## **BUILDING CONSTRUCTION**

Kajima has a competitive advantage as the pioneer of super-high-rise office building construction and nuclear power plant construction in Japan, with a broad track record of constructing other types of buildings as well. Capitalizing on its strengths of seismic resistance, isolation and control technologies, along with expertise in environmental and engineering areas, Kajima is meeting the multifarious needs of our customers.

## REVIVING A PAST ICON: WORK TO PRESERVE AND RESTORE TOKYO STATION'S MARUNOUCHI BUILDING TO ITS ORIGINAL GREATNESS

Tokyo Station is the point of origination for northand south-bound bullet

trains and a hub for numerous other conventional rail lines. The Marunouchi Building at Tokyo Station, built in 1914, is Japan's largest brick building and is designated as one of the country's important cultural properties. We won the contract to preserve and restore this building, and work is now underway.

The goals for this restoration project are two-fold. The first is to preserve and utilize as much of the present building as possible. The second is to restore the building to its original appearance by recreating the roof, northern and southern domes, and other architectural elements destroyed during World War Two. Because most of the original structure was built by professional artisans by hand, we are drawing on the knowledge and techniques of noted experts and traditional artisans, incorporating the specifications and methodologies of the time in its restoration work wherever possible.

In tandem, we are developing a new underground structure that will expand and enhance the Marunouchi Building's functionality. State-of-the-art technologies, such as seismic isolation systems, will also be adopted to ensure that this cultural asset remains for generations to come. In building the underground structure and making the site more earthquake resistant, the entire length and weight of this massive building, measuring some 335 meters and roughly 70,000 tons, must be temporarily supported. This dynamic concept for performing seismic-resistance work, which entails building an enormous cavern underground while the interior of the station structure remains in use, is the largest-scale effort of its kind ever attempted in Japan.

We are driving this project steadily forward towards a scheduled completion date of 2012.



Image of planned dome for the Marunouchi Building

## TOPICS 02

TOPICS 01

## RESTORATION WORK PROCEEDING ON ONE OF JAPAN'S NATIONAL TREASURES – HIMEJI CASTLE

Located in the city of Himeji, Hyogo Prefecture, Himeji Castle is

designated as a national treasure in Japan for its large and beautiful tenshu, or keep, that has survived from the Edo period to today. It is a registered World Heritage site as well. Having stood for more than four centuries now, the castle has been the subject of a major restoration project for the past 45 years or so. Today, we are responsible for carrying that work forward.

For the current restoration work, once the temporary gantry and roof for performing the work are in place, the roof tiles on the largest part of the keep will be completely replaced. The large outer wall near the top of the keep will also be broken down and repairs made to the mortar and paint on the damaged gables and other areas. A partial teardown analysis will be performed and structural reinforcement work carried out at the same time as structural checks.

In March 2011, we completed work on a steel-framed temporary roof structure. This structure will protect the castle, where brick and mortar are starting to fall away, from wind and rain during the three-year restoration effort. In building this temporary roof, causing damage to the ground was not an option since the site where the massive keep stands itself holds special historical significance. In response, rather than dig into the ground, we erected the 52-meter high, 1,700-ton steel frame on a 3,700-ton slab of concrete, which sits aboveground.

Today, Himeji Castle is covered by a

temporary roof, completely obscuring any exterior view of the castle. With that said, an observation facility has been built at the very top of the temporary roof structure, where visitors can observe up close the restoration effort underway. With work scheduled to finish in March 2015, we will continue pushing ahead with this project to restore one of Japan's best-known treasures.



Himeji Castle under restoration

Projects completed during the fiscal year ended March 31, 2011



Tokyo International Airport (Haneda) International Passenger Terminal Building



Kanagawa Arts Theatre



Park City Hamadayama

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Kyoto-Yodobashi



Sumitomo Mitsui Banking Corporation Head Office



Tokyo Southern Garden



SANYO's Kasai Green Energy Park



Toyosu Front