August 2010

BREEAM Consultation

The final report from the UK-GBC consultation with members on the future direction of BREEAM
About UK-GBC

The UK Green Building Council (UK-GBC) is an independent, membership-based, charity committed to dramatically improving the sustainability of the built environment by radically transforming the way it is planned, designed, constructed, maintained and operated. An integral part of our work is to consult our broad membership base with diverse perspectives to address a given challenge on sustainability and the built environment. Sharing expertise means that projects have access to a greater knowledge-base than any organisation could possess alone.

For more information on membership and on UK-GBC’s work, visit www.ukgbc.org

Front cover image, New Street Square, kindly provided by ©Tim Crocker
# Contents

About UK-GBC ................................................................. 2  
Introduction ......................................................................... 4  
Scope and process ............................................................. 5  

Review of proposed BREEAM update for 2011 ......................... 6  
AREAS OF FOCUS ........................................................... 6  
  European Standards ......................................................... 6  
  Building operational performance ..................................... 7  
  Minimum standards - ‘Reduction of CO$_2$ emissions’ for all rating levels .......................... 9  
  Minimum standards - ‘Reduction of CO$_2$ emissions’ for ‘Excellent’ and ‘Outstanding’ ratings .......................... 9  
  Materials optimisation .................................................... 9  
  Materials - recycled content ............................................ 11  
  Minimum standards - waste ............................................. 12  
  Use of topsoil .................................................................. 13  
  Global Warming Potential (GWP) of refrigerants ................. 13  
  Innovation credits ............................................................ 13  

Review of BREEAM update beyond 2011 .............................. 14  
AREAS OF FOCUS ........................................................... 14  
  Future revisions of BREEAM .............................................. 14  
  Refurbishment, Fit out and small buildings ......................... 15  
  Company assessment model ............................................ 16  
  Adaptation to climate change ........................................... 16  
  Mandatory minimum standards ....................................... 16  
  Weightings ...................................................................... 16  
  Benchmarking/Scoring .................................................... 17  
  Construction impacts ...................................................... 17  

How can BREEAM drive transformational change? ................. 18  
  Communication .............................................................. 18  
  Opportunities .................................................................. 19  
  Operations ...................................................................... 19  

Conclusion .......................................................................... 22  

Recommendations and Next Steps .......................................... 22  

Appendix 1 - Technical issues ............................................. 23  
  General BREEAM guidance .............................................. 23  
  Management ................................................................. 23  
  Health & Well Being ...................................................... 23  
  Energy .......................................................................... 24  
  Transport ....................................................................... 24  
  Water ............................................................................ 25  
  Materials ........................................................................ 25  
  Waste ............................................................................ 25  
  Pollution ......................................................................... 25  
  Biodiversity ................................................................... 25  
  Innovation ....................................................................... 25  
  Fire safety in buildings .................................................... 26  

Appendix 2 - Contributors to report ...................................... 27
Introduction

Measuring the environmental performance of buildings is a complex task considering the diversity of issues to be addressed. These range from recognising current industry standards and acknowledging a wide range of environmental impacts and their importance with one another are just some of the issues. The complexity of this task is growing as the challenge of tackling carbon emissions becomes ever clearer and at the same time other important and related sustainability issues rise up the agenda and demand to be addressed.

It is therefore useful to have a methodology that captures at least some of the wide range of issues in one framework. BREEAM (Building Research Establishment’s Environmental Assessment Method) is the UK’s leading environmental assessment method and assesses the environmental performance of buildings at the design stage through to the operational stage. It has been in operation since 1990 and over the years it has been progressively updated to shift the bar in terms of driving the mass market to design, construct, operate and maintain sustainable buildings.

BREEAM is currently used and applied across the industry from local authority specification to contractor application. It has been successful in bringing sustainability into the mainstream for the built environment. Due to the increased take up and continued practical application of BREEAM the industry is keen to see improvements made and key issues addressed within BREEAM. This, along with an imminent update of the methodology, prompted the UK-GBC to hold an industry led consultation on BREEAM in collaboration with BRE Global.

Figure 1: Split of member representatives contributing to the UK-GBC’s BREEAM Consultation
SCOPE AND PROCESS

UK-GBC held a consultation on the BREEAM update from June - July 2010 with member representatives from across the built environment. The initial stage involved a workshop on 11th June 2010 and following this, a further opportunity was provided for members to review outcomes from the workshop and provide further comments. The main purpose of the consultation was to provide a broad range of industry professionals with an opportunity to comment on:

- the upcoming BREEAM update for 2011,
- the direction of BREEAM beyond 2011, and
- BREEAM as a driver of transformational change.

The aim was to formally capture members’ comments and recommendations which could then be fed back to BRE Global via a public report for their review and consideration. All original comments captured at the workshop and post workshop have also been fed back to BRE Global. Comments and recommendations around specific credits have been recorded in Appendix 1.

The UK-GBC is grateful to BRE Global and Cundall for their support and involvement with the BREEAM consultation process and to members for their valuable and constructive comments and contributions.
Review of proposed BREEAM update for 2011

AREAS OF FOCUS
These areas were presented at the consultation workshop and members discussed their views based on specific questions provided by BRE Global as outlined below.

- Aligning to the European Standard CEN TC350 and international Common Carbon Metrics
- Reviewing the energy performance of buildings compared with design predictions
- Exemplary level requirements will be reviewed
- Designing out waste through materials optimisation, design for deconstruction and flexible buildings
- Address impacts of refrigerant use
- Introducing BREEAM for small buildings
- Introducing safety and security into Health & Wellbeing
- Respond to updates of Part L
- Introduction of assessing renewable technologies based on Life Cycle Assessment (LCA)

The following represents views from members which make up a broad representation of industry.

European Standards
BRE Global see alignment of BREEAM with future European Standards on the assessment of buildings as necessary to ensure consistency, robustness and comparability of the assessment outcome and, in future, clients are likely to expect assessment methods to comply with these types of standards, just as they expect an ISO14001 compliant EMS. Do you agree?

The general consensus was that there is a need, on an international level, for alignment of standards, although it was agreed European standards should be a priority. This would allow a common language, global comparison of international projects and clearer understanding of policy direction. BRE Global should be active in collaborating with other industry partners at home and abroad to ensure common carbon metrics for building performance and embodied impacts are developed, agreed and disseminated. Further engagement and dissemination of guidance is requested by industry as well as involvement in consultation of EU initiatives and legislation.

Where alignment is progressed regional standards (Ireland, Scotland etc.) and context should still be acknowledged. It was also requested the change in requirements should not be confusing or require additional work and cost. It was felt some conflicts with European standards such as CEN TC350¹ may occur and careful alignment and specific flexibility for individual buildings should be allowed.

<table>
<thead>
<tr>
<th>RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRE Global should remain active in collaborating with other industry partners at home and abroad to ensure alignment with European and international standards. Care should be taken to ensure flexibility of approach and reference to local context is acknowledged. Further engagement with industry on these issues is suggested.</td>
</tr>
</tbody>
</table>

¹ www.cen.eu
Building operational performance

Do you agree that BREEAM should do more to ensure (and encourage) that the final built asset delivers the desired energy efficiency/sustainability performance standards set by the team/client from the outset. If so, what sort of criteria for assessment should BREEAM set? If not, why not?

