

fib Symposium 2011 in Prague: Concrete engineering for excellence and efficiency



The slide show during the opening session allowed participants to enjoy simultaneously the landscapes, buildings and music of the Czech Republic.

From 8 to 10 June 2011 the annual *fib* symposium was held in the historic city of Prague, for the second time since the association's founding in 1998. This second edition was at least as successful as the first one (which took place in 1999), with over 450 registered participants at the final count.

The symposium was an optimal combination of old and new: the excellent modern facilities of the recently constructed conference venue and the historical charm and culture of Prague. Three days were devoted to technical presentations given in 36 parallel sessions, while the social and accompanying persons' programmes offered opportunities to discover the city and surrounding areas.

Participants and guests were warmly welcomed at the opening session on

the first day of the event. The Vice-Chairman of the Scientific Committee, Milan Kalny, extended his greetings and remarked on Prague's history as a host of FIP, CEB and *fib* events, and on the diversity and harmony of the architecture and landscape in and around Prague. A slide show, accompanied by the music of accomplished violinist Alexander Shonert and pianist Natalia Shonert, illustrated this second point with a series of attractive photos of concrete structures from all over the Czech Republic.

fib President György L. Balazs then took the podium to welcome the symposium participants and draw their attention to *fib*'s activities with respect to the Model Code 2010 and the Structural Concrete Journal, and its increasingly global membership. He also discussed a number of par-

Contents	Issue 3 (2011)
<i>fib</i> Symposium 2011 in Prague	211
2011 <i>fib</i> Medal of Merit	213
<i>fib</i> Symposium in 2013, Tel-Aviv	213
2011 <i>fib</i> AAYE presented in Prague	214
PBS Workshop, Leipzig	214
<i>fib</i> UK group strengthens ties	215
<i>fib</i> Bulletins	215
New Task Groups in Comm 8	216
Arie Gerritse †, 1929-2011	217
Hendrik Lambotte †, 1925-2011	217
Congresses and symposia	218
Acknowledgement	219

ticularities of Czech culture, both historical and modern.

He then presented the 2011 *fib* Medal of Merit to Dr. Vladimír Cervenka (see article on page xx). The Chairman of the Organizing Committee, Vlastimil Sruma, concluded the session with his own words of welcome and wishes for a fruitful and enjoyable event.

The keynote speeches covered a wide range of topics: Manfred Curbach (TU Dresden, Germany) discussed "Concrete light – possibilities and visions"; Akio Kasuga (Sumitomo Mitsui Construction Co., Japan) addressed the construction of arch bridges in Japan; and Vladimír Cervenka (Cervenka Consulting, Czech Republic) spoke about the verification of global safety assisted by numerical simulation.



Chairman of the Organizing Committee, Vlastimil Srma and Vice-Chairman of the Scientific Committee, Milan Kalny



the symposium. The welcome reception at the Clarion Hotel, the cultural evening at St. Nicholas Church in the center of Prague, the festive social evening at the Hotel Praha on Thursday evening, and the centrally located exhibition area gave participants ample opportunities to connect with each other and make new acquaintances.

The technical sessions that took place over the course of the event dealt with fields that are highly relevant to today's engineers: the new *fib* Model Code, concrete and construction technology, modelling and design of outstanding and innovative structures, environmentally integrated structures and combining structural concrete with other materials. Poster sessions provided further occasions for information exchanges and discussions.

Social events and networking opportunities were an integral part of

Also taking place during the symposium was the award ceremony for the *fib* Achievement Award for Young Engineers (see page xx).

General Assembly and Technical Council

fib's administrative bodies, the General Assembly and the Technical Council, convened immediately after the symposium. The General Assembly approved the annual budget presented by Honorary Treasury *Hans Ulrich Litzner*, and also bestowed unanimously the title of

Honorary President on *Michael N. Fardis* (presidency 2009-2010). The new Secretary General of *fib*, *Petra Schumacher*, was presented and welcomed. SAG5 Chairman *Joost Walraven* briefly reported on the state of progress: 250 pages of comments were received, some of which led to significant changes. Voting by the GA on the final version of MC2010 is tentatively scheduled for autumn 2011.

