

# BREEAM International New Construction 2016 Technical Standard Summary for US projects



# Introduction to BREEAM International New Construction

Founded in 1990, BREEAM was the world's first sustainability assessment method for buildings. BREEAM International New Construction is used to **assess the design, construction, intended use and future-proofing of new building developments**, including the local, natural or human-created environment surrounding the building.

BREEAM aims to deliver sustainable solutions, encourage a holistic approach to sustainability that is based on sound science and measures what is important, improve building performance and ensure it delivers sustainable value.

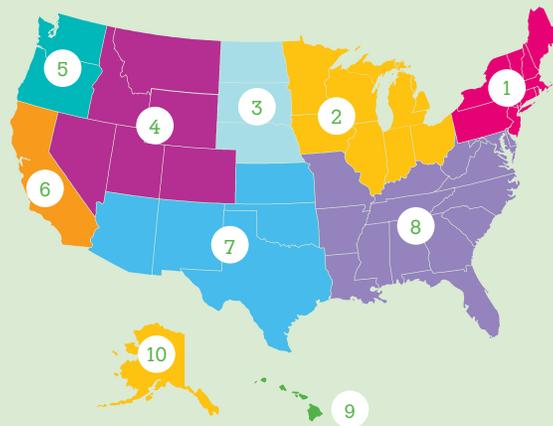
The assessment criteria and process focus on the design of the building from concept stage right through to a fully constructed building. It requires evidence to support the design and construction decisions, agreed during the development of the project, and ensures they have been fully implemented.

Certificates can be issued at the **Design Stage** (noted as interim BREEAM rating based on the design) and **Post-Construction** to confirm the final BREEAM rating for the as-built performance of the building after construction is complete.

## Adaptations for US projects

The US has been divided into 10 regions. The regions have been set after considering climate, energy use, transport availability, population density, ecology and other factors.

Each of these regions have their own environmental category weightings and approved standards which will account for the variations in standards adopted (such as the multiple versions of ASHRAE 90.1) and the regulatory baseline in place. Adopting this regional approach ensures that any BREEAM certified project exceeds regulations while still meeting international best practice.



## Why BREEAM

Clients choose BREEAM certification because it helps them deliver and validate the sustainability value of their assets cost effectively and to an internationally recognized and robust standard, tried and tested since it was first launched in 1990.

Investors, developers, owners and occupiers benefit using BREEAM by:

- Considering impacts and costs from a lifecycle perspective
- Minimizing the environmental impact of their construction and operations
- Supporting and protecting the health and wellbeing of building users and their communities
- Providing a credible, internationally recognized and comparable certification awarded by an independent third-party.

## BREEAM Ratings

BREEAM standards are set using building science and research. The five ratings available, ranging from Pass to Outstanding, reflect how much better a building is improved beyond standard practice. The higher the rating, the more aspirational the performance – only 1% of buildings in the world would be expected to achieve Outstanding, 10% of buildings for the Excellent rating and 25% of buildings for Very Good.

| BREEAM Rating | Star Rating |
|---------------|-------------|
| Outstanding   | ★★★★★       |
| Excellent     | ★★★★        |
| Very Good     | ★★★         |
| Good          | ★★          |
| Pass          | ★           |

