

## International Green Building Certification Standards in UN Context

### Guidance Note for UN Sustainability Focal Points

7<sup>th</sup> February 2020

#### Introduction

Buildings are responsible for the largest proportion (46%) of UN's greenhouse gas (GHG) emissions as well as the majority of water consumption, waste generation and wastewater disposal.

In May 2019, the UN's Chief Executives board endorsed a 2020 – 2030 Strategy for Sustainability Management in the UN<sup>1</sup>. The strategy demands the UN system to step up its environmental management ambitions and to align its GHG emission targets with the IPCC recommendation to reduce global net human-caused emissions of carbon dioxide (CO<sub>2</sub>) by about 45% from 2010 levels by 2030 and to reach 'net zero' emissions around 2050 in order to limit global warming to 1.5°C<sup>2</sup>.

The strategy also defines the 2030 vision for sustainability management in the UN as follows:

"The United Nations system is a leader in integrating environmental and social sustainability considerations across its work in a systematic and coherent way, practicing the principles that it promotes and leaving a positive legacy. "

To achieve these goals and realize the vision, the strategy addresses a range of issues such as environmental governance, management functions (i.e. procurement, human resources, travel, facility management and events) and specific environmental topics (i.e. greenhouse gas emissions, water use, wastewater, waste, biodiversity and air-pollution). Much of this shift will be achieved by working on the overall sustainability of UN premises.

As a concrete example, the UN Secretariat plans to reach 2030 goals by reducing facilities' electricity consumption by 35% and switching to 80% renewables within a decade. The achievement of these targets will require unprecedented levels of retrofit to existing facilities; construction or procurement of new facilities that meet best practice green building standards; and a major transition to renewables both on and off-site.

Leading international green building certification standards (the Standards), alongside political commitment and resources, have a significant role to play in driving this major transition.

At the same time, the UN system does not prescribe a particular standard, as their selection will depend on a number of reasons from geographical location to scope.

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<sup>1</sup> [https://unemg.org/wp-content/uploads/2019/09/INF\\_3\\_Strategy-for-Sustainability-Management-in-the-UN-System.pdf](https://unemg.org/wp-content/uploads/2019/09/INF_3_Strategy-for-Sustainability-Management-in-the-UN-System.pdf)

<sup>2</sup> <https://www.ipcc.ch/sr15/>

This document provides generic guidance on the Standards, their benefits and things to consider when implementing them and it may be used as a guide when selecting a suitable standard for a particular location and type of project.

## Summary of Benefits

Leading international standards, namely BREEAM, LEED and Green Star, have had a positive impact on the green building sector and the construction industry supply chain since the 1990's. Independent evidence<sup>3</sup> shows that certified buildings have significantly lower environmental footprint and deliver value for money in terms of lower operational costs, tenant retention, return on investment, occupant wellbeing and productivity<sup>4</sup>. In addition to numerous environmental, social and economic sustainability benefits, the use of the standards also offers the following advantages:

- **Measuring what is important:** The leading standards measure sustainability holistically, based on leading, independent and the most recent scientific research on energy, climate, waste, water, biodiversity, pollution, land use, transport, wellbeing and materials. They measure aspects that are relevant to specific building types (e.g. offices, residential, warehouses), locations (e.g. climate, legislation) and building project types (e.g. new construction, refurbishment, existing building management, fit-out etc.)
- **Standardization and benchmarking:** The standards define quantitative and qualitative performance levels from minimum to best practice international performance, thus facilitating meaningful benchmarking and standardization.
- **Systematic and continuous improvement:** In relation to existing facilities, the standards can be used to credibly and accurately measure their baseline performance, identify areas for improvement and inform refurbishment / retrofit strategies. Through regular re-certification process, the standards encourage continual improvement.
- **Credibility:** The standards are developed and operated by independent / non-governmental and often not for profit bodies with transparent and evidence-based certification process. Typically, building owners/occupiers/developers need to register a building or a group of buildings with a certification body, submit evidence of compliance with detailed standard requirements and have that evidence verified by independent professionals working for or licensed by a certification body. A certification body issues a certificate stating the level of performance achieved. Thus, certified building owners/occupiers/developers can claim independent, third-party verification of their environmental performance and credentials.

