

fib short course in Nicosia, Cyprus: Durability and retrofitting of concrete structures

The Department of Civil Engineering and Geomatics of the Cyprus University of Technology (CUT), co-organized with *fib* and the Cyprus Scientific and Technical Chamber (ETEK), an *fib* short course on “Durability and Retrofitting of Concrete Structures”, held on 14 April 2011. The first such *fib* course to be held in Cyprus, it was a resounding success, attended by 110 engineers from industry, academia and government. Prof. *Christis Chrysostomou* of the Cyprus University of Technology organized the course, which was supported and sponsored by the Cyprus Association of Civil Engineers and the construction companies Miltiades Neophytou Civil Engineering Contractors and Developers Ltd., and Cybarco Building and Civil Engineering.

The one-day course began with opening speeches and welcome messages from Prof. *Christis Chrysostomou*, Head of the Cypriot National

Delegation in *fib*; Prof. *Michael N. Fardis*, immediate past president of *fib*; Prof. *Toula Onoufriou*, Chair of the Department of Civil Engineering and Geomatics of CUT and National Delegate to *fib*; and representatives of other supporting bodies. Prof. *Fardis* also gave an overview of *fib*, including its structure, organization, Commissions and Special Activity Groups, as well as the benefits for National Member Groups and individual members of *fib*.

The course offered a basic understanding of the complex set of phenomena governing durability and long-term performance of concrete structures and how this forms a basis for service life design. The behavior of concrete structures and interactions with its environment were emphasized, with the goal of helping not only designers improve future durability performance and reliability of concrete structures, but also engineers involved in the assess-

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ment, maintenance and extension of life of existing concrete structures. Buildings and bridges were both covered, taking into account various loading conditions including seismic loading, and examples from practice were discussed.

Dr. *Stuart Matthews*, Convenor of *fib* Commission 5 and SAG7, presented an overview of service life design, construction and through-life care process, plus through-life performance, whole-life cost and sustainability. He also explained the mechanisms that may cause deterioration or damage to concrete structures and the factors influencing the durability of concrete structures. He then discussed the service life design process and considerations, including examples from practice.

Prof. *Giuseppe Mancini*, Honorary President of *fib* and co-convenor of SAG7, presented an overview of the modeling of some deterioration



Prof. Christis Chrysostomou welcoming the participants and opening the course.

2011 Achievement Award for Young Engineers – Results

processes, as well as the codes covering the subject. He also looked at the problems of bridge structure durability and gave examples from practice.

Prof. *Fardis* covered the concepts of retrofitting existing structures for seismic loading and presented practical examples of such retrofitting.

All participants in the course received PDF files of *fib* Bulletins 24, 34 and 53, the PowerPoint presentations from the lectures, as well as a certificate of attendance signed by *Stuart Matthews*, *Giuseppe Mancini*, *Michael N. Fardis* and *Christis Chrysostomou*.

For further information about short courses offered by *fib*, visit: www.fib-international.org/courses.

Over thirty engineers and researchers were proposed last autumn by *fib* National Member Groups as candidates for the 2011 *fib* Achievement Award for Young Engineers. After several weeks of deliberation, two winners and two special mention recipients were selected for their outstanding work in the fields of research and design & construction. The task of the jury, composed of international experts and chaired by Prof. *Hugo Corres Peiretti* of Madrid, was difficult as the level of the entries was high.

The selected candidates are:

Winner, Research: *Juan Sagaseta Albajar*. Thesis entitled, “The influence of aggregate fracture on the shear strength of RC beams” (Imperial College London, UK).

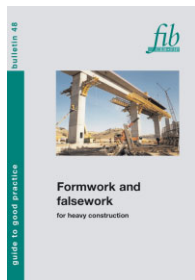
Winner, Design & Construction: *Oscar Ramon Ramos Gutierrez*, APIA XXI, Spain. (Award was based on a portfolio of projects.)

Special mention, Research: *Gian Paolo Cimellaro*. Thesis entitled, “Improving seismic resilience of structural systems through integrated design of smart structures” (University of Buffalo, NY, USA).

Special mention, Research: *Domenico Pennucci*. Thesis entitled, “Performance-based seismic design of tall RC wall buildings” (Rose School, IUSS Pavia, Italy).

