

Results of the 2010 *fib* Awards for Outstanding Concrete Structures competition



Winners of the 2010 *fib* Awards for Outstanding Concrete Structures (top to bottom, left to right): Wadi Abdoun Bridge, Jordan; National Portrait Gallery, Australia; Island Tower Sky Club, Japan; Third Millennium Ebro River Bridge, Spain; Svratka River Pedestrian Bridge, Czech Republic

The *fib* Awards for Outstanding Concrete Structures are attributed every four years at the *fib* Congress, with the goal of enhancing the international recognition of structures that demonstrate the versatility of concrete as a structural medium. The award consists of a bronze plaque to be displayed on the structure, and certificates presented to the main parties responsible for the work. The *fib* award continues the tradition of the former FIP Award for Outstanding Concrete Structures attributed since 1990.

The Jury's selections for the 2010 edition of the award will be officially presented to the public on Sunday, 30 May, during the opening ceremony of the Third International *fib* Congress and Exhibition in Washington D.C.

The entered structures are judged in two categories, *Buildings* and *Civil Engineering Structures*. In addition to the 2010 Award Winners, other projects were singled out for Special Mentions.

The Jury for the 2010 Awards was composed of the *fib* Presidium members and four Honorary Presidents:

- György L. Balazs, Deputy President
- Josée Bastien, Presidium member
- Gordon Clark, Presidium member
- Hugo Corres Peiretti, Presidium member
- Michael Fardis, President of *fib*
- Jim Forbes, Honorary President
- Hans Rudolf Ganz, Jury Chairman and Honorary President
- Hans-Ulrich Litzner, Presidium member

- Giuseppe Mancini, Honorary President
- Harald Müller, Presidium member
- Tor Ole Olsen, Presidium member
- Koji Sakai, Presidium member
- Michel Virlogeux, Honorary President
- Jun Yamazaki, Presidium member

IN THIS ISSUE

2010 Awards for Outstanding Concrete Structures	109
<i>fib</i> Model Code 2010: first complete draft	112
Obituary	114
Short notes	114
Conferences and events	115

doi: 10.1680/stco.2010.11.2.109



- design aspects including aesthetics and design detailing;
- construction practice and quality of work;
- environmental aspects of the design and its construction;
- durability and sustainability aspects;
- significance of the contribution made by the entry to the development and improvement of concrete construction.



2010 Special Mention recipients, Civil Engineering Structures category: Navia Viaduct, Spain; Ferney Tunnel, Switzerland; Adriatic LNG Terminal GBS, Italy

The decisions of the Jury are definitive and cannot be challenged.

The Jury convened in Santorini, Greece, in October 2009. In a first step, each entry was examined in detail and, following discussion, nominees for the Awards for both Categories were retained, i.e. eight Buildings and 19 Civil Engineering Structures. The jury took into account criteria such as:

In a second step, winners and special mentions for each category were selected from among the nominated structures. The complete results of the deliberations will be published in a full-colour commemorative Awards brochure (see next page).

Overall, the Jury was impressed by the large number of high quality entries, which were received from a wide cross-section of *fib* National Member Groups covering a variety of construction types. A total of 32 structures from around the world were submitted, including North and South America, Asia, the Middle East and Europe, confirming the truly inter-national character of this competition.

In the Buildings category the Jury was particularly impressed by the engineering challenges met by these structures. In all of the nominated buildings, structural concrete is largely exposed, highly visual, and demonstrates the elegance and aesthetics of this marvelous structural material. The Jury was struck by the high quality of concrete surface finishes, which were often extremely well set in scene by creative use of artificial or natural light. The Jury felt the selected structures will greatly promote the excellence of structural concrete in building construction.

Entries in the Civil Engineering Category showed overall a high level of quality. The most remarkable structures used either an arch as the main structural element or were cable-supported or used a



Bronze plaque for the winners of the 2010 Outstanding Structures Award

combination of both. This very effective use of the structural materials resulted in particularly elegant and "light" structures. Similar to the buildings, high quality concrete surface finishes contributed significantly to the very pleasing aesthetics of the structures.