It was agreed it is all too common at present for there to be wide discrepancies between design stage energy use calculations and actual energy use during occupation measured after completion. There is a general failing of the industry to deal effectively with this challenge and currently a lack of consistent and reliable data for energy performance in use. There is a lack of incentive for consultants to ensure that this data is collected and analysed and lack of will on the part of clients to retain consultants to do this.

It is in BRE Global’s interests to try and tackle this issue as potentially the value attached to BREEAM ratings could be diminished and reputation of BREEAM damaged if buildings with good ratings are discovered to be profligate consumers of energy once occupied. It would be beneficial to see credits awarded for commitments from the client and design team to monitor and report on actual energy use for a set period of time. This could be tied-in to the CarbonBuzz\(^2\) scheme which is supported by BRE along with RIBA\(^3\) and CIBSE\(^4\) for perhaps ‘Excellent’ and ‘Outstanding’ ratings. Failure to complete this monitoring could result in the BREEAM rating being withdrawn, or alternatively, awarding the final rating some time after completion to enable in-use energy consumption to be part of the assessment.

Certifying beyond completion is addressed in the USGBC’s rating tool Leadership in Energy Environmental Design (LEED\(^5\)) in the US, and Australia, through the Nabers\(^6\) scheme where building energy users upload their energy usage information. It would be difficult for BREEAM to implement such a scheme but the responsibility should be passed on to the facilities manager (for commercial). LEED has a measurement credit where a calibrated model has to be handed over to the facilities manager; this could be considered in BREEAM.

The reporting of actual energy performance could be made to be mandatory for all BREEAM ‘Excellent’ and ‘Outstanding’ ratings for the first 3 years of operation. Potentially, the failure to report energy annually could result in the public removal of BREEAM certification. The energy performance could also be shown on the website for each rated building next to the predicted energy consumption (it is recommended this should exclude small power energy use).

Using Energy Performance Certificate’s (EPC) for the energy credits does not adequately predict actual energy performance of the building. It was suggested that modelling protocol should be established to close loopholes in the EPC, for example, avoiding having to put daylight sensors on lights on internal zones of deep plan buildings - which improves the EPC rating but has no impact on real energy consumption. Energy from other uses not covered in the EPC should be included (e.g. lifts) and reporting of predicted energy consumption in kWh/m\(^2\) should be stated clearly on the BREEAM certificate.

---

\(^2\) www.carbonbuzz.org
\(^3\) www.architecture.com
\(^4\) www.cibse.org
\(^5\) www.usgbc.org/LEED
\(^6\) www.nabers.com.au
It was also suggested performance levels should stay with the asset and pass to the new owner, where improvements are made later in the asset life (through refurbishment etc.) and can be aligned to the initial asset.

These observations are important because they contribute to the need for more evidence that BREEAM actually delivers sustainable buildings. BREEAM rated buildings should be re-visited to see which measures have proved beneficial (in practice/in operation) on the actual sustainability of the building and use this to inform specific issues/criteria on future updates.

Within the guidance there is no reward for educating users and facilities managers which is pivotal to ensuring the building operates as it has been designed. The ‘Soft Landings’ approach needs to be an integral part of the assessment (whereby designers and constructors remain involved with buildings beyond practical completion). And the incentive to undertake post completion monitoring such as Post occupancy Evaluation should be increased. The introduction of a management plan which is developed at the construction stage for 10 years and assessed every 3 years would reduce operating costs as well as reducing energy.

BREEAM In Use and BREEAM Design Stage assessments are not currently running concurrently, it was suggested both schemes should work in parallel and it should be mandatory to complete a BREEAM In Use assessment and tie in the building assessment at a post occupancy stage with actual performance. The BREEAM In Use rating, once the building is occupied, should reflect the Design stage rating.

Private developers have stated it is difficult to maintain BREEAM standards during occupation as landlords typically have no control on tenant/occupant fit out. Mechanisms such as the Carbon Reduction Commitment (CRC) may encourage larger companies to reduce in-use emissions.

It was suggested the information on final energy use needs to be stored in a central database in order to set appropriate benchmarks. The metric should be transparent - kg/CO₂/m², the metrics currently used in EPCs/Display Energy Certificate’s (DEC’s) do not provide appropriate information. The database could also include comparative average credit costs versus energy saved. This would require a means of measuring energy but it could be linked back to the CO₂ index that EPC’s use or kg/CO₂/m² of building. This would enable clear advice to be given.

The current tool, BREEAM In Use for existing buildings, requires a review. The method of score calculation for BREEAM In Use questionnaires makes the assessment/audit process awkward and difficult to engage with clients, particularly since the scoring is not transparent. As scoring and weighting breakdowns are not provided, the inability to advise clients on a direction to improve the score to a desired rating has been and continues to be a major obstacle to an effective assessment system. Clients have shown significant disapproval to the way that BREEAM In Use restricts the ability to make measurable improvements. This makes it difficult for consultants to advise intelligently and manage clients’ expectations. The ability to calculate the score in a similar way to that of a typical design stage assessment is critical to the BREEAM development process and removing that facility makes it unappealing to use.

One suggestion was that an option is provided to adjust the score relative to the auditor’s comments. When a questionnaire is submitted for calculation, the auditor comments are not taken into consideration. Therefore if the questions have a positive response from the assessor, but in the opinion of the auditor it is not valid or there is insufficient information, the score provided by the BRE does not reflect the performance of the building in line with the auditor’s assessment.

---

7 www.bsria.co.uk/services/design/soft-landings/
8 www.breeam.org/page.jsp?id=122
### RECOMMENDATION

The introduction of mandatory credits for a commitment from the client and design team to monitor and report on all actual energy use for a set period of time is recommended. The introduction of certification after completion was also suggested.

Introducing a ‘soft landings’ approach, management plans and including BREEAM In Use as part of the overall certification process is recommended and should form an integral part of the assessment. The metric used for measuring energy should be transparent and energy from other uses not covered in the EPC should be included in BREEAM and reporting of predicted energy consumption in kWh/m² should be stated clearly on the BREEAM certificate.

It is recommended BRE Global set out the evidence that BREEAM delivers sustainable buildings in operation and more work is done to take on board the comments reflected around BREEAM In Use.

### Minimum standards - ‘Reduction of CO₂ emissions’ for all rating levels

Should BREEAM set minimum standards for all rating levels for the ‘Reduction of CO₂ emissions’ issue (currently its only set for Excellent and Outstanding)? If yes, what would be suitable levels?

Generally it was felt that the minimum standards should remain as they are for ‘Excellent’ and ‘Outstanding’ only. At ‘Very Good’, projects need to have the flexibility to “play around” with credits. By setting minimum standards, it may lead to token renewable energy systems being fitted inappropriately. It was also felt Building Regulations would drive minimum standards anyway.

**RECOMMENDATION**

Minimum standards should remain the same for the credit ‘Reduction of CO₂ emissions’.

