

BREEAM Assessment and Credit 'Management 9' [02.09.10]

Introduction – what is BREEAM?

BREEAM is one of the worlds leading environmental assessment methods for buildings and communities. It is run by an organisation called the BRE – the Building Research Establishment group.

The BRE was created in the 1920's by the then Department of Scientific and Industrial Research (DSIR) to investigate various building materials and methods of construction suitable for use in housing following the First World War.

The BRE was completely privatised in 1997, but in order to retain the authority and independence from any commercial pressures, the Foundation for the Built Environment (FBE) was formed to 'own' the BRE. In 2005 this was renamed the BRE Trust. For further information on the BRE Trust please refer to their website www.bre.co.uk

BREEAM Certification allows a building to be assessed and scored against a set of predefined criteria. Depending on the score achieved, the building will be rated as either 'Pass', 'Good', 'Very Good', 'Excellent' and 'Outstanding'.

The predefined criteria are sorted into a number of different categories: Energy, Management, Transport and Environment to name a few.

This paper relates to management credit 'Man 9', which requires that the University publishes either on a website or through an external publication, information relating to a list of predefined criteria. This list of information can be found below.

A basic description of the project and building

The East Park Design Centre project remit is to build an innovative environment to serve as a well appointed centre of design facilities, promoting the strength and breadth of design activity at Loughborough University.

The building will be a very significant addition to the campus and will be the focus of design activities. It will produce a focal point for the University to present itself more effectively to the wider world, celebrating excellence in design across a wide range of subject disciplines.

BREEAM Rating and Score

The target BREEAM rating for the East Park Design Centre is 'Very Good' which means that the assessment must score a minimum of 55%. The East Park Design Centre is currently forecast to score 58%.

The key innovative and low-impact design features of the building

The following features have developed from the University's original brief which called for a building with a low carbon footprint. These features formed part of the detailed planning application and therefore must be achieved.

- The building's orientation and envelope design maximises the use of natural light whilst minimising excessive glare and heat gain.
- The building uses an exposed concrete frame to provide thermal mass which is to be used to regulate internal temperatures.
- The building is designed to allow high levels of natural ventilation, minimising the need for mechanical services such as cooling.
- The building incorporates high level automatic opening windows which will be used for night-time cooling.

- External solar fins (or shades) are incorporated on south and west orientated elevations to protect against excessive glare and heat gain.
- The curtain walling specification incorporates opaque insulated glazed units which minimise excessive heat loss in winter
- Internal ventilation chimneys enable the deep plan workshops to be naturally ventilated, reducing the requirement for mechanical ventilation
- An air supply plenum beneath the floor level and internal ventilation chimneys enable natural ventilation of the auditorium and lecture theatre, which is located within the centre of the building
- Rainwater is harvested and used to flush WCs
- The main circulation space rises through the building to provide a central ventilation stack adjacent to the studios and workshops

Basic building cost - £/m2

- The basic building cost is the cost of building the structure and fabric of the building, including mechanical and electrical services. This cost is £1255m2.

Services Costs - £/m2

- The costs associated with Mechanical and Electrical works is £445m2

External Works - £/m2

- The costs associated with the external works (hard and soft landscaping) is £148.50m2

Gross Floor Area – m2

- The total floor area of the building is 7,760.50 sqm

Total area of the site – hectares

- This area includes the car parking and external works area included in the detailed planning application. The area is 0.87 hectares

Function Areas and their size

Please note that the areas listed below relate to the key function areas within the building and are taken from the Architects RIBA Stage E report.

- | | |
|-------------------------------|------------|
| - Teaching Space | 446.8 m2 |
| - Offices | 1,178.4 m2 |
| - Workshops, Labs and Studios | 3,046.3 m2 |
| - Café and Gallery | 238.3 m2 |

Area of circulation (m2)

Please note that the area shown below is taken from the Architects RIBA Stage E report.

- Area is 990.2m2 [includes reception]

Area of storage (m2)

Please note that the area shown below is taken from the Architect's RIBA Stage E report.

- Area is 22.1m² [includes bin and cleaner's stores only]

% area of grounds to be used by community (where relevant)

Not applicable

% area of buildings to be used by community (where relevant)

Not applicable, although parts of the ground floor will open to the public.

Predicted electricity consumption – kWh/m²

Predicted energy Consumption is: 72 kWh/m²/year

Predicted fossil fuel consumption – kWh/m²

Predicted fossil fuel consumption is: 52 kWh/m²/year

Predicted renewable energy generation – kWh/m²

To be confirmed (EPDC to be served by the district heating from the new energy centre for which figures are not yet available)

Predicted water use m³/person/year

Predicted water usage is 4.2 m³/person/year

% predicted water use to be provided by rainwater or grey water

- The predicted percentage is approximately 25%

The steps taken during the construction process to reduce environmental impacts, i.e. innovative construction management techniques

These steps have been advised by Shepherd Construction Limited who are the main contractor for the East Park Design Centre

- The project is required to be registered with the Considerate Constructors Scheme (this is a national scheme which aims to improve the public image of construction)
- Existing car park construction materials crushed and reused fully
- Site setup water consumption metered and monitored
- Site electricity consumption metered and monitored
- Subscription to Smartwaste recycling programme, aiming for a minimum 86% waste recycling
- The subcontractor has agreed to use recycled gypsum products
- Adopting specialist waste reducing details i.e. door openings considered in construction method
- All timber from is from a certified sustainable source

A list of any social or economically sustainable measures achieved/piloted

- PHD students from the University are using the project as a knowledge source for their research, specifically the Change Management Process (this is the process by which changes to the initial employer's brief and requirements are raised, costed, evaluated and instructed).