Another aspect that stood out was the ingenuity of some of the construction methods used. The nominated structures show that concrete is the material of choice for short to very long span bridges, and for structures in severe environments.

The selected Winners, Special Mention recipients and Nominated structures in both categories of the 2010 *fib* Awards for Outstanding Structures competition are as follows.

Winning structures

Category B, Buildings

- National Portrait Gallery, Parkes Australian Capital Territory
- Island Tower Sky Club, Fukuoka City, Japan

Category C, Civil Engineering Structures

- Third Millennium Ebro River Bridge, Zaragoza, Spain
- Svatka River Pedestrian Bridge, Brno, Czech Republic
- Wadi Abdoun Bridge, Amman, Jordan



2010 Special Mention recipients, Buildings category (left to right): Doha High Rise Office Building, Qatar; Gyldendalhuset, Norway; Grand Rapids Art Museum, USA

Special mention recipients

Category B, Buildings

- Gyldendalhuset, Oslo, Norway
- Grand Rapids Art Museum, Michigan, USA
- Doha High Rise Office Building, Doha City, Qatar

Category C, Civil Engineering Structures

- Navia Viaduct, Asturias, Spain
- Ferney Tunnel, Geneva, Switzerland
- Adriatic LNG Terminal GBS, Spain (construction)/Italy (location)

Nominated structures

Category B, Buildings

- New Elephant House, Copenhagen Zoo, Denmark
- Logan Airport Central Parking Garage repairs and expansion, Boston, USA
- National Technical Library, Prague, Czech Republic

Category C, Civil Engineering Structures

- Montabliz Viaduct, Cantabria, Spain
- Labe River Bridge, Nymburk, Czech Republic
- Sutong Bridge, Jiangsu province, China
- Viaduct over Trois Bassins Ravine, Reunion Island
- Sohlbergplassen, Lake Atna, Norway
- Seishun Bridge, Gumma, Japan
- Sound Transit Central Light Link Rail, Tukwila Segment, Seattle, USA
- Ontur Terminal Oceanic Wharf, Nueva Palmira, Uruguay
- Glenmore/Legsby Pedestrian Overpass, Calgary, Canada
- Pont Gustave Flaubert, Rouen, France
- Odra River and Antosovice Lake Bridge, Ostrava, Czech Republic
- Ohmi-Ohdori Bridge, Shiga, Japan
- Koroshegy Viaduct, Hungary

fib has published a full-colour commemorative brochure presenting the structures selected as Award Winners, Special Mention recipients, and Nominees. It can be ordered from the secretariat using the order form given at www.fib-international.org/publications/order.

The next edition of the Outstanding Structure Awards will be presented at the 4th *fib* Congress in Mumbai, India. The call for entries for the 2014 Awards will be dispatched in mid-2013.



The submitted structures must have the support of an *fib* Head of Delegation or National Member Group Secretary in order to confirm the authenticity of the indicated authors. The submitted structures must have been completed during the four years prior to the year of the Congress at which the awards are attributed (i.e. 2010-2013). The jury may accept an older structure, completed one or two years before, provided that it was not already submitted for the previous award attribution (Washington, 2010).

For further information, visit www.fib-international.org/about/awards, or contact the secretariat: fib@epfl.ch.

Publication of the *fib* Model Code 2010: first complete draft

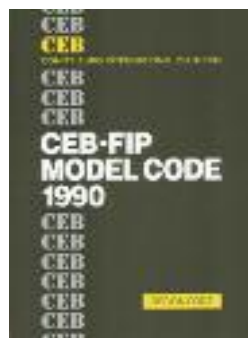
The publication of the first complete draft of the 2010 Model Code is a landmark in the development of codes and in the technical work of fib. This article provides some background on the Model Code, and gives an overview of the content of the new 2010 edition. It should be noted that this is edition not yet the final version of Model Code; it is an intermediate draft that is intended for review and critique by the experts of the fib Commissions. This first complete draft will then be revised, and the definitive Model Code will subsequently be approved by the fib General Assembly.