# Scope

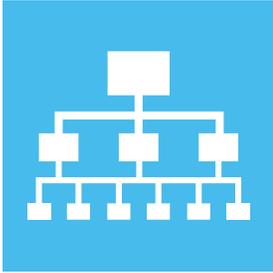
|            |   |   |
|------------|---|---|
| Commercial | <br>Office                   | <ul style="list-style-type: none"> <li>• General office buildings</li> <li>• Offices with research &amp; development areas (category 1 laboratories only)</li> </ul>  |
|            | <br>Industrial               | <ul style="list-style-type: none"> <li>• Warehouse storage or distribution</li> <li>• Process, manufacturing or vehicle servicing</li> </ul>  |
|            | <br>Retail                   | <ul style="list-style-type: none"> <li>• Shop or shopping center</li> <li>• Retail park or warehouse</li> <li>• Over the counter service providers, e.g. financial institutions</li> <li>• Showrooms</li> <li>• Restaurant, café and drinking establishments</li> <li>• Hot food take-out establishments</li> </ul> |
|            | <br>Education                | <ul style="list-style-type: none"> <li>• Preschools</li> <li>• K-12 schools</li> <li>• Community colleges</li> <li>• Universities</li> <li>• Other higher education</li> </ul>  |
|            | <br>Residential Long stay   | <ul style="list-style-type: none"> <li>• Senior/assisted living</li> <li>• Sheltered accommodation</li> <li>• On campus student accommodation</li> <li>• Military barracks</li> </ul>   |
|            | <br>Residential Short stay | <ul style="list-style-type: none"> <li>• Hotel, hostel, boarding and guest house</li> <li>• Secure training center</li> <li>• Residential training center</li> </ul>  |
|            | Residential   | <br>Residential  |

## Scope of work

BREEAM can be applied to different scopes: **Shell only** (base building – envelope, substructure and superstructure of the building), **Shell and Core** (Shell plus core building services) and **Fully Fitted** (Shell and Core plus systems in tenanted areas). For Residential, the scope can also include **Partially Fitted**.

|                  | Commercial |            |        |           |                          |                         | Residential |
|------------------|------------|------------|--------|-----------|--------------------------|-------------------------|-------------|
|                  | Offices    | Industrial | Retail | Education | Residential - Short stay | Residential - Long stay | Homes       |
| Shell only       |            |            |        |           |                          |                         |             |
| Shell and Core   |            |            |        |           |                          |                         |             |
| Fully fitted     |            |            |        |           |                          |                         |             |
| Partially fitted |            |            |        |           |                          |                         |             |

# Issues Addressed



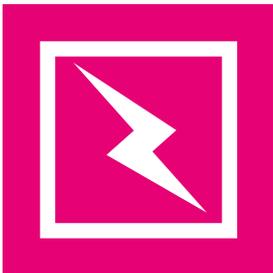
## Management

- Stakeholder consultation covering project delivery and relevant third parties
- Life cycle cost and service life planning
- Responsible construction practices demonstrated by principal contractor with site related energy, water and transport impacts monitored and reported
- Commissioning and handover
- Aftercare support for building occupiers



## Health & Wellbeing

- Visual comfort
- Indoor air quality
- Thermal comfort
- Acoustic performance
- Provision of safe and secure building access for all
- Minimizing risks from natural hazards
- Provision of outdoor private space
- Water quality - minimizing Legionella risk and provision of drinking water
- *For laboratories only:* Safe containment in laboratories



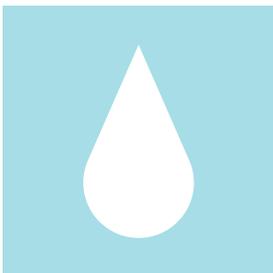
## Energy

- Reduction of expected operational energy use and carbon emissions design and systems specification.
- Energy efficient design and operations specification of
  - External lighting
  - Cold storage
  - Transport systems
  - Unregulated energy-consuming equipment
- Low carbon design including analysis to identify opportunities for and adoption of passive design solutions and identification and specification of low or zero carbon energy sources.
- Energy monitoring and sub-metering
- *For laboratories only:* Energy efficient laboratory systems
- *For Residential and long-stay Residential institution:* Drying space for clothes



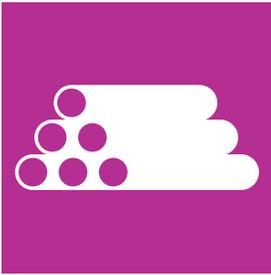
## Transport

- Public transport accessibility
- Proximity to amenities
- Facilities to encourage travel using low carbon modes of transport and to minimize individual journeys.
- Limiting car parking capacity
- Travel planning
- *For Residential:* Home office space and services



