

# JPCEA NEWSLETTER

No.2, August 2009



Japan Prestressed Concrete Engineering Association

## *Message from President*



*Yoshiteru Ohno, President of JPCEA,  
Professor emeritus, Osaka 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 the association, JPCEA has contributed to provide and expand infrastructures by means of spreading and promoting PC technologies on every matter.

Also, in order to make contact and offer opinions to related domestic and abroad organizations, JPCEA, representing Japan, joins fib (internationale du béton) 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 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.

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 the annual symposium, “Symposium on Developments in Prestressed Concrete”, and various seminars to younger engineers and researchers. We wish that more people would be interested in participation our future activities.



## WHAT'S NEW

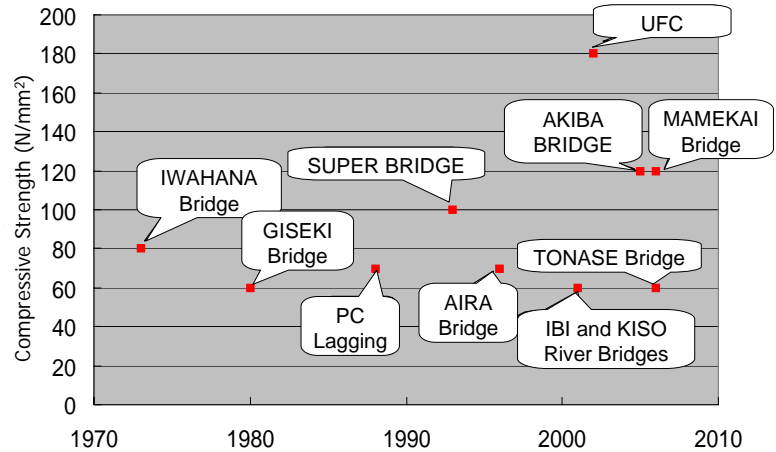
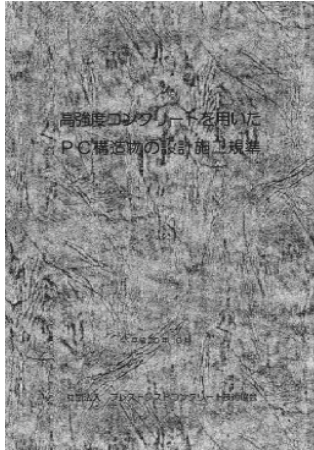
### ***New JPCEA Board Members***

Annual general meeting was held on 27 May 2009, and new JPCEA board members were approved.

- President: *Yoshiteru Ono*, Professor emeritus, Osaka University
- Vice-president: *Toyoaki Miyagawa*, Kyoto University  
*Sadahiro Nomura*, P. S. Mitsubishi Construction Co., Ltd.
- Managing director: *Junichiro Niwa*, Tokyo Institute of Technology
- Director: *Michitsugu Ikuma*, Japan Railway Construction, Transport and Technology Agency  
*Kimihiko Izumi*, Metropolitan Expressway Co., Ltd.  
*Taketo Uomoto*, Shibaura Institute of Technology, Professor emeritus, University of Tokyo  
*Toshiaki Kakue*, Tokyo Electric Power Company  
*Shinichiro Kumagai*, Sumitomo Mitsui Construction Co., Ltd.  
*Kenichi Suzuki*, Kajima Corporation  
*Yukikazu Tsuji*, Gunma University  
*Mamoru Nakamura*, Honshu-Shikoku Bridge Expressway Co., Ltd.  
*Minehiro Nishiyama*, Kyoto University  
*Toshikazu Minami*, Shinko Wire Co., Ltd.  
*Jun Yamazaki*, Nihon University  
*Yoshiyuki Yamamoto*, Highway Environment Research Institute  
*Tsutomu Yokota*, Oriental Shiraishi Corporation  
*Akira Yoshida*, Taisei Corporation
- Executive director: *Masaru Wakimoto*, Japan Prestressed Concrete Engineering Association
- Inspector: *Noritaka Sugano*, Fuji p.s Corporation  
*Rokuro Tomita*, Taiheiyo Cement Corporation  
*Masato Yamada*, Sumitomo (SEI) Steel Wire Corporation
- Advisor: *Shoji Ikeda*, Hybrid Research Institute Inc., Professor emeritus, Yokohama National University