In 1978 the first Model Code for Concrete Structures was published. It was a product of cooperation between CEB and FIP, two international



a considerable impact on the national codes of many countries.

The CEB/FIP Model Code 1990, which was



now introduced in most European countries.

Twelve years after the publication of MC90, it was decided to prepare an updated edition of the Model Code. The first meeting of the Model Code

Preparation Group was held in May 2002 in Delft, The Netherlands. The last, and 15th, meeting was held by *fib* Special Activity Group 5, "New Model Code", in November 2009 in Oslo. The first complete draft of the *fib* Model Code 2010, now published in two volumes as Bulletins 55 and 56, is the result of the sustained efforts of this group.



meter. "Time" is related to the awareness that a structure should not only be sufficiently safe and serviceable, but should as well have sufficient resistance



against deterioration. In this respect not only the intrinsic resistance at the start of the service life of the structure should satisfy the relevant design criteria, but also

a strategy for maintenance should also have been developed.

The *fib* Model Code 2010 is thus much more "life cycle" oriented than its predecessors. This is reflected in the organisation of its content, which is presented in the following sequence: conceptual design, dimensioning, construction, conservation, and even dismantlement. Reliability plays an important part: various methods are offered to cope with this aspect. The choice depends on the case considered. The materials concrete and reinforcing or prestressing steel are described according to the latest state-of-the-art. The design of concrete structures is described for a large number of conditions. This includes static and various types of non-static loading, a large range of temperatures and several environmental conditions. Design criteria are given with relation to reliability, functionality, durability and sustainability, where the last category is in the state of development. Moreover particular techniques are addressed, such as analysis of structures by numerical analysis and design by testing. The chapter on conservation of structures provides insights into the degradation of concrete as a function of various types of environmental conditions. The analysis can be carried out with various levels of sophistication. Attention is given to non-traditional types of reinforcement as well, like steel fibres and FRP, which have reached a status of recognition in the previous years.

The Model Code for Concrete Structures is intended to serve as a basis for future codes. While existing operational codes are legal documents, the Model Code takes into account new developments with respect to concrete structures, the structural material concrete and new ideas for requirements to be formulated for structures in order to achieve optimum behaviour according to new insights and ideas. In this edition of the Model Code, those new ideas refer not only to classical

requirements for safety and serviceability, but also take into account the increasing significance of design criteria for durability and sustainability.

The Model Code is also intended as a source of information for updating existing codes or developing new codes for concrete structures. While a normal operational code mainly gives sets of application rules which should be transparent enough to be applied by professional designers while still being accurate enough to be economical, the Model Code also aims to provide background information, show trends, and indicate where further research is necessary. At the same time, the Model Code is also intended to be an operational document for normal design situations and structures.

This edition of the Model Code gives an extensive state-of-the-art regarding material properties for structural concrete. This includes constitutive relations for concrete up to strength class C120, and properties of reinforcing and prestressing steel, including prestressing systems. Special attention is given to the application of fibre concrete for structural applications, and to the application of non-metallic reinforcement.

Special attention is also given to interface characteristics, to verification assisted by numerical simulations and verification assisted by testing, and to a number of important construction aspects.

Design rules for serviceability and ultimate limit states are given for a wide range of conditions, such as static and non-static loading (fatigue, impact and explosion, earthquake), high and low temperatures (fire and cryogenic). Furthermore limit states for durability are given. Design for sustainability will be an important task in the future; here some initial ideas are given. Design for robustness is also given due attention.

