Information Guide

The BREEAM update

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MITSUBISHI ELECTRIC
LIVING ENVIRONMENTAL SYSTEMS

Guide to the BREEAM update

This is an independent guide produced by Mitsubishi Electric to enhance the knowledge of its customers and provide a view of the key issues facing our industry today. The guide accompanies a series of seminars, all of which are CPD accredited.

Developed in the 1990s, BREEAM is one of the best known schemes for the assessment and certification of sustainable buildings. The scheme has now been broadened so that as well as covering offices, it is also applicable to courts, prisons, schools, shops and hospitals.

BREEAM uses a clear, transparent ‘scoring’ system that allows client understanding, as well as building professionals. It can have a positive influence on buildings at all stages of development; from the design, right through to operations…

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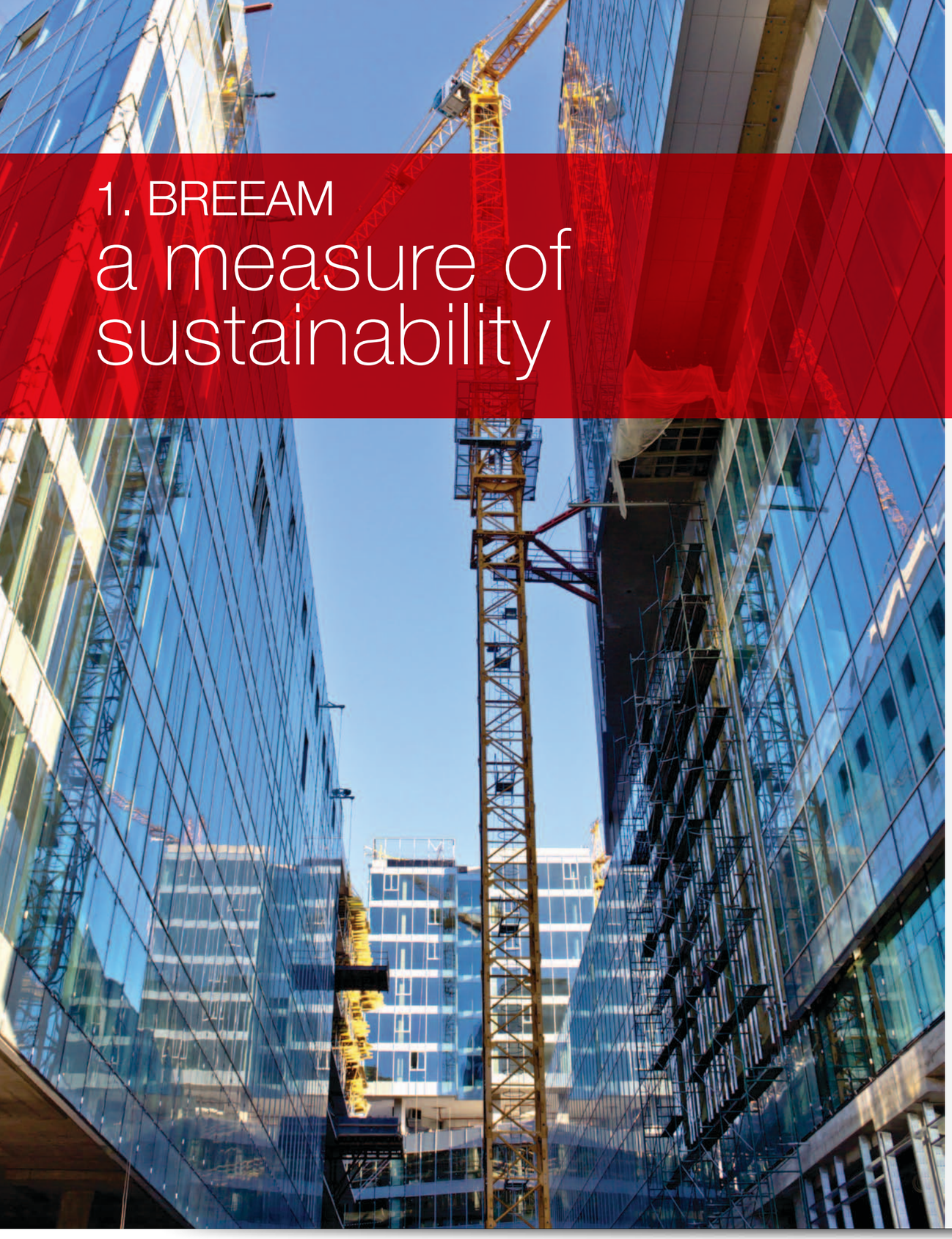