### Minimum standards - ‘Reduction of CO₂ emissions’ for ‘Excellent’ and ‘Outstanding’ ratings

Currently BREEAM sets a minimum level of 10 credits for ‘Outstanding’ rating and 6 credits for an ‘Excellent’ rating for the issue ‘Reduction of CO₂ emissions’. Accounting for the fact that BREEAM’s benchmarks for this issue are likely to become tighter, approximately what level of minimum performance would you want/expect an ‘Excellent’ and ‘Outstanding’ rated new building to achieve in terms of energy performance/CO₂ emissions e.g. ‘Outstanding’ 40% better than 2010 Part L compliant building, 60% better, zero carbon?

It was suggested standards should be higher than Part L, but 60% and 40% numbers indicated would be very challenging to achieve. There is general agreement that the 10 credits minimum standard and 6 credits minimum standard are appropriate at present.

**RECOMMENDATION**

Minimum standards should remain the same for Excellent’ and ‘Outstanding’ rating levels for the credit ‘Reduction of CO₂ emissions’.

### Materials optimisation

Can/should BREEAM do more to encourage/recognise ‘Design for Materials Optimisation’, if so what/how?

There is increasing interest in embodied impacts and embodied carbon in particular. Material suppliers felt the overall weighting of the materials section should increase because operational efficiencies that improve the embodied impacts of materials will become an increasingly
important consideration. To the contrary, some consultants felt it not to be as important as operating energy or travel to and from buildings.

A number of members suggested BREEAM does not sufficiently and explicitly address embodied impacts in materials except indirectly through the Green Guide. The suggestion is, the closed nature of these tools does not provide the flexibility to robustly address the subject. BRE Global should move to publish the final version of the Environmental Profiles Methodology, and look to make available to stakeholders the necessary data and life cycle models so as to enable it to be applied in product development (manufacture), design (engineer/architect), and building rating (BREEAM and Code for Sustainable Homes (CSH)) scenarios.

Guidance and/or accessible minimum standards should be introduced for materials particularly when reviewing the benefits of retrofit against new build, building density or when evaluating design alternatives that are not, for example, in the Green Guide.

Efficiency is particularly an issue in primary structure which, in some cases, can be over designed by as much as 50% because some engineers do not optimise designs. The rigid framework of the Green Guide does not allow such aspects to be addressed.

The materials credits need simplifying and given an increased weighting as they are currently complex to work through, but important. The work required to achieve the materials credits is disproportionate to the work required to achieve credits in the other sections and yet getting materials right, arguably, sometimes can have a greater impact.

Many of the concerns with the materials section result from the Green Guide - many of the materials and systems being specified are not rated in the Green Guide; there is a lack of information on the basis of the ratings e.g. embodied energy and transporting energy costs; and longevity impacts.

It was noted that assessors often advise customers not to consider the responsible sourcing credits due to the work required to get a small number of credits - in most cases evidence is gathered for about 80% of materials but the missing 20% means that the credits cannot be claimed. By making the materials calculators available to contractors and design teams this could help drive the take up of responsible sourcing.

It was suggested, where BREEAM looks to include an embodied carbon and energy component in the future, it should be simple and refer to an industry accepted standardised methodology and database, and guidance should only be implemented if it will make a positive difference to the construction/refurbishment of the building.

One recommendation was to include reference to LCA with embodied carbon and reward low embodied carbon strategies. Other members would like to see an LCA based assessment as used on the German system, based on m² of floor units, GWP100, and energy use during construction. Others are of the opinion that the level of assessment should be at a whole building level, and that with manageable boundary conditions, and a more inclusive approach to using the profiles methodology (i.e. move away from the Green Guide), a more flexible and meaningful approach to assessment can be achieved.

Feedback from UK-GBC member on BREEAM’s proposed 2011 update

---

5 www.thegreenguide.org.uk
10 www.bre.co.uk/page.jsp?id=53
11 www.dgnb.de
The construction products sector expressed concern with the proposed metric of kg/CO₂eq./m² by suggesting that some materials with high embodied carbon in production can still help deliver low energy in use buildings (thermal mass). This should be acknowledged, and operational and embodied carbon should be looked at collectively and in an optimised way so as to allow trade off within the design context.

A suggested approach was to introduce minimum standards for the Materials Specification credit, possibly 2 credits for ‘Excellent’ and 4 for ‘Outstanding’. However, this needs to go hand-in-hand with greater transparency in how Green Guide ratings are arrived at, and a wider range of materials included in the Green Guide - getting clarity from BRE Global on innovative or non-standard constructions currently takes too long and this should be reviewed with urgency.

Local sourcing of materials and labour was considered to be an area that could be further addressed in BREEAM. Some Local Authority Planners require local sourcing of specific building materials and this isn’t recognised outside of the sourcing of aggregates and indirectly in the Green Guide. Once again, a more accessible LCA approach would enable this issue to be addressed fully.

Designers and consultants wanted to see more suppliers understand, calculate and communicate the environmental footprint of their products through Environmental Product Declarations¹² or Cradle to Cradle¹³.

It was felt, by Interior Designers, that BREEAM doesn’t sufficiently address interior material choices, particularly formaldehyde or LCA of internal materials. It was suggested mandatory Indoor Air Quality (IAQ) standards should be introduced and the inclusion of responsible, sustainable, environmentally friendly sourcing of interior environment materials within BREEAM, including resource reuse, should be better referenced.

**RECOMMENDATION**

It is recommended the overall weighting of the materials section increases, credits are simplified and minimum standards introduced. Greater transparency is required on the Green Guide and a wider range of materials - innovative and non-standard - are included in the Green Guide. BRE Global should publish the final version of the Environmental Profiles Methodology, and look to make available to stakeholders, the necessary data and life cycle models.

The calculator tools, in particular, responsible sourcing calculators, should be made publicly available. Any embodied carbon and energy component introduced in the future should be simple and refer to an industry accepted standardised methodology and database.

Operational and embodied carbon should be addressed collectively and in an optimised.

**Materials - recycled content**

Should BREEAM assess ‘Recycled Content by Value’ of buildings, and reward those that meet specific levels? WRAP¹⁴ has recommended this as an issue for BREEAM to consider.

It was generally felt BREEAM should encourage the reuse of recycled and secondary materials as it becomes more achievable. However there was some concern that any proposal to introduce credits for specific levels of ‘Recycled content by value’ would require careful consideration to prevent over simplification of the issues involved.

It was felt insufficient weight is given towards the use of recycled materials both for construction and fit out which contributes to reducing embodied impacts of the building. BRE could partner with WRAP to build a scheme that rewards progressive but economic action and

---

¹² [www.environmentalproductdeclarations.com](http://www.environmentalproductdeclarations.com)
¹³ [www.mbdcc.com](http://www.mbdcc.com)
¹⁴ [www.wrap.org.uk](http://www.wrap.org.uk)
also seek to develop commercial opportunities through collaboration of providers, re-manufacturers, specifiers and users.

The recovery and processing of recycled materials and turning them into new products can, in some cases, consume a lot more energy and produce more carbon (in transportation) than producing new materials, can result in reduced durability (and therefore higher long-term lifecycle costs) and can sometimes have harmful side effects. BRE Global could look to award credits to genuine Cradle to Cradle products and materials which are designed to be easily and continuously reused, rather than ‘down-cycled’. If BRE Global were to provide practical access to the Environmental Profiles Methodology, this would enable the industry to investigate and understand these aspects in detail.

