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Meeting Construction 2025 Targets

The positive impact of BRE Group products and services

Construction 2025 is the joint strategy from government and industry for the future of the UK construction industry

This document summarises the positive impacts in respect of these targets, of a selection of products and services developed by the BRE Group. Brief descriptions of the products – BREEAM, CALIBRE, CLIP and BRE SMARTWaste – and of BRE are also included.

Construction 2025 sets out challenging construction targets for 2025 that include:

50% reduction in trade gap

33% lower costs

50% lower emissions

50% faster delivery

Reduction in trade gap

BREEAM – The UK Low Carbon Environmental Goods and Services market is the sixth largest in the world. It is now worth £112 billion, employing over 900,000 people (Source UKTI).

The value of BREEAM-assessed projects runs into many tens of £ billions, and their value to the UK economy through the international procurement of services and products has been calculated by BRE to be more than a £billion a year. The annual turnover of WS Atkins on BREEAM/sustainability projects, for example, is estimated at £200 million, with more than £75 million for Arup and £30 million for WSP.

The UK's Professional Services sector will continue to be the primary beneficiary of export growth because of its world-class expertise. BREEAM has played an important role in the development of that expertise, which will be further enhanced by BRE's international Innovation Parks and the accelerating take up of BREEAM around the world.

Lower costs

BREEAM

average projected savings of 22.56%

Buildings assessed under BREEAM 2011 New Construction enjoy average projected savings of 22.56% on their energy bills.[1]

CLIP

saved 150 companies a total of £56 million

Since 2003 BRE's Construction Lean Improvement Programme (CLIP) has saved 150 companies a total of £56 million.

CALIBRE

10% cost saving equates to £1,144[2] per house

A 10% cost saving can be achieved by using CALIBRE to identify non-value added activities on housing projects. This equates to savings of around £1,144[2] per house. Savings for housing projects using CALIBRE in 2013 are estimated to be up to £140 million[3]. For 2014 this could equate to £166 million[4] and for future years, could be as much as £252 million[5] per year.

BRE SMARTWaste

saved companies around 20% of waste going to landfill[6]

Companies using BRE SMARTWaste have saved around 20% of waste going to landfill, equivalent to £1.2 million[6] . If all the houses built in the UK during 2014 had used BRE SMARTWaste then over £2.3 million could have been saved from reducing waste, with the 'true cost of waste' (i.e. labour, materials and waste) up to £23 million[7].

BRE SMARTWaste can also reduce reporting time. Companies have indicated that they can save approximately 24 days a year – equivalent to £1,800. If 500 companies used systems such as BRE SMARTWaste, the savings could add up to £900,000 a year.

1 Percentage annual saving calculated on a baseline Part L 2010 compliant office building, gas price of £0.0352/kWh and electricity price of £0.1305/kWh using a representative sample of real BREEAM 2011 data.

2 This is assuming an average house floor area of 91m^2 and an average wage of £10.44 per hour as an average across trades.

3 Based on 122,590 new build houses in 2013.

4 Based on 145,174 houses in 2014 (registered with NHBC).

5 Based on 220,000 new houses per year: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/407556/Household_Projections_-_2012-2037.pdf

6 Using an average of £40/tonne with 240,000 tonnes diverted from landfill.

7 Based on BRE SMARTWaste benchmark data from 2010-2014, and the new UK builds at 140,960 for 2014 (CLG), using 80m^2 floor area and a cost of waste of £25/m^3.

Sustainable buildings enable cost savings

Research by Sweett Group and BRE has challenged the perception that sustainable buildings are necessarily more costly to build. Detailed capital and operational cost information was obtained by applying cost data from real construction projects to three case study buildings – an office, a secondary school and a community healthcare centre.

The study investigated the:
- capital costs of design and construction strategies that enhance building sustainability and help to achieve BREEAM ratings,
- effect on capital costs of achieving varying levels of sustainability represented by BREEAM Pass, Good, Very Good and Excellent ratings,
- life cycle costs of operating the buildings, focusing on energy and water consumption.

The researchers found that specifying sustainability measures at the design and procurement stage can bring cost savings over a building's operational life for little or no additional upfront cost. They also found that achieving lower BREEAM ratings can incur little or no additional cost. Targeting the higher BREEAM ratings, which equate with more challenging sustainability levels, incurs some additional cost but this is typically less than 2%. The study of operational costs showed that this can be paid back within 2-5 years through utility cost savings.

