

Greetings from ACF President



Prof Hiroshi Yokota
Hokkaido University
Japan

On behalf of the Federation, it is my great pleasure to wish you all a happy new year, full of happiness and success in your personal and professional lives.

The 2-year office term of the federation started on January 1, 2019. At the last Executive Council meeting in Fuzhou, China, I was appointed the president of the federation for a second term. Twelve EC members for the term 2019-2020 were also nominated as listed in Table 1. The three Vice Presidents are Prof Caijun Shi for policy, Prof Somnuk Tangtermsirikul for technical, and Prof Yin-Wen Chan for publication. Our new Treasurer is Prof Jang-Ho Jay Kim.

As already mentioned in the previous newsletter, I set objectives and priorities for strengthening ACF's activities. I promise continuing efforts in this term, particularly on the following.

- (1) International collaborative activities for development of research and technology relating to various aspects of concrete and concrete structures: After signing the MOU between ACF and fib, a specific theme of collaboration will be discussed. We will encourage non-member countries to join the federation.
- (2) Dissemination of useful information on concrete and concrete structures through publications, conferences, symposia, workshops and seminars: At the very beginning of this year, ACF organized the 14th Sustainability Forum on January 11 and 12 in Hanoi, Vietnam, under the auspices of VCA (Vietnam Concrete Association), VIBM (Vietnam Institute of Building Materials), and NUCE (National University of Civil Engineering). The 3rd ACF Symposium on Assessment and Intervention of Existing Structures will be held on September 10 and 11 in Sapporo, Japan. Taking advantage of this symposium, ACF GA (general assembly) meeting will be held there. I hope to welcome many participants. Besides these events, we will organize or support conferences, symposia, seminars, and forum in this year. ACF Journal will be published twice a year as scheduled. Dr. Myoungsu Shin, Ulsan National Institute of Science and Technology, South Korea, has been nominated as the Chief Editor of the journal since January 1.
- (3) Expanding technical activities: To support them more efficiently, the ACF organizational structure is being redesigned now and will be launched soon. Some technical committees will be setup. A text book on life-cycle considerations for concrete structures is under preparation now.

Your proactive participation in the ACF activities is greatly appreciated. Should you have queries, suggestions, proposals, etc., please get in touch with an EC member from your country. I wish you once again a very happy, peaceful, and successful new year.

Table 1 List of EC members for the term of 2019-2020

President	Hiroshi Yokota	Japan
Vice President	Caijun Shi	China
Vice President	Somnuk Tangtermsirikul	Thailand
Vice President	Yin-Wen Chan	Taiwan
Treasurer	Jang-Ho Jay Kim	South Korea
Elected Member	David Millar	Australia
Elected Member	Vivek Naik	India
Elected Member	Narantuya Batmunkh	Mongolia
Elected Member	Le Trung Thanh	Vietnam
Elected Member	Vyatcheslav R Falikman	Russian Federation
TB Chairman	Jian-Guo Dai	Hong Kong, China
Immediate Past President	Manyop Han	South Korea

8th International Conference of Asian Concrete Federation (ACF 2018): Sustainability and Innovation in Concrete Materials and Structures

Prof Baochun Chen, Fuzhou University, China

The 8th International Conference of Asian Concrete Federation (ACF) was held between November 4th - 7th, 2018, at Crowne Plaza Fuzhou Riverside Hotel in Fuzhou, China. It was organized by ACF, Fuzhou University, China Chapter of ACF, and Fujian University of Technology. More than 300 scientists, researchers, specification makers, government officials, project owners, constructors and students from 17 countries and regions attended this event. The conference scheduled 15 keynote lectures and 116 parallel technical presentations. Keynote presentations were delivered by those experts in many fields, including:

- Prof. David A. Lange (ACI President, USA)
- Prof. Hugo Corres Peiretti (*fib* President, Spain)
- Prof. Hiroshi Yokota (ACF President, Japan)
- Prof. Caijun Shi (ACF Vice-President, China)
- Prof. Erik Schlangen (Rilem Honorary President for 2018, Netherlands)
- Prof. Khaled Sennah (Ryerson University, Canada)
- Prof. Jongsung Sim (Hanyang University, Korea)
- Prof. Jinguang Teng (Southern University of Science and Technology, China)
- Prof. Surendra P Shah (Northwestern University, USA)
- Prof. Yinwen Chan (ACF Vice-President, China)
- Prof. Peiyu Yan, (Tsinghua University, China)
- Prof. Weiliang Jin (Zhejiang University, China)
- Prof. Yuanfeng Wang (Beijing Jiaotong University, China)
- Prof. Jianzhuang Xiao (Tongji University, China)
- Prof. Jiaping Liu (Southeast University, China)