Conversely, a materials supplier has requested that the freedom to use secondary materials should not be curtailed by distance (as is done with recycled aggregates). BREEAM should provide the loose framework of rules, (i.e. optimise on Ecopoints15 - which includes mineral requirements, and has weighting factors) to enable the recycled input to be automatically addressed.

**RECOMMENDATION**

Recycled content within buildings should be integrated into BREEAM but the approach should be carefully considered. The Cradle to Cradle approach and open access to the Environmental Profiles Database would provide useful information and guidance in this area.

**Minimum standards - waste**

Should BREEAM set minimum standards for Waste i.e. using the construction waste benchmarks, similar to Energy?

It was agreed minimum standards should be set for waste and the waste category should possibly be in line with WRAP and the Constructing Excellence16 ways of calculating.

Insufficient weight is given to avoidance to landfill and productive re-use and recycling of construction waste. It was agreed minimum standards should be established. BRE should work with WRAP to enable a scheme that rewards progressive but economic action and also seek to develop commercial opportunities through collaboration of providers, re-manufacturers, specifiers and users.

BREEAM doesn’t sufficiently address “designing out waste”. Many suggested the Construction Site Waste Management credit was too difficult for design teams to understand and should be developed to be more accessible to projects with a greater weighting given to the top rating.

Contractors raised a concern that furniture, fixtures and equipment (FFE) packaging is a huge problem with little expertise to deal with or incentive to reduce it - FFE waste should be addressed in addition to construction waste.

**RECOMMENDATION**

Minimum standards are set for construction waste and the credit is simplified with a greater weighting for the top scores and separate consideration for packaging waste.

---

15 [www.bre.co.uk/pdf/076.pdf](http://www.bre.co.uk/pdf/076.pdf)
16 [www.constructingexcellence.org.uk](http://www.constructingexcellence.org.uk)
Use of topsoil

Should BREEAM look to do more to recognise and encourage sustainable management/use of topsoil on construction sites?
The standard should strongly encourage sustainable use of topsoil. CEEQUAL\textsuperscript{17} currently provides good guidance on this.

\begin{verbatim}
RECOMMENDATION
BREEAM should recognise and encourage sustainable management/use of topsoil on construction sites.
\end{verbatim}

Global Warming Potential (GWP) of refrigerants

Is using GWP as a measure of performance too simplistic and inflexible? How can BREEAM's approach to refrigerants specification and leak detection be more flexible in terms of recognising good efficient design of systems and minimisation of refrigerant use, whilst also considering the impact of the refrigerants themselves?

Although an important issue, this issue needs to be kept simple for BREEAM; and assessors would not want to see it get more complicated. BREEAM should continue to focus on the GWP of refrigerants and provide credits for buildings where both direct impacts of refrigerant and indirect impacts of energy used to power the systems are being addressed. Given that supermarkets are radically changing refrigerants over the next decade, credits should be awarded for effort on both aspects.

\begin{verbatim}
RECOMMENDATION
BREEAM continues to focus on the GWP of refrigerant and allocate credits for refrigerants specified and energy reduction through the energy section.
\end{verbatim}

Innovation credits

Are there any areas that BREEAM should consider giving additional recognition for, through the 'Innovation' section, by setting additional exemplary level performance criteria?

It was requested that BRE Global publishes details of the ‘Innovation’ credits that have been submitted on the website along with details of whether the credits have been approved or dismissed with relevant reasons for each decision. ‘Innovation’ credits should apply to all projects where particular innovation is shown until it becomes part of the main accreditation process. Currently ‘Innovation’ credits are too rigidly defined, effectively being 10 “super” credits. Other rating tools leave the criteria open to encourage innovation.

Given the emerging focus at EU and UK level on more sustainable forms of ventilation and air conditioning this is an area BREEAM should consider developing over the next few years and enable innovation credits to be awarded. And projects/sites which are designed for deconstruction and re use i.e. not recycled and consequently using energy, should benefit from ‘Innovation’ credits then progressively become a core standard in later versions.

\begin{verbatim}
RECOMMENDATION
BRE Global should publish details of Innovation credits already submitted and allow innovation credits to apply to all projects where innovation has been shown. Further recommended areas for recognition are recognising more sustainable forms of ventilation, air conditioning and designing for deconstruction and reuse.
\end{verbatim}

\textsuperscript{17} www.ceequal.co.uk
Review of BREEAM update beyond 2011

AREAS OF FOCUS
After the 2011 scheme launch, development of BREEAM will continue, and the following are some potential strategic areas for further consideration in terms of future BREEAM content. Members were asked for comments on these issues and whether there are additional areas that BREEAM should focus on:

- Alignment of BREEAM’s energy benchmarks and minimum standards to a zero carbon roadmap, similar to the Code for Sustainable Homes (CSH).
- Catering for the non domestic refurbishment of buildings (major, minor, fit out)
- Developing a company assessment model
- Designing for climate change adaptation
- Data collection from existing buildings
- Further alignment of BREEAM with European and international standards being developed
- Assessment of the sustainability aspects/opportunities associated with fire safety in buildings (passive and active measures)
- Review assessment of ecological impacts

These areas were presented briefly at the workshop and members discussed their views. The following represents views from members which make up a broad representation of industry.

Future revisions of BREEAM
It was felt important that BRE Global should develop and present their vision, strategic route and milestones of how BREEAM will contribute to achieving UK Government climate change targets for 2020 and wider policy level decisions. It was not considered effective to continuously revise standards on a regular 2-3 year basis; longer term planning is required given the nature of the sector. The industry would very much like to see a forward trajectory of what will BREEAM 2020 look like (see UKGBC report18) for individual issues. BREEAM could follow the same model as for CSH in terms of targets.

It was suggested revisions over the next two-three years should not be too radical. Due to the time projects take to get from feasibility to completion those being assessed under the BREEAM 2006 version are only just being completed. The change over to the 2008 version for the majority of projects has only happened over the last six months. Ensuring continuity over time and across projects enables everyone to react to what they have learnt before to improve what they do next. If the procedures change each time, industry is unable to consolidate and benefit from previous experience.

Due to the wide range of different BREEAM schemes it was suggested that it would be an appropriate time for BRE Global to consolidate building types to prevent increased costs to those using BREEAM. However this should be dealt with carefully as it is already difficult to shoehorn buildings for prisons, healthcare and schools into various BREEAM schemes.

18 www.ukgbc.org/site/taskgroups/info?id=8
It was suggested BRE Global should carry out research or a gap analysis to establish the effectiveness of each credit in transforming the market practice and reducing environmental impact. This would identify where investment needs to be made to innovate or bring to market solutions to create more sustainable buildings. If this doesn’t happen, buildings are just implementing a tick box approach when the money could be better spent on initiatives that have a real benefit. For example, the UK is the only country that installs sanitary shut-off valves to the cold water supply to toilets because there is a BREEAM point available. Evidence of how much water has been saved and whether other countries, that have less water, are implementing the same technologies is required.

At present it is felt projects score very highly in some sections whilst gaining relatively few credits relating to passive environmental measures, building fabric and design. Therefore a building may achieve an ‘Excellent’ rating but could still perform poorly in terms of the indoor environment quality (IAQ). It was felt by designers that this devalues the BREEAM system, and therefore a review of the environmental weightings, credit values and a greater use of mandatory credits would be welcome. This would encourage greater emphasis and significance of fundamental design decisions, which affect the environmental performance over a building’s entire lifecycle. For example, BREEAM could consider a greater number of credits and/or minimum standards for some of the Health & Well Being and Energy credits. The 2008 version of BREEAM is considered better than previous versions in this respect, but there is still room for improvement.

