTRODUCTION

1.1 Scottish building regulations set standards for the health, safety and welfare of persons in and around buildings. They also further both the conservation of fuel and power and the achievement of sustainable development. Building regulations apply to new buildings and to the alteration, extension and conversion of existing buildings. The regulations and their mandatory functional standards are supported by guidance, published in the Building Standards Division Technical Handbooks.

1.2 Sustainability has been added into the standards over recent reviews but this proposal goes further by defining optional higher levels of sustainability that applicants can meet if they choose. If a higher level is verified then a label affixed to the building would display this achievement. The proposed sustainability standard would only apply to new buildings, not alterations, extensions or conversions.

2. THE CONSULTATION PROCESS

2.1 Before making or amending building regulations, Scottish Ministers are required to consult the public and construction industry stakeholders as are considered necessary to inform on the matters under consideration. This exercise has been carried out through a working party and discussions have taken place with local authority verifiers and industry. The working party commenced whilst the Building Standards Advisory Committee (BSAC) was operational. This statutory committee was wound up during the working party's meetings in 2010 but the members of the working party remained in place to input into the evolution of the proposals. Following consideration by the sustainability working party, the guidance contained in Section 7: Sustainability of the Technical Handbooks, for public consultation was prepared.

2.2 The consultation on adding a new section on Sustainability to the technical guidance within the Building (Scotland) Regulations 2004 aims to contribute to the Scottish Government's Purpose of sustainable economic growth. It also supports the Climate Change Programme through the introduction of improved standards and guidance on carbon dioxide emissions and energy performance under building regulations. In the optional higher levels within the standard, reference is made to recommendations within the Sullivan Report – 'A Low Carbon Building Standards Strategy for Scotland.

2.3 The consultation sought views on adding a new section into building standards that, within the limitations of the building standards system, aims to further the achievement of sustainable development within the scope of the Building (Scotland) Act 2003.

2.4 Consideration by the working party of the introduction of a new Section 7: Sustainability was spread across meetings held during 2010 and into 2011. Working party members were drawn from BSAC members, a local authority verifier, a local authority planner, private sector organisations representing the construction industry, an architect with expertise in sustainability and government officials. They were able to consult at times with close colleagues or members of organizations they represented.

2.5 In advance of the launch of the public consultation, BSD held two stakeholder consultation events attended by 37 invited key stakeholders' representatives, (29 from outside Scottish Government). These events provided an overview and explanation of the proposals and the discussions that happened in these groups helped to inform and shape the draft proposals that the consultation paper included. Attendees were also encouraged to submit written responses to the forthcoming consultation.

2.6 The public consultation was issued on 01 November 2010. Views and opinions on the proposals were sought from over 500 key stakeholders and users of the building standards system in Scotland. Public, private and third sector organisations, NDPB's and individuals were advised of the consultation by letter and that the documents were accessible on the Building Standards website. E-mail notification of the consultation was also made to around 2000 organisations and individuals who have registered to receive the BSD newsletter. All were invited to submit comments by 24 December 2010.

2.7 The Consultation Paper sought comments on the general approach and framework of the proposals that fit within the existing building regulations and building warrant system. A number of questions were also asked on specific issues related to the detailed guidance that would define the optional upper levels of sustainability. Questions 1 to 8 were on specific topics whilst Question 9 allowed respondents to offer comment on any aspect.

2.8 Consultees were encouraged to respond on any aspect of the proposals but Scottish Ministers welcomed comments specifically on the issues that have been targeted. It was recognised that a 'yes' or 'no' may not always a satisfactory answer to the question. Consultees were therefore encouraged to add comments to expand their opinions, particularly when they disagreed with the approach proposed.

3. THE CONSULTATION RESPONSES

3.1 Given the aspirational nature of the proposals, it was encouraging to note that the number of responses made to the consultation proposals was 60 with many of the wide range of stakeholders being key stakeholders representing membership organizations, trade associations or institutions with expertise in design and construction. This is understandable, due to the growing general interest in

sustainable development, understanding of low carbon buildings developed from the Sullivan Report recommendations and from the stakeholder awareness seminars held just before the formal consultation period. This provides sufficient information to allow a good assessment on the comprehensive range of topics addressed within proposals.

There were 60 responses from the following consultees:

Professional Organisations/Trade Associations	13	22%
Local Authority	8	13%
Designer/Consultant	8	13%
NDPB or Agency	6	10%
Individual	6	10%
Research & Development (R&D)/ University	5	8%
Manufacturer	4	7%
Utility/ resource supplier	3	5%
Contractor/Developer	2	3%
Other	2	3%
Interest Group	2	3%
Housing Association	1	2%

- 5 respondents wished their details to remain confidential.
- 31 respondents provided general comments on the proposals.

3.2 A summary table of responses by question is noted below. This indicates both the percentage split of those respondents giving a view and the percentage of all respondents offering comment.

3.3 In analysis of the responses, it should be noted that there are similarities in a number of responses received, from some industry, manufacturer and interest groups and from some local authorities. Whilst this fact is noted here, it is not proposed to apply any corrective factor to analysis in response. This is simply taken to indicate generally similar views from a range of connected stakeholders, which is to be anticipated. Accordingly, where duplicate comments are received from different organisations, these are counted separately but may be identified as such within commentary text.

