

## Buildings That Support a Sustainable Society

Buildings are more than just the property of the owners and the people that use them. They are long-lasting social assets that create the backdrop of a city, and become part of the development of its culture. Kajima provides buildings that support a wide range of sustainability, encompassing the environment, society and culture.

### (1) Evaluating the environmental performance of buildings

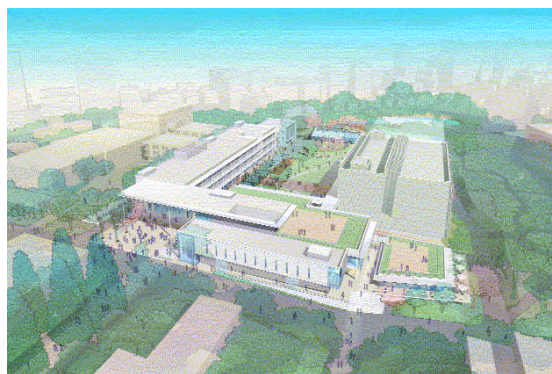
Ensuring that buildings provide greater environmental performance requires more than just cuts in energy and resource consumption, and reducing the environmental burden. It is also important to assess a wide range of improvements in environmental quality and function, such as the indoor environment and impact on the urban landscape. To provide for such a system of evaluating the overall environmental performance of a building, the CASBEE\* system was developed through a collaborative project that brought together industry, government and academia. Under the CASBEE system, a building is assessed in terms of its Building Environmental Efficiency (BEE) ratio of environmental quality, functions and burden.

Kajima had steadily pursued eco-friendly design before the development of CASBEE, but from 2004 began using a special design assessment sheet based on CASBEE standards, and incorporated attainment of class B+ or higher (BEE rating of 1.0 or higher) as one of the targets of its 2003 to 2005 medium-term business plan.

\*Comprehensive Assessment System for Building Environmental Efficiency  
(<http://www.ibec.or.jp/CASBEE/english/index.htm>)

### **Case study: Design for an Eco-Friendly Education Facility** **The University of Tokyo Komaba Communication Plaza**

Kajima provided an optimal environmental design based on CASBEE from the initial design stage, striking a favorable balance of eco-friendly and sustainable design. The earth-conscious design incorporates such features as natural ventilation, rooftop gardens and overhanging rooflike structures to regulate sunlight, reducing energy and resource consumption for the entire life-cycle cost of the building.



The University of Tokyo Komaba Communication Plaza

**(2) Extending building life**

The service life of buildings in Japan is shorter than that of buildings in Europe or the United States, with buildings regularly torn down and rebuilt mainly for social or economic reasons. Kajima’s Free-Plan High-Rise Housing System (using Super Reinforced-Concrete Frame Construction) provides both a long service life for buildings, as well as allows their social life to be extended by providing the flexibility for easier renovation of interiors or facilities. This system is about more than just facilities, forming a key element in Kajima’s vision of creating long-lived buildings that can be used for over a century. Kajima has built nine high-rise towers using this method.



Tokyo Times Tower (Tokyo, Chiyoda-ku)

**(3) Preserving natural beauty**



The Karuizawa Ohga Hall in Nagano Prefecture

The Karuizawa Ohga Hall in Nagano Prefecture is a pentagon-shaped concert hall with superior acoustic qualities that creates a shared sense of unity between the performers and the audience. Locally harvested Japanese larch was used for both the interior and exterior, with skylights and a performer’s lounge that allow both performers and the audience to enjoy the natural environment of Karuizawa.

**(4) Another perspective on energy conservation**



The Chichu Art Museum in Naoshima, Kagawa Prefecture

The Chichu Art Museum in Naoshima, Kagawa Prefecture and designed by Tadao Ando, was built underground as a way of maintaining harmony with the rich natural environment and the natural beauty of the area, as well as providing greater heat retention. The air conditioning system in the display galleries dehumidifies the outside air independently, rather than the more traditional system of dehumidifying the outside and inside air together.