**RECOMMENDATION**

BRE Global should develop and present their vision, strategic route and milestones of how BREEAM will contribute to achieving UK Government climate change targets. Any future updates should not be too radical and a move to consolidate the schemes should be considered. Research or a gap analysis should be undertaken to establish the effectiveness of each credit in transforming the market practice and reducing environmental impact. Further minimum standards for the Health & Well Being and Energy credits related to IAQ should be introduced.

**Refurbishment, Fit out and small buildings**

A specific BREEAM Refurbishment/Fit Out scheme needs to be developed, promoted and heavily incentivised for uptake – across all building types. This will address the UK’s existing building estate. The current BREEAM fit out tool does not address fit out issues effectively and no encouragement is given for collaboration between landlord and tenant. It was suggested there could be some form of collaboration between BRE Global and the RICS Ska19 rating for fit-out.

**RECOMMENDATION**

It is recommended BREEAM develop a specific refurbishment or fit out scheme, possibly in collaboration with RICS.

19 www.rics.org/ska
Company assessment model

It would be a benefit for clients who build repeat units to a core specification (where the majority of the shell and fit out elements are standard and do not vary) if BRE Global could develop an assessment and cost model suitable for repeat standard buildings. A limited number of components vary to suit individual sites. Yet under BREEAM cost is expended on assessing each building in its entirety (in some cases approximately £70k per building). It would be more cost effective to have a BREEAM assessment score for the core specification and then only assess the variable items. BREEAM could then be used to assess a greater number of standard buildings rather than only being aimed at bespoke buildings.

RECOMMENDATION
BRE Global should develop a cost effective assessment model suitable for small/repeat standard buildings.

Adaptation to climate change

Adaption to climate change is not sufficiently addressed and should form part of the BREEAM assessment.

RECOMMENDATION
Adaption to climate change should be considered in the BREEAM assessment.

Mandatory minimum standards

A review of minimum standards in the next version would be useful. This is to balance the requirements for projects to be affordable but also endorse the reputation of BREEAM as a meaningful certification method. Contractors often disregard credits from their portfolio of design choices on the basis of cost. These are often areas that can make a big difference in the long run - materials choices, rainwater harvesting, reduction in energy use, recycled high grade aggregates. It was suggested every rating should require minimum standards in each section and should not carry a score. For example e.g. minimum of 40% of occupied spaces must have adequate daylight. It was suggested where minimum prerequisites are not met certification should not be awarded.

It was felt minimum standards should be set on a trajectory to increase over time.

The awarding of credits for meeting statutory minimum requirements and/or standard good construction practice should be removed. BREEAM should be encouraging and incentivising design, innovation and exemplary practice that go beyond minimum standards. Awarding credits for design that meets minimum regulated standards, reflects current market demands or construction standard practice devalues the scheme.

RECOMMENDATION
BREEAM should review minimum standards and remove any credits that relate to statutory minimum standards and/or standard good practice. Minimum standards should also increase over time.

Weightings

Although the weightings for each of the issue categories have only recently been updated in the 2008 update it was suggested these are reviewed again to account for the issues highlighted below. Industry has often questioned the results behind the weightings; these should be clearly and openly presented to enable industry to understand how these were derived.
Climate change is considered the major environmental issue facing the world today, alongside the forecasted increase in energy costs and the UK Government’s legal targets for CO₂ reduction by 2020. BREEAM should therefore give more importance and hence weighting for design solutions and technology that address this matter. Reducing energy and potable water consumption benefits owners’/users’ bottom line and this would therefore encourage a wider uptake of BREEAM.

A common point made was the intensity of effort for achieving credits is not typically matched by credit weightings. Some credits are far more difficult to achieve than others yet share the same weighting, this drives behaviour and choice of inclusion of design features and technologies. Future standards should allocate weightings recognising cost and effort involved.

**RECOMMENDATION**
It is recommended BREEAM reviews the weightings attributed to each of the categories and recognise cost and effort as part of the overall weightings consideration. More importance and weighting should be given for design solutions and technology that address energy and potable water consumption. The background behind the weightings for BREEAM should be presented clearly and openly.

**Benchmarking/Scoring**
The ratings’ percentages need to be reviewed to reduce the relatively large difference between ‘Very Good’ and ‘Excellent’. If an ‘Excellent’ rating cannot be achieved there is no incentive to include sustainable measures that would achieve a rating of 60-65% because this won’t be recognised. As a result a lot of achievable sustainable measures are being value engineered out of our projects with no detrimental impact on the BREEAM rating.

The actual rating in numerical terms should be used instead of the titled bands currently used to remove disincentive to do more than is necessary to just meet the target. Or narrowing of the gap between bands (this may necessitate introduction of new ratings) would help, as would a greater emphasis on the overall percentage score in addition to the rating achieved.

**RECOMMENDATION**
It is recommended BREEAM review the ratings’ percentage benchmarks to reduce the relatively large difference between ‘Very Good’ and ‘Excellent’. BREEAM should also consider putting more emphasis on the numerical score rather than the rating.

**Construction impacts**
With the Post Construction Review becoming mandatory, more emphasis could be placed on construction impacts. CEEQUAL integrates design and construction reviews into one assessment. The client, designer, contractor are all allocated specific actions. This could be a potential approach BREEAM could adopt or integrate additional credits for the construction process.

Recent BREEAM versions now give a credit for an Accredited Professional (AP) to provide advice to the design team. A similar approach could be taken for the construction process for providing advice to trade contractors on ensuring they procure the right things. There should be an incentive to ensure the relevant trade contractors are properly trained and made aware of the requirements. Often sub contractors don’t deliver design requirements and this can prohibitively affect the achievement of the BREEAM standard at a cost effective level.

**RECOMMENDATION**
BREEAM integrates design and construction reviews into one assessment and more incentive is given for training and guiding trade contractors.
How can BREEAM drive transformational change?

Whilst the final workshop session looked to address how BREEAM can assist in driving transformational change it was acknowledged the previous workshops covered much of this scope. The third workshop therefore looked to cover further issues not already addressed in the previous two workshops which include:

- Communication - with industry (contractors, clients, assessors etc.), customer service
- Opportunities - consultation on updates, transparency, sharing data, joint research
- Operations - training, process, documentation, costs, quality assurance.

COMMUNICATION

Customer Service

The general consensus was that the BREEAM helpline and customer service required a significant level of improvement. The slow response times impact and delay contractor handover and occupation. It was also felt that an accredited offsite source should deal with queries and the FAQ database could be expanded to include more questions and answers. Improved communication could possibly involve a BRE Global member of staff being assigned to a project/building.

A significant level of frustration is being experienced at the response times to Green Guide queries, which needs to be reviewed and improved. The Green Guide rating systems could become more automated, queries could be submitted online and a database could be populated with all of the queries.

There was a request to allow companies with licensed assessors in all schemes to submit queries for any scheme from any individual.

RECOMMENDATION

It is recommended BREEAM look at ways to significantly improve the level of customer service and response times to technical and Green Guide queries and Quality Assurance.