Summary responses to questionnaire	Yes	No	Comment made	No response
Issues relevant to all buildings				
1	**34** (76%)	**10** (22%)	**45*** (75%)	**15** (25%)
2	**32** (70%)	**14** (30%)	**46** (77%)	**14** (23%)
3	**30** (67%)	**14** (31%)	**45*** (75%)	**15** (25%)
4a	**30** (67%)	**15** (33%)	**45** (75%)	**15** (25%)
4b	**36** (80%)	**9** (20%)	**45** (75%)	**15** (25%)
5a	**40** (85%)	**7** (15%)	**47** (78%)	**13** (22%)
5b	**26** (60%)	**17** (40%)	**43** (72%)	**17** (28%)
Issues relevant to domestic buildings				
6	42 (95%)	**2** (5%)	**44** (73%)	**16** (27%)
7a	**35** (85%)	**6** (15%)	**41** (68%)	**19** (32%)
7b	**36** (81%)	**7** (19%)	**43** (72%)	**17** (28%)
7c	**37** (97%)	**1** (3%)	**38** (63%)	**22** (37%)
7d	**31** (94%)	**2** (6%)	**33** (55%)	**27** (45%)
7e	**27** (69%)	**12** (31%)	**39** (65%)	**21** (35%)
Issues relevant to non-domestic buildings				
8a	**31** (78%)	**9** (22%)	**40** (67%)	**20** (33%)
8b	**25** (69%)	**11** (31%)	**36** (60%)	**34** (40%)
Issues relevant to all buildings				
9	**31** (91%)	**3** (9%)	**34** (57%)	**26** (43%)
General comments				
	-	-	**31** (52%)	**29** (48%)

* Includes one additional comment only, no or yes not indicated

3.4 A detailed analysis of issues raised by the consultation and recommended action is provided under items 4 to 8 of this paper.

4. QUESTIONS COMMON TO ALL BUILDINGS - ANALYSIS AND RESPONSES

4.1 The following is a summary of the general trends and main issues raised by respondents. Whilst not every comment is represented in summary, all relevant issues are noted for discussion and consideration. A course of action in response to issues was raised with the Working Party and is set out following the analysis for each question and is the Scottish Government response. Numbers shown in brackets indicate number of response comments on a particular topic.

4.2 In a few cases, comments have been moved to the most relevant box. For example, there were some comments placed in the box after question 1 that are more appropriate for later comment areas or for the general comments at the end, so these may have been moved to the most relevant place.

4.3 Question 1

Q 1. Background

Buildings that are designed more sustainably have positive impacts on the potential for sustaining human wellbeing, whilst minimizing carbon dioxide emissions and reducing the use of finite resources. For a building to earn a sustainability label, it must demonstrate that a wide range of factors have been considered in its design, and that these factors are achieved in its construction.

Section 7 intends to make sustainable design within reach of all new buildings and not just within a niche market. Demanding sustainability standards are encouraged to be taken up by those who opt to demonstrate their green credentials by complying with upper levels.

Sustainability labelling aims to encourage consistency between planning authorities that use supplementary guidance to promote higher measures of sustainable construction in their areas. By making reference to this standard, local aspirations can be met by selection of clear national benchmarks.

Do consultees think the introductory text in section 7.0 adequately describes the aims, the scope and the terminology?

Comments Summary:

There was a lot of support for the introductory text, described as clear, helpful and user friendly. There were some helpful suggestions on clarity or scope that should be considered to make some minor revisions to the text in the following areas:

- Stress the limitations of how far the building standards can at present cover the scope of sustainable development and how some areas are more appropriate to be dealt with at other times in the development process such as planning, or are not mature enough to be checked at a fairly simple level by the present building standards verification system. For the latter there is some disagreement, in particular on the aspect of materials (see question 7e). These limitations in scope of the concept of sustainable buildings should to be placed in the context of the scope of other tools or indicators. (6 including local authority, R&D/ university, manufacturer, professional/ trade Association, NDPB/ agency and designer/consultant)
- Use a roadmap to illustrate a path towards a potential ultimate minimum standard of zero-carbon that makes reference to Sullivan recommendations.
- Consider that reductions in hot and cold water use will reduce carbon emissions. (1 NDPB/ agency)
- Be more explicit in how this can meet local authority obligations under section 72 of the Climate Change (Scotland) Act 2009. Are the upper levels possible to use in planning conditions? (1 local authority)

- Make reference to international work and standards including TC 350 and ISO work. (1 R&D/ university)

One other point:

- A reference to the Energy Efficiency Action Plan (EEAP) should be added in the text (1 NDPB/ agency)

Scottish Government response
Revisions will be made to the introductory text to give more clarity on scope and emphasise that other broader sustainability measures are available if a developer chooses. Section 7 optional higher levels have broad consistency with Sullivan recommendations including an intermediate level as considered appropriate that already sets out a direction of evolution of tighter standards

The text on links with local authority planning will be reviewed with regard to Section 72 of the Climate Change (Scotland) Act. Scottish Government will consider adding a more explicit link between water use and carbon emissions.

References to European Directives or international standards will be considered where relevant.

A programme of awareness and dissemination of the standard and guidance will be carried out.

4.4 Question 2

Q 2. Approach

Section 7 would be a new section of the Technical Handbooks containing a single standard that is mandatory for all building warrant applicants when proposing new buildings in Scotland. To comply with standard 7.1 there would need to be a label of a specified level of sustainability fixed to the building, in a similar way that an EPC needs to be fixed; for example in meter cupboard or utility space. The entry level, known as 'bronze' would be compliance with all the other standards, therefore the standard does not pose an additional burden on development. Only if an applicant chooses to aim for a higher level would there be a potential impact on the costs of building.

Do consultees consider that this approach offers a sensible and practical route to enable the building standards system to further the achievement of sustainable development in Scotland?

Comments Summary:

Responses were broadly positive, with support for a sensible, logical approach that allows developer choice whether to go further than the minimum standards and receive official credit for achieving higher benchmarks.
However some respondents (6 including 2 designer consultants, 2 R&D/ universities, 1 professional/ trade association and 1 contractor/ developer) questioned whether building standards is the best place for aspirational higher levels to be defined. Instead is reference to an externally controlled, more flexible, more comprehensive set of standards, codes or checklists a better way of meeting the objectives? This

point was more strongly made for non-domestic buildings than for domestic (see question 8). Other points:

- Local authorities to see section 7 as integral to duties related to their verification role of the building regulations, therefore parallels with procedures related to EPCs should be avoided. Questions were raised about buy-in by planning authorities as it was recognized they are important for the proposal to succeed. (1 professional/ trade association)
- Concerns raised that planning authorities may enforce higher levels through planning conditions thereby making them in effect mandatory at local level (1 other)
- For 'sustainability' to really result, more emphasis to be placed on performance monitoring/ post-occupancy evaluation. (1 R&D/ university)
- A cost-benefit analysis on additional time spent by applicant and verifier in implementing the system was recommended. (1 local authority)
- If this section and other sections become certified then verifier fees could reduce by 70%, impacting on the resources required for reasonable enquiry. Fees regs may need to change, to allow for more than current 60% max. in the regulations. (1 professional/ trade association and 1 local authority)
- Review text to explain that the entry level could be ratcheted up across the broad range of aspects, following subsequent reviews of mandatory standards.
- Suggest that the text is altered so that location of fixed level may be more prominent than a meter cupboard; feel free to take pride in displaying the award.
- If guidance is too prescriptive then experience shows this can stifle innovation (1 R&D/ university)
- More detail on the role and control of certification schemes related to section 7 (1 professional/ trade association)
- A sustainability standard in BSD, using certifiers, is less objective than an external system. They are too close to the process to judge fairly. (1 designer/consultant)
- Instead of an incomplete non-dom sust label with only CO_2, align with English Energy Performance Certificate (EPC) carbon-index system. UK approach not a separate devolved one. (1 designer/consultant and 1 contractor/developer)

Scottish Government Response
Guidance will state that other tools and indicators are available and that these may better suit some developers who wish to prove ambitions related to sustainability that go beyond the built form, but these other tools would not entitle a building standard label to be used.

Reference should be made to the analysis within the Business Regulatory Impact Assessment (BRIA) that estimates proposals are a more cost-effective way of setting of aspirational optional standards for developers than adapting other voluntary indicators of sustainability. It is not considered that further cost-benefit analysis is required due to the process of verification being kept reasonably close to the procedures involved in an existing warrant application.

Post occupancy monitoring is outside the scope of building standards as the verification process is not able to resource continuing involvement with completed buildings.

Certification schemes have formal safeguards of auditing to favour a fair approach. Scottish Government would review the fees reductions associated with certification if more sections become covered by certification schemes. Only two certification schemes exist at present.

In the final review of draft guidance, efforts will be made to reduce the risk that meeting upper levels may not allow innovation in design. Scottish Government's view is that nationally consistent higher benchmarks should, overall, encourage innovation in design and construction. Scottish Government continue to engage with local authority planning to maximize buy-in, and accepts a degree of autonomous decision-making means levels asked for may vary due to local policy ambitions.

Separate legislation covering EPCs will be reviewed under the recast of the Energy Performance of Buildings Directive (EPBD) during 2011. The duties related to EPCs are entirely separate to those related to this proposal.

4.5 Question 3

Q 3. Scope and balance

Building Standards Division of the Scottish Government has explored what aspects of the design and construction of domestic buildings related to sustainable development would be appropriate within the optional upper higher levels of sustainability. The aspects defined aim to be pertinent at the building warrant stage of development process when applicants are looking at the details of buildings. They aim to be broad, covering not only energy and carbon. They address issues that can be fairly controlled and simply verifiable within the building standards system, so they tend to be directed towards technical environmental performance issues of design. The eight aspects are:

1. Carbon dioxide emissions
2. Energy for space heating
3. Energy for water heating
4. Water use efficiency
5. Optimising performance
6. Flexibility and adaptability
7. Wellbeing and security
8. Material use and waste

Are consultees content that the defined aspects for domestic buildings reflect a balance of sustainability issues that can be delivered by the building standards system?

Comments Summary:

In general the list is viewed as reasonable, deliverable, well-rounded, containing issues that can be controlled and verified through building standards. But some respondents felt other aspects may be as important. The most significant area needing further work was felt to be around the materials that a building is constructed from, including the following subjects:

- Embodied energy and embodied carbon via life cycle analysis (LCA) using BRE Green Guide data. (4 including interest group, designer/ consultants and other)
- Give credit to off site manufacturing (OSM), in particular to its links with ensuring skills in the supply chain remain in Scotland and supporting the of sourcing Scottish materials such as timber.(2 including a manufacturer and a R&D/ university)
- Recycled materials.
- Recognizing the contribution that ISO 14001 accreditation can make to greening the supply chain. (2 including a manufacturer and interest group)
- Durability (1 local authority)
- Toxicity of materials (1 designer/ consultant)
- But, one small contractor suggests keeping all materials issues at EU level.

Other possible aspects mentioned:

- Indoor air quality (1 professional/ trade association and 1 designer/ consultant)
- Carbon Monoxide (CO) detectors
- Biodiversity (1 designer/ consultant)
- Room in roof (adaptability) and service voids (1 local authority)

There were other suggestions for inclusion such as location and orientation indicating again that the section 7 introduction must clearly explain the limitations of the building standards verification system. This system must form part of a joined up 2-stage local authority sustainability assessment process moving seamlessly between planning and technical standards. (1 professional/ trade association and 1 designer/ consultant)

The question of the gap between modelled and actual performance was raised, some suggesting a move towards an adoption of actual performance testing (2 including a manufacturer and a R&D/ university).

Scottish Government Response
Operational performance and/or post occupancy evaluation is something to consider for a platinum level. In the meantime the optimizing performance aspect should form a bridge between design/ installation and understanding how performance can be optimized. Providing appropriate information to occupants should narrow the performance gap. The introduction of any testing regimes is more likely to be a result of revisions to mandatory building regulations rather than at voluntary higher levels.

Life cycle analysis (LCA) of construction materials along with other matters associated with material use and waste are clearly flagged up for potential inclusion within a platinum level in the system, following future review of a more robust evidence base with an even-handed approach to all sectors and supply-chains of the construction product industry. A future review of including LCA in optional standards will also need to look deeper into European and international regulatory frameworks.

Service voids are proposed within the gold level for material use and waste because they are consistent with an approach that favours ease of adaptability of new homes rather than re-use of materials following future demolition

Indoor air quality is kept under review as ventilation standards require updating alongside increased minimum energy standards.

Biodiversity is identified as a subject that has more impact at a building level for non-domestic. For domestic it is a matter more appropriate at a masterplanning level and therefore outwith the scope of the building standards.

4.6 Question 4

Q 4. Levels and names

The bronze level is a building that complies with the 2010 standards. The next two upper levels, called silver and gold, have been defined for domestic buildings and the criteria to meet the upper levels in an aspect are intended to be fixed once defined. This should avoid regular redefining of baselines and subsequent confusion. But the system will have room to grow because a third upper level is identified as platinum, although this level has not been fully defined.

