



**S-AM1 OVERVIEW OF SUSTAINABILITY ASSESSMENT METHODS**

**TARGET AUDIENCE & DESCRIPTION:**  
This information sheet highlights the key principles of commonly used sustainability assessment methods within the UK, and also to signpost to those world-wide. It is intended for practitioners with little or no experience of sustainability assessment methods who want to develop their knowledge in this area.

**1. INTRODUCTION**

Sustainability assessment is a means of measuring how effectively the built environment is meeting the requirements of sustainable development. Sustainable development is broadly defined as “meeting the needs of the current generation without compromising the ability of future generations to meet their needs.” This definition is based on the World Commission on the Environment and Development (WCED), commonly referred to as the Brundtland Report. Generally, sustainability is acknowledged as having three dimensions – environmental, social and economic.

There are two principal purposes of assessing sustainability in the built environment:

- to identify the ability of buildings to meet pre-defined requirements and
- to highlight opportunities to change building designs and outputs.

There are a plethora of sustainability assessment methods currently available. These techniques meet different needs and scopes in the assessment of sustainability. Research undertaken by the SUE-MoT (Metrics, Models and Toolkits for Sustainable Urban Regeneration) Project reported that there are over 675 different tools available to measure sustainability in urban environments. This poses a challenge as to how the most appropriate tool should be selected.

The purpose of this overview information sheet is to briefly describe the sustainability assessment methods most commonly used in a UK for the built environment. It is not intended to explore the full workings of each method, but to provide signposting for readers to obtain further information.



**2. BREEAM**

BREEAM is BRE’s (formerly the Building Research Establishment) Environmental Assessment method. It was first developed in 1990 for new-build offices and over the last two decades has developed to measure the environmental performance across a suite of different building types. The main distinction between the schemes is that of domestic and non-domestic buildings. The latter includes tools tailored for courts, industrial buildings, multi-residential, prisons, offices, retail units and schools .

In addition, there are international versions and a bespoke approach which can be applied to any building type. In Scotland, at the time of writing, domestic properties are covered by the Ecohomes 2006 scheme. Ecohomes is accompanied by Ecohomes XB (Existing Buildings) which can be used to assess the entire building stock for a landlord such as a housing association, for example. In 2009, a BREEAM In-use standard was released to assess the environmental management of existing occupied buildings.

BREEAM is generally carried out at design stage, and a post-construction review can be carried out to confirm the design stage rating. There are general similarities between all of the tools in the suite, for instance in the eight categories which are assessed:

- Energy
- Transport
- Pollution
- Materials
- Water
- Land Use & Ecology
- Health & Wellbeing
- Management



The difference between the schemes relate to how each of the issues are measured and the relative weights which are applied.

Once each of the categories has been assessed the final score is translated to a rating for the building and this is confirmed by certification. The thresholds for each rating depend on the particular scheme, but a common series of ratings is used:

- Pass
- Good
- Very Good
- Excellent
- Outstanding

In addition to the domestic and non-domestic BREEAM schemes, BREEAM International (with additional certain country-specific schemes) can be used for buildings outside the UK.

### 3. THE CODE FOR SUSTAINABLE HOMES

The Code for Sustainable Homes (CSH or 'the Code') - a 'domestic BREEAM' - is produced by the UK Government Department for Communities and Local Government (CLG). It is not designed specifically for a Scottish context, although it is substantially based on Ecohomes 2006.

From May 2008 (CLG, 2008a) it became mandatory for all new-build dwellings in England and Wales to be given a rating against the Code, although Ecohomes 2006 remains the standard for the rest of the UK. The assessment process is broadly similar to Ecohomes and the base-line is maintained as the regulatory minimum.

In policy terms the Code is seen as a key driver to facilitate the building of 'Low and Zero Carbon Homes' in the UK. It is intended that all new-build homes in England and Wales have net zero carbon emissions by 2016 (CLG, 2007), and the Code is crucial to the delivery of this objective.

The most obvious differences between the Code and Ecohomes are the rating output (referred to as Code Level 0 to Code Level 6, with 6 being the highest); and the inclusion of mandatory minimum standards which must be achieved in certain categories before particular levels can be achieved. Post construction review is mandatory to confirm the design stage assessment.



### 4. CEEQUAL

CEEQUAL is the Civil Engineering Environmental Quality Assessment and Award Scheme, the development of which was originally led by the Institution of Civil Engineers between 1999 and 2004 (CEEQUAL Ltd, 2007a). It is designed to assess the environmental performance of civil engineering projects, using the regulatory minimum as the base-line.

