Mosa. Whitepaper

Green Building Labels

Introduction to building certifications according to LEED and BREEAM

Contents

Introduction
Green Buildings set to become the norm

The philosophy of sustainable building considers the entire life cycle of a building as a holistic approach and is set to become the international standard in the future. While this will benefit nature and the environment, the term 'sustainability' also encompasses economic, health, and social aspects that benefit everyone, from developers and investors, the users of the building and city dwellers, to subsequent generations. Recent studies such as the World Green Building Trends Report 2016, show that what was once just a vision is increasingly becoming a global trend and will be a concrete reality soon. In the future, all buildings will be 'Green Buildings', from the planning of construction works and building operations to demolition. In addition to this, they will be constructed using only sustainable materials that are developed and manufactured in an environmentally friendly manner, do not pose any health risks, and can be seamless reintegrated into the material life cycle and economic cycle.

It is with this in mind that some manufacturers have committed themselves to sustainable design and practicing sustainable business. They demonstrate this commitment through certifications such as 'Cradle to Cradle' and call in independent bodies to assess the environmental sustainability of their building materials and building products across the whole life cycle using LCAs and EPDs. This enables the companies to gain transparency and acquire a material basis for a sustainable building culture – two aspects that play an essential role for the building's level of certification as a 'Green Building'.

Overview of recognized building certification systems

There are many certification systems in use around the globe that serve to recognize sustainable building projects. The most important are LEED (Leadership in Energy and Environmental Design) and BREEAM (Building Research Establishment Environmental Assessment Method).

Both establish international standards that indicate more than just whether a building is sustainable; the assessments also produce a statement of how sustainable it is. Thanks to this, the certification allows for comparisons to be made and enables architects, planners, developers, and investors to establish the quality, value, and therefore the competitiveness of a new building beforehand. For instance, ‚Green Buildings' generate fewer maintenance and operating costs. This means they can achieve higher market prices, as they offer a healthy and productive environment for employees and tenants, in addition to a considerable image boost for property owners and operators. At the forefront are commercial properties for which turnkey building concepts are being designed on the basis of the certification systems. These concepts include retail, offices, hotels, and restaurants. Corporate architecture refers to the examples of concepts mentioned here.

Overview: core markets of the Green Building Labels

DGNB (Deutsche Gesellschaft für Nachhaltiges Bauen [German Sustainable Building Council]) and HQE (Haute Qualité Environnementale [High Quality Environmental standard]) are well-known certification systems in Europe and therefore also included in the overview.

Source: Going for Green, Sustainable building certification statistics Europe, RICS 2015

Overview: a comparison of the Green Building Labels LEED and BREEAM

	LEED	BREEAM
Name	Leadership in Energy and Environment Design	Building Research Establishment Environmental Assessment Method
Logo		BREEAM®
Organization	U.S. Green Building Council (USGBC)	Building Research Establishment (BRE)
Country of origin	USA	UK
Year of introduction	1998	1990
Main criteria	- Location and transportation - Sustainable sites - Water efficiency - Energy and atmosphere - Material and resources - Indoor environmental quality - Innovation - Regional priority - Integrative process	- Climate and energy - Resources - Place-shaping - Transport and movement - Community, ecology, and biodiversity - Business and economy - Buildings - Management - Energy - Water - Waste - Pollution - Health and Wellbeing - Transport - Materials - Land use and ecology - Innovation
Award categories	- Certified - Silver - Gold - Platinum	- Pass - Good - Very - Excellent - Outstanding
Certification phases	- Planning - Construction - Project completion	- Planning - Project completion
Certifying body	Green Building Certification Institute (GBCI)	Building Research Establishment (BRE) Global
Certification method	By third parties, training and accreditation by GBCI	By third parties, training and accreditation by BRE Global
Website	www.usgbc.org	www.breeam.org

Certification according to LEED
Leadership in Energy and Environment Design

LEED is originally a North American certification system introduced in 1998 by the U.S. Green Building Council (USGBC) and in 2002 by the Canada Green Building Council. This system is globally the most well-known and widespread. The current version from 2012, LEED v4, has several fields of application, which can be assigned to various projects according to building proposal (new build, renovation) and building usage (office, retail, school, hospital, etc.). These include: Building Design and Construction (BD+C), Interior Design and Construction (ID+C), Building Operations and Maintenance (O+M), Neighborhood Development (ND), and HOMES.