Our sincere congratulations go to the four honorees. They will receive their awards and give presentations on their work at a special session of the 2011 *fib* symposium in Prague on 8 June 2011.

Commission update: *fib* Commission 10, Construction



After the publication of Guide to Good Practice ‘Formwork and falsework for heavy construction’ (*fib* Bulletin 48) in January 2009, the work of *fib* Commission 10 (‘Construction’) has continued with the topic of precast segmental bridges. Given the small size of the commission, all members are involved in the current work.

The main aspects being considered are related to the construction, assembly and design of both segments and bridges, with internal and external or mixed prestressing. The following main aspects will be considered in detail:

- concreting and curing of precast elements: one sequence concreting, partial concreting, concreting position, delay or conditions for the first move of the element, curing of element, surface preparation or treatment before coupling or gluing of the joint;
- transportation and storage of different segments;
- assembly by means of: launching girder, four wheel winches acting on the top of the deck, crane trucks acting from the bottom, tower cranes mounted on rails or a combination of previous systems;
- temporary prestressing during assembly and epoxy resin (or other material) used during the coupling of joints, ducts coupling, tightness in the joints;
- shear keys design and their distribution along the perimeter;
- positioning of anchorages of construction and continuity tendons;
- deviators for external prestressing;
- camber in construction and geometry corrections for the cantilever;
- conceptual design in the choice of span sequences, geometrical profile (constant or variable depth);
- use of extremity counterweight for orographic reasons;
- prestressing layout for internal, external and mixed prestressing;
- particular design models for the ULS, to be adopted in presence of joint opening and different type of prestressing;
- durability aspects related to the use of tendon anchorages within the joints, to the ducts to be used for internal tendons, in particular

crossing the joints and to the type of duct grouting.

The resulting document will summarize experience accumulated on construction of precast segmental bridges around the world, and will give to the designer guidance for the design of economical and performance based bridges assembled by precast segments.

From the start it was recognized that the topic has a strong interaction between design, construction and maintenance. Therefore, Commission 10 membership was enhanced for this bulletin by members from the design discipline.

The outline of the draft bulletin is as follows:

Scope; definitions

General introduction: description of precast segmental bridges, historical overview, field of application

Conceptual considerations: erection method, bridge alignment, span length, span arrangement, longitudinal structural system, segment cross section, segment length, casting method, concrete grade, method of permanent post-tensioning, temporary post-tensioning, pier and pier head layout, location of drainage gullies, maintenance, repair and demolition, design for seismic circum-

stances, specific aspects for railway bridges, sophisticated software

Construction: general principles, prefabrication yard, span by span erection, balanced cantilever erection, safety – risks, quality control, remedial works in case of fabrication defaults

Detailed design: design models

Maintenance, repair and demolition

Publication of this bulletin is planned for 2012.

Aad van der Horst
Chair, Commission 10

9th Symposium on HPC, 9–12 August 2011: change of venue to Rotorua



Lake Rotorua, New Zealand

Due to the severe earthquake that struck Christchurch, New Zealand, on 22 February 2011, the *fib*-supported event, the 9th International Symposium on High Performance Concrete, has been relocated to Rotorua in the North Island.

The new venue is the Rotorua Energy Events Centre, located on the edge of Lake Rotorua. Accommodation has been arranged at three locations, all within walking distance of the venue. A special conference rate has been arranged at each of

the hotels; for further information see the symposium website, www.hpc-2011.com.

Rotorua is located in the centre of the North Island of New Zealand. It is a great distance from Christchurch, and a popular tourist destination 250 km south of Auckland. It takes approximately three hours to get there by car or 40 minutes by plane. There are at least three Air NZ domestic flights per day from Auckland to Rotorua. More information about Rotorua is given at www.rotoruanz.com.

The symposium will be a continuation of the successful previous symposia held every three years since 1987. It will bring together engineers, designers, researchers and scientists from around the world to promote better understanding on topics ranging from the most recent researches to the latest applications of high-strength and high performance concrete for construction.

The symposium is an opportunity to share research results and experience related to high strength and high performance concrete.

