*fib*-news
CEB-FIP

*fib*-news is produced as an integral part of the *fib* Journal *Structural Concrete*. Larger quantities of offprints are made available to National Member Groups on request.

# The *fib* Symposium Berlin 2001: Concrete and environment

The *fib* Symposium 2001 took place in Berlin from 3–5 October 2001. Organised by the German *fib* group, i.e. the German Society for Concrete and Construction Technology (dbv—Deutscher Beton—und Bautechnik-Verein) and the German Committee for Structural Concrete (DafStb—Deutscher Ausschuss für Stahlbeton), it brought together 300 registered participants from about 35 countries—a well merited success. Considering the difficult times after the September terrorist attack in New York, the participants from overseas and especially *fib*'s American friends enjoyed a warm welcome from the organisers.

On Monday 1st October the *fib*'s Steering Committee and Council met. On Tuesday 2nd October in the morning, the Technical Activities Workshop was open to *fib*-members and the public, and was devoted to presentations of recently finalised bulletins and the discussion of their contents, of the conclusions to be drawn from the findings, of the possible follow-up of the activities and of scientific or practical aspects in relation to *fib*'s future work in general. Three new Bulletins were presented by Karl-Heinz Reineck (Punching of structural concrete slabs, *fib* Bulletin 12), Jack Picaut (Nuclear containments, *fib* Bulletin 13) and Thanasis Triantafillou (Externally bonded FRP reinforcement for RC structures, *fib* Bulletin 14). Reviews of these Bulletins have been published in *fib*-news (2001, No. 3 and in this issue). In the afternoon the very stimulating contributions from the best candidates of this year's competition for the *fib* diploma to younger engineers followed (see separate report in this fib-news).

On Wednesday morning, after the welcome addresses and the invited opening speech from Jörg Schlaich 'The joy of structural engineering', the opening ceremonies of the symposium provided the opportunity for *fib*'s president Joost Walraven to honour this year's medallists (see separate report in this *fib*-news).

During the next two and half days, 12 parallel sessions covered various aspects such as

- aesthetical aspects of concrete structures
- sustainability and life cycle design
- protective structures
- strengthening
- prolongation of service life design
- material aspects of concrete with regard to environment
- prediction and durability
- recycling
- release from cement bound materials
- energy conservation
- environmental aspects in operation
- demolition and demountable structures.

Each half-day was opened by a plenary session during which keynote speakers introduced these topics. A panel discussion on the influence of sustainability aspects on future construction practice summarised the symposium's results and discussions.

The proceedings of the symposium (67 two page abstracts plus a CD with all papers in full length, format 21 × 29 cm) are available from dbv (e-mail: dbv.berlin@t-online.de) for EUR 45. ●


Proceedings of the 2001 *fib* Symposium on Concrete and Environment, Berlin (210 × 297 cm (DIN A4), 144 pp, 67 (two page) abstracts, plus 1 CD with papers in full length)

# *fib* medals of merit conferred on Jean-Philippe Fuzier and Dieter Jungwirth

On Wednesday 3 October 2001, during the opening ceremony of the 2001 *fib* symposium Concrete and Environment in Berlin, Germany, President Joost Walraven honoured two new *fib* Medallists (Figure 1).

The first one, in alphabetical order, was conferred on Jean-Philippe Fuzier. Born in 1941, he graduated in 1965 from the Ecole Centrale de Paris. In 1967 he joined—as a design engineer—Gannett Fleming, Corddry and Carpenter in Harrisburg (Pennsylvania, USA). Coming back to



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Jean-Philippe Fuzier

France he later became involved in all kinds of prestressed concrete structures, as project engineer, then Technical Director and later International Division Manager with Europe Etudes (Paris, France). He holds today the position of a Scientific Director with Freyssinet International. In this position in the Freyssinet Group he has the worldwide technical responsibility for the application and use of Freyssinet services and products such as post-tensioning and stay cable systems.

His projects include prestressed concrete oil storage platforms such as Ekofisk, Frigg, and Ninian, prestressed concrete nuclear containments such as Asco (Spain) and Doel (Belgium), and liquefied natural gas storage tanks in Montoir (France) and Pyong Taeg (Figure 2). He also became involved in the design and construction of large span roofs (Figure 3) and in numerous precast and cast-in-situ cantilever bridges and viaducts, among them Long Key Bridge (Figure 4), Linn Cove Viaduct (North Carolina, USA) and more recently in cable-stayed bridges, as for example, the Elorn and Normandy Bridge (France) and Hongkong's Ting Kau Bridge (Figure 5).

Author of numerous technical papers, Jean-Philippe Fuzier is not only representing the Freyssinet Group in quite a number of international organisations, he also is a convenor or member of several Task Groups in *fib*. He serves his country as Head of the French Delegation in *fib* and, after three years as Deputy Editor-in-chief has now taken over the responsibility of an Editor-in-chief of *fib*'s Journal *Structural Concrete*.