**PUBLICATIONS**

***Guidelines for Design and Construction of High-strength Concrete for Prestressed Concrete Structures (in Japanese)***



**Significance of Guidelines**

High value-added or high performance structures that cannot be realized with ordinary concrete can be constructed. However, no adequate design and construction guidelines for high-strength concrete have been established in Japan for PC structures.

JPCEA set up a committee on “Design and Construction for Prestressed Concrete Structures Using High-strength Concrete” in 2006 and the Guidelines has been published in October 2008.



*Akiba Bridge ( $f'_{ck}=120\text{N/mm}^2$ )*



*Tsuneishi Landing bridge ( $f'_{ck}=120\text{N/mm}^2$ )*

**Contents of Guidelines**

- Chapter 1 General
- Chapter 2 Basis of Design
- Chapter 3 Materials
- Chapter 4 Design Values for Materials
- Chapter 5 Load
- Chapter 6 Structural Analysis
- Chapter 7 Verification of Serviceability Limit State
- Chapter 8 Verification of Ultimate Limit State
- Chapter 9 Verification of Fatigue Limit State

Chapter 10 General Structural Details

Chapter 11 Verification of Durability

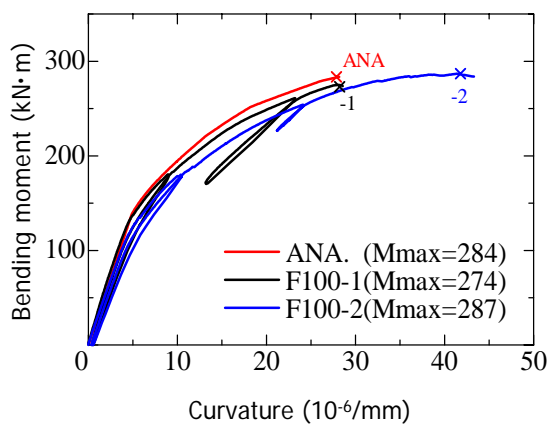
Chapter 12 Verification of Initial Cracking at Construction

Chapter 13 Construction

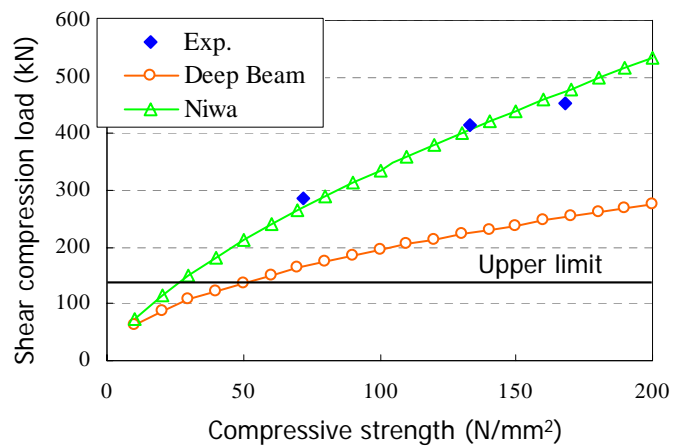
**Experiments of High-Strength Concrete Members by JPCEA**

Bending behavior of high-strength concrete members can be predicted as well as that of ordinary concrete.

An equation for verifying the design shear strength against diagonal compressive failure of linear members may be applied to high-strength concrete.



*Results of Bending Tests*



*Results of Shear Tests*

# EVENTS

## *Annual Symposium - the coming symposium -*

*18th Symposium on Developments in Prestressed Concrete*

October 29th – 30th, 2009

Yonago, Japan

<http://www.jpcea.or.jp/>

## *- the last symposium -*

The above JPCEA Annual Symposium is coming soon. Please participate in the symposium, and shear state-of-the-art PC technologies. Details of the symposium are on the web site.

