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### 3. Conferences of IABSE and IABSE co-sponsored events

Additional information is available on the following conferences. Please ask the IABSE Secretariat:

#### Composite Construction

**Henniker, NH, USA, June 7–12, 1987**

Composite steel-and-concrete systems are widely used for buildings, bridges, and other civil engineering structures. Research and development in composite construction occur worldwide. Efforts continue to improve economy and efficiency of structures and to implement new design and construction techniques. Means are also being sought to devise methods to rehabilitate and strengthen existing structures. These all contribute to advancing the state-of-the-art in the field and the conference will serve to enable researchers and practitioners to meet and exchange vital information. The conference will cover all phases of design, construction and research related to steel-and-concrete composite and mixed systems. Both new construction and rehabilitation and strengthening of existing structures will be discussed. Practitioners and researchers from throughout the world are invited to participate. The primary objectives of the conference are:

- to exchange information in the field of composite construction
- to provide technology transfer between researchers and practitioners
- to promote the use of research in the development of design procedures
- to identify research needs related to composite construction.

**Deadline for the call for papers:** out-of-date

#### Wind Engineering

**Aachen, Fed. Rep. of Germany, July 6–10, 1987**

The 7th International Conference on Wind Engineering is organised to promote the worldwide international communication of scientists and practicing engineers working in the field of Wind Engineering.

The scope of the Conference covers all aspects of theoretical and experimental work on the following topics:

- Wind characteristics
  - formation of large scale turbulent structures, wind tunnel simulation
- Fundamental studies
  - bluff bodies, model theories, wind induced vibrations
- Low and high rise buildings
  - wind loading on roofs and claddings, external and internal pressures, wind effects on air conditioning, smoke extraction, shelter effects
- Engineering structures
  - bridges, cooling towers, power transmissions, stacks
- Wind engineering and hazards
  - hazard reduction, high wind forecast, insurance aspects
- Codification
  - wind engineering rules and standards, national and international coding, wind engineering practice.

**Deadlines for the call for papers:** out-of-date

### Computational Mechanics of Concrete Structures – Advances and Applications

**Delft, The Netherlands, August 26–28, 1987**

Since the IABSE Colloquium on Advanced Mechanics of Reinforced Concrete in Delft, 1981, considerable progress has been made. Both modelling of material behaviour and derivation of computational models have been further developed.

Much of the work done concerns, by its very nature, universities and research institutes. It is time that industry was provided with the information needed to judge how and where to utilize the newly gained knowledge.

The colloquium aims in particular to highlight the progress in research and the applicability of the advanced nonlinear finite element tools in design and analysis. Knowledge transfer from the researcher to the designer is the main objective.

The **contents** of the colloquium fall into two categories. The first category is information on the advances in research. The second is the application of computational models in practice.

The **research** to be reported on deals mainly with the following three topics: modelling of material behaviour, computational models and non-stationary processes. Thus contributions are welcome not only on the

mechanics of cracking and bond and related computational procedures, but also on numerical models for heat of hydration, creep, shrinkage, diffusion of liquids and gases in concrete, and high temperature problems.

Papers which merely report on testing should not be submitted. Experimental work only fits into the theme of the colloquium if it serves explicitly in improving a computational model.

The **applications** deal with the following topics: analysis of structures for static loading up to and beyond failure; analysis for cyclic loading including fatigue; analysis for dynamic loading including impact; analysis of the serviceability state of structures, including the consideration of cracks widths, crack spacing, deflections and creep effects; and analysis of structures which are exposed to extreme environments such as arctic regions and high (refractory) temperatures. Also papers are welcome which review the wants of designers and the construction industry, for instance results of pertinent questionnaires.

**Deadline for submission of full papers:** February 28, 1987

## Monitoring of Large Structures and Assessment of their Safety

Bergamo, Italy, October 14–16, 1987

The construction of large structures (bridges, viaducts, concrete dams, tall buildings, tunnels, offshore platforms, etc.) has greatly increased in the latest years, due to the development of new design and analysis methods and the aid of mathematical and physical models, and also by the application of new construction methods and improved materials. Moreover a great number of existing ancient structures (old bridges and dams, churches, monuments, etc.) requires accurate investigation of their actual condition.

The main scope of this Colloquium is to give the opportunity to specialists involved in monitoring and testing of large structures to meet and exchange advanced experiences aimed to appraise structural serviceability and safety.

The Colloquium will focus on recent developments and application of monitoring and testing methods, equipment and systems to assess service conditions and safety of ancient and modern structures subjected to static and dynamic loading.

### Session 1: Criteria for development and operation of monitoring systems

According to the type of structures and to the intended service, different schemes and features of the monitoring installations and activities are required.