The other recipient was Dieter Jungwirth. Born in 1937 in Würzburg, Germany, he graduated in 1960 from the Technical University of Munich where he also, in 1968, obtained his Doctor degree after having served as an assistant to Prof. Rüsch. Thus, in 1963, he became acquainted with the European Concrete

**Fig. 1** *fib* 2001 Medallists after the award ceremony (from left to right: Joost Walraven, Dieter Jungwirth, Ulla Jungwirth, Jean-Philippe Fuzier, Annelise Fuzier)

**Fig. 2** LNG tank Pyeong Taeg, Korea

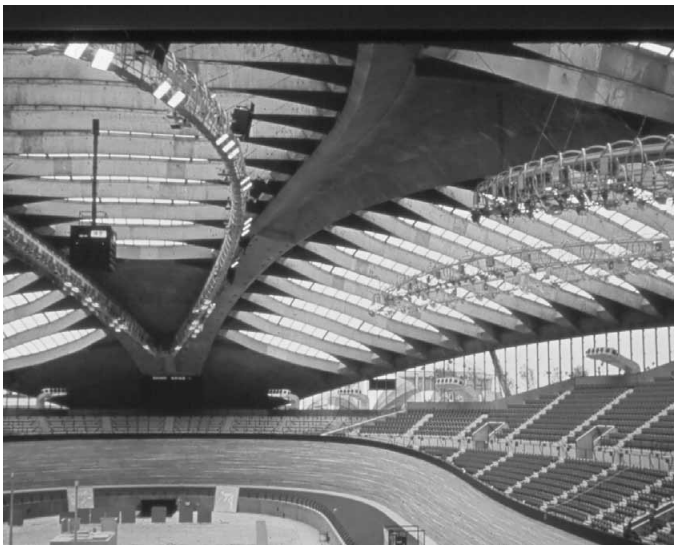

**Fig. 3** Olympic Velodrome, Montreal 1976



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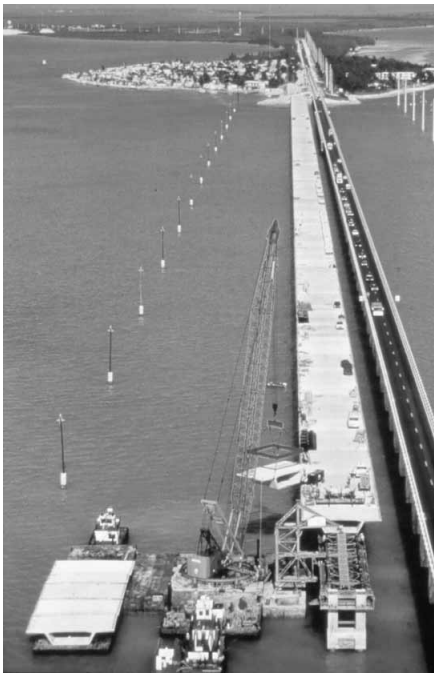

**Fig. 4** Long Key Bridge, Florida, USA

Dieter Jungwirth

Committee CEB, one of *fib*'s parent associations.

In 1969 he joined the company Dyckerhoff and Widmann in Munich where his 'practical' career started in the construction office headed at that time by Finsterwalder, and later this led to the position of Managing Director in the Technical Management of Dywidag-Systems International. He became involved in numerous activities on construction sites, for example related to creep and shrinkage and the free cantilever construction method, in the development of post-tensioning systems, and in the technical support for countless practical applications in Germany and abroad (Figures 6–8). About 150 publications and three books (Figure 9) bear witness to these activities.

In FIP, *fib*'s other parent association, he has been active since 1970 when he joined the Commission on Prestressing Steel, chaired at that time by Prof. Bruggeling. He is still an active member

