

Commission 1

Structures

Chair:	Clark (Gifford, United Kingdom)
Deputy-Chair:	Moussard (Arcadis, France)
Members:	Alimchandani (STUP Consultants Ltd., Mumbai, India), Almeida (Instituto Superior Tecnico, Lisbon, Portugal), Haugerud (Olav Olsen AS, Norway), Kasuga (Sumitomo Mitsui Construction Co. Ltd., Japan), Klein (T ingénierie SA, Switzerland), Olsen (Olav Olsen AS, Norway), Strásky (Technical Univ. of Brno, Czech Republic), Truby (Gifford, United Kingdom), Virlogeux (Consultant, France)
Corr. Members:	Forbes (Hyder Consulting, Australia), Ikeda (Hybrid Research Inst. Inc., Japan)
Recent Meetings:	Avignon (Apr. 04), Budapest (May 05), Naples (June 06), Cavtat (May 07), Amsterdam (May 08), London (June 09)
Recent Bulletins:	<i>fib</i> Bulletin 31: <i>Post-tensioning in buildings</i> (Technical report prepared by former WP 1.1.2 of TG 1.1, published 2005) <i>fib</i> Bulletin 32: <i>Guidelines for the design of footbridges</i> (Guide to good practice prepared by former WP 1.2.2 of TG 1.2, published 2005) <i>fib</i> Bulletin 50: <i>Concrete structures for oil and gas fields in hostile marine environments</i> (State-of-art report prepared by TG 1.5, published 2009)

Terms of reference

Scope

The Commission treats all aspects of specific types of structures, from their aesthetics and conceptual design up to construction and service life. Not only technical aspects are treated but also more formal and administrative aspects like responsibilities or the contractual relationship with the owners or the clients.

The Commission would like to encourage and develop innovation and imagination in structures. Its work should complement national, regional (e.g. Eurocodes), or international codes (e.g. the Model Code), which give in principle only design specifications. The work of the Commission aims at more general recommendations. Its function is to bring theory and practice together, emphasising the work and the experience of good engineers by collecting practical application rules for each type of structure. A database of information will be created which is difficult find in textbooks. It should regularly be updated and promote new knowledge and technical evolution.

The Commission aims to interact efficiently with other commissions. It intends to use results of other commissions by showing their direct application in specific structures. It should also identify problems to be solved by other commissions. This implies that a specific problem will not be exclusively solved or studied by Commission 1 itself, but the Commission will through interaction with other Commissions strive to find the most adequate group of specialists for the matter under consideration.

Areas of interest

- Bridges
 - Tunnels and underground structures, special foundations
 - Marine structures
 - Containment structures (water tanks, silos, energy tanks)
 - Buildings (high rise ~, industrial ~, housing ~)
- and
- Design applications
 - Aesthetics and conceptual design
 - Project financing

Working programme

Involving the Task Groups mentioned below the work comprises the production of:

- design guides for specific structures, including design examples illustrating the global design process and the application of codes;
- practical design rules and specific design methods adapted to specific types of structures;
- state of the art reports on special themes;
- information papers or technical advice on specific problems mostly published in the journal (for ex: reply to an actuality problem);
- technical glossary for each kind of structure (help for a future technical dictionary).

Task Group

TG 1.1 Design applications

- Convener: Haugerud (Olav Olsen A/S, Norway),
- Members: Almeida (Instituto Superior Tecnico, Lisbon, Portugal), Bajo (FerroviaI–Agromán, Spain), Ballestrino (FHECOR, Spain), Bousias (Univ. of Patras, Greece), Câmara (Instituto Superior Tecnico, Lisbon, Portugal), Corres (FHECOR, Madrid, Spain), Fernandez Ruiz (EPFL, Switzerland), Fillo (Slovak Technical Univ., Slovakia), Kálny (Pontex s.r.o., Czech Republic), MiehIbradt (Switzerland), Palmisano (Studio Vitone, Italy), Perez-Fadón (FerroviaI–Agromán, Spain), Reineck (Univ. Stuttgart, Germany), Rissanen (Pontek Oy, Finland), Shiratani (Taisei Corporation, Japan), Westerberg (Tyréns Byggkonsult, Sweden)
- Recent Meetings: Patras (May 03), Avignon (Apr. 04), Budapest (May 05), Madrid (Dec. 05), Naples (June 06), Amsterdam (May 08), Oslo (June 09)
- Recent Bulletins: *fib* Bulletin 31: *Post-tensioning in buildings*
(Technical report prepared by former WP 1.1.2 of TG 1.1, published 2005)

