# JPCEA NEWSLETTER

No.4, July 2011

Japan Prestressed Concrete Engineering Association

## *Message from President*

*Toyoaki Miyagawa, President of JPCEA*
*Professor, Kyoto University*

Japan Prestressed Concrete Engineering Association (here after JPCEA) was established in 1958. Since that, JPCEA has act to investigate, research and spread their fruit related to prestressed concrete (here after PC) technologies in Japan for a half century. Numbers of publications have been published, and plenty of seminars and symposiums have been held up to now. As written on the articles of an association, JPCAE has "contributed to provide and expand infrastructures by means of spreading and promoting prestressed concrete technologies on every matter".

Also, in order to "make contact and offer opinions to related domestic and abroad organizations", JPCEA, representing Japan, joined fédération internationale du béton (*fib*), with Japan Concrete Institute, an important international organization in this field. JPCEA, as you may know, hosted the first *fib* congress in Osaka, and has taken the leadership in Japan.

Meanwhile, we have started the for "the Authorized Prestressed Concrete Engineer" certificate system to attempt improving the quality of engineers who are

engaged in planning, designing, construction, and management of PC technology, and for ensuring the quality of PC structures from 1993. Also, in order to certify qualified engineers for maintenance of existing PC structures and/or reinforced concrete structures, we started "the Professional Engineer for Concrete Structural Diagnosis and Maintenance" certificate system in 2007. We have already certified people as qualified personnel.

As stated above, we plan to take up not only the issue of PC technology, but also the constructive issue of concrete structures for contribution to society through various activities. Responding to the declining birthrate and aging society in Japan, we are opening up our activities such as annual symposium, "Symposium on Developments in Prestressed Concrete", and "PC Seminar" to younger engineers and researchers. We wish that more people would be interested in participation our future activities.

Lastly, I have an announcement. Before April 2012, the name of JPCEA will be changed to Japan Prestressed Concrete Institute (JPCI) according to the new Japanese law for corporate juridical person. We are very happy if you remember this new name.

## *JPCEA AWARD 2010*

Annual general meeting was held on 18 May 2011, and the last year's JPCEA AWARDS were presented. Prize winners are as follows.

### JPCEA Award for Outstanding Structures

**Amarube Bridge**

**Location :** Hyogo
**Structural Type :** 5-span continuous PC box girder extradosed bridge
**Bridge Length :** 310.6m
**Span :** 50.1m+82.5m+82.5m+55.0m+34.1m
**Width :** 5.5m
**Design :** JR West Japan Consultants Company
**Construction :** Joint Venture of Shimizu Corp. and The Zenitaka Corp.

## Fudo Ohashi Bridge

**Location :** Gunma
**Structural Type :** 5-span PC compound truss extradosed bridge
**Bridge Length :** 590m
**Span :** 63.4m＋125.0m＋2@155.0m＋88.4m
**Width :** 13.0m
**Design :** Ministry of Land, Infrastructure, Transport and Tourism, Kanto Regional Development Bureau,CTI Engineering
**Construction :** Kawada Construction, GST JV, Koyama Kensetsu Kogyo, Nissan Rinkai Construction, Nittoku Construction

## Pier Structures of D-runway of the Tokyo International Airport

**Location :** Tokyo
**Structural Type :** Precast PC slabs and Precast UFC (Ultra high strength Fiber reinforced Concrete) slabs
**Bridge Length :** 1,100m (total length of pier structures)
**Width :** 524m (total width of pier structures)
**Design :** Haneda Airport Expansion Project JV
**Construction :** Haneda Airport Expansion Project JV

## Yumekake Bridge

**Location :** Nara
**Structural Type :** 3-span continuous extradosed prestressed concrete rigid frame bridge
**Bridge Length :** 290.0m
**Span :** 42.250m + 127.000m + 118.900m
**Width :** 10.510m ～ 13.552m
**Design :** Chodai Co., Ltd.
**Construction :** Joint Venture of The Zenitaka Corporation & Showa Concrete Industry Co., Ltd.

## Colorado River Bridge

**Location :** Hoover Dam Site between Nevada/Arizona USA
**Structural Type :** Concrete Arch Bridge
**Bridge Length :** 578m
**Span :** 323m (arch span)
**Width :** 26.8m
**Design :** T.Y.Lin International / HDR Engineering / Sverdrup Civil Incorporation
**Construction :** Obayashi・PS-Mitsubishi Construction USA JV

## Minato Mirai Center Building

**Location :** Kanagawa
**Structural Type :** RC, S and PCaPC beam
**Number of Stories:** 21-story structure with 2-level basement
**Building use :** Office and retail
**Floor Space :** 5,197㎡
**Total floor space :** 95,220㎡
**Design :** Taisei Corporation
**Construction :** Taisei Corporation