**Fig. 5** Ting Kau Bridge, Hongkong

**Fig. 6** Skye-Bridge, Scotland

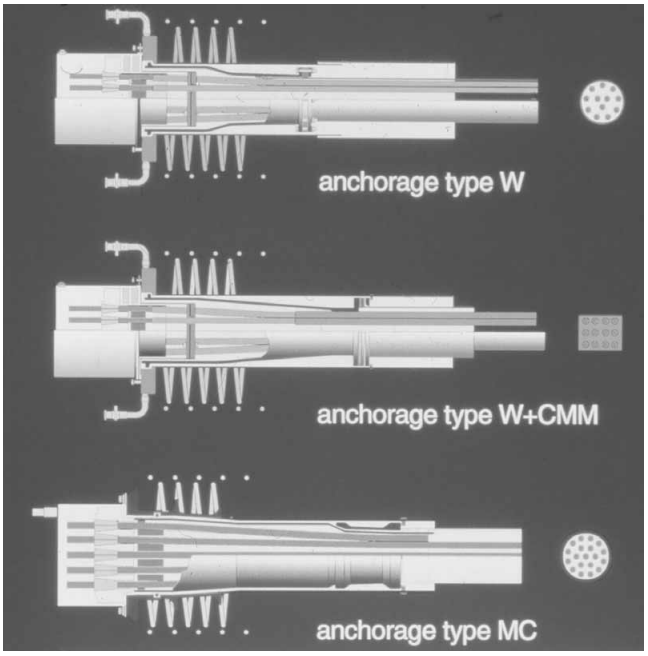


**Fig. 7** Anchorages for external tendons



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**Fig. 8** Reconstructed House of World Cultures, Berlin (former Congress Hall)


**Fig. 9** Some of Jungwirth's publications

in the succeeding *fib* Commission 9 Reinforcing and prestressing materials and systems. His interests encompass the durability of (prestressed) concrete structures (damage analysis, rehabilitation), the improvement of quality in the construction industry in general, the aspects related to the approval of post-tensioning systems and the appropriate use of materials and systems including qualified workmanship. Dieter Jungwirth, who has been lecturing at the Technical University of Munich since 1983 and was appointed Honorary Professor in 1989, has received several engineering distinctions, among them the VDI-Medal (1988) and the Oskar-von-Miller Medal (1999). ●

# *fib* Diploma to Younger Engineers in honour of Júlio Ferry Borges

On Tuesday 2 October 2001, during the Technical Activity Workshop, the first two *fib* Diplomas ever were awarded. According to the bye-laws, one diploma should reward an engineer for an outstanding contribution to structural concrete in the field of research, the other should reward an engineer in the field of design and construction. The 2001 awards were sponsored by the Portuguese Delegation with a price-money of 2000 CHF for each of the winners and Eduardo Cansado Carvalho, on behalf of the Portuguese group, evoked the history behind the diploma, saying.

> Starting from an initial proposal by the Portuguese Delegation, CEB, at one of its last plenary sessions, by coincidence held here in Berlin, decided to establish an award for young researchers, having in mind to make CEB more visible to the community of younger researchers and also to attracting their contributions to the scientific and technical activities of the association.
>
> Soon after, the merger of CEB and FIP came to be. The concept was kept by *fib* that, with the appropriate adjustments, took the necessary steps that lead to the award now being attributed for the first time. Let me congratulate the award winners for their very interesting work.
>
> We shall be hearing their presentations in a few minutes together with those of two other young engineers which deserved a special mention by the Jury. All of them should be encouraged to join *fib* activities, contributing with new ideas and their younger spirit to the work of our association.
>
> In the original CEB idea for the award there was also another objective which was to associate the award with the honouring of a distinguished personality in the field of structural concrete.
>
> This concept, again kept by *fib*, establishes in a certain way a link between the past and the future generation. Thus, the Portuguese Group for Structural Concrete, the Portuguese *fib* member, proposed to sponsor the first edition of the award, to honour someone that we consider fits entirely the spirit behind this new award: I am referring to Júlio Ferry Borges.
>
> Júlio Ferry Borges was a Portuguese researcher at the National Laboratory for Civil Engineering in Lisbon, for whom we are very proud, and who contributed in an outstanding way to the development of many fields of civil engineering such as structural concrete, structural safety and earthquake engineering, just to mention a few.
>
> He was also extremely active in fostering international co-operation and contributed very much to CEB since its foundation, being its President from 1979 to 1983. Those of you who knew him, will agree that throughout his career, he pursued innovation and had utmost interest in providing for the dissemination of knowledge. In 1973 he was one of the prime movers and contributors for the CEB course held in Lisbon from which resulted a fraternity of young engineers who, for many years, contributed to the scientific and technical activity



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of CEB. Thus, we feel that honouring Júlio Ferry Borges today is most appropriate and we are very pleased that fib has accepted our offer to sponsor the award.

Naturally, many other individuals contributed in the past to the progress of CEB and FIP and deserve also the gratitude and honour of our association. Hence, from this place I very much invite other national members of fib to come forward and sponsor future editions of the award—an exercise that will establish a visible link between the past and the future which this award embodies.


Mrs Jeannette Bouwmeester, winner *fib*-diploma 2001 in the category Design and Construction, receives flowers from György Balázs as chairman of the jury.

Tetsuy Ishida, winner *fib*-diploma 2001 in the category Research, receives the diploma from Eduardo Cansado Carvalho as Head of the Portuguese Group in *fib*.