To achieve a bronze star level a new building must include some low or zero carbon generating technology ('LZCGT') within the compliance calculation. This links with the obligations of local authorities' under Section 72 of the Climate Change (Scotland) Act. It is the existence of an LZCGT that differentiates bronze star from the bronze level. In practice buildings to a bronze level that do not have LZCGT will often have a higher fabric specification than a bronze star level building because they do not exploit a generating technology that could be used to offset higher heat losses through the building fabric in the carbon compliance calculation.

Do consultees think the naming of the levels is clear and appropriate?
and
Do consultees agree with the principle of fixing the levels within the aspects?

Comments Summary:

Despite a majority in favour of the proposed naming of the levels, there were a number of responses objecting to the term 'Bronze Star' because it is perceived as better than the initial Bronze level only by the inclusion of LZCGT. There were no clear positive comments in favour of the 'Bronze Star' term with around 17 written objections, saying for example:

- A high performing fabric must be the first consideration.
- It is mistaken for it to seem better to offset building-in robust fabric efficiency with technology that may lack appropriateness, longevity or be tokenistic.
- As set out it seems to not favour passive strategies.
- The hierarchy is misguided because an efficient fabric could then be upgraded with technology, but the other way around is very difficult.

(Manufacturers, designer/ consultants, a local authority, a professional/ trade association, a R&D/ university, a NDPB or agency, a contractor/ developer, a housing association, individuals and 1 other)

An NDPB/ agency and one individual suggested ideas:

- a bronze plus approach where LZCGT is additional to a compliant fabric building; or,
- set a slightly lower fabric backstop (via the DER/ TER calculation) but then make the overall target more challenging, suggest 25% lower; or,
- explicitly name different ways of complying, e.g. 'bronze power'/ 'bronze energy plus'.

There were concerns about the limits of naming levels after metals (2 R&D/universities and 1 professional/ trade association) and that the existing LEED[2] tool uses metals and thus this system could be seen to favour LEED over other tools such as BREEAM[3]. Other ideas:

- A suggested level to go beyond platinum is 'diamond'
- Stars
- Leagues (first division, premier league, champion building etc.)

There was also a question on what interaction there was (if any) between the S7 metals and 'A' to 'G' on EPCs.

There were objections to the minimum being recognized as 'bronze' suggesting a 'pass' level instead (2 designer/ consultants, 1 R &D/ university and 1 manufacturer), but in contrast a respondent said 2010 should be 'silver' to recognize how far the standards for new homes have come.

On the question of fixing or flexibility of levels, several (5) warn that a review cycle should be built-in as an option because technological solutions and priorities to meet low carbon targets tend to shift quickly, when it comes to building performance.

Scottish Government Response

Despite a few other suggestions, the metallic notation will remain for the level names. The working party has reviewed the star suffix so that an LZCGT solution is not perceived as better and the change will be from 'Bronze Star' to 'Bronze Active'.

More emphasis should be placed on recognizing how far building standards already includes sustainability and that the Scottish carbon/ energy standard is now very demanding. So on balance, awarding a bronze award to 2010 compliance is correct.

The text on fixing the levels will be revised to accept that some review of guidance may be necessary, staying within constraints of technological evolution. This will avoid the risk of shifting comparable baselines during the life of the standard and guidance.

The sustainability standard is not connected to the process of producing an EPC. The DER/ TER calculation within section 7 is identical to that within section 6 and should not be confused with the EPC scale.

[2] LEED = Leadership in Energy and Environmental Design, a sustainability indicator originating in the United States of America

[3] BREEAM = Building Research Establishment Environmental Assessment Method, operated by BRE Global; a sustainability indicator originating in the United Kingdom

4.7 Question 5

Q 5. Methodology and label

In order to move towards a more sustainable model of design and construction, a holistic approach is proposed. Together with the desire to keep the process simple and avoid bureaucratic procedures, this broad thinking has informed how an applicant would reach an upper level. Only once all the aspects comply with the upper level criteria would the overall higher level be awarded. No scoring or trade-off would be allowed. The design of the label still allows credit to be clearly illustrated in an individual aspect that has been verified as compliant with an upper level. Proposed coloured labels for domestic and non-domestic buildings are shown **in the annexes of the proposed domestic and non-domestic consultation guidance** at: http://www.scotland.gov.uk/Topics/Built-Environment/Building/Building-standards/publications/pubconsult

Are consultees content with the method of reaching the upper levels?
and,
Are there any comments to be made on the design of the label?

Comments Summary:

Respondents indicated that BSD proposals tread a fine balance between simplicity and not 'dumbing down' sustainability. Some suggestions point to aspects that are beyond the standard's scope such as locational issues (2 designer/ consultants). As with previous questions, the scope may need more explanation.

The proposal that all aspects must reach an upper level for an overall level to be awarded was mainly supported with a positive point being that it avoids bureaucracy. Trade-offs were preferred by a few (5 including 3 designer/ consultants and 1 R&D/ university) who feared a simplistic route could stifle innovation and/ or unfairly penalize a minority. A middle-way simple scoring was suggested (1 designer/ consultant). However if a more complex scheme results and then certification tends to take over (1 R&D/ university)

The label design was liked. The ability to display achievement in some aspects that are verified as above an overall level was praised. Positive comments included:

- Like a 'prize'
- Innovative
- Clear and easily understood

Some asked for more consumer testing and market research (2, 1 NDPB/ agency and 1 professional/ trade association) and some criticized it is as not dynamic; suggesting the use of colour should be reviewed. Upper levels could be presented as 'scaled' rather than 'partly met was one suggestion to fine-tune the display of a higher level.

A disclaimer on the label was suggested to recognize that it is self-generated and resources for reasonable inquiry at completion are limited so full compliance is not guaranteed (2 local authorities).

The limitations of the Building Standards system was recognized (1 professional/ trade Association), and BSD was urged to concentrate on compliance with Section 6 first, before bringing in S7 (1 designer/ consultant).