Prof. Baochun Chen, Chairman of LOC, gave the opening and welcome speech at the ACF2018



Key participants of ACF2018



Conference hall

In addition to keynote lectures, there were 6 invited presentations in the parallel technical sessions. A total of 152 technical papers were accepted for publication in the ACF2018 Conference Proceedings in two volumes, which cover the following six themes: 1) concrete material and technology, 2) sustainability and durability, 3) new structures, 4) behavior of elements and structures, 5) maintenance and rehabilitation, and 6) testing, inspection and health monitoring.

Fantastic music performances and traditional dance demonstrations was provided by undergraduate students from Fuzhou University at the conference gala dinner, which greatly enlivened the banquet.

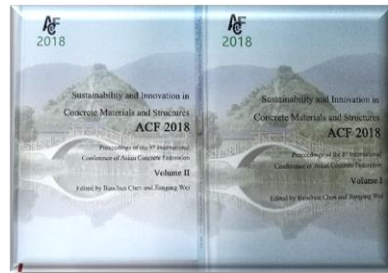
During the closing ceremony, Prof. Hiroshi Yokota acknowledged the efforts of the participants, keynote lecturers, sponsors, supporting organizers, committee members, and the local organization committee, for such a very successful and pleasant conference. The next ACF conference will be held at Ulaanbaatar, Mongolia in 2020.



Prof. Hiroshi Yokota gave the closing remarks



Music performances and traditional dance demonstrations



Conference Proceedings of ACF2018



Technical tour of the 16km-long Pingtan cross-strait highway-railway bridge

After the closing Ceremony, the technical tour was offered on the afternoon of November 7th, 2018, to visit the 16km-long Pingtan cross-strait highway-railway bridge (double decks) linking Pingtan Island to the mainland, which is the first high-speed railway bridge crossing over the sea in China.

The International Conference of Asian Concrete Federation is a premier leading conference, under the auspices of the Asian Concrete Federation. ACF 2018 was served as a platform for concrete professional community to share advanced concrete technologies, innovations, case studies and research development, as well as the importance of the production and use of concrete in a more sustainable and innovative way.

2nd International Conference on UHPC Materials and Structures

UHPC2018-China, Nov 7-10, 2018, Fuzhou, China

Prof Caijun Shi, Hunan University, China

The 2nd International Conference on UHPC Materials and Structures, (UHPC2018-China) was successfully held in Fuzhou, November 7-10, 2018. This event was organized by Fuzhou University together with Hunan University and Fujian University of Technology. Conference chair – Professor Caijun Shi missed the opening ceremony because of the other urgent event. Professor Baochun Chen chaired the opening ceremony and gave an overview of UHPC2018, conference themes, and the expectations. He specially acknowledged Professor Caijun Shi for his great efforts to the launch and organization of this international conference. Government officials from the Housing and Construction Office of Fujian Province and presidents of Fuzhou addressed at the opening ceremony.

The organization committee of UHPC2018 invited 18 world known experts to give keynote speeches, including

- Professor Surendra P. Shah from Northwest University, USA
- Professor Nemkumar Banthia from University of British Columbia, Canada
- Professor Caijun Shi from Hunan University, China
- Professor Kamal H Khayat from Missouri University of Science and Technology, USA
- Professor Eugen Brühwiler from Swiss Federal Institute of Technology Lausanne, Switzerland
- Professor Johann Plank from Technische Universität München, Germany
- Professor Jiaping Liu and Professor Jingquan Wang from Southeast University, China
- Professor Xudong Shao and Professor Zhi Fang from Hunan University, China
- Professor Arezki Tagnit Hamou from The University of Sherbrooke, Canada
- Professor Francois Toutlemonde from University of Paris-Est, France
- Dr Byung-Suk Kim from Republic of Korea
- Associate Professor Liberato Ferrara from Politecnico di Milano, Italy
- V. H. Perry, CEO of V. iConsult Inc
- Dr Yen Lei Voo, the founder of Dura Technology Sdn Bhd



Keynote speakers and guests at UHPC2018



Closing speech by Professor Caijun Shi



Conference hall of UHPC2018

More than 300 research scholars, engineers and industrial experts from 18 countries/regions attend the conference. In addition to the 18 keynote speeches, it also scheduled 97 parallel oral presentations. Participants also benefited from the communication of recent progress on mixture design, preparation technology, mechanical properties, microstructure and reinforcement of element structures. The conference proceedings was co-edited by professors Caijun Shi and Baochun Chen, and published by RILEM.