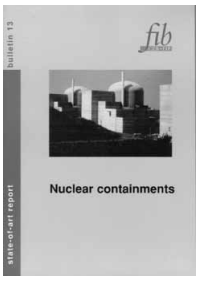
Candidates had to be less than 40 years of age in the year the diploma was given. Twelve submissions for the category 'Research' and four for the category 'Design and construction' were received from the National Delegations. An international jury (György Balàzs (chair), Julio Appleton, Konrad Bergmeister, Hans-Rudolf Ganz, Jan Moksnes, Hajime Okamura, Joost Walraven) was set up by the Steering Committee and the winners were selected: Jeannette Bouwmeester (The Netherlands) in the category Design and construction and Tetsuya Ishida (Japan) in the category Research. In addition to the price and the diploma, they were invited by *fib* to a free participation in the symposium, including travel costs, and received support for their hotel arrangements.

The jury also recommended that the 2nd and 3rd place in the category Research (Pedro Pacheco (Portugal) and Walter Kaufmann (Switzerland)) should be invited to come to Berlin and present their work. This was done on the same conditions as for the winners and thus, in the afternoon of the Technical Activities Workshop, the audience enjoyed four excellent and very interesting presentations. All were accepted to summarise their contribution in a paper. These will be published consecutively in the next issues of *fib*-news. ●

# New bulletins

The *fib* Bulletins for the subscription year 2001 include number 11 Factory applied corrosion protection of prestressing steel, number 12 Punching of structural concrete slabs, the new Directory 2001, and now the Bulletins 13–15, recently mailed to all corporate and individual subscribing members. A brief description is given in the following. Non-members may order these Bulletins or former publications from the *fib* secretariat by simply using the order form on page 231 or *fib*'s internet website http://fib.epfl.ch.

## Nuclear containments (*fib* state-of-art report)




It was in 1978 that the then FIP (*Fédération Internationale de la Précontrainte*) published a state-of-the-art report on Containments for Nuclear Power Plants (NPPs). In 1996 the FIP Commission 7 Concrete pressure vessels and containments discussed the necessity to up-date this document. Shortly afterwards, in 1998, the merger of FIP with CEB (*Comité Euro-International du Béton*) into *fib* (*fédération internationale du béton*—international federation for structural concrete) took place.

Activities were continued thereafter by a new *fib* Task-Group 1.3 Containment structures of *fib* Commission 1 Structures. The decision to update the 1978 report was kept with the intention to give a broad and well illustrated review of existing NPP containments as the most characteristic and complex building of nuclear power plants.

Following the description of containments for different reactor systems the state-of-art report includes considerations on safety as the basic purpose of the containment, which underlies all design and construction aspects and necessitates a strict monitoring and inspection programme during the whole life of the structure.

Regulatory requirements and their evolu-



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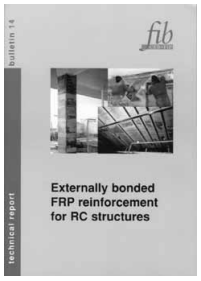
tion as well as recent developments, conceptual and technological, are presented.

The report is complemented by two annexes on CD ROM giving some general information (on 160 NPPs built since 1972) and some more detailed data on six typical recent NPP containments.

This work has been achieved during the years 1999 and 2000 thanks to the participation of members of *fib* Commission 1 and particularly of its Task Group 1.3, involving also further invited experts in the nuclear field from many countries all over the world

- *fib* Bulletin 13, Format 204 × 289mm, (approx DIN A4), 130 pages, 18 tables, 42 illustrations, 1 CD-ROM
- non-member price: 100 CHF, surface mail included, airmail at extra charge.

## Externally bonded FRP reinforcement for RC structures (*fib* technical report)




In December 1996, the then CEB established a Task Group with the main objective to elaborate design guidelines for the use of FRP reinforcement in accordance with the design format of the CEB-FIP Model Code and Eurocode 2. With the merger of CEB and FIP into *fib* in 1998, this Task Group became *fib* TG 9.3 FRP Reinforcement for concrete structures in Commission 9 Reinforcing and prestressing materials and systems. The Task Group consists of about 60 members, representing most European universities, research institutes and industrial companies working in the field of advanced composite reinforcement for concrete structures, as well as corresponding members from Canada, Japan and the US. Meetings are held twice a year and on the research level its work is supported by the EU TMR (European Union Training and Mobility of Researchers) Network 'ConFibreCrete'.

The work of fib TG 9.3 is performed by five working parties (WP): material testing and characterisation (MT&C); reinforced concrete (RC); prestressed concrete (PC); externally bonded reinforcement (EBR); and marketing and applications (M&A). This technical report constitutes the work conducted as of to date by the EBR party.

