



## Building certification

### Key points

- **Building certification communicates the advanced environmental performances of buildings, such as energy efficiency and water consumption.**
- **Building certification helps consumers make informed decisions by comparing with a range of similar buildings, thereby making green buildings more competitive in the real estate market. This can be a great incentive for convincing builders to invest in better environmental performance.**

### Building certification explained

Building certification, often referred to with rating or labelling, is a scheme to assess and disclose the environmental performance of buildings. Its purpose is to close the information gap between developers, real estate agents, building owners and tenants. The criteria of certification can vary, ranging from annual energy consumption to efficiency of equipment, building orientation, access to public transport and indoor air quality.<sup>1</sup> Certification can be specialized in energy related performance, such as Energy Star developed by the US Department of Energy. Energy performance building certification may show either the total level of energy consumption or the energy-efficiency rating of buildings.

### How it works

For a building's energy performance to be certified:

- First, the energy performance is assessed by a competent assessor. The performance assessment can be based on either the data acquired from building specifications (known as asset rating) or the measurement of the actual energy consumption (known as operational rating).
- Second, a building energy certificate is issued that reflects the rating the building's energy performance, which, in some cases, also includes information on how to achieve better energy savings. Most certification schemes have a limited validity period for the certificate.
- Third, communicate the information openly through publication of the certificate.

Certification can be useful for new as well as existing buildings. For new buildings, it indicates if a new construction complies with the building (energy) standards and codes. For existing buildings, it indicates the energy performance and provides information that is useful for creating demand for more efficient buildings, thus acting as a prerequisite for improving the energy efficiency of the existing stock of buildings.

The responsibility for managing and issuing certification can be placed either under government authorities or private institutions. Depending on the country, building certification takes a form of either a mandatory or voluntary scheme as seen the following examples:

- **Comprehensive Assessment System for Building Environmental Efficiency (CASBEE)** is a building rating system to assess the environmental efficiency of buildings that was developed by the Japan Sustainable Building Consortium. CASBEE is adopted as a voluntary programme by local governments, with training for assessors and third-party assessments.

<sup>1</sup> Examples of the comprehensive building certification include the Leadership in Energy and Environment Design (LEED) in the USA, Green Building Mark in the Singapore and Comprehensive Assessment System for Built Environment Efficiency (CASBEE) in Japan.

- **The Energy Star** is a voluntary scheme developed by the US Department of Energy and is awarded to new buildings with energy performances that exceed the 2006 Industrial Energy Efficiency Coalition Code by at least 15 per cent. Subsidies and tax exemptions have helped Energy Star to play an important role in energy markets towards higher energy efficiency.
- **European building energy certificates** are designed to push for performance that surpasses building codes and standards under the Energy Performance of Buildings Directive. It is mandatory to have energy performance certificates when buildings are constructed, sold or rented. Large public buildings must be certified regularly every ten years and are required to display the energy performance certificate.

### Strengths of building certification

- Reduces negative environmental impacts, such CO<sub>2</sub> emissions, and saves energy.
- Saves money for building tenants (such as reduced energy costs).
- Increases the marketability of green buildings.
- Guides further improvement efficiency.
- Accumulates data on the environmental performances of buildings for future policymaking.

### Challenges to using building certification

- **Upfront administrative costs:** Issuing the certifications requires skilled professionals and expertise; this can translate into an additional burden for developers and building owners because it is often at their own cost to get a building certificate. More labour and auditing are required for assessing existing buildings.
- **Lack of coordination among certifications:** Different approaches can lead to different energy performance findings for a building and the possibility of a different rating, which may cause confusion.
- **Limited impacts of voluntary basis:** It may be difficult to obtain voluntary participation of builders or building owners without the use of incentives; those who receive a low performance rating are going to be reluctant to remain in the building certification scheme.

### Implementing strategies

**Supplement with supportive measures:** Certification is most successful when complemented with other initiatives that support energy efficiency such as financial incentives and building codes. Builders and building owners and tenants should be ensured access to up-to-date information about incentive programmes. Issued certificates should be clearly communicated to builders, building owners and tenants so that the environmental performance of buildings indicated on the certificate is factored into their decision-making processes.

**Build up technological and administrative capacity:** A training strategy can be set at the planning strategy and competent assessors should be ensured before launching a building certification scheme.

**Require reliable data and continued quality control:** Data should be collected in a comprehensive administrative system and should be monitored. Quality control is a key factor for the ongoing success of a certification scheme; thus, a comprehensive quality-assurance system should be established and related disciplinary procedures should be prepared. A certification scheme should be adapted to changes in policy and legislation.

## Examples

**Green Rating for Integrated Habitat Assessment in India:** India has a second voluntary building environmental performance rating system developed by the Energy and Resources Institute (TERI) jointly with the Indian Ministry of New and Renewable Energy (MNRE), which targets buildings that are not necessarily fully air-conditioned. The rating scheme promotes the use of solar passive design to optimize indoor thermal and visual comfort, resorting to air-conditioning only during periods of extreme discomfort. Considering the fact that India faces a serious shortage of resources, such as fossil fuel and water, the MNRE provides financial assistance to developers, design teams and institutions involved in developing and promoting energy-efficient and green buildings. There are so far more than 100 buildings already registered for the green rating for integrated habitat certification.

**Green Building Mark in Singapore:**<sup>2</sup> The Building and Construction Authority launched the Green Building Mark Scheme in 2005 to drive the construction industry towards more environment-friendly buildings. The initiative aims to green 80 per cent of buildings across Singapore by meeting the Green Buildings Mark standard by 2030, which would lead to large energy savings and also provide environmental and health benefits. Since April 2008, the initiative has required that all new buildings be constructed to the Green Mark standard. As of the end of 2010, 551 new buildings and 65 existing buildings had been certified.

**Leadership in Energy and Environmental Design in the United States:**<sup>3</sup> The Green Building Council developed the Leadership in Energy and Environmental Design (LEED) certification programme in 1998, which targets buildings of all types and sizes. It is a point-based system in which building projects earn LEED points for meeting specific green building criteria including use of renewable energy, energy efficiency, electrical demand, water consumption, access to public transportation, indoor environment, waste management, etc. The LEED standard can be obtained on different levels: certified, silver, gold and platinum, with increasing adherence to the different requirements for the building. An analysis in 2003 found that certified buildings were on average 25–30 per cent more energy efficient; more recent studies confirmed that certified buildings achieve other benefits, including higher rents, sale prices and occupancy rates as well as lower capitalization.

## Further reading

*Energy Performance Certification of Buildings: A Policy Tool to Improve Energy Efficiency* (Paris, IEA and OECD, 2010).

<sup>2</sup> Building and Construction Authority website "About BCA Green Mark Scheme". Available from [www.bca.gov.sg/GreenMark/green\\_mark\\_buildings.html](http://www.bca.gov.sg/GreenMark/green_mark_buildings.html) (accessed 27 January 2012).

<sup>3</sup> United States Green Building Council website "An Introduction to LEED". Available from [www.usgbc.org/DisplayPage.aspx?CategoryID=19](http://www.usgbc.org/DisplayPage.aspx?CategoryID=19) (accessed 27 January 2012).