1. BREEAM a measure of sustainability

The BRE Environmental Assessment Method is one of the best known schemes for the assessment and certification of sustainable buildings. Its labels, from PASS to OUTSTANDING (a level added in 2008), are recognised by engineers, architects and clients alike, which makes BREEAM a very useful tool for consultants or end users looking to find a way to define and measure the sustainability of their projects.

BREEAM was developed in the early 1990s by BRE and a number of consulting engineers. The first version of BREEAM was designed for offices, but the scheme now covers a range of buildings including courts, prisons, schools, shops and hospitals.

As well as the building assessment system, there is also a group of BREEAM Tools which provide information on the environmental impact of construction materials over the whole lifecycle of the product. There is also a Green Guide which includes data on the environmental impacts of hundreds of elemental specifications for roofs, walls and floors.

Although many clients are adopting BREEAM standards voluntarily, a number of key organisations require BREEAM assessments for all their buildings. For example, all new developments on English Partnerships land must achieve VERY GOOD or EXCELLENT ratings. The Office of Government Commerce requires EXCELLENT ratings. It is also a condition of capital funding from Government that new build and refurbishment projects for schools achieve VERY GOOD or EXCELLENT ratings. Many local authorities now include BREEAM standards as part of their planning process.

BREEAM's success is partly due to its transparent and straightforward 'scoring' system, that is easy for clients to understand as well as building professionals. Backed by evidence-based research, BREEAM can have a positive influence on the design, construction and operation of buildings. For those involved in the technical issues of building design, BREEAM sets robust standards along with quality assurance and certification.

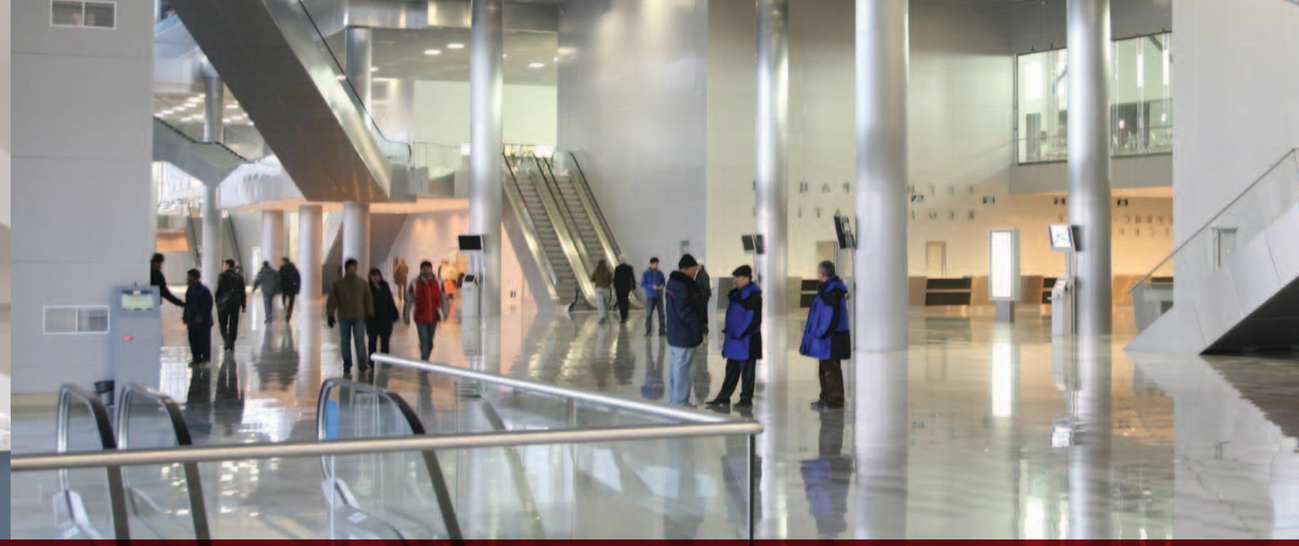
The benefits of a BREEAM rated building include lower embodied and operational impacts as well as better user satisfaction in the long-term. *(Note: Build Quality outside of scope of BREEAM assessment)*