In order to be eligible for participation, applicants must first meet the 'green' prerequisites in each of these fields of application. Only then may applicants collect points or credits according to an assessment framework. These points and credits play a decisive role in the project's final certification, which is graded according to four levels: 'certified' (40 to 49 points), 'silver' (50 to 59 points), 'gold' (60 to 79 points), and 'platinum' (80 or more points, up to a maximum of 110). The main criteria determining the allocation of points are: the sustainability of the land development, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, innovation, and the integrative process. Moderators who supervise the project teams as they prepare for the LEED certification are known as 'LEED AP' (accredited professionals).

Overview: the certification award values according to LEED

Certification award values according to LEED

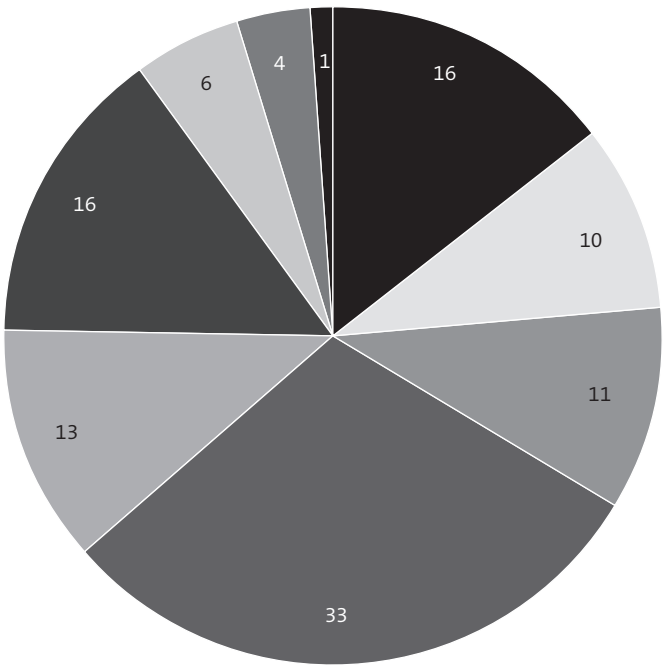
Total points	Award
40 to 49	Certified
50 to 59	Silver
60 to 79	Gold
from 80	Platinum

A maximum of 110 points can be obtained.

Overview: main criteria for certification according to the LEED

LEED v4 points by category

- Location and transportation (16)
- Sustainable sites (10)
- Water efficienty (11)
- Energy and atmosphere (33)
- Materials and resources (13)
- Indoor environmental quality (16)
- Innovation (6)
- Regional priority (4)
- Integrative process (1)



Certification according to BREEAM
Building Research Establishment Environmental Assessment Method

As the oldest certification system for sustainable construction, BREEAM was developed in the UK by the research institute Building Research Establishment (BRE) and launched by the UK Green Building Council in 1990. Just like other systems, BREEAM produces the total score using several categories that are connected to a valuation key.

The main criteria in this case are: Energy, Health and Well-being, Innovation, Land Use, Materials, Management, Pollution, Transport, Waste, and Water. The classification has five levels: 'Pass', (> 35 %), 'Good', 'Very Good', 'Excellent', and 'Outstanding' (> 85 %). The oldest certification initiative also experienced developments similar to those common amongst the above-mentioned system in terms of the life cycle of buildings and user profiles. Independent assessors who have been appointed by BREEAM supervise the certification process.