Communications & Marketing

Besides breaking down the BREEAM section scores (materials, waste etc.) on the certificate it would be beneficial to include criteria that people will understand to communicate the environmental performance of the building e.g. kg/CO₂/m² embodied, m³ water used per person, % recycled content, energy cost in use etc.

The ‘process notes’ and Frequently Asked Questions (FAQ’s) are useful, however information often gets lost in the many process notes that are issued and there is no clear way of finding information that is required.

Better publicity of BREEAM for occupiers and tenants is required, including more press about benefits and simpler marketing materials. In short, there needs to be a better link between certification and benefits.

RECOMMENDATION

Clear details of the environmental performance of the building should be clearly communicated and presented on the certificate.
OPPORTUNITIES

Business case
There is currently poor evidence on the economic case as to why it is worth spending more on a building to get a better BREEAM score. It would help if BRE Global highlighted and carried out research to demonstrate whether BREEAM rated buildings are performing better than similar non-BREEAM rated buildings (e.g. energy, water) and whether there is any correlation with the rating and capital value / rents. Similar research has been undertaken in the US and Australia. Without the research and data BREEAM will have difficulty justifying the benefits to the sceptics. It was suggested this could be undertaken as a joint research project with the UK-GBC.

RECOMMENDATION
It is recommended BREEAM sets out the business case for BREEAM assessed building.

Transparency
The performance data from 35,000 BREEAM certified buildings should be made available publicly, similar to LEED, Green Star20, etc. Access to ratings and category scores for different types of buildings, particularly those which may not be exemplary, would be extremely useful for benchmarking designs and discussing the potential benefits of BREEAM with clients.

As expressed earlier in the report the closed nature of the Green Guide does not provide the flexibility to robustly address the subject of measuring embodied impacts. BRE Global should move to publish the final version of the Environmental Profiles Methodology.

Access to the various BREEAM calculators (and weightings within these) should be made available online. As a building design develops and the development brief inevitably evolves the design team need to run different design options through the calculators to be able to rate different design options and need to have an easy way of knowing the impact of different design decisions on the potential BREEAM rating. Relying on the assessor to do this causes delays and undermines the design process.

RECOMMENDATION
It is recommended BRE Global make performance data from BREEAM assessment results publicly available. It was also recommended calculators are made publicly and freely available for project teams.

OPERATIONS

Documentation & IT
It was widely and strongly suggested that BREEAM moves away from a paper based system and considers the 'uploading' and online approach used by the USGBC for LEED. The current system of using spreadsheets for BREEAM In Use, which don’t give a rating and are emailed to BREEAM is considered to be ineffective and does not allow improvement options to be tested quickly.

Many assessors requested that guidance documents and tools are provided in a useable format for assessors or project teams to handle and edit for assessment report purposes (this includes ensuring compatibility with Mac’s). In addition it was suggested BREEAM assessment reports should move away from having to re-write guidance notes.

Assessors consulted suggested a number of errors are often noted in the guidance, especially issue 4 of the Education tool, these should be addressed in the next update. The technical

20 www.greenstar.co.uk
manual often references the RIBA\textsuperscript{21} stages; the guidance around these requirements needs to be clarified so clients can comply more frequently.

**RECOMMENDATION**

It is recommended BREEAM moves away from a paper based system and considers an online, ‘uploading’ approach. Guidance documents need to be unprotected, error free and provide clear guidance.

**Costs**

Costs are too high for smaller companies carrying out BREEAM certification. Certification cost should be proportionate to the size of the building and licensing costs should be reviewed.

**RECOMMENDATION**

It is recommended certification costs for BREEAM are proportionate to the size of the building.

**Training & Education**

It is evident the client through to the manufacturer needs to be educated about the need for the BREEAM assessor to be involved early in the project’s life. It would be helpful if BREEAM could develop a method/system to advise clients at planning stages how accreditation can be awarded. More emphasis could be made, through the awarding of credits, where design decisions are made at the ‘right’ time (linked to RIBA) to address the need for getting BREEAM in at the start of the process and to help discourage ‘points-chasing’ towards the end of the construction period. The most successful projects typically are where the developer, design team and contractor are all familiar with BREEAM and understand the basics of the intent of BREEAM rather than just seeing it as a point-scoring exercise.

It was suggested that BRE Global develops a non technical guidance document on achieving BREEAM ratings. This should provide advice on how to go about the process of applying BREEAM and set out examples of technologies and approaches that have been adopted to achieve credits. LEED has a useful system of collecting and displaying decisions made on new designs / technologies and precedents on key issues of interpretation (e.g. Whole Life Costing or renewable studies). This benefits all subsequent users without compromising the assessor’s independence.

BREEAM certification is often required at the design phase but clients typically don’t understand the full operational impacts of a high BREEAM rating. The challenge is to ensure building occupiers understand the implications of a high score, for example, complex or innovative technology and systems may be overly complicated for occupiers to operate effectively and efficiently. BREEAM could therefore work to ensure the full circle of those involved in the project are consulted and incorporated into the project lifecycle.

Increasingly Local Authorities are using BREEAM rating levels as requirements for planning permission and indeed some have published their current and future levels of attainment, for example one local authority requires non-domestic buildings to score ‘Very Good’ by 2012, ‘Excellent’ by 2013-2015, and ‘Outstanding’ for 2016. As BREEAM requirements are increased over time each rating level will increasingly challenge too making these standards significantly harder to

\textsuperscript{21} www.architecture.com
achieve. The implications of these decisions should be made clear to these organisations and wider consultation and participation is required.

It was suggest that some degree of knowledge of the construction industry should be a prerequisite for embarking on BREEAM assessor training, or at the very least, assessors with no construction background should have to undergo an extended course so that they become familiar with the design and construction process and with the technical language used in the BREEAM Assessment. However other members suggested the training requirements are currently considered to be excessive and expensive and the availability of accessible and affordable BREEAM basic training needs to increase.

A clearer distinction should be made, in the marketing and delivery of training courses, of the difference between training to become an assessor and that for understanding and using the standard. Assessors should complete both courses and have specific knowledge of the sector they intend to work in to ensure competency. BREEAM AP roles also require further clarification or the AP course needs to be more focussed on the role.

Materials suppliers have suggested there is a need for a materials specific ‘low’ level training course for material suppliers so that they can point customers in the right direction in terms of materials without attending a 3 day BREEAM assessor course.

<table>
<thead>
<tr>
<th>RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is recommended BREEAM designs an education package around applying BREEAM at different stages in the building lifecycle. BREEAM should also require minimum qualifications to become a BREEAM assessor and introduce a basic materials specific training course.</td>
</tr>
</tbody>
</table>

Quality Assurance
Those working on BREEAM assessed projects requested that the QA procedures for assessors need to be more stringent. The range and variation of evidence required varies greatly between assessors which means project teams find it difficult to anticipate the work required to gather evidence for projects. The flexibility and approach taken by assessors also varies greatly which leads to uncertainty and cynicism amongst developers and project managers. Some organisations are using their AP’s to tackle these issues, which is an approach that should be more widely encouraged by BRE Global.