The Technical Council unanimously accepted the publication of *fib* Bulletin 58 "Design of anchorages in concrete" as a Guide to good practice, and approved a new Task Group, T8.12 on "Constitutive laws for concretes with supplementary cementitious materials". The revision of the 2010 *fib* Model Code was discussed at length; SAG5 convener *Joost Walraven* and authors *Harald Müller*, *Stephen Foster* and *Marco di Prisco* presented an overview of comments received and their responses.

Special attention was given during the TC meeting to the recent earthquake, tsunami and nuclear disaster in Japan, with presentations given by *Akio Kasuga* (prepared by *Shoji Ikeda*) and by *Tamon Ueda*, and a moment of silence was observed in memory of the victims.



Participants and guests enjoy the ambiance of the Hotel Praha at the start of the symposium's memorable "social evening".



The symposium proceedings (2 printed volumes plus 1 CD) can be ordered from the Czech Concrete Society for the price of 90 EUR: www.cbsbeton.eu or email cbsbeton@cbsbeton.eu.

2011 *fib* Medal of Merit awarded to Vladimir Cervenka



From left to right: *fib* President György L. Balázs, Anna Cervenka, Vladimir Cervenka, following the presentation of the *fib* Medal of Merit to Dr. Cervenka.

The 2011 *fib* Medal of Merit was recently awarded to Vladimir Cervenka, Czech Republic, in recognition of his outstanding contributions to the field of structural concrete and to *fib*. The medal was presented to Dr. Cervenka on 8 June 2011 by *fib* president György L. Balázs, during the opening ceremony of the recent *fib* symposium held in Prague.

Vladimir Cervenka was born in 1941 in Zlin, Moravia. In 1962 he received a degree in engineering from the Czech University in Prague. In 1970 he earned his Ph.D. at the University of Colorado, Boulder, USA, with a dissertation on inelastic finite element analysis of reinforced concrete panels under in-plane loads.



Awarded at *fib* Symposia since 1999, the *fib* Medal of Merit continues the tradition of the FIP Medal awarded by the predecessor of *fib*.

Dr. Cervenka's distinguished career has been devoted to the development of nonlinear finite element modeling of reinforced concrete. He has worked as a researcher in the United States, Germany and the Czech Republic.

After founding Cervenka Consulting in 1992, he brought his expertise and analysis software ATENA to many countries around the world, including, among others, Japan, India, Germany and USA, for applications such as nuclear containments, historical buildings and tunnels.

His contributions to CEB and *fib* include work on CEB Bulletin 230 "RC elements under cyclic loading", *fib* Bulletin 45 "Practitioners' guide to finite element modelling of reinforced concrete structures" and the 2010 *fib* Model Code, as well as involvement in *fib* Commission 2 "Safety and performance concepts", Task Group 4.1 "Serviceability models", and Special Activity Group 7 "Assessment and interventions upon existing structures". Furthermore, Cervenka Consulting has been a corporate member of *fib* since 1998.

Our sincere congratulations on this honour go to Dr. Cervenka.

fib symposia in 2012

fib events coming up next year:

June 11 - 14 in Stockholm, Sweden:
fib Symposium: "Concrete structures for a sustainable community"
www.fibstockholm2012.se

July 22-25 in Karlsruhe, Germany:
9th *fib* International Ph.D. Symposium in Civil Engineering Karlsruhe Institute of Technology
<http://fib-phd.imb.kit.edu>
Deadline for abstracts: 14 Oct. 2011

fib Symposium in 2013, Tel-Aviv

The Israeli Association of Construction & Infrastructure Engineers (IA-CIE) and the Faculty of Civil and Environmental Engineering, Technion, Israel Institute of Technology, are proud to host in Tel-Aviv, Israel, the