An important chapter within the scope of design for service life is Conservation. This chapter deals with conservation strategies and conservation management, condition survey and conditions assessment, decision-making, interventions and recording. To complete the idea of life cycle design, a final short chapter on dismantlement, removal and recycling is included. In the future this aspect deserves better integration within life cycle design.

This document is the first complete draft of the *fib* Model Code 2010, and as such, it is open to suggestions for improvement. After comments and feedback have been received from the *fib* Commissions and duly taken into consideration, the final document will be submitted to the *fib* General Assembly for discussion and approval. The publication of the final version of the *fib* Model Code 2010 will then follow.

fib Bulletins 55 and 56 were dispatched to *fib* members in May 2010.

- *fib* Bulletin 55, *Model Code 2010 - First complete draft, Volume 1* (chapters 1-6), March 2010, 318 pages, ISBN 978-2-88394-95-6. Non-member price: 140 CHF, surface mail included.
- *fib* Bulletin 56, *Model Code 2010 - First complete draft, Volume 2* (chapters 7-10), April 2010, 312 pages, ISBN 978-2-88394-096-3. Non-member price: 140 CHF, surface mail included.

To order these or any other *fib*, CEB or FIP publications, visit www.fib-international.org/publications.

This Model Code is the result of invaluable contributions by the international experts who participated in its development:

Convener: Joost Walraven*
Secretary: Agnieszka Bigaj-van Vliet*
György L. Balázs*
Evan Bentz

Isabel Burkart
John Cairns*
Jan Cervenka*
Vladimir Cervenka
Hugo Corres Peiretti*
Edoardo Cosenza*
Bernard Creton
Menfred Curbach
Frank Dehn
André Demonté
Marco di Prisco*
Rolf Eligehausen*
Horst Falkner*
Michael N. Fardis*
Stephen Foster*
Hans-Rudolf Ganz*
Christoph Gehlen
Mette Glavind
Steinar Helland*
Niels Peter Høj*
Manfred Keuser*
Jean-Francois Klein*
Johann Kolleger*
Giuseppe Mancini*
Peter Marti*
Stuart Matthews*
Stijn Matthys
Viktor Mechtcherine
Marco Menegotto*
Harald S. Müller*
Aurelio Muttoni
Paolo Plinto*
Giovanni Plizzari
Norbert Randl*
Hans-Wolf Reinhardt
Steen Rostam*
Miguel Fernandez Ruiz
Koji Sakai*
Peter Schiessl*
Viktor Sigrist*
Luc Taerwe*
Thanasis Triantafillou
Tamon Ueda*
Aad van der Horst*
Lucie Vandewalle
Ton Vrouwenvelder
James K. Wight*
Jun Yamazaki*
* Member of *fib* Special Activity Group 5, "New Model Code".

Obituary



Manfred Stiller
1930-2010

Born and brought up in West Berlin, Germany, Manfred studied Civil Engineering at the University of Technology, Berlin. In 1955 he became a scientific assistant at this university, where he earned his PhD in 1961. In 1960, he joined the German Concrete Society (DBV) where he eventually spent his entire career. In 1966, he was appointed Director, in 1978 Director-General and in 1981 Managing Member of the DBV Presidium. In 1995 he retired after 35 years of service for DBV.

In 1964, he became an active member of CEB, the European Committee for Concrete. At that time, CEB began work on its future "International recommendations", published in 1978 as "CEB/FIP Model Code". Manfred was one of the main authors of this important document which became the basis for various codes and standards worldwide. In 1979, a small CEB Group chaired by Franco Levi was charged by the European Union with the development of the first version of Eurocode 2 which was published in 1984. Manfred Stiller was also member of this group.

In 1980, Manfred was elected member of the CEB Administrative Council and Head of the German delegation. Re-elected several times, he served in these positions until 1993.

Regarding FIP, the International Federation for Prestressed Concrete, Manfred was Secretary and Member of the German FIP Delegation. He was organizer of the XI FIP Congress 1990 in Hamburg. In the course

of this congress, he received an Honorary Membership in FIP.

