

# JPCI Award 2017

## 【JPCI Award for Outstanding Structures】



### ●Dinh Vu - Cat Hai Bridge

**Location** : Hai Phong, Vietnam  
**Structural Type** : 3-span PC cable stayed bridge (main),  
**Bridge Length** : 5,443m  
(Approach Bridge Hai An side (HAB); 4,434m  
+ Main Bridge (MB); 490m  
+ Approach Bridge Cat Hai side (CHB); 519m)  
**Span** : HAB;59m+3@60m+59m(standard span)  
MB;94m+2@150m+94m,  
CHB;53.8m+3@60m+53.8m  
-53.8m+2@60m+53.8m  
**Width** : 16m (effective width 15m)  
**Design** : Oriental Consultants Global -Padeco -Nippon Koei  
- Japan Bridge & Structure Institute JV  
**Construction** : Sumitomo Mitsui Construction  
-Truong Son -Cienco4 JV



### ●CoFuFun

**Location** : Tenri-City, Nara  
**Structural Type** : Pre-cast prestressed concrete (PCaPC)  
Corn Shell  
**Number of Stories** : 1 story  
**Building use** : Rest facilities, Café,  
Base for sightseeing  
**Total floor space** : 188.88m<sup>2</sup>, 497.47m<sup>2</sup>  
**Design** : Oki Sato (Nendo, Inc.)  
**Surveillance** : Seed Consultant, Inc.  
Yasui Architects & Engineers, Inc.  
Hojo Structure Research Institute  
**Construction** : Daiwa House Industry  
(Total) -Okatoku Kensetsu JV  
**Construction (PC)** : P.S. Mitsubishi Construction Co., Ltd.



### ●Shibata City Hall

**Location** : Shibata-City, Niigata  
**Structural Type** : Low rise part; RC shear wall  
structure +PC Slab  
High rise part; Steel suspended  
structure  
**Number of Stories** : 7 stories + 1 story basement  
**Building use** : Government office  
**Floor Space** : 2841.31m<sup>2</sup>  
**Total floor space** : 13995.69m<sup>2</sup>  
**Design** : aat+makoto yokomizo architects, Inc.,  
Arup  
**Construction** : Taisei-Shibata-Ito JV

# JPCI Award 2017

## 【JPCI Award for Outstanding Structures】



### ●Yamanashi- Bunkakaikan

#### Seismic up-grading project

Location : Kofu -City, Yamanashi

#### Outline of Structure:

Fifty years have passed since completion, Yamanashi-Bunkakaikan is known as a representative work of Kenzo Tange, having unique design that 16 cylindrical columns with a diameter of 5m support the building. Seismic up-grading work was carried out to keep using for the next 50 years.

In this construction work, the mid-story seismic isolation at the second basement floor was adopted not to stop daily work without changing exterior design. Although installing works of isolation devices by cutting cylindrical column was extremely difficult, by planning to maximize the effect of prestressed concrete structure for the isolation device foundation, we were able to carry out construction with safety and functionality.

Structural Design : Orimoto Structural Engineers

Construction : Sumitomo Mitsui Construction Co.,Ltd.

## 【JPCI Award for Outstanding Engineering Innovations】



### ●Self-Propelled Stay-Cable Inspection Device

#### Summary:

Cable-stayed bridges and extradosed bridges are composed of girders, towers and stay-cables. The most important components are the cables. Therefore, it is essential to maintain the cables properly.

The inspection of cable-stayed and extradosed bridges is generally conducted by visually inspecting the protection pipes. However, it is difficult to apply the visual inspections when the cables are attached to the upper reaches of the tower. In addition, we cannot confirm the condition of the steel materials in the protection pipes with visual inspection. Therefore, we have developed a self-propelled stay-cable inspection device equipped with video cameras which allow us to examine the exterior of the protection pipe and an inspection sensor which can detect the rupture of internal steel materials.

Development:Central Nippon Expressway Company Limited

# JPCI Award 2017

## 【JPCI Award for Outstanding Accomplishments of Constructions】



### ●Reinforcement work for Sawasokogawa Bridge on Chuo Expressway

**Location:** Tatsuno-cho, Kamiina-gun, Nagano

**Outline of Structure:**

Sawasokogawa Bridge is a three-span PC continuous composite girder bridge with a bridge length of 70 meters which has been around for 35 years since the start of service. The reinforcement work was carried out for the first time in Japan, the first full reinforcement work to remove all the primary deck near the intermediate fulcrum and the slab connecting cable and to reinforce with the floor slab replacement and external cable.

**Design** : Oriental Consultants Co., Ltd.

**Construction** : Oriental Shiraishi Co., Ltd.



### ●Replacement of slab work for Michitani bridge on Chugoku Expressway

**Location:** Shunann-city~Yamaguchi-city, Yamaguchi

**Outline of Structure:**

Michitani bridge No.2(inbound lane) on Chugoku Expressway is a 3-span continuous non-composite plate girder bridge which has been in service for 36 years, and the length of the bridge is 115 m. We replaced RC-Slabs damaged by salt with Precast PC-Slabs under open traffic. By traditional construction method, we had to close the whole width of inbound lane to replace the RC-Slabs. Moreover, in this location, we had to close a large traffic area to proceed the construction work because inbound and outbound lanes are separated. Additionally, due to the near location to SA・PA, keeping constant flow of regular traffic was difficult. Therefore, we have developed a new technique of “half sectional precast PC-slab replacement method” to replace RC-Slabs under open traffic to solve these problems.

**Design** : P.S. Mitsubishi Construction Co., Ltd.

**Construction** : P.S. Mitsubishi Construction Co., Ltd.



### ●Shiokawa Bridge on Shin-Meishin Expressway

**Location:** Kawanishi-city, Hyogo

**Outline of Structure:**

The inbound lane is 97.0 m long, PRC box-girder continuous rigid frame with two spans. Since the bridge crosses over the national road and the river between P1 and A2, the length of P1 and A2 is twice the length of A1 and P1.

The outbound lane, 233.5 m long, was a PRC box-girder bridge of continuous rigid frame with three spans. The length of cantilever was 89.2 meters long on one side. This cantilever length is one of the longest PC bridges in Japan using the same type and the same construction method.

Initially, the abutments of A2 were planned to be constructed from the tunnel side. However, construction was changed to start from the forefront of the outbound lane superstructure of a longest cantilevering.

**Design** : P.S. Mitsubishi Construction Co., Ltd.

Nippon Engineering Consultants Co., Ltd.

**Construction** : P.S. Mitsubishi Construction Co., Ltd.