***fib* 2013 Symposium: Engineering a Concrete Future: Technology, Modeling and Construction**
20-24 April 2013

Symposium themes:

1. Advanced and innovative cementitious materials and concrete
2. Constitutive modeling of cementitious and composite materials
3. Design concepts and structural modeling
4. Punching and shear in RC and in PC concrete
5. Challenges in bridge engineering
6. Advances in precast and PC (prestressed concrete) engineering
7. Concrete structures under seismic and extreme loads
8. Pioneering structures and construction methods
9. Structural aspects of tunnel construction and design

Mark your calendar.
www.fib2013tel-aviv.co.il

2011 fib AAYE presented in Prague



From left to right: Gian Paolo Cimellaro, Domenico Pennucci, Hugo Corres Peiretti, Tor Ole Olsen, Juan Sagaset Albajar, fib President György L. Balázs, Oscar Ramon Ramos Gutierrez.

As reported in the June issue of *fib-news*, the 2011 *fib* Achievement Awards for Young Engineers were presented in a special session of the recent symposium in Prague.

Jury chairman *Hugo Corres Peiretti* and Director of Dr. techn. Olav Olsen a.s. *Tor Ole Olsen* (representing the sponsors of the award) presented certificates of merit to the four awardees plus cash prizes of 2000€ each to the two winners. The honorees then presented their work to the public, as follows:

Oscar Ramon Ramos Gutierrez, Spain (winner, design & construction): “Structural aspects of bridge design. Some experiences throughout recent years”.

Juan Sagaset Albajar, UK (winner, research): “The influence of aggregate fracture on the shear strength of RC beams”.

Gian Paolo Cimellaro, Italy (special mention recipient, research): “Improving seismic resilience of structural systems through integrated design of smart structures”.

Domenico Pennucci, Italy (special mention recipient, research): “Performance-based seismic design of tall RC wall buildings”

The *fib* Achievement Award for Young Engineers was established in 2001 when it was presented at the *fib* Symposium in Berlin, in memory of the late Julio Ferry-Borges and sponsored by the Portuguese National Group. Since then it is given every second year at the official *fib* Symposium to engineers less than 40 years of age in the year the award is given. It recognizes outstanding contributions to structural concrete in the fields of research and of design and construction.

The 2011 edition was sponsored by Dr. techn. Olav Olsen AS, the Norwegian Public Road Administration and SINTEF Building and Infrastructure, in memory of the late Ivar Holand (1924-2000). The next edition of the award will be presented in April 2013, at the *fib* Symposium in Tel-Aviv, Israel. The call for entries, which are selected by the National Delegations in *fib*, will be made in the summer of 2012.

PBS Workshop, Leipzig

The successful international workshop on “Performance-based Specifications for Concrete” was held from 14-15 June 2011 at the University of Leipzig, Germany. The event was initiated by *fib* Task Group 8.10 and supported by *fib*, RILEM, DAF-Stb and DBV (both part of the German *fib* National Member Group), and organized by the Leipzig Institute for Materials Research and Testing (MFPA), and the University of Cape Town.

The organizers were pleased to welcome 60 participants from 17 countries. Thirty-six presentations on “Performance Criteria and Approach”, “Concrete Quality and Assurance” and “Prediction and Modeling” were given and discussed by interested colleagues from academia, administration and industry. The contributions from the workshop will provide some further bases for the work of *fib* TG 8.10, which is currently summarizing the international knowledge and guidelines for a state-of-the-art report.

Persons interested in TG 8.10 or in the workshop proceedings are invited to contact:

H.-D. Beushausen, Co-Convenor *fib* TG8.10 (Hans.Beushausen@uct.ac.za.)