## Water

- Reducing indoor water demand
- Reducing outdoor water demand
- Monitoring water consumption
- Leak detection and prevention



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## Materials

- Life cycle impacts
- Responsible sourcing of construction products
- Designing for durability and resilience
- Material efficiency



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## Waste

- Construction waste management
- Recycled aggregates
- Storage/facilities to minimize waste to landfill
- Avoiding the specification of speculative finishes
- Adaptation to climate change
- Functional adaptability



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## Land Use & Ecology

- Encouraging development on previously developed land
- Ecological value of site and protection of ecological features
- Enhancing site ecology
- Long term impact on biodiversity



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## Pollution

- Avoiding or reducing impact of refrigerants
- NO<sub>x</sub> emissions
- Surface water run-off
- Reduction in night time light pollution
- Reduction of noise pollution



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## Innovation

The innovation category provides opportunities for industry to be recognized for new sustainability practices and technologies. This includes Energy Positive buildings, adaptation to climate change, indoor air quality, construction management practices, transportation, water consumption, materials life cycle and sourcing, waste management.

# BREEAM Drives Success by

- Setting benchmarks that exceed regulations and local practices
- Recognizing actions and initiatives that are innovative and improve on BREEAM benchmarks and certifications
- Gathering industry feedback to ensure its continuing relevance to the market
- Promoting high levels of performance and best practice through published case studies and the BREEAM annual awards event.
- Monitoring and carrying out research to further knowledge, strengthen industry tools, improve guidance and increase BREEAM's value.

# Value of BREEAM

Created in 1990 by BRE (the Building Research Establishment), BREEAM was the first green building certification program and today is recognized as the world's leading sustainability assessment method with over 2,250,000 assets registered in 81 countries and over 560,000 certificates issued.

BREEAM aims to deliver sustainable solutions, encourage a holistic approach to sustainability that is based on sound science and measures what is important, in terms of reducing building environmental impacts.

# BREEAM principles

**BREEAM is developed and operated to meet the following underlying principles:**

Focus on **improving building performance** rather than recognizing ideal building design.

Ensure **environmental quality** through an accessible, holistic and balanced measure of environmental impacts.

Use **quantified measures** for determining environmental quality.

Adopt a **flexible approach** that encourages and rewards positive outcomes, avoiding prescribed solutions.

Use **robust science and best practice** as the basis for quantifying and calibrating a cost effective and rigorous performance standard for defining environmental quality.

Reflect the **social and economic benefits** of meeting the environmental objectives covered.

Provide a **common international framework** of assessment that is tailored to meet the 'local' context including regulation, climate and sector.

**Integrate building professionals** in the development and operational processes to ensure wide understanding and accessibility.

Adopt **third party certification** to ensure independence, credibility and consistency of the label.

Adopt **existing industry tools**, practices and other standards wherever possible to support developments in policy and technology, build on existing skills and understanding and minimize costs.

Align technically and operationally with **relevant international standards**.

Engage with a representative range of **stakeholders** to inform on-going development in accordance with the underlying principles and the pace of change in performance standards (accounting for policy, regulation and market capability).

## BRE Global

BRE is a world leading building science centre. Our clients use our sustainability, safety and security services, the BRE Academy and our Innovation Centres, to deliver on their social, environmental and economic goals. We are committed to developing knowledge on every aspect of the built environment and we set the standards for the way buildings, homes and communities are made to keep people safe, protect the environment, make buildings affordable and to create places where people want to live, work and play. [www.bregroup.com](http://www.bregroup.com)

### BRE Global

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## Getting started

Visit our website <http://www.breeam.com/usa/new-construction> to learn more about the processes and fees involved and to find a licensed Assessor.

If you have any further questions, give us a call on +1 (415) 747-5152 or send us an email at [USANewConstruction@bregroup.com](mailto:USANewConstruction@bregroup.com).