Keynote and invited speakers will include Prof. *Pierre-Claude Aitcin* (University of Sherbrooke, Canada), Prof. *Michael Collins* (University of Toronto, Canada), Prof. *Mitsutaka Hayakawa* (Tokyo Polytechnic University, Japan), Prof. *Olafur Wallewik* (Reykjavik University/Innovation Center Iceland), Prof. *Joost Walraven* (Delft Technical University, The Netherlands), and Prof. *Francis Young* (University of Illinois, USA).

In addition, a one-day NZ Concrete Industry Conference will be held on Monday, 8 August 2011 and will feature papers on New Zealand-based projects and research, followed by a welcome reception for symposium delegates.

To register and for more information, visit www.hpc-2011.com.

Finalization of the *fib* Model Code

The work on the *fib* Model Code 2010 is now reaching its final phase. In the beginning of 2010 the first draft was published in two volumes, as the Bulletins 55 and 56. The national delegations and *fib* Commissions were then asked to submit comments and suggestions to improve the text. Altogether 240 pages of comments were received, most of which were very valuable. In February 2011, the Special Activity Group "New Model Code" SAG5 held a two days meeting in Lausanne, hosted by Prof. *Aurelio Muttoni*. During those days the comments were discussed and improvements were proposed. Since then the various chapter authors have worked on improving the text.

The initial idea was to vote on the acceptance of the Model Code 2010 during the upcoming General Assembly meeting in Prague, Czech Republic (June 2011), but for various

reasons this idea was abandoned. On one hand a few chapters are still in the process of modification, and on the other hand at the Prague symposium a number of contributions will be devoted to the Model Code and therefore final voting in the same week was considered to be inappropriate, as time should be allowed for final discussion and eventual changes. Official voting is therefore planned for October 2011, when a meeting of the Technical Council and General Assembly is planned in Lausanne, Switzerland. It is intended to circulate an electronic version of the new document by the end of the May 2011, so that the national delegations can have a first look at it. All comments to the draft of MC2010 and the answers from SAG5 will be documented and sent to the national delegations in due course.

Joost Walraven, SAG5 Convener

Honor to Prof. Ajdukiewicz

On 16 March 2011 the Technical University of Lodz, Poland, awarded the title of doctor honoris causa to Professor *Andrzej Ajdukiewicz*.

The ceremony was attended by many scientists, academics and local authorities as well as family and friends. Prof. *Ajdukiewicz* gave a lecture on the influence of concrete constructions on the environment and the influence of the idea of environmental protection on the development of concrete constructions.

Following the ceremony, the large number of personal well-wishers and letters of congratulations attested to the professional and personal esteem in which Prof. *Ajdukiewicz* is held by many colleagues and friends.

As head of the Polish delegation in *fib*, and member of the General Assembly, Technical Council, Commission 3 and related Task Groups, Prof. *Ajdukiewicz* has long been and continues to be an active and invaluable contributor to the work of *fib*. His work in building up the *fib* Polish Group as well as his involvement in numerous conferences over the years is particularly appreciated



Prof. *Ajdukiewicz* and Prof. *Stanisław Bielecki*, Rector of the Technical University of Lodz, at the ceremony.

Pier Luigi Nervi workshop



György L. Balázs and speakers at the Nervi workshop, with Turin Academy of Sciences President Pietro Rossi at the center and workshop coordinator Mario A. Chiorino to his left.

In the context of the international exhibition "Pier Luigi Nervi – Architecture as Challenge", presently on show in Turin as one of the events of the 150th anniversary of the Ital-

ian state, on May 2, 2011 the Turin Academy of Sciences and the Polytechnic of Turin, with co-patronage of the Polytechnic of Milan and Istituto Lombardo Academy of Sciences and Letters, held a day-long workshop on the work of Pier Luigi Nervi: "Pier Luigi Nervi – Art and science of building". The workshop, coordinated by *fib* member Prof. Mario A. Chiorino, also debated the subjects of modern approaches to conceptual design compared to structural inventiveness of 20th century protagonists, as well as the challenges of preserving structural concrete heritage. Speakers included *fib* President György L. Balázs, who gave a presentation on "Harmonization of material, structural form and conceptual design."

HiPerMat 2012: UHPC and Nanotech for Construction Materials



Gärtnerplatz Bridge, Kassel

Following two successful conferences on Ultra-High Performance Concrete (UHPC) in 2004 and 2008, the University of Kassel will host the 3rd International Symposium on Ultra-High Performance Concrete on 7–9 March 2012. In light of the high technical and economical potential of UHPC, researchers and engineers from around the world will present their recent technological research and experience in its practical application.