F. Dehn, Co-Convenor *fib* TG 8.10 and Chairman *fib* Commission 8 (dehn@mfpa-leipzig.de)



Frank Dehn opening the workshop.

fib UK group strengthens ties between industry and academia

Representatives from leading universities, designers, contractors, product and material suppliers met at the first *fib*UK academic forum held in Birmingham on 16th May.

The forum aimed to strengthen links between industry and academia. It provided an opportunity to promote the role of *fib* and for its professional and industrial members in UK to forge new initiatives in teaching and research with academics working in the field of structural concrete. The forum also enabled reports on research activity to be presented and enabled academics to gain a clear understanding of the opportunities for them and the role *fib* can play in promoting collaboration for practical research and advanced teaching.

Dr *Kim Elliot*, who led the organisation of the event, provided a welcome to the attendees followed by Dr *Steve Denton*, Chair of the *fib*UK, who gave an overview of the objectives and structure of the UK group and explained the key role of National Member Groups in *fib*. Professor *György L. Balázs*, President of *fib*, then gave the keynote address, providing a comprehensive and engaging presentation of the history, structure and work of *fib*.

In the next session, talks were given by Dr *Robert Vollum* on design for shear, Professor *Tim Ibell* on research and innovation in concrete

engineering and Dr *Maurizio Guadagnini* on collaborative research, training and dissemination, in which he relayed the positive experiences of *fib* Task Group 9.3.

Charles Goodchild continued with a presentation on Eurocode 2 and its strong links to the work of *fib* and the presentations concluded with talk by *fib* Deputy President *Gordon Clark*, in which he described the value that he had gained from working in *fib* over the past 15 years.

In the afternoon, the delegates formed small groups, with each invited to consider two important challenges facing *fib*UK in its efforts to forge stronger links between industry and academia, promote UK research, and build the membership of the UK group.

Each of the groups identified factors that will aid and resist progress and developed some specific recommendations for action. These useful recommendations are currently being reviewed by *fib*UK and will provide a platform for future strategy and activities.

The event received a very positive response from the attendees, and its success is illustrated by commitments received from the delegates with several already taking to a greater involvement in *fib* activities.

Steve Denton
Chair of the UK National Delegation of *fib* ("*fib*UK")

For further information about this event and/or about the *fib*UK group, visit: <http://ukfib.concrete.org.uk> or email ukfib@concrete.org.uk.

From left to right: *Gordon Clark*, *György L. Balázs* and *Steve Denton* at the *fib*UK day, held at the Lafarge offices in Birmingham.

fib Bulletins



fib Bulletin 58: *Design of anchors in concrete*. Guide to good practice, July 2011. 280 pp. ISBN 978-2-88394-098-7. Non-member price: 140 CHF.

Despite the widespread use of cast-in-place and post-installed anchors in construction, the overall level of understanding in the engineering community regarding their behaviour remains quite limited. Furthermore, since the publication of the original CEB design guide, "Design of Fastenings in Concrete", ongoing research and additional application experience has led to an improved understanding and deepened knowledge in various areas of fastening technology.

fib Bulletin 58 therefore represents a substantial revision of the original 1997 guide. It addresses a variety of loading types and failure modes and takes into account the current state of the art for anchorages in new construction as well as for their use in the repair and strengthening of existing concrete structures.

fib Bulletin 58 provides a method for the design of the anchorage and additional rules for the design of the concrete member to which the load is transferred. The specified provisions are based on the currently available research.



New Task Groups in *fib* Commission 8, Concrete



fib Bulletin 59: *Condition control and assessment of reinforced concrete structures exposed to corrosive environments (carbonation/chlorides)*. State-of-art report, May 2011. 80 pp. ISBN 978-2-88394-099-4. Non-member price: 80 CHF.

For the ongoing condition assessment of concrete structures, it is necessary to identify the extent, nature, cause and prognosis of any deterioration using a range of tools and methods, including prediction models. Combined with the original design and construction details, this gives a vast amount of information over a long time period. A framework concept is therefore needed to process the entirety of the information in order to make sound investment decisions on future maintenance management.