Unlike BREEAM, there is no family of assessments under CEEQUAL. Rather, one generic approach is adopted, which is tailored to the needs of the project. This is achieved by use of 'scoping-out' questions, which are then excluded from the assessment if they are considered to be irrelevant to the project being assessed. Strict guidance is given on circumstances for scoping out questions.

CEEQUAL offers different awards depending on which stages of the project are assessed. CEEQUAL can be used to assess projects at any stage. The guidance can be tailored by the assessor to suit awards at the following stages of a project:

- whole project award
- client and design
- design only
- construction only
- design and construction.

Within CEEQUAL assessments, 12 categories are measured:

- i) Project environmental management;
- ii) Land use
- iii) Landscape
- iv) Ecology and biodiversity;
- v) Archaeological and cultural heritage;
- vi) Water issues;
- vii) Energy;
- viii) Use of materials;
- ix) Waste;
- x) Transport;
- xi) Nuisance to neighbours
- xii) Community relations



In total there are 180 questions assessed across the twelve categories. The answers to these questions determine the points to be awarded and the total points available for each question are based on the relative importance of the indicator.

There are a total of 1000 points available before any questions are scoped out. The total points awarded are calculated as the proportion of points available (This is the reduced figure equal to 1000 minus the points allocated to the questions which have been scoped out).

Similar to BREEM, there are four grades of award:

- Pass
- Good
- Very Good
- Excellent



## 5. SOME WELL-KNOWN ASSESSMENT METHODS WORLDWIDE

Links to these sources are provided in the signposting section at the end of the document.

- LEED™ (Leadership in Energy and Environmental Design) is produced by the United States Green Building Council.
- CASBEE (Comprehensive Assessment System for Building Environmental Efficiency) is a Japanese sustainability assessment method for buildings. It is a suite of tools that covers the life-cycle stages of the building.
- GBTool (Green Building Tool) is internationally applicable and was developed to assess buildings for the Green Building Challenge (GBC). The GBC is an international competition held every two years. It is a very adaptable assessment method; however this adaptability requires extensive technical knowledge and ability to implement it.
- Green Globes. A North American assessment method developed by the Green Building Initiative (Yudelson, 2008). This assessment is growing in use in recent years across North America.
- Green Star: An Australian national, voluntary environmental rating system that evaluates the environmental design and construction of building. It is run by the Green Building Council of Australia (GBCA)





**GENERAL**

TITLE/DESCRIPTION	LINKS
BREEAM	<a href="http://www.breeam.org">http:// www.breeam.org</a>
The Code for Sustainable Homes	<a href="http://www.communities.gov.uk/thecode">http:// www.communities.gov.uk/thecode</a>
CASBEE	<a href="http://www.ibec.or.jp/CASBEE/english/overviewE.htm">http://www.ibec.or.jp/CASBEE/english/overviewE.htm</a>
CEEQUAL Ltd (2007a) CEEQUAL - Background.	<a href="http://www.ceequal.com/background.asp">http://www.ceequal.com/background.asp</a>
CEEQUAL Ltd (2007b) CEEQUAL Manual - Version 3.1. London: CIRIA.	<a href="http://www.eauc.org.uk/file_uploads/ceequal_manual_web_download.pdf">http://www.eauc.org.uk/file_uploads/ceequal_manual_web_download.pdf</a>
CEEQUAL Ltd (2008a) Training Notes (Feb 2008). London: CIRIA.	
CLG (2007) Building a Greener Future: Policy Statement.	<a href="http://www.communities.gov.uk/documents/planningandbuilding/pdf/building-greener.pdf">http://www.communities.gov.uk/documents/planningandbuilding/pdf/building-greener.pdf</a>
CLG (2008) The Code for Sustainable Homes: Setting the standard in sustainability for new homes.	<a href="http://www.communities.gov.uk/documents/planningandbuilding/pdf/codesustainhomesstandard.pdf">http://www.communities.gov.uk/documents/planningandbuilding/pdf/codesustainhomesstandard.pdf</a>
Green Building Council of Australia	<a href="http://www.gbca.org.au">http://www.gbca.org.au</a>
SUE-MoT	<a href="http://www.sue-mot.org">http:// www.sue-mot.org</a>
UK Green Building Council	<a href="http://www.ukgbc.org">http:// www.ukgbc.org</a>
US Green Building Council	<a href="http://www.usgbc.org">http:// www.usgbc.org</a>
WCED (1987) Our Common Future. Oxford: Oxford University Press, UK	<a href="http://www.un-documents.net/wced-ocf.htm">http://www.un-documents.net/wced-ocf.htm</a>