The last symposium, “17th Symposium on Developments in Prestressed Concrete”, was held on 20-21, November, 2008, in Takamatsu. Dr. Koji Sakai, professor of the Kagawa University and Mr. Nagahide Kani, executive director of the Japan Society of Seismic Isolation were invited and gave special lectures.

Dr. Koji Sakai presented “New Development of Concrete Sector, -Environmental Issue is as a Key-”. Now the human race faces three serious problems, the food, the resources and energy, and climate fluctuation problems. Among them, the climate fluctuation due to green house gas is “an incident” which we could not predict. We, concrete engineers belong to the Concrete Sector, have to realize that we have consumed huge resources and energy through constructions. The Concrete Sector should make one’s responsibility clear and take new actions.

Mr. Kani presented “Current States and Issues of Technologies on Seismic Isolation Structures”. Japan is the most widespread country in application of seismic isolation system to



*Special lecture*



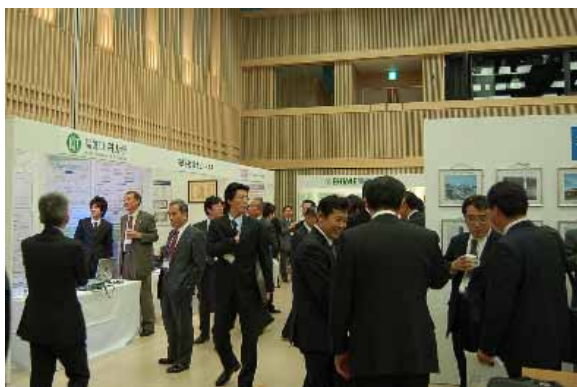
*Parallel session*



buildings. This is thanks to developments of analysis method and devices such as dumpers and isolators. However there are some subjects to solve. Energy absorption abilities of dumpers have to be verified against earthquakes with long period ground motions. Design methods have to be discussed when isolators are applied. Large scale test machines are expected, which can simulate behaviors of real structures.

In the last symposium, 93 contributed paper were resented in 12 sections, and the participants were 414. The new projects were started in the last symposium, research activities in universities and colleges were presented. The next one is “Technical Exhibition” which displays company’s activities. 13 groups participated in the exhibition. The third is “Award of Excellent Presentation”. From each session, the most excellent presenters were given a prize. Prize winners are as follows.

- Session1 : Masanori Tani, Kyoto University
- Session2 : Hisayuki Kidera, Sumitomo Mitsui Construction Co., Ltd.  
Kimio Saito, Kajima Corporation
- Session3 : Hideaki Taniguchi, Sumitomo Mitsui Construction Co., Ltd.
- Session4 : Hideto Kobayashi, Shimizu Corporation
- Session5 : Yusuke Shibata, Osaka University
- Session6 : Hiroaki Takahashi, DPS Bridge Works Co., Ltd.
- Session7 : Kenji Wakamatsu, P.S.Mitsubishi Construction Co., Ltd.
- Session8 : Chunhe Li, Gunma University
- Session9 : Hiroyuki Gatto, Nippon P.S Co., Ltd
- Session10: Yutaka Komura, P.S.Mitsubishi Construction Co., Ltd.
- Session11: Natsuki Fukushima, Oriental Shiraishi Corporation
- Session12: Shoji Nojima, Nippon Expressway Research Institute Co., Ltd.



*Technical Exhibition*



*Prize winners*

## ***International Conferences***

### ***4th International Conference on Construction Materials - Performance, Innovations and Structural Implications -***

August 24th - 26th, 2009  
Nagoya, Japan  
<http://www.jci-web.jp/conmat09/>

JPCEA supports the conference.

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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: [kniitani@orsc.co.jp](mailto:kniitani@orsc.co.jp).

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