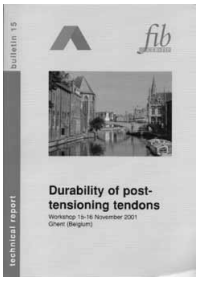
This bulletin gives detailed design guidelines on the use of FRP EBR, the practical execution and the quality control, based on the current expertise and state-of-the-art knowledge of the task group members. It is regarded as a progress report since it is not the aim of this report to cover all aspects of RC strengthening with composites. Instead, it focuses on those aspects that form the majority of the design problems. Several of the topics presented are subject of ongoing research and development, and the details of some modelling approaches may be subject to future revisions. As knowledge in this field is advancing rapidly, the work of the EBR WP will continue.

Inspite of this limit in scope, considerable effort has been made to present a bulletin that is today's state-of-art in the area of strengthening of concrete structures by means of externally bonded FRP reinforcement

- *fib* Bulletin 14, Format 204 × 289mm, (approx DIN A4), 138 pages, 8 tables, 64 illustrations
- non-member price: 90 CHF, surface mail included, airmail at extra charge.

## Durability of post-tensioning tendons (*fib* technical report)

In some countries durability problems with post-tensioning tendons have in the past led to fairly restrictive regulations. Improvements to execution procedures have been developed since, and new or improved prestressing systems have been proposed, too.




This development was, of course, subject to discussions in *fib* Commission 9 Reinforcing and prestressing materials and sytems and in IABSE Working Commission 3 Concrete structures. It was decided to organise a workshop with the aim to review the different aspects of the problems encountered and to discuss solutions available today. Keynote speakers from various countries were invited to contribute. Their papers are published in this bulletin, grouped together under the following themes: inventory and condition; investigation and repair; technical progress; and strategies for improvement

Supported by *fib*, the International Federation for Structural Concrete, and IABSE, the International Association for Bridge and Structural Engineering, the workshop took place on 15 and 16 November 2001 at Ghent University, celebrating the 75th anniversary of the Magnel Laboratory for Concrete Research, whose director also chaired the Scientific Committee and edited the bulletin. It needs to be emphasised that invited experts present their individual views, not *fib*'s or IABSE's. Although not yet discussed in any of the association's working bodies, the highly topical contents of this bulletin is believed to be of general interest to *fib*'s members and to provide a platform for future work in this field. Therefore, the Council of *fib* agreed to publish these papers within *fib*'s series of Bulletins

- *fib* Bulletin 15, Format 204 × 289mm, (approx DIN A4), 284 pages, 14 tables, 176 illustrations
- non-member price: 100 CHF, surface mail included, airmail at extra charge. ●

Bulletins may be ordered via the internet (http://fib.epfl.ch) or by mail, e-mail or fax. They are sent regularly to all individual subscribing and all corporate members of *fib* as part of their annual subscription. Ordinary members receive the Journal only. They are entitled, however, to order once a year a Bulletin at a discount rate.



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## BULLETIN ORDER FORM

❑ I/we want to order the following bulletins:

| No. | Title | Non-member price (CHF/copy) |
|---|---|---|
| 1–3 | *Structural concrete—textbook on behaviour, design and performance*<br>*fib* Manual (1999), 3 volumes, 860 pp, DIN A4 (for summary see *fib*-news 2000, No. 1) | 300 |
| 4 | *Lightweight aggregate concrete—codes and standards*<br>*fib* State-of-art report (1999), 46 pp, DIN A4 (for summary see *fib*-news 2000, No. 1) | 60 |
| 5 | *Protective systems against hazards—nature and extent of the problem*<br>*fib* Technical report (1999), 64 pp, DIN A4 (for summary see *fib*-news 2000, No. 1) | 60 |
| 6 | *Special design considerations for precast prestressed hollow core floors*<br>*fib* Technical report (2000), 180 pp, DIN A4 (for summary see *fib*-news 2000, No. 2) | 90 |
| 7 | *Corrugated plastic ducts for internal bonded post-tensioning*<br>*fib* Technical report (2000), 52 pp, DIN A4 (for summary see *fib*-news 2000, No. 2) | 60 |
| 8 | *Lightweight aggregate concrete*<br>*fib* Guide/Tech. report (2000), 118 pp, DIN A4 (for summary see *fib*-news 2000, No. 2) | 80 |
| 9 | *Guidance for good bridge design*<br>*fib* Guide to good practice (2000), 190 pp, DIN A4 (for summary see *fib*-news 2000, No. 3) | 100 |
| 10 | *Bond of reinforcement in concrete*<br>*fib* State-of-art report (2000), 434 pp, DIN A4 (for summary see *fib*-news 2000, No. 3) | 130 |
| 11 | *Factory applied corrosion protection of prestressing steel*<br>*fib* State-of-art report (2001), 20 pp, DIN A4 (for summary see *fib*-news, 2001, No. 1) | 50 |
| 12 | *Punching of structural concrete slabs*<br>*fib* Technical report (2001), 314 pp, DIN A4 (for summary see *fib*-news 2001, No. 3) | 110 |
| 13 | *Nuclear containments*<br>*fib* state-of-art report (2001), 130 pp + 1 CD-ROM, DIN A4 (for summary see *fib*-news 2001, No. 4) | 100 |
| 14 | *Externally bonded FRP reinforcement for RC structures*<br>*fib* technical report (2001), 138 pp, DIN A4 (for summary see *fib*-news 2001, No. 4) | 90 |
| 15 | *Durability of post-tensioning tendons*<br>*fib* technical report (2001), 284 pp, DIN A4 (for summary see *fib*-news 2001, No. 4) | 100 |