Scottish Government Response
The benefits of a non-traded or non-scoring scheme outweigh the pitfalls. If the scheme became more complex then it becomes more professionalized and less transparent, shifting the focus away from an accessible system of verifying sustainability for all new buildings.

Scottish Government will review the design and colours on the sample label. Partially completed segments will be avoided as this would add an inappropriately high level of complexity.

The label does not need a disclaimer because Section 7 sits alongside the existing standards and in the same way, a completion certificate is presented by an applicant for acceptance, or not, by a verifier.

4.8 Question 6

Q 6. Conversions

The system of the optional upper levels has been designed for new domestic buildings. However it is recognised that when considering sustainable development it is often a good option to re-use or revitalize the existing building stock of our towns, cities and smaller communities. Building Standards Division does not propose to offer sustainability labelling to conversions at this stage however applications for verifiers to assess the criteria of the upper levels of sustainability, in some if not all of the aspects, in relation to an existing building converted into dwellings could be explored.

Do consultees consider a similar sustainability label should be made available for existing buildings that are dwellings following conversion?

Comments Summary:

Yes, there was considerable support for BSD to continue to pursue this in due course. However it is a significant task (a professional/ trade association) and the system for new buildings should bedded–in first (4 including 2 local authorities, 1 R&D/ university and 1 professional/ trade association).

Some stressed the system should be as close as possible to the proposals for new buildings, perhaps making use of the phrase 'reasonably practicable' for upgrades (1 local authority). Others stressed more flexibility would be needed (2 including 1 other and 1 NDPB/ agency) as there can be very big differences in approach and results when converting, and that there should be a clear difference to any label (1 local authority). A R&D/ University thought the proposal may be too inflexible and a designer/ consultant thought this could ultimately supersede the Scottish Housing Quality Standard.

As well as conversions some respondents brought up the subject of alterations + extensions as worthy of considering. (1 local authority)

Scottish Government Response
The many useful comments to this question will help launch the direction and scope of future work in this area.

4.9 Question 9

Q 9. Proposed revision to model form to apply for a building warrant.

Appendix A of the partial Regulatory Impact Assessment (RIA) contains a proposal for a revised model form that would be used by all applicants for building warrant. The model form has been amended to include the sustainability standard rather than a separate form being created. A text box has been added that allows applicants to indicate if new buildings have been designed to achieve any of the optional upper levels as defined in the section 7 guidance. This should allow verifiers to focus their procedures relevant to section 7 on submitted plans and specification information where it is requested.

Do consultees consider this revised model form is a clear way for applicants to indicate their design proposals with regards to section 7?

Comments Summary:

The comments were generally that the model form made sense, with the following points made:

- Traceability would be desirable such as status/ qualifications of author(s) of design (2, including 1 professional/ trade Association and 1 designer/ consultant).
- There are some doubts whether the system can fully determine if what is specified equals what is built via the process of reasonable enquiry at completion stage (2 local authorities and 1 NDPB or agency).
- Upper levels require Certifiers of Design rather than just verifiers (1 R&D/ university).
- Create a checking template for verifiers. For multi-plot sites, move tables to addendum. (1 local authority)

Scottish Government Response
The verification process gives a degree of traceability at present.

Scottish Government will clarify with verifiers during dissemination that the evidence of a design at a higher level will be with normal warrant application, i.e. drawings, specification and calculations.

An issue to monitor as the system gets underway is compliance. Although an awarded label can be displayed for commercial marketing advantage, a higher level application justifies the same level of scrutiny at completion certificate stage as an application that only claims minimum standards compliance.

A Certification scheme may become available but the system is designed to allow it to function with verifiers.

The tables will be moved to an annex in the model form.

5. QUESTIONS ON DOMESTIC BUILDINGS - ANALYSIS AND RESPONSE

5.1 Question 7

Q 7. Contents of upper levels in the aspects for domestic buildings

Aspect of Carbon dioxide emissions
The labelling system's optional upper levels should balance the aspects of sustainable design and should not be overly carbon focussed. The 1st aspirational level (silver) beyond minimum standards sets a 45% reduction in carbon emissions for dwellings compared to 2007 standards. The Sullivan Report[1] recommendation of 60% features as the 2nd aspirational level (gold). A 3rd upper level (platinum) in this aspect would be net zero carbon.

a) Do consultees agree that to treat 'sustainability in the round', the proposed upper levels in the critical aspect of carbon dioxide emissions are appropriate?

a) Comments Summary

There were varying degrees of emphasis of responses, within support to the holistic approach proposed.

- Carbon and energy should be paramount as far as building standards' scope is concerned at present, or
- A sustainability standard should not be so overly carbon focussed as is proposed (1 manufacturer).
- Some view that the silver should be 60% with gold at 100% compared to 2007 levels (1 interest Group, 1 R&D/ university).
- It is positive that it differs from EPC methodology (i.e. not an absolute scale) (1 designer/ consultant, 1 local authority)

'Allowable solutions' need to be defined to get to zero carbon (ZC), but ZC may be counterproductive, increasing toxic load and embodied energy in construction (1 professional/ trade association).

Waste heat and communal CHP should be included in LZCGT to reflect the investment in connecting to a district heating system (1 designer/ consultant).

Scottish Government Response
On balance the proposed higher levels for the aspect of carbon dioxide emissions are pitched correctly. The question of allowable solutions is one to be reviewed along with the Section 6 energy standards.

Waste heat could be a valid low carbon heat source if permitted through the same methodology to comply with section 6. It would appear unlikely to meet the definition of low and zero carbon generating technology, unless the technology has a generating element.

Aspects of energy and water (resource use)
The energy for space heating aspect sets backstops to ensure that a dwelling's fabric and form are designed efficiently regardless of the fuel source for heating. The water use efficiency and energy for water heating aspects combine the following: lowering use of water and energy through a simple fittings based approach; and a renewable contribution to heated water via tried and tested technologies such as solar water heating. The optimising performance aspect offers an opportunity to standardize the role that giving appropriate and targeted information to occupants can play in increasing the chances of efficient operation. Feedback and communication with occupants is important in raising awareness of consumption. Model guidance and display devices should show how to make the best of the dwelling's design and any technologies included.

b) Do consultees consider these aspects together offer a straightforward approach to encouraging a more efficient use of energy and water resources?

b) Comments Summary

Splitting energy for space and water heating is supported to focus on efficient systems in very low heat demand homes (1 NDPB/agency)

Energy for space heating: The thresholds proposed will drive homes to require MVHR (1 professional/ trade association) and suggest 39 and 46kWhr/m2/annum rather than 30 and 40kWhr/m2/annum.