Lower emissions

BRE SMARTWaste – Using BRE SMARTWaste to help divert waste from landfill has saved an estimated 167,640 tonnes of CO_2e per year[8]. Reducing energy consumption (by 5%) onsite by using BRE SMARTWaste to measure and monitor its use, can save 90,000 tonnes of CO_2e[9].

BREEAM – A wide range of buildings with BREEAM ratings have been shown to have significantly reduced CO_2 emissions when compared to the Building Regulations minimum requirements, as shown in Figure 1.

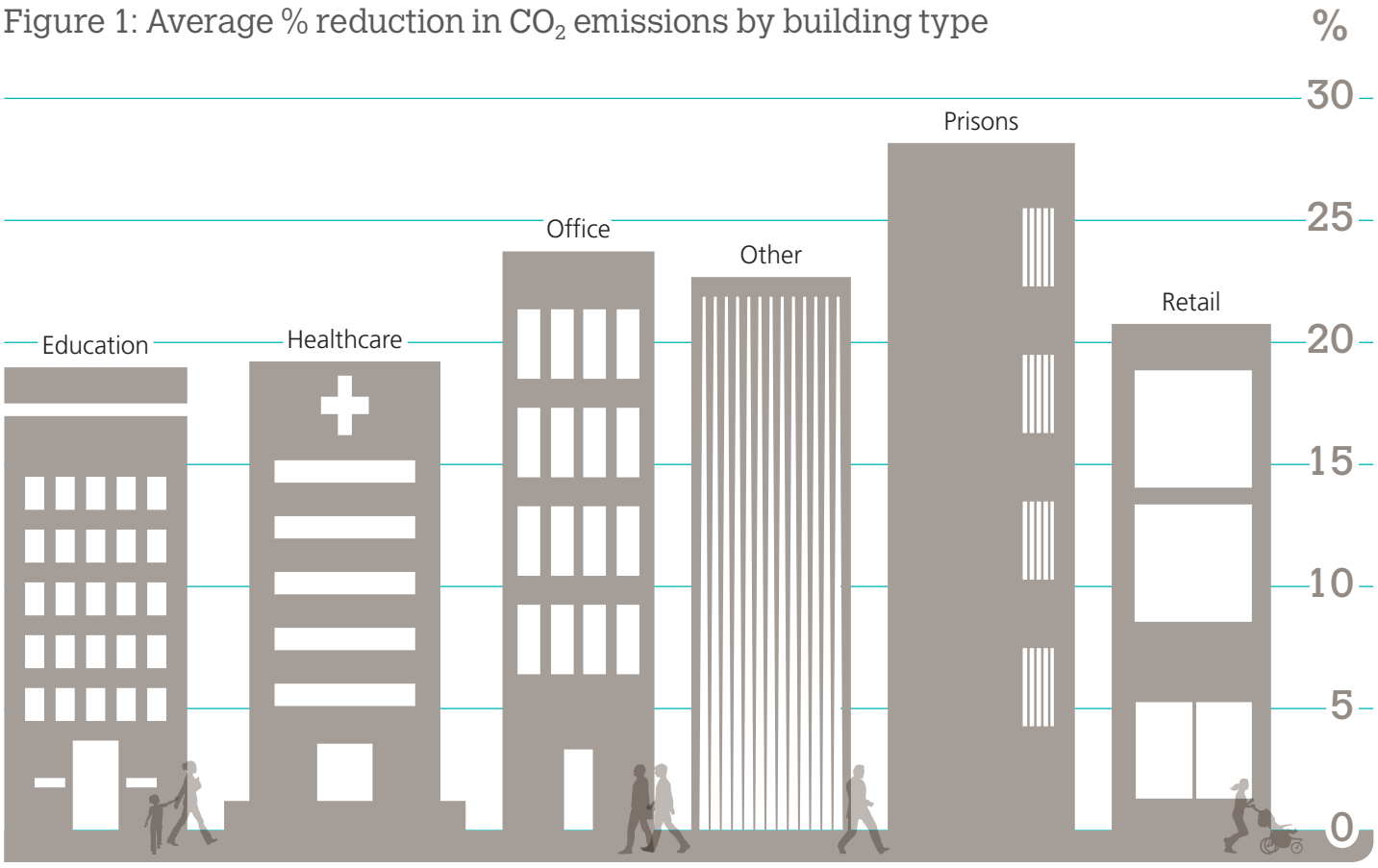
Faster delivery

CALIBRE – Using the CALIBRE dataset, it has been estimated that removing 10% of non-value-added activities is the equivalent of 360,000 weeks in the housing sector. This time could enable 17,000 more builds a year[10].

