

Summary

The Comprehensive Assessment System for Built Environment Efficiency (CASBEE) is an evaluation and rating system for environmental performance of buildings and the built environment. It attempts to take an eco-efficiency approach to performance analysis. There are different assessments tailored for both construction and urban development.

Certifying body: Japan Sustainable Building Consortium

Applicable sectors					Award types				
General civil	Transport only	Buildings	Public realm	Community / precinct	Design	As built	Operation	Planning	Other

Country	Japan	Sustainability criteria	<p>There are two main assessment categories:</p> <ul style="list-style-type: none"> - Q (quality): Built Environment Quality. This evaluates "improvement in living amenity for the building users, within the hypothetical enclosed space (the private property)." - L (Load): Built Environment Load. This evaluates "negative aspects of environmental impact which go beyond the hypothetical enclosed space to the outside (the public property)." <p>There are three sub-categories in each main category: - Q1 Indoor environment, Q2 Quality of services, Q3 Outdoor environment; - L1 Energy, L2 Resources & materials, L3 Off-site environment.</p> <p>The number of assessment items is roughly 100 (in case of CASBEE-NC). Each item is assessed and given a score on a scale of one to five.</p>	
Deployment & developments	<p>CASBEE was established by a research committee in 2001 as part of a joint industrial / government / academic project. CASBEE for New Construction (NC) was the first assessment tool, published in 2003. There is now a range of rating tools available, covering: houses, new construction, existing buildings, renovation and temporary construction, heat island relaxation, schools, urban development and cities. In 2012, CASBEE for Market Promotion was released which is a simplified version of CASBEE for Existing Building, designed for people involved in dealing real estate.</p> <p>CASBEE - NC currently has three assessment stages: preliminary design, execution design and construction completion. CASBEE for Pre-design is under development - helping to assist the planning stage of a project.</p> <p>To date, over 300 projects have been certified. Some tools are provided in english.</p>		Assessment: scoring, performance levels, evidence collection	<p>Performance is calculated through the Built Environment Efficiency (BEE) Indicator, where $BEE = Q/L$. There are five award grades, expressed on a five star basis: Superior: S ($BEE \geq 3.0$ and $Q \geq 50$), Very Good: A ($BEE \geq 1.5$), Good: B+ ($BEE \geq 1.0$), Slightly Poor: B- ($BEE \geq 0.5$) and Poor: C ($BEE < 0.5$).</p> <p>Since 2010, a separate star rating is given for performance of life cycle carbon emissions. Where: LCCO2 over 100% (non-energy efficient building) = 1 star; LCCO2 below 100% (current energy efficiency standards are satisfied) = 2 stars; LCCO2 below 80% (30% energy saving achieved during building operation) = 3 stars; LCCO2 below 60% (50% energy saving achieved during building operation) = 4 stars, LCCO2 below 30% (zero energy consumption achieved during building operation) = 5 stars.</p> <p>Applicants need to compile evidence for each assessment item. Most evidence will be in design documents, but some will be specific to certification. Assessments are done by accredited assessors.</p>
Applicants	Designers (to check performance of design), builders and developers. CASBEE could be used as the basis of design competitions and proposals or public sector building requirements.			
Government endorsement	<p>The original venture was supported by the Housing Bureau, a branch of the Ministry of Land, Infrastructure, Transport and Tourism.</p> <p>Some cities provide incentives for meeting certain CASBEE classes. For example, increasing the maximum allowable floor space for meeting a CASBEE B+ class. As of 2012, 24 Japanese local governments have introduced CASBEE for encouraging green buildings.</p>			

Tailoring	Not all criteria are applicable to each assessment stage or to every type of building. The technical manual outlines what criteria are applicable.	Fee	Certification fees (payment to certification organization) range from approx. JPY400,000 to 1,000,000 (varies according to building size and type). Fees for CASBEE accredited assessors and consulting agencies vary.
Support to applicants	<p>Technical manuals are provided for the tools with excel-based spreadsheets to conduct the assessment (downloadable for free). This includes an energy calculation sheet and life cycle CO2 calculation. The manual also provides commentary with references to guidelines and standards. Several case study summary assessments are also provided in the manuals.</p> <p>Simplified versions of the tools are available to make quick assessments.</p> <p>For improving user's convenience, Autodesk is providing an add-on software for Autodesk Revit which can automatically evaluate some of the assessment items.</p> <p>The CASBEE Property Appraisal Manual provides a support tool to measure the building's specification and provision for green building affecting property value.</p>		

Case study
<p>Project name: The Nissan Advanced Technology Centre (NATC) Location: Atsugi City, Kanagawa Prefecture, Japan Proponent: The Nissan Advanced Technology Centre (NATC) Award: S rank certified, 2008</p> <p>Brief project description: This building was designed as a research and development (R&D) hub for advanced technologies, surrounded by nature. An innovative step-structured office space, together with a seven-story atrium and large top-lights, offers pleasant stimulation from the sky and surrounding nature to encourage creative R&D activities. The theatre-like space also significantly enhances communication between different work floors, thus fostering a sense of community.</p> <p>The unique building design was complemented with a wide-range of environment control technologies, such as natural ventilation, exterior blinds and glass roof sprinklers. Rooftop greenery, green cubes and green mounds using concrete debris were designed in harmony with the surrounding environment.</p>



photo by Katsuhisa Kida

The Nissan Advanced Technology Center - CASBEE "Superior" certified