Terms of reference

The main general tasks are:

- the production of guidance documents for the design of concrete structures;
- the application of the Model Code and Recommendations to practical examples, identifying difficulties and needs of improvements;
- a contribution to the simplification of calculation clauses, pointing out the importance of conceptual design and detailing for the behaviour of the structure.

Working Party

WP 1.1.3 Design examples for the application of strut-and-tie models

- Convener: Reineck (Univ. Stuttgart, Germany)
- Members: Almeida (Instituto Superior Tecnico, Lisbon, Portugal), Bajo (FerroviaI–Agromán, Spain), Ballestrino (FHECOR, Spain), Bousias (Univ. of Patras, Greece), Câmara (Instituto Superior Tecnico, Lisbon, Portugal), Corres (FHECOR, Spain), Fernandez Ruiz (EPFL, Switzerland), Fillo (Slovak Technical Univ., Slovakia), Haugerud (Olav Olsen a.s., Norway), Kálny (Pontex s.r.o., Czech Republic), Kuchma (Univ. of Illinois, USA), Lourenço (JSJ, Portugal), MiehIbradt (Switzerland), Palmisano (Studio Vitone, Italy), Perez-Fadón (FerroviaI–Agromán, Spain), Shiratani (Taisei Corporation, Japan), Westerberg (Tyréns Byggkonsult, Sweden)
- Recent Meetings: Patras (May 03), Stuttgart (Oct 03), Avignon (April 04), Budapest (May 05), Madrid (Dec. 05), Naples (June 06), Amsterdam (May 08)

Terms of reference and working programme

A Technical Report will be prepared with a view to disseminate the existing knowledge to designers and practitioners. The report is a follow-up to Bulletin 16 (2002) and will treat the following main aspects

- identification of design problems and crucial items for practical design;
- brief review of design procedures in different codes, with a special focus on the treatment of discontinuity regions (D-regions);
- design examples for these regions, applying strut-and-tie models (STM);
- particular topics of modeling and application of strut-and-tie-models like model assessment and validation, SLS checks using STM, 3-D nodes, modeling with concrete tension fields.

Task Group

TG 1.2 Bridges

- Convener: Klein (T-ingenierie SA, Switzerland)
- Members: Curran (Gifford Ltd., United Kingdom), Gauvreau (University of Toronto, Canada), Imberty (Razel SA, France), Kasuga (Sumitomo Mitsui Construction Co. Ltd., Japan), Marx (Technische Univ. of Dresden), Morgenthal (Maunsell Consultants Asia Ltd., China), Schlaich (Technische Universität Berlin), Sobrino (Pedelta S.L., Spain), Strásky (Technical Univ. of Brno, Czech Republic)
- Corr. Members: Astiz (Carlos Fernandez Casado S.L., Madrid, Spain), Bakhoun (Arab Consulting Engineers, Cairo, Egypt)
- Recent Meetings: Avignon (Apr. 04), Naples (June 06), Amsterdam (May 08), London (June 09)
- Recent Bulletins: *fib* Bulletin 32: **Guidelines for the design of footbridges**
(Guide to good practice prepared by former WP 1.2.2 of TG 1.2, published 2005)

Terms of reference

The general objective of the Task Group is to provide design guides, recommendations, practical design rules and technical advice on bridge design and related construction techniques. Several Working Parties (see below) have been established.

Working programme

Update of the guidelines for the design of footbridges and elaboration of guidelines on high-speed train bridges and a state-of-art-report on corrugated steel web bridges.