CLIP – The use of CLIP can increase productivity by 40%, reduce defects rates by 65% and reduce project lead times by 50%.

[8] Using 120,000 tonnes with factor of 0.208 t/CO_2e (17 01 07) and 120,000 tonnes with factor of 1.189 t/CO_2e (17 09 04).
[9] Based on £97 billion of construction with a SMARTWaste KPI of 1.4 tonnes CO_2e/£100K.
[10] Assuming a typical 24 week build minus 2.5 week saving = 21.5 week build.
[11] Total number of projects with data available: 273. Ene01 calculation based on the Part L outputs and SBEM methodology.

Figure 1: Average % reduction in CO_2 emissions by building type



Source: BRE Global: Improvement in CO_2 emissions by building type, BREEAM rating, and region of assessment[11]

BRE Group products and services

BREEAM (www.breeam.com)
BREEAM is the world's foremost sustainability assessment method and rating system for buildings. Since it was first launched in 1990, 425,000 buildings have gained certificated BREEAM assessment ratings and two million have been registered for assessment.

BREEAM sets the standard for best practice in sustainable building design, construction and operation and has become one of the most comprehensive and widely recognised measures of a building's performance. It encourages designers, clients and others to minimise energy demands with low carbon and low impact design, before considering low carbon technologies.

A BREEAM assessment uses recognised measures of performance to evaluate a building's specification, design, construction and use. These measures address a broad range of issues in areas that include energy and water use, the internal environment (health and well-being), pollution, transport, materials, waste, ecology and management processes.

CALIBRE (www.bre.co.uk/calibre)
CALIBRE identifies the non-value-added activities and time in the construction process to enable project managers to reduce build times on future projects. This has an impact on faster future delivery and associated cost savings on labour. There are also the indirect cost savings of selling completed assets faster and completing more projects per year.

CLIP (www.bre.co.uk/clip)
The Construction Lean Improvement Programme (CLIP) was created in 2003 to support the UK construction industry in its drive to improve its financial performance, provide better products and services to its customers, and cope with skills shortages.

CLIP operates across the whole construction supply chain, from raw material processors to clients. It provides the knowledge and practical skills needed to make change happen and to bring about real business benefits. CLIP has created a number of programmes that are tailored to construction, but are based on a common approach used across UK industry, to help companies make real and measurable improvements to quality, cost and delivery performance – and to improve partnerships with customers and suppliers.

BRE SMARTWaste (www.smartwaste.co.uk)
BRE SMARTWaste is an online tool produced and managed by BRE to measure waste, energy consumption and transportation on construction sites, as well as related CO_2 emissions, water use, timber procurement and application of the Considerate Constructors Scheme. BRE SMARTWaste has recently been re-designed to improve its look, feel and user journey.

As of March 2015, there are 188 companies and over 10,000 users using the tool, including contractors, clients, consultants and waste management companies. Since its inception, BRE SMARTWaste has recorded over 45 million tonnes of waste on £82 billion worth of projects.

BRE SMARTWaste is available through a membership scheme with varying levels (bronze, silver and gold membership) designed to suit the particular needs of clients. A number of high profile clients have worked with BRE to tailor the tool to their needs (e.g. tracking specific targets/KPIs, monitoring data input, adding other environmental information etc).

BRE Academy (www.breacademy.com)
The BRE Academy is in the unique postion to provide support to individuals, employers, industry and training partners on an array of subjects within the built environment. It delivers leading edge training and development services to improve the performance and competence levels of individuals in the workplace. The BRE Academy is a trusted partner for lifelong learning.

BRE Group (www.bre.co.uk)
BRE is a world leading building science centre that generates new knowledge through research. This is used to create products, tools and standards that drive positive change across the built environment. BRE helps government and private sector clients to meet the significant environmental, social and economic challenges they faces in delivering successful homes, buildings and communities.

BRE is owned by the BRE Trust, a registered charity. The Trust uses the profits made by the BRE companies to fund research and education that advances knowledge of the built environment.

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BRE Trust
The BRE Trust uses profits made by BRE Group to fund new research and education programmes, that will help it meet its goal of 'building a better world together'.