## Warumi Bridge

**Location :** Okinawa
**Structural Type :** Fixed Concrete Arch Deck Bridge
**Bridge Length :** 315.0m
**Span :** 26.3m+25.0m+3@20.0m+60.0m+5@24.0m+22.3m
**Arch Span :** 210.0m
**Width :** 10.0m
**Design :** CTI Engineering,Chuo Kensetu Consultant JV
**Construction :** Zenitaka,Takenaka Doboku,Kokuba JV

## Yatogawa Bridge

**Location :** Shizuoka
**Structural Type :** 5 span, PC bridge with corrugated steel web with strutted slab
**Bridge Length :** 383.5m,406.0m
**Span :** 43.8+91.0+135.0+74.0+37.3m 34.8+81.0+131.5+95.5+60.8m
**Width :** 16.5m
**Design :** Central Nippon Expressway Co.,Ltd, Oriental Consultants Co.,Ltd, Yachiyo Engineering Co.,Ltd, DPS Bridge Works, Higashi Nihon Concrete JV, Kawada Construction Co.,Ltd
**Construction :** DPS Bridge Works, Higashi Nihon Concrete JV, Kawada Construction Co.,Ltd

## Showa Gakuin Ito Hall

**Location :** Chiba
**Structural type :** RC+PCaPC
**Number of stories :** 2 Stories
**Building use :** Hall, Conference room
**Floor Space :** 2,030.13㎡
**Total floor space :** 2,459.63㎡
**Design :** Nikken Sekkei Ltd.
**Construction :** Taisei Corporation

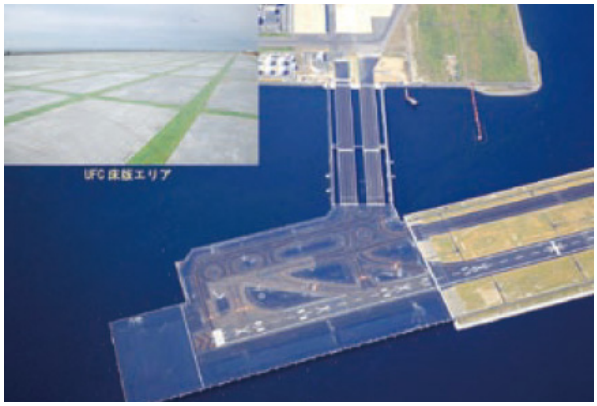
## Kyushu Historical Museum

**Location :** Fukuoka
**Structural Type :** RC+S
**Number of Stories :** 2 stories
**Building use :** Museum
**Floor Space :** 7284.36㎡
**Total floor space :** 9475.92㎡
**Design :** Kume,Mishima,Yoshida JV
**Construction :** Nishimatsu,Ooishi,Itoi JV

## TACHIKAWA City Hall

**Location :** Tokyo
**Structural Type :** RC+PCaPC+S
**Number of Stories :** 4 stories
**Building use :** City Hall , Parking lot
**Floor Space :** 6,908.80㎡
**Total floor space :** 26,025.43㎡
**Design :** NOZAWA MASAMITSU+YAMASHITA SEKKEI
**Construction :** Toda Corporation.

# JPCEA Award for Outstanding Engineering Innovations




## ●Haneda Airport D-runway, UFC slab of the pile-elevated platform

**Location :** Tokyo
**Structural Type :** Steel girder + Ultra-high strength Fiber reinforced Concrete (UFC) slab
**Bridge Length :** 1,100m
**Width :** 524m
**Area :** 192,000㎡
**Design :** Kajima, Aomi, Obayashi, Penta-ocean, Shimizu, Nippon Steel Engineering, JFE Engineering, Taisei, Toa, Toyo, Nishimatsu, Maeda, Mitsubishi Heavy Industry, Mirai, Wakachiku JV
**Construction :** The same as the above

## ●Construction of the Newly Developed Link Slab for PC Girders Using Fiber Reinforced Cementitious Composite –Kyo-Tanabe Parking Area–

**Location :** Kyoto
**Structural Type :** Multi-spans prestressed concrete girders with link slab structures
**Bridge Length :** 59.481～81.960m
**Span :** 10.995～27.350m
**Width :** 9.300～23.300m
**Design :** Sumitomo Mitsui Construction, P.S.Mitsubishi Construction JV
**Construction :** Sumitomo Mitsui Construction, P.S.Mitsubishi Construction JV

# JPCEA Award for Outstanding Accomplishments of Constructions

## ● Piled Elevated Platform of D-runway in Tokyo International Airport (Haneda Airport)

**Location :** Tokyo
**Structural Type :** Continuous Steel-concrete Composite Slab
**Bridge Length :** 850m
**Width :** 380m
**Area :** 316,200㎡
**Design :** Kajima, Aomi, Obayashi, Penta-ocean, Shimizu, Nippon Steel Engineering, JFE Engineering,Taisei, Toa, Toyo, Nishimatsu, Maeda, Mitsubishi heavy industry, Mirai, Wakachiku JV
**Construction :** The same as the above

