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LEED

(Leadership in Energy and Environmental Design)

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What is LEED?

A method for rating the energy and environmental performance of buildings.

Introduction

Today, a great deal of effort is placed globally in achieving sustainable development in the construction industry, with the aim of reducing energy consumption and associated emissions in both the construction and management of buildings; limiting its consequences on the local and global environment. Such effort can be seen at national and international levels with the launching of voluntary building environmental schemes to measure the performance of buildings.

The most representative and widely used schemes are Leadership in Energy and Environmental Design (LEED), Building Research Establishment Environmental Assessment Method (BREEAM) and Green Star.

- LEED, developed by the U.S. Green Building Council (USGBC) and is nationally accepted as a benchmark for sustainable building practices.
- BREEAM, launched by the U.K. Building Research Establishment (BRE) and is adopted by the U.K. government as a measure of best practice in environmental design and management.
- Green Star was launched by the Green Building Council of Australia (GBCA) and is established as a national guide to evaluate the environmental design and achievements of buildings.

All three schemes are based on a rating system of collecting credits that applies to a wide range of building types, both new buildings and existing buildings. All cover a range of environmental issues such as materials, energy, water, pollution, indoor environmental quality and building site. One of the important credits throughout all three schemes is the consumption of energy or resulting carbon emissions in buildings.

History

The U.S. Green Building Council (USGBC) is a nonprofit organisation that was formed in 1993 and is made up of building industry stakeholders such as architects, building product manufacturers, owners, contractors and environmental groups who are interested in the promotion of sustainable building in the U.S [1]. Early council members advocated the development of a system to define green buildings. After researching existing programs and metrics (including the British BREEAM) the council decided to develop a custom system for U.S. buildings:

- 1998 - LEED 1.0 pilot program released
- March 2000 - 12 buildings had been certified under the pilot program, extensive revisions made, LEED 2.0 launched
- 2005 - LEED v2.2 released
- April 27, 2009 - LEED 3.0 launched [5].

LEED has experienced exponential growth in the U.S. since the release of LEED 1.0 in 1998. Currently there are 465 registered projects, representing 67 million ft^2 (excluding parking). Almost 1500 people consider LEED of enough value to take an exam to become a "LEED Accredited Professional" [4].

Purpose of LEED [3]

- Define "green building" by establishing a common standard of measurement
- Promote integrated, whole-building design practices
- Recognise environmental leadership in the building industry
- Stimulate green competition
- Raise consumer awareness of green building benefits
- Transform the building market

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Types of LEED Assessment:

Green Building Design & Construction	LEED for New Construction and Major Renovations LEED for Core & Shell Development LEED for Schools LEED for Retail New Construction (planned 2010)
Green Interior Design & Construction	LEED for Commercial Interiors LEED for Retail Interiors (planned 2010)
Green Building Operations & Maintenance	LEED for Existing Buildings: Operations & Maintenance
Green Neighbourhood Development	LEED for Neighbourhood Development (pilot phase)
Green Home Design and Construction	LEED for Homes

Methodology

Currently there are 100 possible base points plus an additional 6 points for Innovation in Design and 4 points for Regional Priority.

Points are distributed across major **credit categories** such as:

- Location and Planning
- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality
- Innovation and Design Process
- Regional Priority

One point will be awarded to each credit when the requirements are met except for the energy performance and the renewable energy credits whereby a number of points will be awarded depending on the improvement in building performance. These points count towards the total scoring system.

Prerequisites in each category receive no points and are mandatory for all projects.

LEED Ratings

Certified	40-49 points
Silver	50-59 points
Gold	60-79 points
Platinum	>80 points

Key Features

- LEED awards more points for strategies that will have a greater positive impact on the issues that matters that most to the scheme owners: **energy efficiency and CO_2** reductions.
- **Regionalisation.** Depending on a project's specific location, six LEED credits addressing regionally prioritised environmental issues have been assigned as "bonus points."

Process

LEED certification is obtained after submitting an application documenting compliance with the requirements of the rating system as well as paying registration and certification fees. Certification is granted solely by the Green Building Certification Institute responsible for the third party verification of project compliance with LEED requirements [5]. Recently the application process for new construction certification has been streamlined electronically, via a set of active PDFs that automates the process of filing the documentation [5].

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Professional Accreditation

Assessment is carried out but a LEED Accredited Professional, which is administered by the Green Building Certification Institute.

To become a LEED Accredited Professional a candidate is required to pass a series of three LEED exams. The first tier exam is called LEED Green Associate. The second tier exam is called LEED Accredited Professional with specialty and has five separate exams to allow for individual specialisation. The third tier standards have not yet been determined or released [3].

LEED and the Global Picture

There is currently much interest in standardising building assessment methodologies based on a rigorous scientific approach rather than the subjective approach applied in LEED, BREEAM and Green Star. In Europe, the European Committee for Standardization has launched TC350 - Sustainability of Construction Works, a consensus-building process that relates to other (ISO) standards and harmonises existing approaches. It is anticipated that all building assessment methodologies will meet the requirements of this standard.

References

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