Prof. Caijun Shi chaired the closing ceremony. He summarized all the events that happened during the conference, and gave thanks to all the speakers, attendees, and organization committee members for their efforts for the successful conference. At the end, he announced that the 3rd International Conference on UHPC Materials and Structures will be held at Nanjing in 2021.

UHPC refers to a concrete with compressive strength not less than 120 MPa, high toughness and excellent durability. Due to its excellent performance, it has been widely applied in France, Canada, Germany, Italy, the Netherlands, New Zealand, Romania, Australia, Japan, China, the United States, South Korea and other countries. The International Conference on UHPC Materials and Structures not only provides an academic exchange platform for experts and scholars, but also plays a very good role in promoting the researches and applications of UHPC around the world.

3rd Meeting of ACF UHPC Technical Committee in Fuzhou

Prof Caijun Shi, Hunan University, China

The 3rd meeting of ACF Technical Committee on ultra-high performance concrete (UHPC) was held on 7th November 2018, in Crowne Plaza Hotel, Fuzhou, China. 11 people from 4 countries attended the meeting. It was called for start by the committee chair Professor Caijun Shi at 14:00.

Prof Caijun Shi and Dr Byung-Suk Kim highlighted some important items about the two guidelines (“A Guideline for the Design of UHPC Materials” and “A Guideline for the Design of UHPC Structures”), which the committee was working on since the last committee meeting in Ipoh, Malaysia. Then, the committee members went through the two guidelines item by item, and discussed the standards which should be cited or referenced in the guidelines. It is expected that some major improvements will be made. The committee is planning to complete the first version of the two guidelines by the end of 2019. The next technical committee meeting will be held in Thailand.



Some members attending the UHPC Technical Committee Meeting on Nov 7, 2018

VIETAM CONCRETE ASSOCIATION (VCA) CONTRIBUTING TO DEVELOPMENT OF SUSTAINABILITY

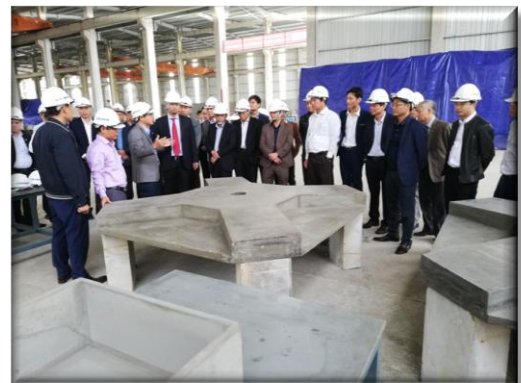
Dr Le Trung Thanh, President of Vietnam Concrete Association (VCA)

From Vietnam Concrete Association, I am pleased to inform you that we have been contributing to the development of sustainability over the years through many activities.

As you know, concrete has been used as a building material in construction for many years and becomes the most popular building material in the world. In 2018, global concrete industry including Vietnam has been developed rapidly in both research and manufacturing products. Global concrete capacity in the world in 2018 is estimated up to over 40 billion tonnes, of which the total volume of cement as the most popular binder has been over 4 billion tones, including approximately 95 million tonnes produced in Vietnam. For manufacturing 40 billion tonnes of concrete, it is estimated that about 30 billion tonnes of aggregates and over 3 billion tonnes of water are needed: this means that a huge of amount of natural resources is exploited.



14th National Assembly on 23 November 2018 in Ho Chi Minh City



Some products of Thanh Hung concrete factory



Thanh Hung concrete factory visit

Therefore, in recent years, many cementitious supplementary materials have been investigated and developed in Vietnam for the use in concrete, such as fly ash, ground granulated blast furnace slag, silica fume, puzzolan, rice husk ash, etc., as well as aggregates recycled from concrete or brick structures. These studies and applications surely help to reduce cement clinker volume produced, as well as minimise greenhouse gas emission, to improve the sustainability and environmental friendliness.

Recently, concrete products manufactured in Vietnam are diverse in type, and the quality is good, thus far from heavy or light weight concrete blocks, precast concrete piles, sheet piles, beams, columns, panels, etc. to ready-mixed and on-site concrete products. However, a number of concrete products exhibit low-quality, such as deformation, leaking, or cracking. These require concrete experts, researchers, and manufacturers to review and improve the design procedures of structures and the manufacture procedures of products at all stages from selection of raw materials, mix proportions, mixing, placing to curing for concrete and find the solutions for managing the quality of products in proper ways.