## Choosing the standard

In addition to the aforementioned leading and the longest established standards, there are dozens of other green building standards to choose from internationally. They can be distinguished by their scope in terms of geographical application (e.g. international, regional or local), range of topics (e.g. holistic or single attribute focused), range of scores and ambition (e.g. different levels of performance recognized or exemplary performance only), types of developments that can be assessed (e.g. new build, refurbishment, domestic, commercial) and cost of

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<sup>3</sup> <https://tinyurl.com/qkm4d41> - Supply, demand and the value of green buildings by RICS

<https://tinyurl.com/robudj2> - Capturing the value of sustainability report by the UK Green Building Council (GBC)

<https://tinyurl.com/y3lraok8> - The business case for green buildings by World GBC and Skanska

<sup>4</sup> <https://tinyurl.com/t7jemf4> - World GBC report with case studies of BREEAM, LEED and WELL-certified buildings and associated cost savings from wellbeing and productivity improvements.

certification. Here is the summary of factors to consider when choosing a standard to follow:

- **Geographical location:** BREEAM and LEED are widely used across the globe, while Green Star is mostly used in Australia, New Zealand and Africa. There are also dozens of local or regional standards that are either based on BREEAM/LEED or follow a similar methodology. For example, Estidama in UAE, Casbee in Japan or Lotus in Vietnam. Furthermore, a number of standards that either award exemplary performance only (e.g. Passive House, Living Building Challenge) or cover limited topics (e.g. WELL, EDGE, Passive House) can be used internationally<sup>5</sup>.

Another aspect to consider when considering which standard to use in a specific location is local legislation and supply chain's familiarity with a standard.

- **Topics:** Standards like BREEAM, LEED and Green Star address a wide range of environmental and social sustainability topics while standards such as Well (Health and Wellness), EDGE (Energy, Water and Embodied Energy) and Passive House (Energy and Thermal Comfort), focus on a limited number of topics.
- **Rating approach:** Holistic standards, such as LEED and BREEAM, provide a range of rating performance levels (e.g. Silver, Gold and Platinum or Very Good, Excellent and Outstanding) subject to meeting minimum requirements. While criteria within specific issues can be adapted to local conditions, performance tends to be evaluated against baseline international practice and standards. In other words, the goal is for a LEED Platinum building in one location to be as 'green' as a LEED Platinum building in another. Some standards, like Passive House or Living Building Challenge, reward exemplary international performance only. On the other hand EDGE, developed by the International Finance Corporation (IFC) for emerging markets, assesses performance as an improvement over local rather than international legislative baseline.
- **Facility and project type:** Standards typically have different versions that are used to assess a range of facility types (e.g. offices, accommodation, warehouses) and project types (e.g. new build, refurbishment, fit-out, existing building operation). Standard versions and associated requirements can also vary depending on the project size and complexity. Selecting a correct version of a standard is therefore essential and expertise from a suitably qualified professional<sup>6</sup> is highly recommended.
- **Use of standards:** While the value of certification should not be underestimated, the standards can be used as reference guides and design tools only. They are subject to regular updates and thus provide a credible source of best practice to be used for benchmarking purposes. They also include tools or refer to specific best practice standards that can be used to model and evaluate performance across a wide range of issues such as indoor air quality, life-cycle cost, water consumption, lifecycle impact of resources, energy use or renewable energy feasibility. For example, EDGE standard provides an online lifecycle cost estimator tool, which can be useful for comparative analysis of different design

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<sup>5</sup> EDGE is primarily implemented in emerging economies

<sup>6</sup> Find a BREEAM Assessor here: <https://www.greenbooklive.com/search/scheme.jsp?id=214> or a LEED Accredited Professional (AP) here: <https://www.usgbc.org/people>

proposals. BREEAM In-use standard provides a simplified, easy to use, energy-modeling feature within its online tool.

Seeking advice from a qualified expert (e.g. LEED Accredited Professional (AP), EDGE Expert or BREEAM AP or Licensed Assessor) is strongly recommended even when using standards as a design tool. A database of qualified professional is usually provided on standard owner's web page.

Further information related to LEED, BREEAM, Green Star, Well and EDGE standards can be accessed here:

LEED: <https://www.usgbc.org/store/products/publications>

BREEAM <https://www.breeam.com/discover/technical-standards/>

Green Star: <https://new.gbca.org.au/green-star/rating-system/>

WELL: <https://www.wellcertified.com>

EDGE: <https://www.edgebuildings.com>

- **Cost:** For a fully certified development, typical cost includes certification fees (see Table 1 below), assessor / AP consultancy fee and any capital cost (and potentially lifecycle cost saving) associated with improvement measures. The relevant certification body publicizes certification fees while consultancy fee is negotiated on a project-by-project basis. Table 1 below shows certification cost comparison for different standards.

