2010 OCEA Award
(Outstanding Civil Engineering Achievement Award)

◆Group Ⅰ

This award is presented in recognition of an achievement relating to innovative planning or design, or individual technologies such as constructing technologies that made an outstanding contribution to the further advancement of civil engineering technology in relation to a specific project.

Jiyoshi Tunnel, National Highway No. 440
-Penetrate through Tough Aquifer directly under Karst Plateau-

Ministry of Land, Infrastructure, Transport and Tourism Construction Controller, Nakamura Office of River and National Highway/ Kajima Corporation

Summary

The Jiyoshi Tunnel on National Highway No. 440 is 2,990 m long and passes directly under Shikoku Karst plateau lying across 25 km east-to-west, over the division between the two Prefectures of Ehime and Kochi in the southwest of Shikoku. In the Ehime Prefecture section, the limestone bedrock that appeared along with water inflow of 20 ton/min in the vicinity of 700 m from the portal was aquifer similar to that of the Seikan Tunnel, that is a typical undersea tunnel. The aquifer had groundwater pressure of 2.65 MPa at maximum.

Under these requirements, safe and efficent construction work was realized by introducing new technologies, and by devising better design and construction processes. It can be evaluated that this work was contributed to the development of new technologies for tunnel construction.

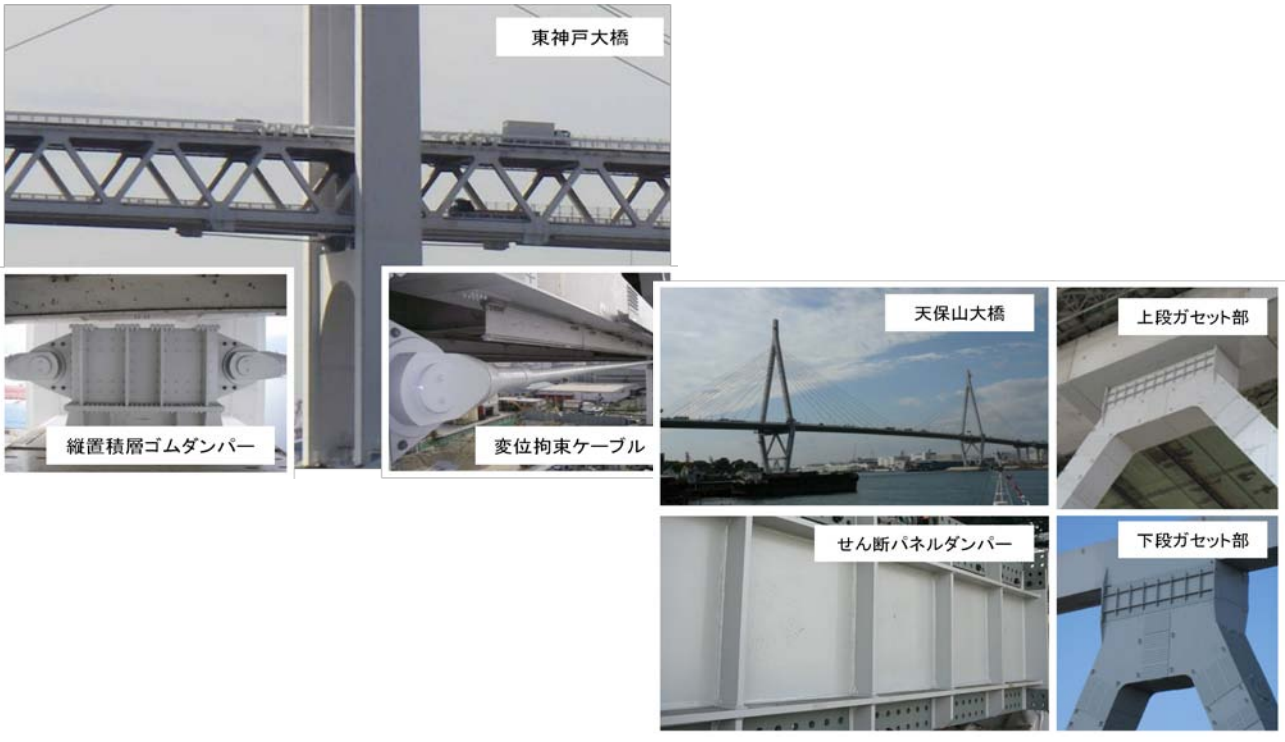
Rational seismic retrofit of long-span cable-stayed bridges with energy dissipation devices
-Higashi-Kobe Bridge and Tempozan Bridge-

Hanshin Expressway Co.,Ltd.,/ Sho-Bond Corp./ Hitachi Zosen Corp./ Kawakin Core-Tech Co.,Ltd./ Sogo Engineering Inc./ Nippon Engineering Consultants Co.,Ltd.

Summary

A damper system compatible with large capacity and large displacement by combining vertical sandwich high damping rubber and cables was developed and applied to the Higashi-Kobe Bridge, an 885 m cable-stayed steel bridge with a center span of 485 m, after performance verification. Another damper system using hysteretic shear panel dampers with low yield strength steel was also developed and applied to the Tempozan Bridge, a 640 m cable-stayed steel bridge with a center span of 350 m, after performance verification.

The new damper systems should be applicable to other existing bridges and worth consideration for new bridges, to achieve the rational seismic retrofit.



PFI Project for International Airfield Apron in Haneda Airport

-The apron in the international flight area started operation in 2010! The new Haneda International Airport era is arriving!-

Tokyo Airport Construction Office, Kanto Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism/ Haneda International Airport Apron PFI Co.,Ltd./
TAISEI,KAJIMA,Penta-Ocean,Toa,KAJIMA ROAD,and Taisei Rotec Cross-Work Item Construction Joint Venture

Summary

As the Japan's first massive civil engineering PFI project, the project is intended to construct basic airport facilities including an airfield apron in the international flight area, aviation security facilities, roads at the curbside in the airport, and to maintain those facilities after the construction.

A range of technological approaches was applied to facilities construction by considering the risk management and lower life cycle cost over the designed service period of 50 years, which results in a great contribution to the development of civil engineering technology.