In 1993, a CEB-FIP Implementation Group was established in order to create a joint association, *fib*. Manfred was one of the CEB representatives in this body. Also due to his efforts, the merger was realized in 1998 during the XIII Congress of FIP.

During his long career, Manfred received many honours and awards at home and abroad. In particular, he was recognised by CEB with an Honorary Membership in 1993 for his contributions to international relations during more than 35 years.

Manfred Stiller passed away in the morning of the 1st February 2010. We express our deepest sympathies to his wife Irmgard and to his daughter Sabine as well as her family.

Hans-Ulrich Litzner

Short notes

The Third Millennium Bridge over the Ebro River has not only been honored by the *fib* Awards for Outstanding Concrete Structures (see page 109), its designer Dr. Juan José Arenas was awarded the **Gustave Magnel Gold Medal** in recognition of his work on this structure.

Short news items from the *fib* secretariat are available via an "RSS feed". This web-based service allows users to subscribe to regular information updates, such as

announcements of new bulletins and upcoming *fib* events. To subscribe to *fib*'s RSS feed, go to the *fib* home page, www.fib-international.org, and click on the orange RSS icon that appears in the address bar of your browser.

The *fib* secretariat continues its initiative to achieve a **broader distribution of *fib* bulletins among students**. University professors in civil engineering who are subscribing members in *fib*, or Individual Representatives of a corporate member, and wish to use an *fib* bulletin as part of their course materials can now apply for a

PDF version of the bulletin. The bulletin will be provided at the normal member price (50 % off the non-member price), along with a special waiver allowing its free distribution, in electronic or printed form, to all students enrolled in the course, under the sole condition that the bulletin shall not be made available to third parties outside of the course.

For further information on obtaining PDF files of *fib* bulletins for teaching purposes, contact the secretariat at fib@epfl.ch

Congresses and symposia

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.

Date and location	Event	Main organiser	Contact
21-23 June 2010 Copenhagen, Denmark	8th <i>fib</i> International PhD Symposium in Civil Engineering	Technical University of Denmark - DTU Byg	fib_symposium_2010@byg.dtu.dk http://fibcopenhagen2010.dk
16-17 Sept. 2010 Prague, Czech Republic	First international workshop: Design of concrete structures using EN 1992-1-1	CTU Prague	dcs2010@fs.cvut.cz http://concrete.fsv.cvut.cz/dcs2010
26-29 Sept. 2010 Montreal, Canada	SCC2010 - Production and Placement of SCC	<i>fib</i> group Canada	www.civil.usherbrooke.ca/SCC2010
8-10 June 2011 Prague, Czech Republic	<i>fib</i> Symposium "Concrete engineering for Excellence and Efficiency"	<i>fib</i> Group Czech Republic	fib@cbssevis.eu www.fib2011prague.com Deadline for abstracts: 30 June 2010
1-4 August 2011 Zurich, Switzerland	ICASP 11 International Conference on Applications of Statistics and Probability in Civil Engineering	ETHZ - IBK	walzer@ibk.baug.ethz.ch www.icasp11.ethz.ch
9-11 August 2011 Christchurch, New Zealand	9th Symposium on High Performance Concrete: Design, Verification & Utilization	New Zealand Concrete Society	www.hpc-2011.com/nz Deadline for abstracts: 1 September 2010
11-14 June 2012 Stockholm, Sweden	<i>fib</i> Symposium	<i>fib</i> group Sweden	website and call for papers to be announced
10-14 February 2014 Mumbai, India	The Fourth International <i>fib</i> Congress and Exhibition	<i>fib</i> group India	website and call for papers to be announced

fib-news is compiled, drafted by and produced under the sole responsibility of the Secretary General as an integral part of the *fib* journal Structural Concrete. Members of *fib* or participants in its work (for ex. members of one of its Commissions, Task Groups or Working Parties) are invited to submit to the secretariat any information they would want to disseminate through *fib-news*. Although the secretariat does its best to ensure that the published information is accurate, no liability or responsibility of any kind (including liability for negligence) is accepted in this respect by *fib* or its Secretary General. Contributions signed by an author were invited by the secretariat or proposed by the authors. They are published under the sole responsibility of the authors and, contrary to papers in the Journal itself, they are not submitted to a peer review process. Recent issues of *fib-news* are available free of charge as pdf files on the *fib* website, www.fib-international.org.