Cost of standard implementation will largely depend on when in the project cycle it is considered. Consideration of standards early during project briefing and conceptual design stage would maximize implementation of zero and low cost opportunities.

Standard	New Office Building			Existing Office Building		
	4,000m <sup>2</sup>	20,000m <sup>2</sup>	60,000m <sup>2</sup>	4,000m <sup>2</sup>	20,000m <sup>2</sup>	60,000m <sup>2</sup>
LEED	\$3,420	\$14,638	\$38,750	\$2,250	\$9,041	\$23,250
BREEAM	\$3,006	\$4,561	\$8,617	\$825	\$825	\$825
EDGE	\$2,250	\$6,750	\$11,000	\$2,250	\$6,750	\$11,000

**Table 1. LEED / BREEAM / EDGE certification fee cost comparison - December 2019**

## Conclusion

Leading international green buildings standards have played a significant role in driving the international green building sector since 1990's. Dozens of UN buildings have already been certified and those buildings tend to outperform non-certified ones across key environmental performance indicators including greenhouse gas emissions, water and waste.

In the context of the 2030 vision for sustainability management in the UN and IPCC CO<sub>2</sub> targets, green building standards offer a robust and essential framework for implementing this necessary and challenging transformation.

To meet the associated goals, standards should be systematically implemented across all newly constructed, leased and renovated UN premises and should aim to achieve exemplar performance. In terms of actual ratings, exemplar performance is associated with LEED Platinum, BREEAM Outstanding, Green Star Six Stars and EDGE Zero Carbon for example.

Achieving this level of performance across all UN facilities is challenging today but with careful planning and necessary human and financial resources it may become a reality by 2030.

Thus a decision today should not be whether to follow a credible international standard but which standard to follow in a particular setting based on project type, size, location, budget and expected outcomes. Choosing the correct standard or standards to follow in a particular setting can be challenging and expert knowledge and guidance are essential. Experts would typically carry out an initial analysis (i.e. pre-assessment), which would be used to facilitate informed decision making.

Given their credibility, scope that addresses topics covered by UN-wide strategy and international coverage, the three leading worldwide standards namely, BREEAM, LEED and GreenStar, should be prioritized when considering which standard to use.

For a quick overview of leading standards and associated features, please refer to the table in the Annex.

## ANNEX: STANDARDS SUMMARY TABLE

	LEED	BREEAM	GreenStar	WELL	Passive House	EDGE
Ownership	<a href="#">USGBC</a>	<a href="#">BRE Trust</a>	<a href="#">GBCA</a> ; <a href="#">NZGBCA</a> <a href="#">GBCSA</a>	USGBC & <a href="#">IWBI</a>	<a href="#">Passive House Institute</a>	<a href="#">IFC</a>
Geographical Coverage	Worldwide (167 countries with certified projects)	Worldwide (86 countries with certified projects)	Australia, Africa, New Zealand	Worldwide	Mainly Europe, North America, Asia	Most countries but mostly emerging economies
Certified Projects	124,000+	571,000+	3,300+	286	4,869	220
Scope	Holistic	Holistic	Holistic	Health & Wellbeing	Energy & Thermal Comfort	Energy; Water; Embodied Energy
Rating Levels	Certified; Silver; Gold; Platinum;	Pass; Good; V. Good; Excellent, Outstanding	1 to 6 Stars	Silver; Gold; Platinum	Certified	Certified, Advanced; Zero Carbon;
Key Advantages	Market appeal; International presence; Holistic; Credibility; Reputation; Benchmarking	Longest established; Holistic; International presence; Credibility; Reputation; Benchmarking; Low Certification Cost;	Credibility; Holistic; Reputation;	Appeal to building occupants; On-site performance measurement;	Exemplar performance; Prestigious label; Life-cycle cost savings;	Facilitates cost comparison; Relative simplicity; UN Family
Disadvantages	Cost; Complexity;	Complexity;	Geographically limited	Limited scope; Cost;	Limited scope;	Limited scope; Not practical for existing buildings;