The German Research Foundation (DFG) has been supporting a priority research program in Germany on UHPC, the results of which will also be presented at the conference.

As UHPC is already applied in practical use, the symposium strives to provide a forum to exchange and discuss experience and findings from construction sites with scientists and engineers. One of the world's first structures made of UHPC can also be visited in Kassel: the Gärtnerplatz Bridge which was opened in 2007.

The continuous development of high performance materials like UHPC has been possible by applying new methods and knowledge from the field of nanotechnology. Embracing this aspect, the organizers, Prof. *Michael Schmidt* and Prof. *Ekkehard Fehling* have decided to host this symposium under a new name for the first time: HiPerMat: 3rd International Symposium on UHPC and Nanotechnology for High Performance Materials. Contributions from the field of nanotechnology for construction are therefore welcome and will be discussed.

For more information and registration, go to www.hipermat.de.

Stockholm symposium 2012



The deadline for the submission of abstracts for the *fib* Symposium in

Stockholm (11–14 June) is **1st July 2011**.

The theme of the Stockholm Symposium is Concrete Structures for Sustainable Community; papers are welcome on sustainable concrete materials, sustainable concrete production, and sustainable concrete structures, i.e. sustainability has to be regarded in a broad sense.

For further information visit www.fibstockholm2012.se, or email fib@fibstockholm2012.se

Short notes

Birthdays of note

2011 is a milestone year for several prominent persons in *fib*:

Josef Eibl turned 75 in March. *Josef Eibl* served on several CEB Commissions and Task Groups as well as the CEB Advisory Board. He has done extensive work on the strength and reinforcement of concrete structures, and wrote the structural analysis section of both the 1999 and 2010 editions of the Structural Concrete textbook. He was awarded the *fib* Medal of Merit in 2004.

Arnold Van Acker had his 75th birthday in May. *Arnold Van Acker* chaired the FIP and *fib* Commissions on prefabrication for a combined duration of 16 years, and was responsible during this time for the publication of the FIP Planning and Design Handbook on Precast Concrete Building Structures. He also participated in the drafting of *fib* Bulletins 29, 41, 43 and 46. He was awarded the FIP Medal in 1994.

Also in May, *Jean-Philippe Fuzier* turned 70. *Jean Philippe Fuzier* was Scientific Director at Freyssinet International until his retirement. A specialist in prestressed concrete structures, he was convenor or active in several *fib* Task Groups. He served as Editor-in-Chief of the Structural Concrete Journal from 2002-2006 and was a co-opted member of the Presidium during this time. He was awarded the *fib* Medal of Merit in 2001.

In June, *Jan Moksnes* will turn 75. *Jan Moksnes* was the President of FIP from 1992 to 1996, and member of the *fib* Presidium from 1998 to 2000. He is a renowned specialist in the field of off-shore structures and is one of the authors of *fib* Bulletin 50, *Concrete structures for oil and gas fields in hostile marine environments*. He was awarded the Freyssinet Medal in 1998.