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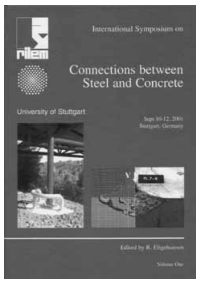
# Successful symposia supported by *fib*

This autumn several symposia in Stuttgart (Germany), Perth (Western Australia) and Paris (France) preceded the 2001 *fib* symposium in Berlin. Supported by *fib*, they were successfully arranged by one of the national member groups or, as in the case of Stuttgart, by one of *fib*'s Special Activity Groups. Short reports summarise the events in the following.

## Connections between steel and concrete




Connections between steel and concrete by fasteners and in composite construction have seen dynamic progress in research, technology and application over the past decades. The understanding of the fundamental principles underlying these two disciplines improved significantly. International directives and standards were established to ensure safe and economical connections between steel and concrete in structural civil engineering.

Although fastening technology and composite construction deal with very similar problems, they developed independently from each other. It became obvious, therefore, that from a forum at which experts in the corresponding fields could exchange their experiences, an off-spring of new ideas, technologies and solutions might be of great benefit to all participants.

From that resulted the 1st international symposium on Connections between Steel and Concrete held from 9–12 September in Stuttgart, Germany. It was organised by the Department of Fastening Technology in the Institute of Construction Materials at the University of Stuttgart. As most readers will know, Rolf Eligehausen, the Head of this department also chairs the *fib* Special Activity Group 4 Fastenings to Structural Concrete and Masonry, a truly worldwide operating working group. Besides *fib*, the symposium was cosponsored by the American Concrete Institute ACI and IABSE—the International Association for Bridge and Structural Engineering. The comprehensive programme with approximately 130 lectures was completed by an exhibition of renowned manufacturers of construction software, measuring devices, construction literature and current fastening technology.

Approximately 400 experts from more than 30 countries used the symposium to benefit from current information on composite construction and fastening technology, to become familiar with innovative application, new directives and codes, actual research results as well as their conversion into practice. They found support and were stimulated for future tasks by personal contacts to other experts and by lectures on the latest state of technology.

These lectures, held by internationally well-known experts from science and practice, were related to the following categories

- behaviour and design
- fatigue
- earthquake
- durability
- fire
- numeric simulation
- experimental studies
- dowel action and shear bolts
- adhesive anchors
- specific fastening devices
- innovative connections in composite construction building
- application
- bridges.

During his welcome address the Minister of Economy of Baden-Wuerttemberg, Dr Döring, demonstrated the importance of knowledge and technology transfer from research into practice by the example of domestic middle-class enterprises in Baden-Wuerttemberg. Their economic success is mainly caused by the creativity of their collaborators, the creation of patents and their conversion into products. This is valid in particular for the fastening technology industry. Prof. Ressel as Dean of the Faculty of Civil Engineering and Surveying could only support these words by referring to examples from the University of Stuttgart.

With his lecture 'Where structural steel and concrete meet', Prof. Stark led then over to the professional engineering part of the symposium. He demonstrated current tendencies, common characteristics and differences in composite construction and fastening technology by means of examples from codes and applications and showed possibilities for future cooperation.

Eligehausen reported in his lecture about the present state of research in fastening technology, their effects on structural civil engineering and future developments.

Background information on design methods in fastening technology and their developments in the USA, Europe and Japan were presented in contributions of Breen, Klingner, Fuchs and Tanaka. The international harmonization of design methods in this field has made good progress already.

Details in the design of cast in situ parts and post-installed fasteners under different loading directions, as well as special fields of applications and safety aspects were then discussed in five further sessions.

The lectures on stability and action of fire found special attention. Here the possibilities and areas of application for fastenings produced from galvanized and stainless steels were shown with regard to corrosion and fire resistance.

Cook then presented a lecture giving insight in the fundamentals of the behaviour and of the use of adhesive anchors. Supplementary contributions to the state of the art and further developments in the field of the organically and inorganically bound fasteners rounded off this topic.