To provide such a framework, *fib* Bulletin 59 summarizes information published in *fib* Bulletins 17, 22, 34 and 44 relevant to the control and assessment of reinforced concrete structures, and develops a practical concept of how, when and where to control the condition of an existing concrete structure in order to facilitate structural management. Thus it gives a basis for processing relevant information in order to make decisions on the appropriate course of action for condition control.

To order these and/or other *fib*, CEB and FIP publications, visit the *fib* website: www.fib-international.org/publications.

fib Task Group 8.11: “Fire resistant concretes and cementitious composites for tunnel construction”

Scope

In research and practice - both in the private and public sector – an important requirement is to have information about concretes and cementitious composites which show a significant resistance against extremely high temperatures and temperature gradients as they can occur during tunnel fire scenarios. Therefore, the new *fib* Task Group 8.11 “Fire resistant concretes and cementitious composites for tunnel construction” intends to prepare a Technical Report that will be a collection of available mix designs for concretes and cementitious composites in terms of their performances in fire based on experimental studies and/or real-life experiences. *fib* TG 8.11 will intensively cooperate with *fib* Commission 1 and *fib* WG 4.3-5 on “Fire Design of Concrete Tunnels”.

Objectives

- Summary of physical, chemical, thermo-hydraulic/-mechanical and technological background information for fire resistant concretes and cementitious composites
- Collection of available mix designs for concretes and cementitious composites

Working programme: The planned duration of TG 8.11 is three years.

New members are welcome. Please contact us if you are interested in participating:

F. Dehn, Convenor *fib* TG 8.11 and chairman *fib* Commission 8 (dehn@mfpaleipzig.de)

N. Neumann, Secretary *fib* TG 8.11 (neumann@mfpaleipzig.de)

fib TG 8.12, “Constitutive Laws for Concretes with Supplementary Cementitious Materials”

Scope

The use of Supplementary Cementitious Materials (SCM) as a binder in concrete is increasing driven mainly by the concrete industry’s need to make concrete more environmentally friendly and in particular to meet requirements for lower CO₂-emissions. Today’s codes for concrete and concrete structures allow the use of SCM but limit which materials can be used and the amount of SCM (e.g. fly ash, silica fume, blast furnace slag, natural pozzolans, fine powders, etc.). TG 8.12 therefore intends to gather available information about SCM - even for lesser known types - and prepare the basis for an extension of *fib* MC 2010, including the assessment of SCM to verify, validate and extend the constitutive laws/models when SCM are used. The work will also provide input to *fib* SAG8 “Sustainability”.

Terms of reference

The target duration is 4 years, with two meetings per year. The members will be recruited from both academia and industry; furthermore the TG will cooperate with the new RILEM committee “TC SCM Hydration and microstructure of concrete with supplementary cementitious materials” and *fib* TG 8.10 “Performance based specifications”. The work will include review of literature and ongoing research in the field, codes and recommendations, as well as already-existing constitutive relations and models.

Objectives

The group aims to draft a state-of-the-art report addressing the items in chapters 5.1 (“Materials -Concrete”) and 7.8 (“Design -Verification of limit states associated with durability”) of MC2010. The constitu-

Arie Gerritse † 1929-2011

tive relations can be formulated as in, and assessed in relation to compliance with those given in MC2010.

The subchapters may contain assessment of the validity of material laws in the two above mentioned chapters in MC2010 are valid for SCM, based on existing knowledge. If not valid, modifications may be suggested based on an overview of work to develop or modify material laws for SMC. This may lead to the results: 1) MC2010 models are valid, 2) other existing laws specially made for SMC are valid, 3) material laws need to be further investigated or developed.

