

# GREEN BUILDING INTRODUCTION: *BREEAM*

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## What is BREEAM?

BREEAM is a third party rating system developed by the Building Research Establishment (BRE), an organization based in the UK, and stands for the Building Research Establishment Environmental Assessment Method.

## About BREEAM

Established in 1990, BREEAM uses categorical assessment measures to evaluate the environmental performance of new and existing buildings. BREEAM also assesses best practices in environmental design and management in the UK's construction and property sectors. Nearly 552,400 buildings globally have been certified using BREEAM, and around 2,253,800 buildings registered for assessment since it was first established.

BREEAM has served as a model for other green building programs worldwide, and BREEAM International and BRE Global assist construction projects or regions in the development process. BRE also offers training courses for prospective assessor licenses.

## BREEAM Assessments

BREEAM can be used to assess the attributes of a wide range of building types.

BREEAM evaluates a range of building related components such as:

- Energy,

- Health and well-being,
- Innovation,
- Land use,
- Materials,
- Management,
- Pollution,
- Transport,
- Waste, and
- Water.

Each category is awarded 'credits' that are weighted and added together to generate a single score, which in turn is rated as Pass, Good, Very Good, and Excellent. The awarded certificate is then frequently used for marketability.

BREEAM provides professional review of environmental impact aspects of new construction or major remodeling projects, ideally during various stages of the building process. Assessor involvement throughout a development process is preferred and ensures the design reaches the desired goal. An established fee scale determines the cost of the evaluation by a BREEAM trained assessor.

## BREEAM Schemes

*BREEAM EcoHomes* was replaced by the Code for Sustainable Homes in 2007, based on the former version. The Code scores new homes on Performance levels in six categories with a six-level system (i.e. Code Level 3 is similar to EcoHomes Very Good) to achieve sustainability standards.

*BREEAM Offices* evaluates new, existing, occupied and vacant buildings. Two tools that assessors use to evaluate development are the (new or refurbished) Design and

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Procurement and the (existing/occupied) Management and Operation standards.

*BREEAM Retail* is a more flexible set of assessments to cater to various types of retail buildings, including general sales, food and customer service establishments.

*BREEAM Industrial* assesses industrial buildings, warehouses and distribution units of all sizes. The general assessments are conducted in a two-step design and post-construction evaluation.

*BREEAM Schools* covers new and refurbished schools and is based on environmental performance compliances rather than specific design elements.

BREEAM also includes assessments of prisons, courts and multi-residential buildings, as well as 'bespoke' development for those that fall outside of standard classification headings (i.e.: mixed-use developments, military bases, hotels, etc.).

## **Updates**

BREEAM announced a series of changes in effect August 1st, 2008 as a response to market conditions and sustainability awareness. These new updates include: new schemes for BREEAM Healthcare and BREEAM Further Education, a new two-stage assessment process with design stage and post-construction attention, new CO2 emission regulations and a new rating level of Outstanding. A major update in 2011 resulted in the launch of BREEAM New Construction, which is now used to assess and certify all new buildings. This revision

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aimed to streamline the BREEAM process by reclassifying and consolidating certification criteria. In 2014, BRE developed the Home Quality Mark (HQM), which is now part of the BREEAM family of schemes. The HQM is a standard for new homes using a 5-star rating system to provide information on a new home's design, construction quality and running costs.

## **Uses**

BREEAM evaluated buildings allow various agencies, practices or individuals to use the assessment rating for various purposes; planners, developers, property agents, design teams and managers use scores to specify, demonstrate, promote, improve or measure the environmental sustainability performance of their buildings, and enhance marketability.

## **For more information:**

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*This overview was compiled by Dovetail Partners as part of a series of Green Building Introductions. Special thanks to research intern Ethan Howard.*

*For the most current and complete information about BREEAM, please contact their office and visit their website.*

# GREEN BUILDING INTRODUCTION:

## *BUILT GREEN*

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### What is Built Green?

Built Green is a non-profit, residential building program of the Master Builders Association of King and Snohomish Counties, developed in partnership with King County, Snohomish County, and other agencies in Washington State.

The program focuses on environmentally sustainable home construction and education. Built Green's mission is to promote environmentally friendly home building methods and practices, and to enhance communities through leadership in sustainable development.<sup>1</sup>

### About Built Green

Built Green was established to foster development of high quality and affordable homes for families in the Pacific Northwest. Built Green focuses on remodeling and new home construction under four different rating systems. These systems include:

- Homebuilders (single family homes: custom or production),
- Remodelers (additions or renovations of existing homes),
- Multifamily (apartments, condominiums), and
- Communities or developments.

### Built Green Assessments

The Built Green program is based on a framework of “green” features and building practices within five categories, each of which recommends specific building practices for constructing an environmentally durable home.