<table>
<thead>
<tr>
<th>RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is recommended BREEAM work towards implementing a system for ensuring assessors are consistent and non subjective in their approach to data gathering.</td>
</tr>
</tbody>
</table>
Conclusion

There are a wide range of views, comments and recommendations highlighted in this report from a broad cross section of industry representatives.

A common view voiced by members is that BRE Global should deliver a ‘product’ that is sensitive to the developing needs of their customers as well as being fit for purpose in moving the mass market forward in terms of integrating sustainability in the lifecycle of buildings.

In many cases members support the direction BREEAM is taking with the 2011 update, for example in line with integrating and recognising European and international standards. It is, however, evident that there is scope for further improvement in driving transformational change within the built environment for future revisions to BREEAM. In particular, around the materials sector; making data available; and improving transparency.

There is evidently a need for sharing building performance data and more work in the field of ensuring building design performance follows through to building operation.

A key area for BREEAM is reviewing guidance to consider new areas for incorporation and setting minimum standards as well as clearly outlining BREEAM’s future strategies and direction so that industry is prepared for future changes.

It is clear that several areas require improvement in the operational context of BREEAM, in particular, customer service and moving to online systems. This is important if BREEAM is to continue to respond to market needs.

Through improved investment in systems, services and research it is felt BREEAM can continue to be an effective assessment methodology in the market place and can continue to mainstream sustainable buildings and drive transformational change.

Recommendations and Next Steps

This report has been made publicly available. BRE Global have committed to review and respond, highlighting where suggestions will/will not be taken on board and the reason behind decisions made.

It was strongly recommended BRE Global work more closely with industry and those using the methodology to ensure all views are considered in an open and transparent form which represents a cross section of industry. Many members highlighted that they would be willing to contribute to future consultations.
Appendix 1 - Technical issues

General BREEAM guidance
A number of technical suggestions associated with individual credits were which have been set out in this appendix.

Management

**Man 6 Consultation:** The credit criteria is quite prescriptive and inflexible and may not represent the most appropriate way of consultation for some projects.

**Man11 Ease of maintenance:** The CIBSE Guide reference is incorrect this should be called CIBSE Guide M not A1 of CIBSE

**Man12 Lifecycle costing (LCC):** The requirement for the study to cover 'life cycle cost/lifecycle impact of the potential specification in terms of carbon emissions' is extremely onerous as embodied carbon data for many technologies is not available. Where this requirement is maintained it has been suggested that BRE Global either provide sources in the reference section or provide typical values in the credit itself. The requirement for recommendations to be implemented is understandable but the wording should be loosened, unforeseen issues may arise post Stage C that would preclude the recommended technology. It would unfairly penalise alternative technologies that would in fact reduce equivalent CO₂ emissions.

A consultant organisation felt it was important for BREEAM to introduce mandatory credits for ‘Excellent’ and ‘Outstanding’ ratings. LCC is rarely carried out and would greatly assist focusing the minds of clients and Quantity Surveyors on the long term environmental and monetary costs, rather than putting too great an emphasis on reducing build-cost.

Health & Well Being

**Hea1 Daylighting:** In many cases the daylight credit is difficult to achieve in deeper plan buildings, in which case it is often taken off the list of important issues. Given the importance of daylight in terms of well-being (and saving energy in perimeter lighting) it has been suggested two points are allocated – the second point set at the current standard (80% of floor plate) and the first point set at 60% of floor plate.

The current standard does not enable any credits to be achieved for natural light sourced through the ceiling - currently only the benefit from vertical windows is calculable within the BREEAM Assessment methodologies. This needs to be rectified as this is a cost effective solution to reducing fossil based energy demand for lighting.

The requirement that all spaces should comply is too stringent. In cases where there is one internal office it means the whole credit is lost. The credit could be amended to allow for 90% of the area to comply.

**Hea7 Potential for natural ventilation:** The requirement that all spaces should comply is too stringent. The same principle as above applies and 90% of the area could be considered instead of 100% of the area complying - it could be that you have one internal office whiles all the other office spaces comply and you still don’t get the credit - suggest make into 90% or something like that.

**Hea8 Indoor Air Quality:** Assessment of indoor air quality should include the provision of an Indoor Air Quality Management Plan (as per LEED for Homes/Commercial Interiors). The credit should acknowledge the potential for chemical off-gassing from internal finishes and impose
mandatory maximum thresholds of VOC & Formaldehyde emissions for interior environments within Low Carbon Buildings.

It has been suggested, by interior landscape organisations, that indoor planting should be introduced into BREEAM. There is growing support for the wide range of direct health and IAQ/IEQ benefits that plants bring to the indoor environment as confirmed by the latest piece of research, produced in by the University of Technology, Sydney (http://bit.ly/aK2xyO) and the inclusion of indoor planting in Green Star. The inclusion of plants has recently assisted the Ecology and Environment Headquarters building in Lancaster NY gain their LEED accreditation http://bit.ly/axkb9w. To ensure an even spread of the correct types of plants with in buildings accredited by the BREEAM systems 1 to 4 plants per 12 m² will improve O₂ levels, reduce CO₂ within buildings. This will reduce energy bills by reducing the amount of work the air conditioning plant has to do. Plants can also reduce large changes in temperature which again helps to keep energy costs low. Planting will improve productivity and reduce absences across the work force again helping to cover the cost of the plants Points should be awarded for seeking the specialist advice of an interior landscaper to ensure right plant/right place policy is adopted. Points should also be awarded to companies who pay for the plants to be professionally maintained this will ensure the plants always thrive and do their job correctly.

Hea16 Drinking Water: The requirement for chilled water should be explicit. It was suggested Legionella can be prevented by ‘purging’ the system. Mains water temperature is typically 10-12 degrees which was considered acceptable.

Energy

Ene1 Reduction of CO₂ emissions: The requirement for extensions to existing buildings to have a combined EPC certificate if heating plant is shared even if the existing building is not covered by the BREEAM assessment is counterproductive and is likely to encourage the retention of existing inefficient heating plant. Although reducing energy consumption in the existing building is preferable, using an extension project to provide reduced CO₂ emissions to an existing building in a cost effective way should not be penalised.

It was suggested the credits Ene 1 & Ene 5 (Low or zero carbon technologies) should be opened up to allow, or even encourage, more radical thinking and more appropriate solutions. On-site renewable are often relatively inefficient and costly compared to the larger scale local or regional installations. As an example, a Building Schools for the Future programme in a coastal region involving 10 schools over a 6 year period. Rather than installing a biomass boiler on each site, and adding some token wind turbines (inefficient due to being in a built-up area and more for show than any real benefit), it would make much more sense environmentally for the contractor to invest in an off-shore wind development sufficient to ultimately serve all 10 schools, as an when they are completed. At present, there is nothing to encourage this kind of radical approach.

Ene8 Lifts: The definition of a lift for disabled purposes that can be excluded only as one without a shaft is unfair as many lifts specifically designed for disabled use have shafts.

Ene10 Free Cooling: The requirements for this credit are vague, the criteria should specify if the whole building needs to comply or an alternative area such as 80% and if a combination of strategies can be used.