Energy for water heating: Criticised for being unduly prescriptive and the level proposed is too high (60%) (designer/ consultant). This will result in over-sized panels and dumping heat – not the best technical solution.

Water use efficiency: The fitting based approach is well-supported with the levels proposed as correct (1 NDPB/ agency) or the proposed levels should be more challenging (2 NDPB/ agencies). On the other hand high restrictions on water use, for example 8l/m for a shower, may not be appealing to the public and may deter people from purchasing these homes (1 local authority). The rebound effect of people

showering for longer if a low flow shower head is fitted was mentioned (1 R&D/ university). More on water:

- The accuracy of existing labelling schemes is doubted by one.
- The average bar pressure on the distribution network should be taken into account. Flow rates should be measured at a defined pressure such as 3 Bar.
- Verification of low rates is difficult under reasonable inquiry (1 local authority)
- Water efficiency, in particular water butts, cannot be properly assessed until post-occupancy (1 R&D/ university).
- There are potential problems with drainage systems as a result of low-flow WC's (1 professional/ trade association).
- Several respondents (5) ask for water meters to come in at silver level but an NDPB / agency would support metering until a trial is completed.

Real-time information on performance is widely supported (5 including designer/ consultant, professional/ trade association, local authority and R&D/ university) and it is suggested that feedback should be given to building control or industry design groups). Guidance should stay with the home and be reviewed if occupants change, i.e. sold, re-rented (1 NDPB or agency). Consumer education is paramount in societal aspects of sustainable occupancy of buildings (1 professional/ trade Association). General comments:

- Rethinking this approach and these aspects would be needed for non-domestic buildings.
- Energy thresholds should be operationally based, not just on construction models (1 contractor/ developer)

Scottish Government Response

The approach of the aspects related to carbon, energy and water use is viewed as be clear and complimentary. The thresholds in the aspect of energy for space heating have been reviewed following research and most dwellings types when compliant with the 2010 standards for section 6 carbon emissions will meet the kWhr/m2/annum thresholds. The thresholds present an achievable, reasonable level.

Research indicates that the comments regarding the proposals resulting in potentially over-sizing of solar collectors and associated storage are valid. As a result of reviewing the recent research data that the thresholds in this aspect will be amended.

The levels proposed for the aspect of water use efficiency come under some criticism for lacking ambition. However as there is no standard at present for water use efficiency in the minimum standards, a review of water within Section 3 of the Technical Handbooks is planned. There may be some consumer resistance to low flow devices if introduced too quickly so on balance the levels are appropriate.

Aspects of Flexibility and adaptability; and Well-being and security
Since 2007, Scottish building regulations have incorporated demanding regulations that increase accessibility and the varying needs of occupants for all new dwellings. As a next step in the aspirational upper levels of sustainability, the proposed focus is on lifestyle issues that are relevant for all. Homes should support patterns of more sustainable communities thus the defined aspects encourage conditions for occasional home working plus stronger considerations of daylighting and outside space in the design of new buildings. The issues of acoustic privacy and of home security are also addressed.

c) Regarding the upper level proposals on flexibility and adaptability, do consultees support the general approach to focus on design issues that are relevant to the wider public rather than the needs of particular groups?

d) Are the calculations for daylighting in the silver and gold aspects simple enough to easily verify; and meaningful enough to encourage better daylit spaces in homes?

c) Comments Summary

Inclusion of this topic within Section 7 will help to streamline a multitude of local authority sustainability checklists. The response that a mobility approach for all people is preferred (1 professional/ trade association) was balanced with a view for a more specialist approach (1 interest group) for people with mobility problems. There was one voice against the concept of regulating for more space (professional/ trade association). Particular points:

- Consider structural flexibility by replacing loadbearing walls with beams and providing services on external walls (1 local authority)
- Home offices (HO) need to be defined as an apartment. If not box rooms may be proposed. Protected enclosures may not be appropriate for home offices.
- HO should not be part of a larger room but could be a conservatory or garden building (1 local authority)
- The mobility space should be at the silver level (3 including a designer/ consultant, -professional/ trade association and interest group
- Align bicycle storage with Edinburgh standards (Interest group and several individuals with some duplication). Adequate storage in homes is needed to achieve the target of 10% of journeys by bike by 2020 contained in Scottish Government Cycling Action Plan. Strengthen guidance on communal bike stores (Interest group and several individuals with some duplication).

d) Comments Summary

Aspect of Well-being and security:

- As proposed it should be simpler and quicker to verify (1 local Authority)
- Daylight factor calculation should be set for the silver level (1 local Authority)
- Ignore frame material and input glass size
- Allow more detailed calc if applicant wants to (2 including 1 professional/ trade association)
- Avoid naming rooms as 'bedrooms'. Keep 'rooms' flexible as adaptability is the goal.
- Re-introduce daylight into kitchens (1 local authority)

- Link daylit space designated for HO with additional daylight in bedrooms (1 designer/ consultant)
- Daylighting should be stand-alone aspect in non-domestic buildings (1 R&D/ university)
- Noise levels: mistakes pointed out (1 R&D/ university) and some upper levels viewed as too onerous
- Broadband (related to home office), Private Outdoor Space, bike storage and 'nominated' person al had detailed suggestions (2, including 1 local authority and 1 professional/ trade association).