Standards are definitely the key tool for managing the quality of concrete products and structures. Up to now, Vietnam has 130 standards (TCVN) for concrete, comprising 30 TCVN for raw materials, 20 TCVN for mix proportions and fresh concrete, 60 TCVN for concrete products, 10 TCVN for execution and acceptance and only 01 TCVN for reinforced concrete structure design. In 2018, Vietnam has completed a number of TCVN standards, such as guidelines for management of safety and labour hygiene in ready mixed concrete production plants; Reinforced concrete structures – General requirements for durability and service life in aggressive environment; Aggregates for anti-radiation concretes; Self-compacting concretes; 3D sandwich concrete panels; Air entrained admixtures for concrete; Fibres for concrete; Fibre reinforced concretes – Technical requirements and testing methods; Pre-stressed concrete products; and Precast concrete structures – Assembly execution and Acceptance procedures.

The demand of more durable and sustainable concrete structures is really essential for the development of economy and society. The Asian Concrete Federation Sustainability Forum is a truly friendly and meaningful platform for concrete professional community to share updated concrete technologies, innovations, case studies and research development, as well as the importance of the production and use of concrete in a more sustainable way, with scientists, researchers, government officials, regulation makers, project owners, constructors, real estate developers and others.

On behalf of VCA, I warmly send my best regards to you and wish you all a very happy and successful new year 2019.

Greetings from ACF Vice-President (Policy)



Prof Caijun Shi, Hunan University, China

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Asian countries have about 60% of the world's population and are producing about 80% of the world's cement. ACF can be a good platform for Asian countries to work together to promote the understanding of concrete materials and structures and to provide the services to the Asian society. It is still at its infant stage, but has tremendous potentials and opportunities. Let's work together to embrace change to thrive in the future.

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Prof. Caijun Shi is currently a Chair Professor of College of Civil Engineering, Hunan University and China Academy of Building Materials Academy. He received his B. Eng and M. Eng from Southeast University, Nanjing, China and his Ph.D from University of Calgary, Canada. He has authored/coauthored more than 250 technical papers, five English books, two Chinese books and edited/co-edited five international conference proceedings. In recognizing his contributions to research in waste management and concrete technology, he was elected as a fellow of International Energy Foundation in 2001, a fellow of American Concrete Institute in 2007, and a fellow of RILEM in 2016.

The Largest One-time Mass Concrete Pour in Thailand

*Boonrawd Kuptitanhi and Sakkarin Luangkumjon, Concrete Products and Aggregate Co., Ltd. (CPAC), Thailand
 Prof Somnuk Tangtermsirikul, Sirindhorn International Institute of Technology (SIIT), Thammasat University, Thailand
 Dr Krittiya Kaewmanee, Construction and Maintenance Technology Research Center (CONTEC), Thailand*

Background

Four Season Private Residence is a high rise building for mix used, located near the river bank of Chao Praya River, Bangkok, Thailand. The building has 77 floors with 305 m in height. The foundation of this building was designed as a mat foundation in oval shape and had the largest thickness at the deepest part of 8.75 m as shown in Figure 1.

The original plan to cast this mat foundation was to pour in 2 horizontal layers. Owing to the needs of a huge amount of temperature steel on the horizontal surface of the first pour layer and supporting beams to carry the indicated steel in position, as well as the delay of construction to cast this foundation by at least one month, the contractor asked Concrete Products and Aggregate Co., Ltd. (CPAC), the concrete supplier, for the possibility to pour the concrete with 12,000 m³ in a single pour.

From the requirement of the project, CPAC cooperated with Construction and Maintenance Technology Research Center (CONTEC) of Sirindhorn International Institute of Technology (SIIT), Thammasat University to analyse the heat that might generate in the mat foundation for a single layer pour, and designed the mix proportion and process of Low Heat Concrete for casting this foundation by implementing insulation curing process to control temperature gradient in the mass concrete foundation to prevent thermal cracking. The preliminary study showed that the concrete mix proportion had to use 60% fly ash³ content and with target design strengths of 20 MPa at 28 days and 28 MPa at 90 days.