## ● Katano Viaduct

**Location :** Osaka
**Structural Type :** (Highway) 6+17+14-spans continuous PC box girder bridge
(Public road) 17+12-spans continuous PC box girder bridge
**Bridge Length :** (Highway) Total Length Up line, Down line 1507.5m
(Public road) Up line 1157.7m, Down line 1164.3m
**Span :** (17-spans) 36.55m+2@43.50m+4@37.00m+2@43.50m+3@41.50m+4@37.50m+38.25m
**Width :** (Highway) Up line 13.66m, Down line 13.78m
(Public road) Up line, Down line 6.50m
**Design :** Sumitomo Mitsui Construction - P.S.Mitsubishi Construction - Oriental Shiraishi Corporation JV
**Construction :** Sumitomo Mitsui Construction - P.S.Mitsubishi Construction - Oriental Shiraishi Corporation JV

## Renewal of Concrete Lohse Arch Bridge

**Location :** Chiba
**Structural Type :** Concrete Lohse Arch Bridge
**Bridge Length :** 68.3m
**Span:** 66.0m
**Width :** 14.0m
**Design :** Kimitsu City, Chiyoda Consultants
**Construction :** Sumitomo Mitsui Construction

# EVENTS

## *Annual Symposium*
## *- this year's symposium -*

*20th Symposium on Developments in Prestressed Concrete*

October 13rth– 24th, 2011

Hakodate, Japan
http://www.jpcea.or.jp/

## *- the last year's symposium -*

The last year's symposium, "19th Symposium on Developments in Prestressed Concrete", was held on 21-22, October, 2010 at Kagoshima Public Access Center in Kagoshima prefecture.

Previous to the symposium, the Workshop was held. Activities of the JPCEA committees, report by the inspectors group of fib Congress in Washington D.C., and researches in universities and colleges in the Kyushu region were presented.

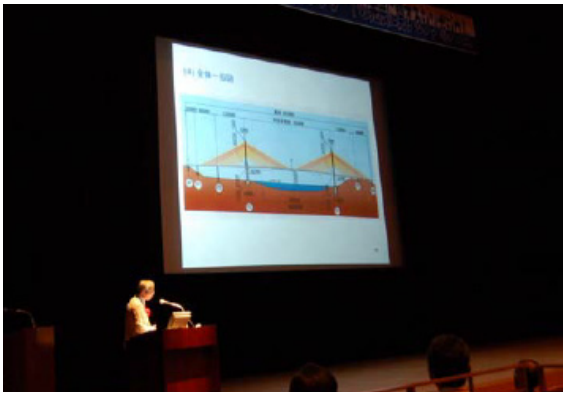
In the Opening Ceremony of the symposium, Dr. Taketo Uomoto, Chief Executive of the Public Works Research Institute, the chair of the Executive Committee of the Symposium, and Dr. Yoshiteru Ono, professor emeritus of the Osaka University, president of the JPCEA gave a speech, and the outline and aims of the symposium was introduced. Then, Mr. Toru Shimizu of Kyushu Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism gave a speech of greeting. He expects the progress of prestressed concrete technologies which contribute to construction of infrastructures.

Dr. Toshihiro Omodaka, professor of the Graduate School of Science and Engineering, Kagoshima University, and Mr. Masahisa Komiya of Katahira & Engineers International, were invited and gave special lectures. Dr. Toshihiro Omodaka presented "VERA telescope, a

*Venue, Kagoshima Public Access Center*

*Opening ceremony*


*Special lecture, Dr. Toshihiro Omodaka*



*Special lecture, Mr. Masahisa Komiya*

Cosmo Surveying Machine". However a numbers of astronomical observations have been done up to now, details of structure of our Galactic System are not clear yet. Triangular surveying method utilizing a revolution of the earth around the sun is adopted in the VERA system. The VERA plane challenges to draw a three dimensional map of the Galactic System.

Mr. Masahisa Komiya presented "Construction of bridges and overseas project". He told thoughts on the construction of bridges which were cultivated through his domestic and overseas experience. He has been involved in bridge construction works especially of planning and designing for 43 years. Many overseas projects are under planning, and there is a chance to make engineer's dreams come true.

Public organization and company's activities and university's and college's researches in the Kyusyu region were displayed at the Technical Exhibition Hall. 35 groups participated in the exhibition. Booths were arranged for the exhibition, and presentations and discussions for each exhibition were made in the presentation room provided in the hall.

