

# Building Construction

Revenues  
**¥745.9 billion**

Operating Income  
**¥9.9 billion**

The Building Construction segment comprises building design and construction operations in Kajima's domestic construction business. In the fiscal year ended March 31, 2013, segment revenues remained flat year on year, edging down ¥2.6 billion, or 0.3%, to ¥745.9 billion. Operating income, however, decreased ¥3.5 billion year on year, or 26.1%, to ¥9.9 billion, mainly owing to worsening profits from some construction projects.



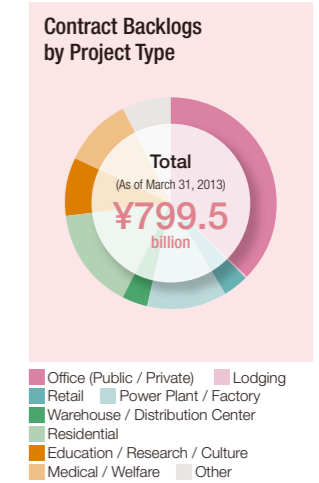
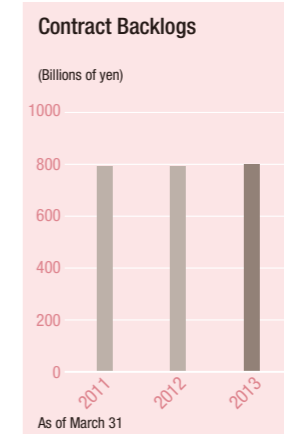
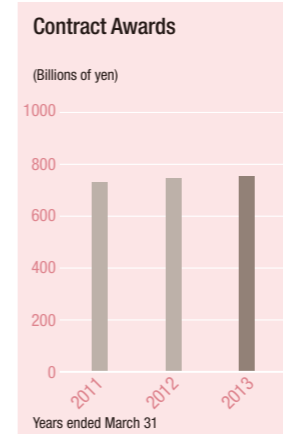
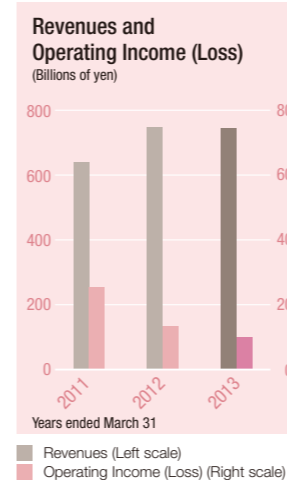
▲ DiverCity Tokyo Office Tower



● Tokyo Station Marunouchi Building



● Shinjuku Eastside Square



Kajima's Building Construction business strives to construct safe and secure spaces that allow people to enjoy comfortable lifestyles and activities. Examples include renovation of buildings to make them more energy efficient, and work to help buildings withstand long-period ground motion caused by massive earthquakes, which are projected to occur in Japan in the future. Kajima oversees projects from the design stage onward, allowing it to consider a building's lifecycle and environment from the outset, as well as to plan a flexible arrangement of rooms in the building. The Company also pursues cutting-edge R&D on construction techniques, and combines a wide range of expertise to continually explore ways to create buildings and structures that meet user needs.

Based on its strong track record in the industry, Kajima has built up relations of trust with a broad network of customers, which in turn leads to new projects. In every project carried out, therefore, we recognize the importance of upholding the Company's reputation for ensuring sustainable operations in the years ahead.

We also understand the importance of close cooperation between Kajima's engineers and subcontractors to ensure quality at construction sites. Concurrently, we provide engineers with training programs covering a wide spectrum of topics while keeping abreast of trends in the construction industry as a whole.

## Aiming to Make ZEB a Reality by 2020

Kajima is developing numerous technologies and promoting on-site verification at its facilities, with the goal of achieving zero-energy buildings (ZEB) by 2020. Kajima is examining how to incorporate these buildings in its concept of smart communities, which are designed to expand the use of district energy networks and urban management.

Kajima is also considering how to remodel existing office buildings into ZEB with the goal of conserving energy and reducing CO<sub>2</sub> emissions. In 2011, the Company conducted on-site verification after renovating a section of the Kajima KI Building. Test results showed that energy consumption was reduced by 50% compared to the period before renovation.



Kajima KI Building



Research Building at Kajima Technical Research Institute



For this project, Kajima carried out joint R&D with other leading companies in a number of fields including air conditioning and lighting. This resulted in unique developments such as visualization of energy consumption in real time and computer applications for optimizing office environments using ordinary tablet PCs, as well as a smart power control system that recharges lithium-ion batteries using solar panels to ensure a stable supply of electricity. In recognition of the importance of renovation for ZEB, Kajima received the Good Design Award 2012.

In addition, the Company dramatically improved the Kajima Technical Research Institute's energy consumption during operations after completing the institute's main research building in 2011. This resulted in a 62% reduction in annual CO<sub>2</sub> emissions during the fiscal 2012. Recognizing these results as among the best in the country, the Society of Heating, Air-Conditioning and Sanitary Engineers of Japan awarded a prize to Kajima at its 51st awards ceremony.

## Preserving Historical Buildings for Generations to Come

Located in the city of Himeji in Hyogo Prefecture, Himeji Castle is registered as a World Heritage Site and designated as a national treasure in Japan. A full-scale restoration project is currently under way by Kajima joint-venture company to preserve the castle for future generations. While the castle has been restored many times since it was built more than 400 years ago, nearly 50 years have passed since the previous major restoration project completed in 1964, for which Kajima constructed the scaffolding and temporary roof around the building.

This restoration project calls for replacement of all roofing of the castle's main keep. The Castle's five levels of outer walls together with soffits, gables, roof tile joints and other structures will be replastered after the outer walls are stripped down. Structural tests are being conducted in addition to seismic retrofit work.