The lectures related to earthquake topics represented a further highlight. Jirsa gave information on the behaviour of



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connections between steel and concrete under earthquake loads and showed possibilities for effective improvement through many examples from construction practice. In further lectures retrofitting and its effects on the load-carrying capacity of the construction, testing and design proposals as well as safety concepts were presented. It became evident that there is still a considerable amount of research needed in this area.

Another main topic was the numeric simulation. Ozbolt talked about the application of numeric methods, their theory and use to the solution of problems resulting from the local load introduction into the concrete via connectors. In further lectures of this session the meanwhile achieved reliability of FE-calculations could be confirmed by comparison with test results both in the composite construction and in the fastening technology field.

Kuhlmann introduced the recent developments and future opportunities in the field of composite construction and presented detailed solutions. The further sessions on composite construction with regard to widely used experimental studies, on innovative devices for load transfer from the steel into the concrete, on the behaviour of shear connectors, on application in bridges and on the behaviour under fatigue loading, indicate the great number of possible applications and the large potential of the compound building construction in the future.

A last highlight was set by Schlaich with the closing lecture entitled 'More variety in bridge design by mixing steel and concrete'. Through examples from presence and past the enormous architectural opportunities by correct use of structural engineering methods for the materials steel and concrete became evident.

Concluding it may be noticed that the target of the symposium was completely reached, an impressive fertile communication between the two disciplines fastening technology and composite construction took place. In total the participants of the symposium were very satisfied. They agreed that composite construction and fastening technology have decisively come closer. It became obvious that a continuous and intensive knowledge transfer will be a considerable contribution for the design of innovative, economical and safe buildings in the future.

Obviously within the pre-set frame of this article the lectures can not be summarised properly. Full conference proceedings can be ordered directly at RILEM (http://www.rilem.org) for a price of approx. 130 Euro.

**Werner Fuchs**

## Concrete 2001: Adding value through innovation


The biennial conference of the Concrete Institute of Australia was held in Perth, Western Australia, from 11–14 September 2001. The very well organised symposium in a splendid setting was attended by some 250 delegates from Australia and about 15 other countries. Strong support was given by *fib*, involving several prominent keynote speakers. The symposium was also co-sponsored by ACI. Brian Hauser from the Cement and Concrete Association of Australia brilliantly mastered the difficult situation when the news of the terrorist attacks in New York became known just before the opening. Plenary sessions in the morning for all three days brought the participants together in the main auditorium

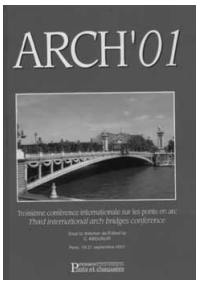
- Joost Walraven (The Netherlands): Innovative materials and their role in structural design
- Rae Bolotin (Australia): Through the eyes of an artist
- Arnold van Acker (Belgium): Current developments in precast conrete from Europe
- Steen Rostam (Denmark): Concrete, the backbone of economic development
- George Hoff (USA): The concrete industry—visioning for the future
- Anthony Umney (United Kingdom): Tunnels and below ground applications for concrete
- Robert Park (New Zealand): Design of reinforced concrete structures for earthquake resistance
- Michel Virlogeux (France): Bridges
- Chris Stanley (Hong Kong): Developments in assessing the integrity of building surfaces.

Then about 80 further papers and posters were presented in three parallel sessions covering the aspects

- admixtures and coating
- architectural precast concrete
- bridge construction
- cathodic protection
- cements
- columns
- design, including seismic design
- durability
- floors and paving
- history and overviews
- materials and properties
- pozzolans and HSC
- reinforcement
- sustainability
- testing and service life
- tunnels.

The complete proceedings (1 volume, 730 pages—most papers also on CD) are available from CIA—Concrete Institute of Australia, PO Box 848, Crows Nest NSW 1585, Australia (e-mail: exec@coninst.com.au; web http://www.coninst.com.au).

## Arch '01




The third international conference on arch bridges was held in Paris (France), on 19–21 September 2001. Organised by the Ecole des Ponts and supported by *fib*, the ACI Paris Chapter, ECCS and AFPC (*Association franaise pour la Construction*), this symposium continued an already well established tradition. In fact, the symposia of this series are organised every third year, the first was held in 1995 in England, the second one in 1998 in Italy, now in France 2001 and in 2004 it was agreed to have it in Spain (Barcelona, Prof. P. Roca, *Universitat Politecnica di Catalunya*).



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# news

Authors from more than 25 countries offered major contributions to about 250 participants. In spite of the dramatic events in New York some days before, numerous participants from abroad, from China, Japan, North and South America, and Africa, were welcomed.