Scottish Government Response
Guidance in the aspects of: flexibility and adaptability and supporting well-being will be reviewed following comments on matters of:

- *The level that the mobility space would apply and cycle storage, consider strengthening the standard to consider alignment with existing local authority guidelines within Scotland and SG targets in cycle use.*
- *Broadband*
- *Daylighting*
- *Noise – some adjustments required*
- *Defining a Home Office (HO) within a dwelling*

Aspect of Material use and waste

The following matters related to material use in buildings were investigated in forming the proposals:

	Propose for 1st upper level	Propose for 2nd upper level	Flag as possible for 3rd level
Sustainable materials including embodied energy			√
Responsible sourcing of materials			√
Recycled materials			√
Waste of the built form		√	
Provision for solid waste material recycling during use	√		

Sorting waste is an activity that occupants can make everyday contributions towards. It helps balance the technical design focus of many of the other aspects because it is part of an adaptive solution to a sustainable future. Reducing wastefulness of the built-form through encouraging demountable construction offers a practical route towards sustainable development via a long-life, loose-fit approach. The environmental, sustainable or ethical sourcing of materials is too complex at present to be simply verified at building warrant stage, but it is envisaged that the platinum level offers the ability to increase the scope for this aspect. Subject to European Construction Products Regulations, a third aspirational upper level could contain proposals (details to be determined) on the embodied energy of construction components, the responsible material sourcing, or the use of recyclate.

e) Are consultees content with the evolutionary approach proposed for defining aspects within the material use and waste aspect ?

e) Comments Summary

It is too early to commit much on material use without more information and further consultation. Presently it is a minefield for specifiers and verifiers but it is something to aspire towards (3, including 2 professional/ trade associations and 1 local authority)

A research strategy to champion industry knowledge in this field should be committed to and BSD is urged to go further, faster on material sourcing such as FSC timber (2 professional/ trade associations).

CEN TC 350 can already robustly support embodied energy and recyclate (1 R&D/ university) and the BRE's life cycle analysis data and methodology could be used for materials now allowing some alignment with CfSH [4]that would be positive for UK-wide suppliers (1 R&D/ University, designer/ consultant). More guidance could be

[4] CfSH = Code for Sustainable Homes. An indicator that is referred to by Communities and Local Government for new homes in England and Wales. It has evolved from Ecohomes, an indicator still referred to in Scotland by some local authorities and funding organizations.

issued now (1 designer/ consultant) but there are doubts as to when and by whom standards will evolve.

A lack of consensus on this complex subject area is mentioned (2, including 1 designer/ consultant and 1 professional/ trade association). Other points:

- Encourage OSM as a percentage of a building to meet upper levels. This encourages the development of the Scottish timber frame manufacturing industry and results in less waste/ greater efficiency (R&D/ university)
- Waste of the built form should be more prominent (NDPB or agency)
- The sustainable benefits of demountable construction is also in its infancy (Other)
- Enforcement difficulties
- Increase the thresholds for waste receptacles during operation (local authority)
- The evaluation tool known as ENVEST is suggested for assessing embodied energy in new buildings.

Scottish Government Response

Following varied responses of respondents on the material use and waste aspect the guidance on demountable construction and storage of recycling materials will be reviewed. An appropriate suggestion is for Scottish Government to develop a research based strategy, based on reviews of existing studies by others to supplement the present limited proposals in this aspect for domestic. This should align with work on Sullivan report recommendations for whole life zero carbon buildings by 2030. It is recognized material life cycle analysis is an area of increasing importance as operational emissions from new buildings reduce

6. QUESTIONS ON NON-DOMESTIC BUILDINGS - ANALYSIS AND RESPONSE

6.1 Question 8

Q 8. Non-domestic buildings

Defining measurements of sustainability that can be competently verified within the building standards system for non-domestic buildings presents a greater challenge due to these buildings' relative variety and complexity. Building Standards Division intends to progress work on defining upper levels of sustainability in non-domestic buildings in due course. At the outset of the standard it is proposed that as well as the baseline 'bronze' there will be a 'bronze star' level to recognize the inclusion of a LZCGT and link to the obligations of local authorities' duty under Section 72 of the Climate Change (Scotland) Act 2009.

Aspect of Carbon dioxide emissions
For non-domestic buildings the only upper levels defined are in the aspect of carbon dioxide emissions. The criteria make reference to the recommendations of the Sullivan Report with the 1st aspirational level (silver) at a 50% reduction in carbon emissions compared to 2007 standards and the 2nd aspirational level (gold) being a 75% reduction. A 3rd upper level (platinum) in this aspect would be net zero carbon. The presentation of the label would clearly show whether applicant complies with an upper level in this aspect.

a) Do consultees view this approach for non-domestic buildings as clear and useful at the outset of the proposed section 7?
and,
b) Do consultees agree that the proposed upper levels in the aspect of carbon dioxide emissions only, for non-domestic buildings are appropriate?

a) Comments Summary:

There is wide support for the intent to follow a similar path and mechanism for non-domestic buildings with the same principles as for domestic buildings (with positive supporting comments from 6 including 2 NDPB and agencies, 2 professional/ trade associations, 1 R&D/ University and 1 interest group).

There are suggestions to widen the aspects to include recyclate and indoor air quality (IAQ) (2 professional/ trade Associations and 1 designer/ consultant). NDPB or Agencies propose the same fittings standards as set out for domestic and would like to propose standards for urinals to complete the aspect of water use efficiency for non-domestic buildings.

But there are some concerns expressed about the non-domestic approach with several responses saying it appears premature with 'more effort is required here' (2 including 1 designer/ consultant and 1 R&D/ university). Some support is provisional on the basis that sustainability in-the-round should be satisfactorily defined for non-domestic, therefore introduce domestic system now and proceed with resolving aspects and levels in non-domestic (3 including 1 professional/ trade association, 1 developer/ contractor and 1 local authority).

There is an objection that the present non-domestic proposal could duplicate EPCs and a sustainability label based solely on CO_2 would be confusing. In fact, revising the EPC from an absolute scale to improvement over TER would be preferable to a 'halfway-house' Section 7 for non-domestic (3 including 1 developer/ contractor, 1 designer/ consultant and 1 professional/ trade association) – as question 2 response.