Construction began in October 2009. After the erection of protective scaffolding and a temporary gantry around the castle to enable renovation work to start, repair and restoration work was launched in April 2011. About 80,000 roof tiles were removed and then inspected, documented and selected for reuse or replacement, after which work was carried out to replaster the walls and replace the roof tiles. About 80% of the roof tiles were reused, and reinforcement and stabilization were achieved by fixing all plain tiles with nails. The preservation work for the roofs of the five-level castle's main keep has already been completed.



Restoration and repair work underway at Himeji Castle, a World Heritage Site

Going forward, most of the restoration work consists of replastering walls and is scheduled to finish in the spring of 2015. When the work is done, visitors will once again marvel at the stunning appearance of Himeji Castle, an extraordinary example of Japan's castle building techniques and design, of which the country can be very proud.

## Restoring Tokyo's Historic Train Station to Its Original Appearance from a Century Ago, While Enabling Passengers to Keep Using It

The Tokyo Station Marunouchi Building was designed by architect Kingo Tatsuno and completed in 1914. Although its third (top) floor was destroyed by bombing during World War II, it was eventually designated as an important cultural property in Japan, in 2003. The station building was fully renovated in October 2012. For five and a half years from 2007, Kajima worked to restore the station to its original appearance, while

installing seismic isolators to boost earthquake resistance.

To restore the station's copper-plated north and south domes, slated roof, cast stone walls, ornamental tiles, and reliefs inside the domes, Kajima researched the building materials and tools used a century ago, because they differed completely from materials employed today. Kajima also revived unique Japanese building techniques used in the past to restore the station, and will pass down these traditional methods to the next generation.

Kajima drew on its accumulated expertise and latest technologies for the underground construction work, building an underground frame to facilitate a parking garage and shifting the entire 335-meter long, 70,000-ton building from pine piles to a base isolation system.

Incredibly, Kajima performed all of this work while some 760,000 passengers used the station each day, since it is a major transportation hub in the city. Without disrupting Tokyo Station's role and operations, Kajima supervised a total of about 78,000 people involved in construction to complete the project, successfully restoring and preserving a cultural asset while improving its value and convenience.



Tokyo Station Marunouchi Building

## Nurturing Human Resources in the Building Construction Division

Kajima's Building Construction Division works to ensure that its engineers receive training at an early stage so that they can respond precisely to requests from customers and other companies. Accordingly, the division steadily develops human resources by establishing a comprehensive training program with three levels and sharing a target profile at each level with program participants. The division designates the first five years after employees join the Company as an important training period, and the following five years as a time to acquire more advanced skills and construction site management abilities.

In addition, the Building Construction Division strives to expand its expertise in foreign construction practices by boosting the number of personnel with such experience throughout the Company. To this end, the division dispatches young employees overseas early on in their careers so that they can gain experience at construction sites outside Japan. Soon after finishing their first important training period, engineers work for three to five years at construction sites abroad. In this way, they learn business customs, gain work skills and develop their abilities to respond to customer needs.



Practical training on drafting a working drawing



Group exercise in introductory education

## External Evaluations and Awards

Kajima puts the utmost priority on quality, safety and the environment when undertaking construction work and conducting a broad spectrum of research and technical development. These efforts have been recognized with awards in numerous fields.

### BCS Award

Kajima was presented with 2012 BCS Awards for two buildings it constructed—the GC Corporate Center and the Yamaha Ginza Building—from the Building Contractors Society (BCS) at the 53rd awards ceremony. BCS Awards are given to recognize outstanding new buildings in Japan. They have been presented every year since their establishment in 1960, in line with the view that design as well as construction techniques are essential for constructing superior buildings, and that cooperation and understanding among building owners, designers and builders are vital. To date, the awards have commended 186 buildings.



GC Corporate Center

### Good Design Award

Sponsored by the Japan Institute of Design Promotion, the Good Design Award recognizes outstanding overall design. Kajima was presented with a total of five Good Design Awards in 2012, including for the Akasaka K-Tower and the Komatsu Ltd. Osaka Technical Center in the Space, Architecture, Facility for Industry category. In the Service and System for Public category, Kajima received an award for grade-separated railroad crossings for the Keikyu Main and Airport train lines at Keikyu Kamata Station in Tokyo.



AKASAKA K-TOWER

## A Building Constructed by Kajima 50 Years Ago, and Still in Use Today, Wins a High Rating

Kajima constructed the Riccar Kaikan in Tokyo's Ginza district in 1963. The building has since been renamed the Daiwa Ginza Building and is now owned by Daiwa Office Investment Corporation. In June 2012, as it approached its 50th anniversary, the building was given a Gold certification by the SMBC Sustainable Building Assessment Loan program for its highly sustainable operations, reflecting a history of proper building maintenance and management. A comprehensive range of factors are taken into account for this rating, including environmental performance, implementation of sustainable management policies, and risk management initiatives necessary to preserve the building, including seismic reinforcement, business continuity planning and business continuity management.

The building incorporated a number of building techniques when it was built, and won a prize from the Architectural Institute of Japan at the time. In 2002, then under the ownership of a real estate fund managed by K.K. daVinci Advisors, the building was completely renovated to increase the property value. Extensive seismic reinforcement work was undertaken, but the external design was not altered. As a result, in 2006 the building

was recognized with a Building and Equipment Life Cycle Association (BELCA) Prize in the Long Life category for its contribution to excellent building stock. As the Daiwa Ginza Building continues in use, Kajima hopes to carry out renovation and construction of new buildings that can offer the same kind of high added value in the years ahead.



Daiwa Ginza Building