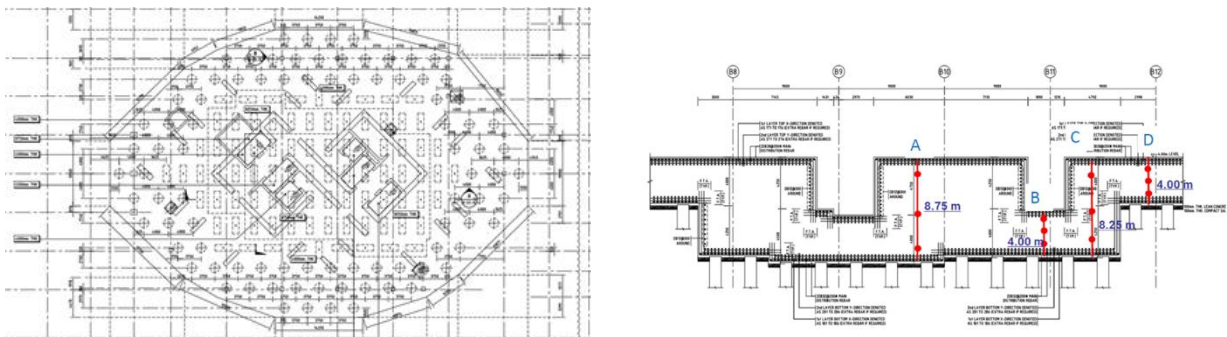


Fig.1 Foundation layout and cross section

Confirmation of concrete mix proportion in laboratory

The low heat concrete with 60% fly ash content was the highest fly ash ratio and the first time usage in the real construction project in Thailand. To ensure the required concrete properties, both in fresh and hardened states, various concrete mix proportions were tested in the laboratory prior to the real production in batching plants and supply to the site. The summary of properties of the selected mix proportion are shown in Table 1.

Table 1 Laboratory test results of concrete properties of the selected mixture

Slump	Setting time (hr:min)	Compressive strength*	Drying shrinkage
Initial : 20 cm	Stiffening : 11:45	5 days : 18 MPa	At 90 days : 220 micron
At 30 min. : 18 cm	Initial set : 12:55	7 days : 22 MPa	
At 60 min. : 16 cm		28 days : 32 MPa	
At 90 min. : 14 cm		56 days : 34 MPa	
		90 days : 37 MPa	

* tested on 15 x 30 cm cylindrical specimens with plastic wrap curing condition

Casting mat foundation on construction site

Prior to the concrete casting, six locations with three points in each location of the mat foundation were installed with thermocouples to monitor the temperature rise of concrete after finishing the concrete pour as shown in Figure 2.

To avoid the traffic congestion in surrounding area of the construction site, the concrete pouring was planned to commence at 9 pm of the Friday night and to finish on Sunday, with a total pouring time of 39 hr and 30 min. The total number of concrete batching plants to supply the low heat concrete were 16 plants with 40 concrete trucks, with a total concrete volume of 12,035 m³ (the largest volume of a single pour ever in Thailand). The concrete qualities were checked on-site, and the cylindrical samples were collected on-site. After finishing the concrete pouring, polyethylene foam was used to cover the top surface of the mat foundation to protect the rapid heat loss from the concrete, as shown in Figure 3, and then cure the concrete for 30 days. The concrete temperature rise at the center location of the mat foundation is shown in Figure 4. The summary of concrete properties measured on site is shown in Table 2. There was no crack on the mat foundation after insulation removal.