Working Programme

- Start-up meeting in October 2011
- Joint RILEM TG SCM-meeting.
- Second meeting organised as an internal workshop to plan the further work in the TG; also to prepare list of STAR-content including authors.
- Biannual meetings to present and discuss new knowledge as prepared in draft chapters.
- Intermediate reporting in *Structural Concrete* and/or other journals/conferences.
- Final publication as an *fib* bulletin, state-of-the-art report and other journals/conferences

New members are welcome. Please contact us if you are interested.

Tor Arne Martius-Hammer,
tor.hammer@sintef.no, Co-Convenor *fib* TG 8.12

Harald Justnes, harald.justnes@sintef.no, Co-Convenor *fib* TG 8.12

Frank Dehn, dehn@mfpa-leipzig.de, Chairman *fib* Commission 8



Born on 15 September 1929, *Arie Gerritse* was a pioneer in the development of FRP reinforcement.

He was principal of Gerritse Consultancy in The Netherlands, and a founder of *fib* Task Group 9.3 'FRP reinforcement for concrete structures', to which he remained a valuable contributor for many years.

Arie Gerritse received his engineering degree in 1950 from Rotterdam Technical College and then worked for a number of consulting companies. For many years he contributed to developments in concrete technology and was actively involved in a number of international commit-

tees. This led to his involvement in the field of advanced composite materials and the development of pultruded aramid rods (Arapree) for use in civil engineering applications. He was closely involved in the development of non-metallic tensile elements in 1991-1996, which was an important milestone in FRP's emergence as a practical technology, and led to the formation of *fib* TG9.3.

Arie combined a researcher's deep knowledge about advanced materials with an engineer's practical experience. He could be direct in the expression of his views and often asked questions that got to the heart of the discussion. His ready smile and his acerbic wit will be missed.

He passed away on 27 May 2011, leaving a wife, Cocky, three children and several grandchildren.

Chris Burgoyne, Luc Taerwe, Stijn Matthys

Hendrik Lambotte † 1925-2011



Prof. *Hendrik Lambotte*, born in 1925, passed away on June 4, 2011 after a long illness. He started his career in 1951 as assistant of the late Prof. Gustave Magnel at Ghent University (Belgium). In that period a lot of basic research was performed on prestressed concrete and the Magnel Laboratory was renowned at the international level for the pioneering work performed in this field. Rik Lambotte became involved in FIP and CEB during the early stages of both organisations. As successor

of Felix Riessauw, he was director of the Magnel Laboratory for Concrete Research from 1983 until 1990 and was for many years head of the Belgian CEB delegation. He was an active member of CEN/TC 250/SC2 and of CEB commissions and task groups dealing with lightweight concrete and quality control. He was also active in RILEM and many other national and international organisations. He also served as President of the Belgian Concrete Society.

Rik Lambotte was a very talented researcher and teacher, appreciated for his ability to find diplomatic solutions to delicate problems. He enjoyed family life and especially the company of his four grandchildren.

Luc Taerwe

Congresses and symposia

Date and location	Event	Main organiser	Contact
22-23 September 2011 Balatonfüred, Hungary	7th Central European Congress on Concrete Engineering (CCC2011)	<i>fib</i> group Hungary	www.fib.bme.hu/ccc2011
22-25 October 2011 Salt Lake City, USA	PCI Annual Convention/ Exhibition & National Bridge Conference	PCI	www.pciconvention.org/2011
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
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	http://fib-phd.imb.kit.edu/
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
27-29 May 2013 Tokyo, Japan	1st International Conference on Concrete Sustainability	JCI	www.jci-iccs13.jp
10-14 February 2014 Mumbai, India	4th International <i>fib</i> Congress and Exhibition	<i>fib</i> group India	website and email address to be announced

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.

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 Hormigón 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
 ASBI – American Segmental Bridge Institute, USA
 PCI – Precast Prestressed Concrete Institute, USA
 PTI – Post Tensioning Institute, USA

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