The level of expertise of the participants was high, and well-known designers and maintenance specialists were present. In fact there were two distinct fields that are of great interest for engineers and architects concerning arch bridges: the design of competitive new bridges on the one side and the repair and strengthening of existing bridges on the other side. Being under compression, an arch is normally supposed to be in good condition for a durable behaviour. However, due to the increase of loads in modern times, problems often arise for the enormous heritage of masonry arch bridges. As an example, the pathology of many flat masonry arch bridges of the French Railways was presented. These numerous flat arches are particularly inspected whatever their span is and about ten of this type are replaced or strengthened per year. In general, many research work is being done concerning older bridges, in particular brickwork arches. Although the self weight is often predominant, the impact of traffic loads on the collapse mechanism is of major importance.

Concerning new bridges, many examples of executed arch bridges were presented which proved to be competitive with regard to other types of construction. The increased choice of arch solutions is due to new possibilities for execution and materials. From an economic point of view, spans up to 600 m seem to be competitive.

About 80 papers where presented. The eight invited speakers were

- J.J. Arenas (Spain) on Arch bridges: shape and stiffness
- R. Favre (Switzerland) on The arch: enduring and endearing
- C. Melbourne (UK) on Experimental research on arch bridges in the UK
- F. Maorum (China) on Comprehensive review on design, research and construction of long span arch bridges en China
- J. Muller (France) on Design and construction of long span arch bridges
- P. Ramondenc (France) on *Les ouvrages en arc: des ouvrages d'avenir*
- A. Sinopoli (Italy) on Theoretical research on arch bridges in Italy
- A. Spielmann (France) on Un *arc de 600 m*.

Finally it has to be noted that all contributions have been edited under the direction of C. Abdunur in a splendid book of 1020 pages, by the *Presses de l'Ecole Nationale des Ponts et Chaussées*, 28 rue des Saints-Pères, F-75007 Paris, ISBN 2–85978–347–4 (e-mail bourgain@mail.enpc.fr; web http://www.enpc.fr). ●

**Renaud Favre**

# Congratulations

Hugo Bachmann

The University of Kassel informs that Prof. em. Dr-Ing Dr h. c. Hugo Bachmann, Head of the group on Earthquake Engineering and Structural Dynamics of the Institute of Structural Engineering at the Swiss Institute of Technology Zürich (ETHZ), received on 11 May 2001 an honorary doctorate from the Department of Civil Engineering of the University of Kassel. The degree was awarded in recognition of his achievements as an engineer, university lecturer and scientist. Starting from basic research for the construction methods of reinforced concrete and prestressed concrete, he devoted his work to applied dynamics in the field of earthquake resistant design of structures, and to dynamic problems in general. The remarkable clearness and comprehensiveness of his lectures and his more than 120 publications including five books have given fundamental stimulus and had an inspiring influence on practical work. The practical guidelines on vibration problems in structures, published in 1991 as CEB Bulletin 209 by a Task Group under his leadership, are even today often requested although the Bulletin has been out of print for many years (fortunately they were later published as a book by a commercial editing house). Prof. Bachmann is member of *fib* and active in Task Group 7.2 on Displacement-based design.

# Call for papers

First announcements and call for papers brochures are available from the organisers for the following events

- 4th International PhD symposium in Civil Engineering, Munich, September 2002
- International Symposium on Bond in Concrete—from Research to Standards, Budapest, November 2002
- *fib* symposium: Concrete Structures in Seismic Regions, Athens, May 2003.

Please contact the organisers (details in Congresses and Symposia) or use the links provided on *fib*'s website http://fib.epfl.ch.



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|---|---|
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| Subscribing Member (400) | • One copy of *all* technical publications (bulletins, printed books, and the journal *Structural Concrete*) published in the current year<br>• Further copies of publications (also former CEB or FIP publications) at a discount rate<br>• Reduced subscription if attending *fib* congresses or symposia |
| **Corporate** | |
| Associate Member (750) | • *All* technical publications (bulletins, printed books, and the journal *Structural Concrete*) published in the current year (on request *two* copies will be sent for the same price)<br>• Further copies of publications (also former CEB or FIP publications) at a discount rate<br>• Nomination of one representative to be registered as an individual member in the *fib*<br>• Reduced subscription if this representative is attending *fib* congresses or symposia |
| Supporting Member (1250) | Benefits as Associate Member, plus entitlement to:<br>• Receive discount rates when advertising in the journal *Structural Concrete*<br>• Special mention in the directory<br>• Nomination of up to two representatives to be registered as individual members in the *fib* |
| Sponsoring Member (2500) | Benefits as Supporting Member, plus entitlement to:<br>• Special mention on the *fib* Web site, including a link to the sponsor<br>• Use of the *fib*'s logo if stating 'Sponsoring Member of the *fib*' on their letterhead<br>• Nomination of a representative (without voting rights) to the General Assembly<br>• Nomination of a member of a task group in one particular field of interest<br>• Nomination of up to three representatives to be registered as individual members in the *fib* |

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..... Signature ..... Date

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