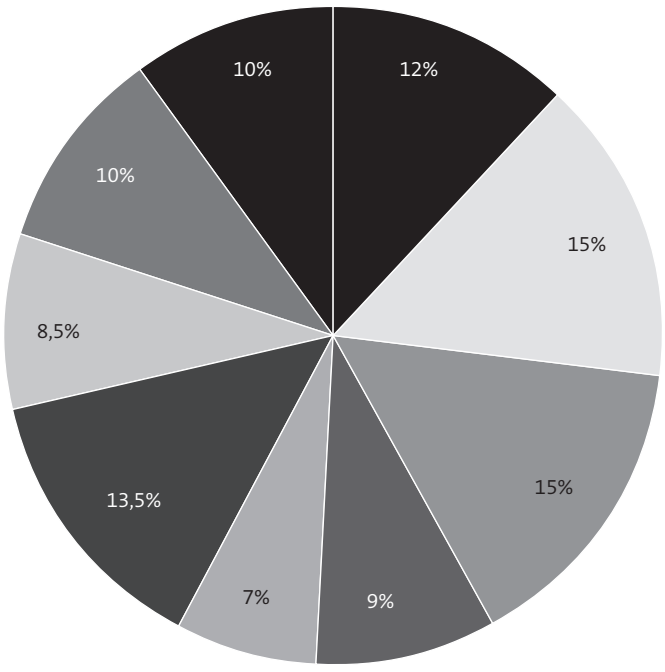
Overview: certification award values according to BREEAM

Assessment The assessment of grades is scaled for all components separately as follows:		
Outstanding	≥ 85%	★★★★★★
Excellent	≥ 70%	★★★★★
Very Good	≥ 55%	★★★★
Good	≥ 45%	★★★
Pass	≥ 30%	★★
Acceptable	≥ 10%	★
Unclassified	< 30%	

Overview: main certification criteria according to BREEAM

BREEAM 2014 NC (FFO) weightings

- Management (12%)
- Health and wellbeing (15%)
- Energy (15%)
- Transport (9%)
- Water (7%)
- Materials (13,5%)
- Waste (8,5%)
- Land use and ecology (10%)
- Pollution (10%)



Sustainable ceramic tiles by Mosa

Whereas decades ago the 'Green Building' movement was still just an 'attempt' at ecologically sustainable building, nowadays it is accompanied by a substantial change in the building sector. This paradigm shift requires a new way of thinking and acting – one which favours a collective and international mind set from all participants: architects, planners, developers, investors, and the manufacturers of building products. This involvement should start at the very beginning of a project's design phase.

With an aspiration of making all its business processes sustainable, the Dutch ceramic tile specialist Mosa was quick to take the vision of the Green Building movement and apply it to its own mission. Founded over 130 years ago, the company was the first in the sector to possess a range of products that was almost entirely certified according to the Cradle to Cradle criteria (C2C Silver). This certificate has applied to the floor and wall tiles since 2009 and to ceramic facade systems since 2012. The tiles have a corresponding Environmental Product Declaration (EPD). The use of these sustainable products can have a positive influence on the assessment of a building according to the international standards for Green Buildings.

The company publishes an annual sustainability report according to the GRI (Global Reporting Initiative) guidelines. In order to demonstrate the measurable successes and the company's future goals in terms of sustainable corporate development. This report initially depicts the three pillars – sustainable design, responsible production and health – that Mosa uses as a basis for future-proof business.

About Mosa

With over 130 years of experience, Mosa is a world-leading tile specialist that offers a high-end range of ceramic floor tiles, wall tiles, and facade elements. Founded in 1883 by Maastricht industrialist Louis Regout, the company's headquarters and two factories remain until today in the city's outskirts, highlighting the company's dedication to its origin. Mosa embodies impeccable quality, innovation, and multifaceted design when it comes to tiles and their architectural applications. Ten employees working in the design studio are constantly developing new products. This dedication has proved successful, with the company receiving many renowned design awards in previous years. For instance, the LED series, Terra XXL, and Mosa Matt Collection have been crowned winners of the Red Dot Awards, iF Awards, Design Plus Awards, and others. They were also nominated for the German Design Award and Dutch design awards. Thanks to its innovative flair and modern production lines that are designed with this innovative capacity in mind, Mosa is able to meet specific client requirements and cater to individual designs by architects. For instance, customers can order very small quantities for surfaces starting at 300 square meters. This bespoke work is gaining in importance, as Mosa has a strong commitment to sustainability throughout its design and manufacturing process, adhering to the Cradle to Cradle principles. This allows for the reuse of materials in order to limit waste, save energy, and take on social responsibility according addressing five main criteria: pure raw materials, large recycling potential, low energy consumption, environmentally friendly water management, and good working conditions. Each year, around six million square meters of ceramic tiles are supplied to 30 countries on four continents. Providing the architectural world with superior quality, finely designed and functional tiles, Mosa remains a distinct leader in the global tile industry.

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