Built Green certification is based on adherence to the criteria checklist. After construction is completed, builders send a signed copy of the checklist to the Master Builders Association. A Star rating from 3-, 4-, 5- or Emerald is delegated to each project. Every star level requires verification by a third party.

The Built Green website has a list of case studies that illustrate various projects that have achieved different star ratings. Built Green checklists are offered here: <http://www.builtgreen.net/index.cfm?Certify-Projects/Get-Checklists>.

Features in the Built Green checklist include:

- *Green codes*: these focus on energy, air quality, water efficiency, and stormwater management standards. Built Green recognizes meeting these standards..

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<sup>1</sup> Built Green of Washington should not be confused with Built Green of Colorado.

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- *Site and water*: this includes practices to conserve water, protect natural features, prevent erosion, promote and to otherwise improve water quality.
- *Energy efficiency*: focusing on reducing heat loss through a combination of design elements and building practices, thereby making the home more affordable to operate.
- *Indoor air quality*: reducing indoor pollutants such as installing low toxic finishes.
- *Material Selection*: using recycled content products, using up-to-date waste minimizing practices, and encouraging builders to use locally manufactured products.

## Uses

Homes certified under the Built Green program standards incorporate sustainable features that demonstrate a commitment to environmental awareness and practice. The practices may result in lower overall energy use that saves the owner money on utility bills. The responsible use of construction resources and materials promote forest conservation. A goal of the program is for ethical construction to increase home value and for the alleviation of gas consumption and pollution through use of local materials and reduced transportation miles.

## For more information:

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# GREEN BUILDING INTRODUCTION:

## *GREEN BUILT HOME*

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### **What is Green Built Home?**

Green Built Home is a green building program founded in 1999 by the Wisconsin Environmental Initiative in partnership with the Madison Area Builders Association. As the first green initiative in the Midwest, the program administers sustainable building activities throughout Wisconsin. Non-profit affordable housing providers can enroll in the program and have their projects certified at no cost.

### **About Green Built Home**

Green Built Home promotes awareness of environmental issues and the benefits of green building. The program encourages energy efficiency, resource conservation and improved indoor air quality to reduce a home's ecological footprint and to support structural safety and durability. The program offers guidance for projects both large and small, including new home construction and landscaping.

### **Green Built Home Assessments**

The Green Built Home program uses a series of basic requirements to assess the environmental attributes of home construction (found here: [www.weigogreener.org/greenbulthome/checklists](http://www.weigogreener.org/greenbulthome/checklists)). Checklists address specific features that every project must meet, along with additional areas requiring collaboration between homeowners and builders, such as erosion control, stormwater management, materials selection, water and energy conservation, indoor air quality and waste reduction. The program's intent is to provide healthier, safer, and more comfortable and durable homes.

Criteria under each issue area are assigned point values with a minimum number of points needed to achieve certification. The minimum number of points varies by program. Project checklists are available for.

Project checklists are available for:

- New homes
- New home and product directory
- Remodeling
- Waterfront property
- Multifamily

In addition to meeting a number of required criteria, all new homes must meet a minimum of 60 additional project points. Remodeling projects must earn between 10-60 points, depending on the extent of the renovation.

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Green Built Home offers “Green-it-Yourself” home remodeling and improvement projects for homeowners as well as resources for selecting a contractor or developer for assistance.

Additionally, the program website has a new certification program for Green Built Home retail product approval with a link to certified household and construction products. Advice is available through the website for “building green on a budget.”

## Uses

Green Built Home offers several benefits for homeowners using the program, homebuilders and the environment. The program provides:

- Certification standards
- Independent, neutral third party assessment
- Product and material specification and procurement assistance
- Help in establishing priorities for going green
- Collaboration and consensus building with government, business, and citizen groups.
- Access to the GBH network of contractors and product suppliers

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# GREEN BUILDING INTRODUCTION: *GREEN GLOBES*

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## What is Green Globes?

Green Globes™ is a program based in Canada and developed with support from federal and provincial representatives. The Green Globes system is based on the UK's Building Research Establishment's Environmental Assessment Method (BREEAM). The Canadian Standards Association (CSA) used BREEAM as the basis for publishing Green Globes as a green building rating system for existing buildings in Canada. In 2004, the Green Building Initiative (GBI) acquired the rights to distribute Green Globes in the United States under the guidance of the American National Standards Institute (ANSI).

## About Green Globes

Green Globes is an online environmental performance auditing system for both new and existing buildings. It allows designers, property owners and managers to assess and rate properties and promotes integration of green design principles during the construction process.

The online format allows for project updating, reduces the use of paper-based documentation, requires less overall time and cost, and expedites the assessment process.