©*fib* 2010. *fib*, Case Postale 88, CH-1015 Lausanne, Switzerland. Tel: +41 21 693 2747; Fax: +41 21 693 6245; Email: fib@epfl.ch

fib - fédération internationale du béton - the International Federation for Structural Concrete - is grateful for the invaluable support of the following National Member Groups and Sponsoring Members, which contributes to the publication of fib technical bulletins, the Structural Concrete Journal, and fib-news.

National Member Groups

AAHES - Asociación Argentina del Hormigón Estructural, Argentina

CIA - Concrete Institute of Australia

ÖVBB - Österr. Vereinigung Für Beton und Bautechnik, Austria

Belarussian Nat. Techn. University, Belarus

GBB - Groupement Belge du Béton, Belgium

ABCIC - Associação Brasileira de Construção Industrializada de Concreto, Brazil

ABECE - Associação Brasileira de Engenharia e Consultoria Estrutural, 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 - Danish Concrete Society

Suomen Betoniyhdistys r.y. - Concrete Association of Finland

AFGC - Association Française de Génie Civil, France

Deutscher Ausschuss für Stahlbeton, Germany

Deutscher Beton- und Bautechnik-Verein e.V. – dbv, Germany

Technical Chamber of Greece

Hungarian Group of *fib*, Budapest Univ. of Tech. & Economics

The Institution of Engineers (India)

Management and Planning Organization, 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

Chancellery of the Polish Academy of Sciences

Committee of Civil Engineering, Concrete Structures Section, Poland

GPBE - Grupo Português de Betão Estrutural, Portugal

Society For Concrete and Prefab Units of Romania

Technical University of Civil Engineering, Romania

Association for Structural Concrete (ASC), Russia

Association of Structural Engineers, Serbia

Slovak Union of Civil Engineers

Slovenian Society of Structural Engineers

ACHE - Asociacion Científico-Técnica del Hormigón Estructural, Spain

Svenska Betongföreningen, Sweden

Délégation nationale suisse de la *fib*, IS-BETON, EPFL, Switzerland

ITU - Istanbul Technical University, Turkey

Research Inst. of Build. Constructions, Ukraine

fib UK Group

ASBI - American Segmental Bridge Institute, USA

PCI - Precast/Prestress. Concrete Institute, USA

PTI - Post Tensioning Institute, USA

Sponsoring Members

Preconco Limited, Barbados

Liuzhou OVM Machinery Co., Ltd., China

Consolis Technology Oy Ab, Finland

Fachverband Beton- u. F. B.-W. e. V., Germany

FIREP Rebar Technology GmbH, Germany

MKT Metall-Kunststoff-Technik GmbH, Germany

Larsen & Toubro Ltd., ECC Division, India

Sireg S.P.A., Italy

Fuji P. S. Corporation Ltd., Japan

Kajima Corporation, Japan

Obayashi Corporation, Japan

Oriental Construction Co.Ltd., Japan

P. S. Mitsubishi Construction Co., Ltd., Japan

PC Bridge Company Ltd., Japan

SE Corporation, Japan

Sumitomo Mitsui Construct. Co. Ltd., Japan

BBR VT International Ltd., Switzerland

SIKA Services AG, Switzerland

VSL International Ltd, Switzerland

PBL Group Ltd., Thailand

CCL Stressing Systems Ltd., United Kingdom

Strongforce Engineering PLC, United Kingdom