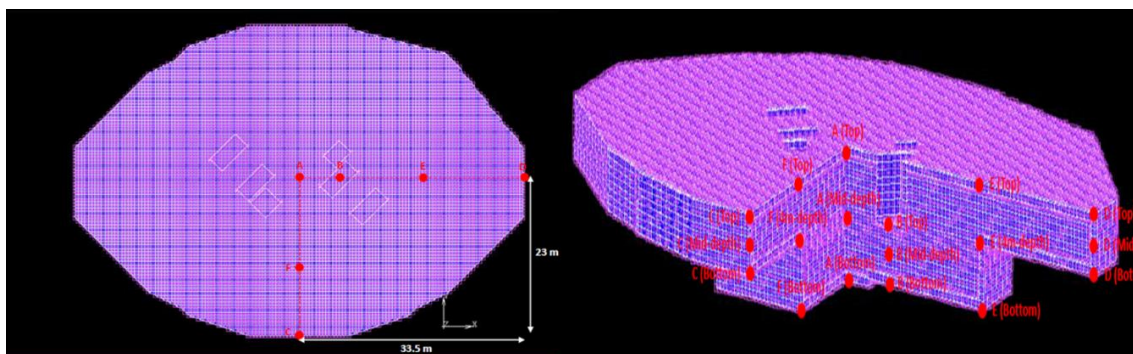


Fig.2 Locations of thermocouple installation

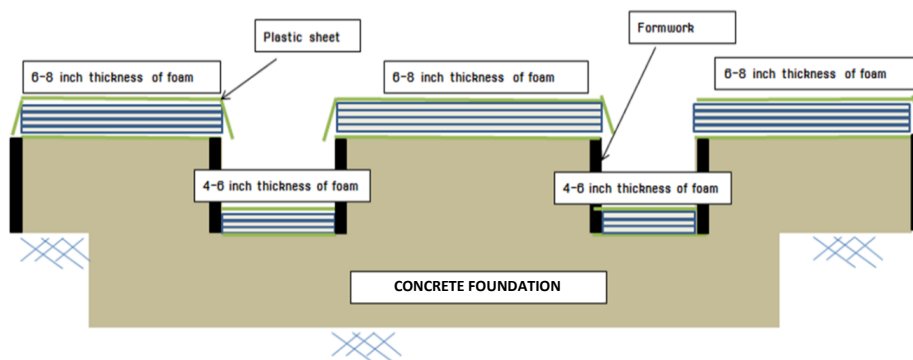


Fig. 3 Insulation curing installation section

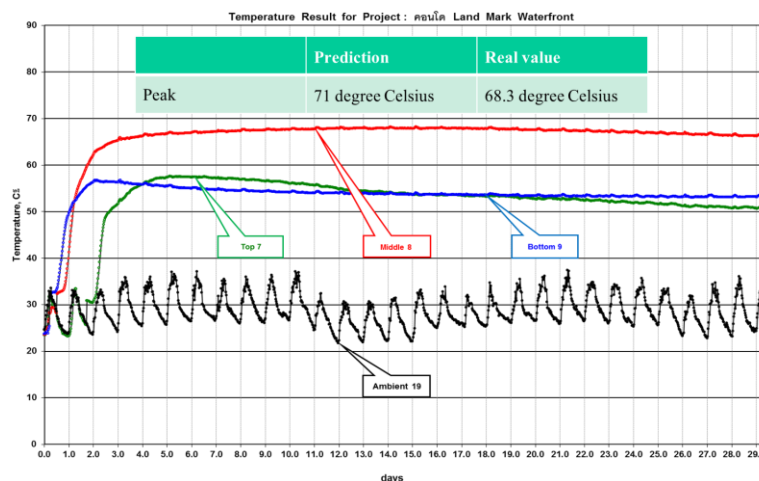


Fig. 4 Temperature rise at the center of the mat foundation

Table 2 Laboratory test results of concrete properties of the selected mixture

Slump	Average concrete temperature	Compressive strength*	Details of mix proportion
17-18 cm	32°C	28 days : > 20 MPa 90 days : > 28 MPa	w/b = 0.45 Binder content = 340 kg/m ³

* tested on 15 x 30 cm cylindrical specimens with plastic wrap curing condition

In summary, the mass concrete casting of the Four Season Private residence building project is the largest concrete casting for a single pour and utilized the highest fly ash content in the concrete at the moment in Thailand.

The 3rd ACF Symposium “Assessment and Intervention of Existing Structures”



Date : 10-11 September 2019

Venue : Hokkaido University, Sapporo, Japan

Organizer : Asian Concrete Federation

Co-organizer : Japan Concrete Institute (JCI)

The 3rd ACF Symposium: “Assessment and Intervention of Existing Structures” sponsored by Japan Concrete Institute will be held on 10-11 September 2019 at Hokkaido University, Sapporo, Japan. As a part of the Symposium, we will hold Prof Tamon Ueda Special Session that honors his accomplishments in his research fields and contributions to ACF. The organizers of ACF Symposium cordially invite the world’s researchers to share their unique outcomes and discussions regarding the maintenance /strengthening /rehabilitation of existing concrete structures.

	Deadlines
Abstract submission	February 28, 2019
Full paper submission	June 15, 2019
Final paper submission	July 15, 2019
Early-bird registration	July 30, 2019

We are looking forward to welcoming you at the 3rd ACF Symposium.

Official Website

<http://www.eng.hokudai.ac.jp/acf2019/index.htm>

Contact

Conference Secretariat: acf.sympto.2019@gmail.com

Membership fee

Members are kindly reminded to pay their membership fee. Please contact the secretariat in case you have any query about your membership status.

Secretariat

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