There is a view that existing voluntary standards should be endorsed instead (2 including 1 designer/ consultant and 1 R&D/ university). In addition, SG/ BSD role is questioned in devising then managing a complex range of sustainability measures to cover all new non-domestic buildings, as there are many versions of voluntary standards such as BREEAM,. Recommended that a new assessment method (that could be seen as weaker than BREEAM) is not devised given the resource cost to the Scottish Government and industry (3 including 1 interest group, 1 designer/ consultant and 1 R&D/ university). One problem raised is that building classifications are not agreed within the industry, although in contrast: if education, health and industrial are differentiated, should it be much more complex than that? (2 R&D/ universities)

There are further objections, similar to the domestic view, that 'Bronze Star' gives the wrong message, seeming to prefer technology over fabric first approaches (2; 1 professional/ trade association and 1 manufacturer). Bronze star needs a percentage of LZCGT contribution to prevent developer lip-service (1 local authority). Appropriate technology is key (1 professional/ trade association).

Different and varied measures of sustainability for non-dom makes more case for trade-off here due to heterogeneity of types (1 designer/ consultant).

b) Comments Summary:

Some say the levels should be higher (1 R&D/ university), a few say less. Most say yes with comments such as 'appropriate' (1 designer/ consultant).

Scottish Government Response

If the system is only available for domestic buildings then the opportunity for local authorities to refer to Building Standards Section 7 to meet their obligations under Section 72 of the Climate Change (Scotland) Act 2009 is diminished and there is an increased risk of separate local sustainability tools or indicators. With regards to linking the system to Section 72, there are benefits in making section 7 proposals at the outset of the system available for all new buildings, both dwellings and non-domestic. These benefits include

- *differentiating all new buildings that include LZCGT in their energy standard compliance calculation by use of the approach labelled as 'bronze star' (or the new name, 'bronze active'); and,*
- *defining optional higher benchmarks that are nationally consistent across local authority boundaries, albeit initially only in the aspect of carbon emissions for non-domestic buildings.*

A broad timescale for work to develop an equivalent well-rounded section 7 for non-domestic will be outlined.

Because many different types of non-domestic buildings exist, there is potential for a system to emerge that is too complex for the building standards system to manage. It will be necessary to address this risk and any set of sustainability non-domestic guidance should as far as possible, concentrate on a set of core criteria that are common to all new buildings.

In the development of sustainability in-the-round for non-domestic buildings, aspects/ levels should be checked for consistency with other tools, including BREEAM.

Scottish Government will consider the presentation of the label for non-domestic buildings.

On balance, upper levels in the aspect of CO_2 emissions are pitched correctly following feedback.

7.0 GENERAL COMMENTS FROM RESPONDENTS – ANALYSIS AND RESPONSES

In addition to the 9 specific questions posed, general comments on proposals were welcomed. 31 respondents out of 60 (52%) offered comment either in this box or in attached text. This is particularly welcome, given the specific nature of many of the other consultation questions. Reporting on these comments will be included within the consultation report, to be published in due course.

Comments Summary:

It is well-considered, refreshingly clear and because of its relative simplicity, the scheme will get more buy-in and result in more consistency (Several including a professional/ trade association, local authorities and a NDPB or agency). It is

supported as long as the scheme evolves and widens (2 including a professional/ Trade Association and NDPB or agency). But alternatives were described:

- Sustainability should be adapted into sections 1-6, rather than a new section (local authority)
- Adapt BREEAM/ CfSH to Scottish standards (3 including a designer/ consultant, R&D/ university and developer/ contractor) or give equivalent credit to BREEAM + Ecohomes (1 R&D/ university).
- However a different view is that an equivalence approach would lead to verification difficulties and inconsistency (local authority)
- BREEAM/ LEED are familiar to commercial investors. Do not see these labels as adding value. Operational ratings for buildings are preferred. (professional/ trade Association)
- The proposals are premature, needing further R&D (designer/ consultant)
- Reference should be made to European Passivhaus convergence (R&D/ University)

Doubts were expressed about the competency of verifiers to assess sustainability and about the competency of SG/ BSD to operate a scheme (2 including 1 designer/ consultant and 1 developer/ contractor). The following were suggested:

- Extensive training for industry, technical guidance and explanation of the verification process, and public education (5 including 3 local authorities, R&D/ university, professional/ trade Association and 1 NDPB or Agency)
- An NDPB or Agency propose using HEED for recording label information

Could reasonable inquiry check if an application is a higher level at building warrant stage, but subsequently the aspiration reduces during construction? Should a higher level be reviewed if there is a subsequent extension and a building log-book kept? (1 local authority). Consider a penalty system to help prevent fraud and abuse of system (NDPB or agency)

Discussions with BSD to progress Section 7 are offered by several respondents and finally some alternatives to tightening the mandatory energy standards in 2013 and 2016 are presented.

Scottish Government Response

On balance, there are no significant disadvantages to further embedding sustainability in the building standards and providing optional higher levels within the standards instead of the alternative of endorsing voluntary codes. The accompanying BRIA assists in coming to this preferred view.

Scottish Government will continue to be open to discussions with key stakeholders in the final development and subsequent evolution of section 7. A period of dissemination will run in parallel with the timing of the introduction of the standard. A degree of contact has already taken place with verifiers and these discussions will continue with the purpose of assisting the accurate introduction of verifying higher levels of sustainability within the building standards system.

The Building (Scotland) Act already contains sections on compliance and enforcement and aspects of fraud.

Engagement with stakeholders will continue with forthcoming reviews of the minimum energy standards

8.0 NEXT STEPS

The Business and Regulatory Impact Assessment BRIA assists in determining that this proposal is the most effective of the current options in meeting the objective of furthering sustainable development by use of the Scottish building regulations. The consultation responses do not alter this view. Because the higher levels are optional no objections were made concerning additional monetary burden on development, an important positive point for these proposals in the current financial climate.

Scottish Government welcomes the responses to the consultation which are broadly consistent with the proposals to introduce sustainability into the Building (Scotland) Regulations.

Scottish Government recommends that the new regulation 7.1 is introduced to further embed sustainable design and construction within the Scottish building regulations. Work will continue in the immediate future to clarify and tailor guidance that will be made available to prospective warrant applicants in advance of 01 May 2010 when the regulation allowing applicants to aim for higher levels of sustainability would be due to come into force.

Building Standards Division
February 2011