In the last symposium, 120 contributed papers were presented in 15 sessions, and the participants were 504. From each session, the most excellent presenters were chosen and were given an "Award of Excellent Presentation". Prize winners are as follows.

Session 1: Tsuyoshi Ishii, Abe Nikko Kogyo Co., Ltd.
Session 2: Kengo Hara, Oriental Shiraishi Corporation
Session 3: Ryo Yamashita, PC Bridge Co., Ltd.
Session 4: Noki Nagamoto, Sumitomo Mitsui Construction Co., Ltd.
Session 5: Hiroo Shinozaki, Sumitomo Mitsui Construction Co., Ltd.
Session 6: Yasutaka Sagawa, Kyushu University
Session 7: Akira Demizu, Nagasaki University
Session 8: Kentaro Nangou, Shimizu Corporation
Session 9: Takao Uchihara, Fuji p.s Corporation
Session 10: Hideaki Taniguchi, Sumitomo Mitsui Construction Co., Ltd.
Session 11: Kenrou Yada, P.S. Mitsubishi Construction Co., Ltd.

Session 12: Yasuto Watanabe, Eight-Japan Engineering Consultants Inc.
Session 13: Ichiro Niikura, Obayashi Corporation
Session 14: Atsushi Kikuchi, Kyokuto Kogen Concrete Shinko Co., Ltd.
Session 15: Ryoichi Kawanaka, P.S. Mitsubishi Construction Co., Ltd.

*Parallel session, Multi-Purpose hall*

*Parallel session, Seminar room*

*Technical exhibition*

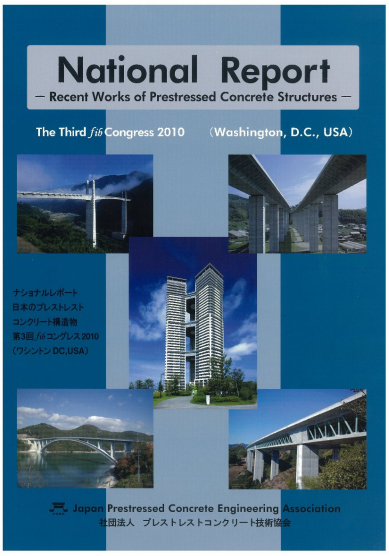
*Research Presentation*

*Welcome Party*


*Award of excellent presentation*

# PUBLICATIONS

## *National Report*
## *- Recent Works of Prestressed Concrete Structures -*



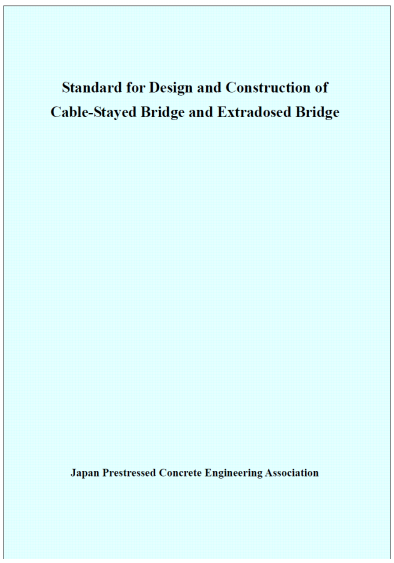

JPCEA organized editorial committee on the English edition for the Third International *fib* Washington, D.C. Congress 2010. The committee decided to prepare the edition to be useful for both the documentation of the national report of Japan and the introduction of major Japanese prestressed concrete construction in the latest four years.

The edition was also arranged so as to be useful for Japanese engineers by adding comments in Japanese. JPCEA will continue to publish a similar edition in every four years in the future International *fib* Congress.

**Contents of the report**

Preface, Architecture: 11 reports, Bridge: 35 reports, Tank & PC Tower: 3 reports, Renewal: 2 reports

## *Standard for Design and Construction of Cable-Stayed Bridge and Extradosed Bridge*




This is not for sale, but just for information.

**Contents of the standard**

Chapter 1 General
Chapter 2 Basis of Design
Chapter 3 Examination for Limit State
Chapter 4 Previously Study and Planning
Chapter 5 Materials
Chapter 6 Material Properties for Design
Chapter 7 Limit Value
Chapter 8 Loads
Chapter 9 Design
Chapter 10 Construction
Chapter 11 Ensuring of Durability
Chapter 12 Maintenance

■ This newsletter contents current information on the activities and topics of JPCEA.

■ If you have any comments and suggestions, please contact us by sending e-mail to: *kaiinka19@jpcea.or.jp*

*Internationalization Subcommittee*
*International Committee*
*Japan Prestressed Concrete Engineering Association*
*Dai-san-Miyako Building, 4-6, Tsukudo-cho*
*Shinjyuku-ku, Tokyo*
*162-0821, JAPAN*
*http://www.jpcea.or.jp/*