There is also a BREEAM system for application in existing buildings, where policies and procedures for the operation of the building are considered, as well as building fabric and layout.

BREEAM In-Use was developed to address the problem of poorly-performing existing building stock.

The fact that BREEAM is a widely recognised standard makes it invaluable for developers looking for a marketing edge. Although a BREEAM assessment is an added cost at the design stage, the certification is regarded by many as offering a good return on investment at a time when clients are becoming more aware of the need to demonstrate sustainable credentials. BREEAM has also been shown to improve the predictability of costs and delivery, as well as returns on rental income.

As our understanding of sustainable buildings develops and grows, and as new low-carbon technologies are developed, BREEAM also has to evolve. A new version of BREEAM is set for launch in the summer of 2011, which will be known as the BREEAM New Construction scheme. Our next features examine how BREEAM is delivered, and highlight some of the key changes for 2011.



2. BREEAM assessment in action

BREEAM is delivered by licensed assessors, who have been trained and accredited by BRE. Ideally, an assessor should be involved in the project as early as possible, even as early as the conceptual design stage. The 2011 BREEAM New Construction scheme is delivered using the same principle that sustainability should be planned for from the earliest stages.

In the BREEAM 2008 scheme, assessors were given guidance manuals covering the different building types. In BREEAM 2011 will have a single document covering all new construction assessment issues. However, the scheme will still take into account the different building functions, end-users and stakeholders. The aim of this development is to help deliver BREEAM consistently, while also allowing for the growing number of mixed use developments where, for example, there may be offices, retail outlets and multi-residential buildings.

It is also possible to gain extra points for innovation in the application of sustainable building techniques and technologies, up to a maximum of 10%.

BREEAM 2011 will include a rating scheme for each of the following areas, each of which carries a different weighting for the purposes of 'scoring' a building:

Management	12%
Health and wellbeing	15%
Energy	19%
Transport	8%
Water	6%
Materials	12.5%
Waste	7.5%
Land use and ecology	10%
Pollution	10%

(***Note:*** *These values change dependent on type of building and are not fixed values)*

Credits or points are awarded for each of these criteria according to performance. Minimum standards have to be met in order for any rating to be given. A set of environmental weightings then enables the credits to be added together to produce a single overall score.

The building is then rated and certified overall as:

UNCLASSIFIED	30
PASS	30
GOOD	45
V GOOD	55
EXCELLENT	70
OUTSTANDING	85

For buildings that achieve Excellent or Outstanding ratings, BREEAM 2011 now requires them to be reassessed under the BREEAM In-Use scheme within three years of their first certification. They must pass this in order to retain their Excellent or Outstanding certifications.

3. Existing buildings
raising our stock

Obviously, energy use and carbon emissions are key considerations for sustainable buildings. The CO_2 emitted from the operation of buildings in the UK accounts for over 50% of the total UK CO_2 emissions. If CO_2 from the manufacturing, transportation of construction materials and transport of people, are included this figure increases to 75% of the total UK CO_2 emissions.

BREEAM also takes into consideration the wider environmental impacts of a building. An assessor will look at factors such as location of the development – is it close to public transport or will occupants be obliged to travel by car? What are the facilities for cyclists? And will occupants be helped with travel plans to reduce their car use?

There are also land-use issues, relating to preservation of undeveloped land. Credit is given to projects which use brownfield sites, or which can re-use a contaminated site. Ecological enhancements for wildlife for example, are also recognised as important. (Note: Think this is outside scope of BREEAM assessor). Water use in buildings is of growing concern, particularly in the heavily populated South East of England. BREEAM award credits to projects which demonstrate water saving such as use of low flush toilets, leak detection systems and water metering.