Congresses and symposia

Date and location	Event	Main organiser	Contact
1–4 August 2011 Zurich, Switzerland	ICASP 11 International Conference on Applications of Statistics and Probability in Civil Engineering	ETH Zürich, Institut für Baustatik und Konstruktion	www.icasp11.ethz.ch walzer@ibk.baug.ethz.ch
9–11 August 2011 Rotorua, New Zealand	9th Symposium on High Performance Concrete: Design, Verification & Utilization	<i>fib</i> group New Zealand/ New Zealand Concrete Society	www.hpc-2011.com/nz concrete@bluepacific events.com
12–13 September 2011 Bratislava, Slovakia	Design of Concrete Structures and Bridges Using Eurocodes	Slovak University of Technology, Bratislava Czech Technical University, Prague, Technical University Vienna	www.enconcrete.sk enconcrete@stuba.sk
22–23 September 2011 Balatonfüred, Hungary	7th Central European Congress on Concrete Engineering (CCC2011)	<i>fib</i> group Hungary	www.fib.bme.hu/cc2011
7–9 March 2012 Kassel, Germany	3rd International Symposium on Ultra-High Performance Concrete and Nanotechnology	Universität Kassel, Germany	www.hipermat.de
29 May – 1 June 2012 Aix-en-Provence, France	SSCS Int. Conference: Numerical Modeling Strategies for Sustainable Concrete Structures	AFGC, France	www.sscs2012.com
11–14 June 2012 Stockholm, Sweden	<i>fib</i> Symposium: Concrete Structures for a Sustainable Community	<i>fib</i> group Sweden	annsod@cbi.se www.fibstockholm2012.se Deadline for abstracts: 1st July 2011
17–20 June 2012 Brescia, Italy	Bond in Concrete 2012: Bond, anchorage, detailing	University of Brescia, Italy	www.bondinconcrete2012.org
22–25 July 2012 Karlsruhe, Germany	9th <i>fib</i> International PhD Symposium in Civil Engineering	KIT Karlsruhe, Germany	To be announced.
19–21 September 2012 Guimaraes, Portugal	8th International Symposium on Fibre Reinforced Concrete	University of Minho RILEM	www.befib2012.civil.uminho.pt
20–24 April 2013 Tel-Aviv, Israel	<i>fib</i> Symposium: Engineering a Concrete Future: Technology, Modeling and Construction	<i>fib</i> group Israel	provisional email: Engltd2@netvision.net.il

The calendar lists *fib* congresses and symposia, co-sponsored events and, if space permits, events supported by *fib* or organised by one of its National Groups. It reflects the state of information available to the Secretariat at the time of printing; the information given may be subject to change. For the latest event information, visit www.fib-international.org/events.

Acknowledgement

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National Member Groups

AAHES – Asociación Argentina del Hormigón Estructural
 CIA – Concrete Institute of Australia
 ÖVBB – Österr. Vereinigung Für Beton und Bautechnik, Austria
 GBB – Groupement Belge du Béton, Belgium
 ABECE – Associação Brasileira de Engenharia e Consultoria Estrutural, Brazil
 ABCIC – Associação Brasileira da Construção Industrializada de Concreto, Brazil
fib Group of Canada
 CCES – China Civil Engineering Society,
 Hrvatska Ogranak *fib*-a (HOFIB) Croatian Group of *fib*,
 Cyprus University of Technology
 Ceska betonarska spolecnost, Czech Republic
 Dansk Betonforening, DBF, Denmark
 Suomen Betoniyhdistys r.y. – Concrete Association of Finland
 Association Française de Génie Civil, France
 Deutscher Ausschuss für Stahlbeton, Germany
 Deutscher Beton- und Bautechnik-Verein, Germany
 FDB – Fachvereinigung Deutscher Betonfertigteilbau, Germany
 Technical Chamber of Greece
 Hungarian Group of *fib*, Hungary
 The Institution of Engineers (India) Technical Exec. (Nezam Fanni) Bureau, Iran
 IACIE – Israeli Association of Construction and Infrastructure Engineers
 Consiglio Nazionale delle Ricerche, Italy

JCI – Japan Concrete Institute
 PCEA – Prestressed Concrete Engineering Association, Japan
 Administration des Ponts et Chaussées, Luxembourg
 Betonvereniging – *fib* Netherlands
 New Zealand Concrete Society
 Norsk Betongforening – Norwegian Concrete Association
 Committee of Civil Engineering, Concrete Structures Section, Poland
 Polish Academy of Sciences
 GPBE – Grupo Português de Betão Estrutural, Portugal
 Society for Concrete and Prefabricated Units of Romania
 Technical University of Civil Engineering, Romania
 Association for Structural Concrete, Russia
 Association of Structural Engineers, Serbia
 Slovak Union of Civil Engineers
 Slovenian Society of Structural Engineers
 ACHE – Asociacion Cientifico-Técnica del Hormigon Estructural, Spain
 Svenska Betongföreningen, Sweden
 Délégation nationale suisse de la *fib*, Switzerland
 ITU – Istanbul Technical University, Turkey
 Research Institute of Building Construction, Ukraine
fib UK Group
 American Segmental Bridge Institute, USA
 PCI – Precast Prestressed Concrete Institute, USA
 PTI – Post Tensioning Institute, USA

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