

2009 Tanaka Award

Excellence in Bridge Design and Construction:

the award is made to recognize a constructed, or reconstructed bridge, or related structures which possess excellent quality in planning, design, construction, maintenance and management and exhibit technical and aesthetic excellence. The award is made not to individuals who were involved in construction of bridge, but rather to the work produced based on those individuals' superb collaboration and performance under the supervision and management of an organization, or organizations during the entire construction process.

Incheon Bridge

IBC(Incheon Bridge Co.,Ltd.)/ Korea Expressway Corporation/ Chodai Co.,Ltd.

Seoyeong Engineering Co.,Ltd./ Samsung C&T Corporation

Summary

Incheon Bridge links Incheon international Airport and Incheon Songko Economic Free Zone across the Port of Incheon. Its length is 12.3km and it is categorized as a marine bridge.

The construction yard was used to fabricate concrete materials. Then, they were swiftly carried to the erection site. The project term was much shortened by the also applied“ Fast Track ”which conducts planning / design / procurement / erection simultaneously in the project. As a result, the project was completed in only 52 months.

The most advanced technology was applied to the project and high efficiency, quality and low costs have been realized.



Stonecutters Bridge

Highways Department The Government of the Hong Kong Special Administrative Region, Ove Arup and Partners Hong Kong Ltd., Maeda Corp., Hitachi Zosen Corp., Yokogawa Bridge Corp., Hsin Chong Construction Co., Ltd.

Summary

Stonecutters Bridge is one of the longest cable-stayed bridges in the world. The total length of the bridge is 1,596m long and its center span is 1,018m long. The main tower is about 298m high. The structure is composed of two towers of the single column and two box girders, and it combines a simple and elegant shape and the aerodynamic stability. The tower is a hollow column with an oval section tapering to a circular section. The lower part of the tower is a reinforced concrete structure and the upper part is a steel-concrete composite structure with an outer skin of stainless steel. Hydraulic buffers are provided at the deck level between the towers and steel decks in order to provide a longitudinal rigid restraint against sudden deck movement due to impact loads such as strong wind loading, whilst thermal deck movement is allowed.



Kyushu Shinkansen Matsubara Intersection Bridge

Japan Railway Construction, Transport and Technology Agency, Kyushu Railway co., FUKKEN ENGINEERING Co., Ltd., Sumitomo Heavy Industries, Ltd., Matsuo Bridge Co., Ltd., MIYAJI IRON WORKS Co., Ltd., KOMAI TEKKO Inc., Yokogawa Bridge Corp., TAKADAKIKO Co., Ltd., SAKURADA Co., Ltd., Hitachi Zosen Corp., Kyutetsu Corp., Yokogawa Construction Co., Ltd., PENTA-OCEAN CONSTRUCTION Co., Ltd., SATOBENEC Co., Ltd., HIROSEGUMI Co., Ltd.

Summary

Kyushu Shinkansen Matsubara Intersection Bridge is the longest in Japan as the overbridge through on the railway of 1,243m in length that is composed of a simple support composite girder and 6 continuous composite girders. The substructure consists of 16 steel gate type piers and 6 RC piers. The steel piers have a horizontal beam of the span of about 25m where the railway track is stepped over. To be overcrowded of the factory and the private house near the construction place, the work yard was narrow, and the rapid construction of the horizontal beam of the steel pier construction in night time was necessary. Conditions of construction were solved by various new technologies.



Sarutagawa Bridge and Tomoegawa Bridge

Tokyo Branch, Central Nippon Expressway Co., Ltd./ Asia Air Survey Co., Ltd./ Shin Nihon Giken Engineering Co., Ltd./ Joint Venture of OBAYASHI Corp., Showa Concrete, Inc. and HALTEC Corp./ Joint Venture of P.S. Mitsubishi Construction Co., Ltd. and Abe Nikko Kogyo Co., Ltd./ Mitsubishi Construction Co., Ltd./ Joint Venture of Kumagai Gumi Co., Ltd. and Honma Corp./ Joint Venture of Fujita Corp., ANDO Corp. and Taihei Kogyo Co., Ltd.

Summary

Both Sarutagawa Bridge and Tomoegawa Bridge are formed as PC composite truss structures, having total length of 1.2 km. In order to accomplish the design concept of harmonization with the surrounding environment and of giving the impression of lightness in mass, the PC composite truss structure was adopted for the first time in Japan. The maximum span length is 119m which is the longest in the world among the same type of bridges.

Joint portions of steel truss members to concrete slabs are deliberately designed having double tubes and double gusset plates. In the first construction of westbound of the bridges, the cross section consisted of four panels of truss. With the experience of westbound construction, the design of cross section of eastbound was progressed to realize the three panels of truss structure.