Use of materials with low embodied energy, or recycled materials is also encouraged. There are also credits where part of an existing building can be re-used, for example on refurbishment projects.

Occupants have the biggest impact on how much energy a building uses over its lifetime.

BREEAM rewards good building management and encourages best practice commissioning along with effective operating manuals which are used by building managers rather than tucked away in a filing cabinet. Assessors will offer advice on developing long term targets for energy management in the building, and encourage top level management to see them implemented.

The Green Guide is an important element of the BREEAM assessment scheme, and is a vital tool for anyone involved in a project that is targeting a BREEAM rating. The Green Guide is a document which gives the relative performance of various building elements, using a common methodology. There is also a website where BREEAM assessed and certified buildings are listed (www.greenbooklive.com).

BRE works with the Construction Products Association (CPA) which coordinates manufacturers' inputs to the Green Guide. The products it examines are used in a number of building elements such as walls, floors and roofs. The impact of each product over a lifetime of 60 is assessed.

The Guide is based on ISO life cycle assessment methods, which examine the environmental impact of products from extraction to end of life. There are thirteen criteria for each product including global warming, water consumption and resource extraction. These are used to give each product EcoPoints.

BRE points out that using the Green Guide to specify a product based on a single characteristic (for example, recycled content) is a mistake. The embodied impacts of products analysed in the Green Guide are only part of the overall sustainability of a building as measured by BREEAM.

Of course, the existing building stock is the largest part of the UK's built environment, and presents both challenges and opportunities for improvement in energy performance and carbon emissions. Figures show that by 2050, 60% of the UK building stock will have been built before 2010.

Since the new BREEAM 2011 is focused only on new construction, BRE will also launch a BREEAM scheme designed specifically for the assessment of refurbishment and fit-out projects. A BREEAM domestic refurbishment scheme is already being piloted. Until the new refurbishment/ fit-out BREEAM scheme for non-dwellings is launched, clients and building professionals can continue to assess their refurbishment and fit-out projects under BREEAM 2008.

BRE also advises that for larger refurbishment projects it is possible to use the BREEAM 2011 method, although the practicalities of this will depend on the size of the project.

There is also the BREEAM In-Use system that aims to help owners and managers of existing and occupied buildings to gain insight into the environmental performance of buildings over their whole operational life. Three main areas of analysis are the building itself; the operation of the building; and how clients manage their activities within the building. BREEAM In-use is an online system that asks around 200 questions to assess these three areas. The online survey is followed up by a site visit by an approved assessor.

For building owners, BREEAM In-Use can give them the information they need to decide on actions for refurbishment. Building managers can use the system for regular reviews to make gradual improvements in property performance, and for occupiers the system shows them where savings can be made in terms of reducing energy waste, for example.

Users of BREEAM In-Use are able to use the online system to compare and benchmark their environmental performance against others in the database.

BRE research shows that by continually assessing the environmental performance of buildings their commercial value can be enhanced in the long term. Figures show that buildings assessed in this way can see operating costs 8% to 9% lower than the market average. and building values up to 7.5% higher, with occupancy levels 3.5% above average*.

(Figures from the Sustainable Buildings Alliance, 2010)*

FURTHER READING

You can find more information on the topic of BREEAM and related issues at the following websites:

www.breeam.org

The official website of the BREEAM suite of tools, with advice on training and the latest updates on all of the systems.

www.greenbooklive.com

Official website of the Green Book, giving details on environmental impacts of construction products, as well as assessed and certified BREEAM buildings.

www.ukgbc.org

Website of the UK Green Building Council which covers various aspects of sustainable building in the UK, and which runs a number of campaigns to raise awareness of the issues with government and the construction sector.

Further information

If you missed the CPD seminar on **The BREEAM Update** you can call your Mitsubishi Electric Regional sales office to arrange an in-house presentation of this information.

If you would like to receive invitations to future CPD events, please email **lesmarcomms@meuk.mee.com**

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