Transport

Tra 2 Proximity to amenities: This credit was considered to be too restrictive and developers have too little influence on the availability of these on a building basis. It was recommended BREEAM increase the number of amenities that qualify (e.g. hotel, leisure facilities) or possibly have 1 credit for getting 4 out of 8 amenities or 2 credits for 5 or more etc.
**Tra 3 Cyclist facilities:** It has been suggested the Bespoke tool is not sufficient. In some areas more flexibility should be allowed. For example a retirement housing scheme requires a higher level of lighting and a much lower level of bike storage than general needs housing. It should be possible to adjust the criteria in relation to the project.

**Water**

**Wat 3 Major Leak Detection:** Please clarify this point. Some more technical info here could be beneficial. Chillers are not large water consuming equipment - do you mean cooling towers instead?

**Materials**

**Mat 1 Materials Specification:** It was generally felt by members that the Green Guide required further work and a review. Particularly in the case of the high number of ‘A’ ratings, lack of transparency, lack of innovative materials and reasoning behind ratings. For example, highlighting the wider impacts of uPVC windows and explaining the varied ratings between curtain walling and windows.

Interior environment materials should be included within the Green Guide along with more transparency and user friendly labelling scheme on the environmental impacts of products.

**Mat 3 & 4 Reuse of façade and structure:** It was felt the reuse of façade and structure credits (Mat 3 and Mat 4) should be optional depending on the presence or absence of an existing structure or façade.

**Mat 5 Responsible Sourcing of Materials:** It was suggested the tier level table should split out all BES 6001 ratings for responsible sourcing; currently ‘Excellent’ and ‘Very Good’ are in the same tier.

**Waste**

**Waste 3 Recyclable waste storage:** A clearer explanation would be useful to determine minimum recycling areas, especially when there is a canteen as part of the project.

**Pollution**

**Pol 1 Refrigerant GWP Building Services:** Requirements of this credit are very stringent.

**Pol 2 Preventing Refrigerant Leaks:** Heat rejection equipment is almost always located outdoors which makes this credit very difficult and extremely onerous to achieve (requiring more plant space and more complicated equipment which lessens the coefficient of performance of the equipment hence increases energy use).

**Biodiversity**

It was suggested by an ecologist that the Land Use & Ecology section encourages inappropriate design, based on species numbers rather than appropriate habitat. For example, rewarding hay meadow seed on amenity grassland and penalises innovative design that delivers habitat of high biodiversity value e.g. open water. There should be greater emphasis on delivering habitat mosaics and BAP targets. Ecologists have suggested the current weighting does not reflect the importance of biodiversity (For example, 1 exterior bat box equals same as in built roosting). Developments in the field have shown that delivering for biodiversity does not have to compromise on energy efficiency (See: Biodiversity for low and zero carbon buildings, RIBA).

**Innovation**

**BREEAM Accredited Professionals (AP) and Assessors**
The BREEAM AP role compared with the assessor role should be more clearly defined. In a number of cases AP’s are awarding the innovation credits on their assessments despite not being involved prior to Stage D. They often do not provide any additional design team support beyond that which they were providing previously as an assessor. This is undermining the AP role and the value of innovation credits.

It was requested that the benefits of being a BREEAM AP needs to be more widely advertised and understood in the industry. More AP’s need to be embedded in each design team to advise and consult during the whole design process and raise awareness of the fact that sustainable measures are more cost effective and less intrusive if they are considered and incorporated from the feasibility stage onwards. It was, in some cases, suggested it should be mandatory to have a BREEAM specialist involved from the start of the project. Conversely, it was suggested there is a vested interest for BRE Global to promote the BREEAM AP role. It wasn’t clear why an AP would be any better qualified to advise the design process than other design/sustainability professional.

Gaining credits for appointing ‘expert consultant’s’ was questioned by developers and it was suggested, undermines the work done to gain a similar number of credits elsewhere. For example, the credit for appointing a flood risk assessor to report on a development that is well outside any flood risk zones or appointing an ecologist to report on the ecological value of a inner city Brownfield site where a building with a 100% footprint is being replaced like for like with a new build development with clearly no net change to the ecological value.

It was suggested that assessors for listed buildings be IHBC accredited and BRE Global should possibly also include AABC accreditation.

**Fire safety in buildings**

**Some potential areas for review have been suggested below:**

- Do the fire protection materials being used achieve A or A+ ratings according to the BRE Green Guide Specification?
- Does the life expectancy of the fire protection material being used correlate with the minimum life expectancy of the building?
- Are fire protection materials recyclable? e.g. mineral wool is 97% recyclable
- Have the manufacturers of fire protection materials been accredited with the ISO 14001 Standard for environmental management?
- Do wastage products from the fire protection materials being used have any residual use to divert waste from going to landfill?
- Do the construction materials release harmful toxins when exposed to fire?
- Implementing good fire safety management within the building & organisation can reduce the likelihood of a fire occurring. This will safeguard the environment from the effects of a fire and lead to sustainability with no fire damage or wastage.
- Has consideration been given to installing sprinklers? In relation to water efficiency - automatic sprinkler systems use less water than the fire service using water hoses. Conversely as stated previously, implementing good fire safety and security measures within the premises can reduce the likelihood of a fire occurring and negate the need for sprinklers.
- Consider water run-off from water being used to extinguish fire.
- Are fire protection materials being sourced from ‘local’ suppliers?
- Reduce the amount of fire retardant materials and/or fire resistant used (that may contain toxic materials) by adopting fire risk assessment methodology.
- Using time equivalent fire risk assessment to lower the required fire protection to structural elements: by considering a parametric fire curve vs. the standard BS/furnace test curve, the extent of structural fire protection (‘on site’ or ‘off site’ application) would be reduced.
- Where smoke control systems are necessary, natural ventilation should be utilized where possible as opposed to mechanical ventilation.
- Environmental ventilation systems should be hybrid systems for day-to-day ventilation function and smoke extraction for fire safety.
Appendix 2 - Contributors to report

This report was written with support of the following UK Green Building Council members. Not all views presented in this report are held by these organisations. We would like to thank those who contributed through the workshop and follow up comments.

Aggregate Industries
Apollo Group
Armstrong World Industries Ltd
ARUP
Association for the Conservation of Energy
Atelier Ten
Atkins
Balfour Beatty
Bats and the Built Environment
BBC
Bennetts Associates
BFLS
BIID
BRE Global
British Land
British Precast Concrete Federation
Building Design Partnership
Buro Happold
Canary Wharf Group
CIOB
Concrete Centre
Corus
Cundall
Davis Langdon
Disability Essex
Energist UK Ltd
EPR Architects Ltd
Halcrow Group
Hammerson
Hanson
Hawkins Brown
Hoare Lea
ICI Paints
Inbuilt Ltd
Indoor Garden Design
Jones Lang LaSalle
Kingspan
Lafarge UK
Laing O'Rourke
Lend Lease
Max Fordham LLP
NHBC
Nicholas Hare Architects LLP
Norman Disney & Young
ProLogis Developments Ltd
Purcell Miller Tritton LLP
Ramboll
Sainsbury's
Saint-Gobain
Satellite Architects
Sefaira UK Ltd
SEGRO
Sidell Gibson
Sir Robert McAlpine
Skanska
Southfacing Services Ltd
Stanhope
Tishman Speyer Properties (UK) Ltd
United House Ltd
University of Reading
Vertigo SDC Limited
Watkins Payne Partnership
Willmott Dixon
WSP