## Green Globes Assessments

A confidential online questionnaire allows users to generate a report about property attributes. This report assesses the project and determines guidance for best practices during each stage of development.

The report contains scores from each of seven categories, as well as strengths, weaknesses, suggestions for improvement and links to additional resources for enhancing the project.

Guidelines are currently written for:

- Design of new construction and major renovations,
- Commercial interiors (i.e. office fit-ups),
- Management and operation of existing buildings (offices, multi-residential, retail, healthcare, light industrial),
- Building emergency management, and
- Building environment.

Each Green Globes confidential self-assessment questionnaire measures the environmental performance of buildings in seven relevant categories with a maximum of 1,000 points per category:

- Project Management,
- Site,
- Energy,
- Water,
- Resources,
- Emissions/Impacts, and
- Indoor Environment

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For *existing buildings*, assessment scores reflect existing physical attributes and environmental management system, and scores are then used as a basis for an overall rating.

*New building designs* are rated at two stages: first during the planning and building permit approval stage, then a final rating at the post-construction stage.

Based on the eco-ratings, an overall score is calculated for the project as a whole. Properties that achieve a certain number of points are eligible to receive a Green Globes™ rating, ranging from one to four.

Green Globes also offers a Life Cycle Assessment (LCA) method using the ATHENA EcoCalculator for Assemblies software. The new web-based tool considers hundreds of common building designs and construction materials to estimate potential environmental impact indicators of an entire building's longevity. Alternative design scenarios are then suggested for update possibilities.

Following third-party verification, certified buildings receive a plaque and are encouraged to publicize their award. A building project cannot be promoted as having achieved a Green Globes rating until it has passed the two-stage, third-party assessment by qualified practitioners.

## Uses

The Green Globes system has several strengths and potential benefits for users of the program:

- Designed for use on building projects of any size
- Used to integrate sustainability goals into new construction, renovations, and entire building portfolios
- Owners and developers with multiple properties can use it to assess and compare the buildings in their portfolio
- Online inputs can be changed for up to a year with an option to extend for assessment updates
- Project confidentiality and security are assured with the online self-assessment
- Facilitates the integrated design process and encourages multi-disciplinary collaboration

## For more information:

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# GREEN BUILDING INTRODUCTION: *LEED*

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## What is LEED?

The Leadership in Energy and Environmental Design (LEED) program is a national Green Building Rating System developed by the U.S. Green Building Council. The USGBC was founded in 1993 and is represented by a network of over 100 chapters, affiliates, and organizing groups. The LEED program offers guidance for the design, construction, operations and maintenance of more than 79,600 green building projects worldwide. This encompasses over 15.3 billion square feet of commercial and institutional construction space, and over 245,000 residential units. LEED projects can be found in all 50 states and more than 161 countries and territories worldwide.

## About LEED

The LEED rating system was created to encourage environmental sustainability by providing consistent and measurable green building standards for the building industry. The system monitors and documents a variety of building types and development phases for their environmental performance. The LEED program includes a review of the entire building project to assess sustainable development.

The standards acknowledge performance in five areas of environmental and human health:

- Sustainable site development,
- Water savings,
- Energy efficiency,
- Materials selection, and
- Indoor environmental quality

## LEED Assessments

LEED has several programs and green building guidelines for voluntary standards:

- New Commercial Construction and Major Renovation Projects
- Existing Building Operations and Maintenance
- Commercial Interiors Projects
- Core and Shell Construction
- Schools
- Retail
- Healthcare
- Homes
- Neighborhood Development

A project seeking LEED certification must submit an application either via mail or online prior to registration and review.

In order for a project to earn LEED certification, all buildings must meet a minimum of 32 credits before achieving the pursued award level based on performance rating standards. Projects are then awarded a Certified, Silver, Gold or Platinum rating, depending on the number of points granted.

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## Uses

LEED is currently the most recognized national standard for green building in the United States. It is considered a comprehensive approach that can help lower operating costs, provide for healthier and more productive building occupants, and conserve natural resources.

LEED is used within the built environment by multiple agencies and organizations including architects, real estate agents, facility managers, engineers, interior designers, landscape architects, construction managers, lenders, and government officials.

LEED encourages building industry professionals to voluntarily become accredited within the program through the Green Building Certification Institute. LEED Accreditation provides practicing individuals the opportunity to strengthen green building qualifications, enhance skills marketability and industry recognition. Candidates are awarded accreditation after successfully demonstrating proficiency on a comprehensive exam. Each day around 1.85 million square feet of building space become LEED certified.

The USGBC sponsors an annual Greenbuild International Conference and Expo. The seminars at the conference offer practical knowledge as to how to create lower environmental impact, healthier, and more productive buildings, and how to translate that knowledge into new business opportunities.

## For more information:

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