Working Party

WP 1.2.3 Bridges for high speed trains

- Conveners: Astiz (Carlos Fernandez Casado S.L., Madrid, Spain), Sobrino (Pedelta S.L., Spain)
- Members: De Ville de Goyet (Bureau Greisch, Belgium), Marx (Technische Univ. of Dresden, Germany)

The Working Party aims to provide guidance for designers of bridges for high speed trains covering issues such as loads, dynamics, rail deck interaction, wind, slipstream forces, accidental situations, maintenance and inspection etc. The document will be based on an existing guidance edited by the German railway administration. International expertise will extend the recommendations and to bring them to an international level.

Working Party

WP 1.2.7 Corrugated steel web bridges

Convener: Kasuga (Sumitomo Mitsui Construction Co. Ltd., Japan)

Members: Ikeda (Yokohama National Univ., Japan), Mori (PS Mitsubishi Corp., Japan), Lebon (Freyssinet, France), Roesler (Leonhardt, Andrä und Partner, Germany), Saito (Kajima Corp., Japan)

Terms of reference and working programme

The Working Party aims to publish a state-of-art report on the subject, including all relevant technical information, but also feedback from construction and operating. Advantages and drawbacks will also be given. A first draft should be ready for the London symposium in 2009.

Task Group

TG 1.5 Concrete structures in marine environments

Convener: Olsen (Olav Olsen A/S, Norway)

Members: Aarstein (Rakon, Norway), Advocaat (Aker Solutions, Norway), Bekker (FETU, Russia), Berner (Gerwick Consulting Engineers, USA), Collins (Univ. of Toronto, Canada), Egeland (Norske Shell, Norway), Fidjestøl (Elkem, Norway), Fjeld (Olav Olsen, Norway), Fluge (Norwegian Public Roads Administration), FOSSA (Aker Solutions, Norway), Freeman (C-Core, Canada), Gillis (SNCLavalin, Canada), Gudmestad (StatoilHydro, Norway), Hagen (Aas-Jakobssen, Norway), Hamon (Doris Engineering, France), Helland (Skanska Norge, Norway), Hjorteset (Berger/ABAM, Norway), Hoff (Hoff Consulting, USA), Horn (Multiconsult, Norway), Jackson (Arup Energy, UK), Kjepso (Olav Olsen, Norway), Leivestad (Standard Norge+Norconsult, Norway), Maddock (Sandwell, Canada), Mironov (VNIIG, Russia), Moksnes (Moksnes Consulting, Norway), Moslet (Olav Olsen, Norway), Parker (ExxonMobil, USA), Tkalcic (IGH, Croatia), Vache (Doris Engineering, France)

Corr. Members: Bugno (ChevronTexaco, USA)

Recent Meetings: Algeciras (Sept. 06), Paris (Feb. 07), London (Sep. 07), Rotterdam (Feb. 08)

Terms of reference and working programme

The evolution of the North Sea as a major oil and gas producing region in the last three decades from 1970 – 2000 gave rise to a new market for gravity-based concrete structures (GBS). More than 20 such structures were installed in this region alone and were followed by similar structures elsewhere. The platforms have demonstrated excellent performance in very hostile environments and are expected to serve their full design life (up to 70 years) with little or no maintenance. The basic rules for design and construction were first published in 1973 as FIP *Recommendations for the design and construction of concrete sea structures*. This report provided an invaluable door opener for concrete as construction material into, at that time, a conservative and steel minded oil and gas industry.

Concrete platforms are now being considered for field developments in other parts of the world and in particular in Canada and Russia, where two concrete GBS were installed in 2005 in the Sakhalin Sea. More are expected to follow in this vast oil and gas province and in the arctic regions further north. The international concrete industry should position itself for new assignments in these regions where the environmental conditions are very tough and competition from a strong steel lobby and a conservative mindset is to be expected.

A state-of-art-report on the world-wide experience related to the performance of offshore concrete structures was published in 2009. Further work is under discussion.

Task Group

TG 1.6 High-rise buildings

Convener: Truby (Gifford, United Kingdom)

Members: Forthcoming

Terms of reference

The growth of high-rise construction over the past decade has been dramatic, especially in the Middle East. The objective of the Task Group is to review existing design guides, recommendations, practical design rules and technical advice available and to provide *fib* guidance on particular issues important and unique to the design of high-rise concrete structures.

Working programme

The initial task will be to liaise with the United Kingdom Working Party on the same subject. To be developed.