For instance, various instrumentations are needed if the main loads are static or dynamic ones; in the field of static behaviour, different instruments will be used if the structure has a prevalent vertical or horizontal development.

Moreover, different types of instruments, layouts and data acquisition time schedules are required according to the measurement frequency and detail necessary for behaviour interpretation.

This in turn entails various technical solutions for the data recording, storage and retrieval.

So it is desired that the main selection criteria be focused by illustrating them, if possible, with significant case histories.

Reference to the following stages of the structure life should be made: design, construction, service life, repair.

### Session 2: Monitoring instrumentation and systems

Various options are available for instruments selection and information management systems, keeping into account the increasingly important need of dealing with

large physical systems (large structures or groups of similar structures) and with large amounts of data.

Instruments are to be chosen in terms of their response features, reliability, capability of automated data acquisition; if not automated, simple and easy use is also important.

Systems are to be conceived also in terms of overall reliability, redundancy, robustness (e.g. against electromagnetic disturbances), durability, self diagnosis, on-line automated treatment (if needed), emission of alerts, data storage and retrieval for further use (off-line treatment).

Data processing – either on-line or off-line – also entails the problem of suitable hardware, software and data base organization.

Trade-off between costs and benefits of the overall system (e.g. in terms of better safety appraisal) is also an important factor.

### Session 3: Interpretative models and decision making

The final aims and use of monitoring are manifold. A primary aim is to assess, in a more or less continuous way, the safety of structures so as to preserve life and property, as well as to know in advance of any impending trouble and timely take corrective actions.

In this light, a better integration among owners, operators and public authorities should be achieved in order to accomplish a rational and balanced decision-making process.

This process for safety assessment entails the need of developing adequate «behaviour models», many types of which, with different degrees of complexity, have been proposed so far.

Comments on features, respective merits, ease of use, etc. of such models are welcome.

A second important use of monitoring is to provide permanent documentation of the behaviour of important structures. This will enable the immediate availability of all the past history for the «management» of the upkeeping and maintenance of the structure. This function could take on a particularly important aspect in the case of monuments of outstanding historical interest.

**Deadline for submission of full papers:** June 30, 1987

The Colloquium Report will be published by IABSE.



## Cable-Stayed Bridges

**Bangkok, Thailand, November 18–20, 1987**

The new Chao Phya River Crossing in Bangkok under construction as part of the Dao Khanong-Port Expressway is a single-plan fan-type cable-stayed road bridge, with a main span of 450 meters. When the bridge is completed in November 1987, it will be the longest span cable-stayed bridge of this type in the world. The grand opening of the bridge will be an opportunity for an International Conference on Cable-Stayed Bridges.

International noted authorities, and professionals with experience in all aspects of cable-stayed bridges: planning, analysis, design, construction, operation and maintenance, will gather in this memorable event, not only to pay tribute to the progress of cable-stayed bridges, but also to evaluate past experiences and to give their projections for the next generation of long-span bridges.

**Deadline for the call for papers:** February 28, 1987.

## Function-Oriented and Resource-Saving Building

**Leipzig, GDR, September 13–16, 1988**

Today the products of building industry are unified based on standardized dimensions. In the future developing period new aspects of industrialized building will make it necessary to improve the level in this field considerably. The technical and economic efficiency will have to be increased and new qualities to be obtained for solutions concerning function and design. By means of microelectronics the automation of the partial processes of planning, designing, technological preparation, prefabrication, and of processes on the site will have to be further evolved. Major importance should be attributed to the utilization of the appropriate CAD/CAM systems.

The expectations placed in the building industry and the present economic situation generally demand the resource-saving construction, the development of better material-economizing and power-saving solutions. Higher flexibility and complexity are needed in the field of industrialized building. This requires the construction of new buildings replacing the delapidated ones in city centres as well as industrial buildings. Systems will have to be developed that lend themselves to better coordination of industrialized building and individual solutions.

The Congress will be organized in 3 sections:

- Function and Design
- Preparation and Realization of Site Processes
- Building Economics

**Deadline for the call for papers:** August, 31, 1987

## Funktionsgerechtes und Ressourcensparendes Bauen

**Leipzig, DDR, 13.–16. September 1988**

Heute wird die Produktion der Bauindustrie durch unifizierte, auf einheitlicher Massordnung beruhende Baukonstruktionen bestimmt. In der vor uns liegenden Entwicklungsperiode gilt es, von neuen Bedingungen ausgehend das Niveau der industriellen Bauproduktion wesentlich zu heben. Die technisch-ökonomische Effektivität ist zu steigern, neue Qualitäten sind für die funktionalen und gestalterischen Lösungen zu erreichen. Mit Hilfe der Mikroelektronik ist die Automatisierung von Teilprozessen der Planung, Projektierung, technologischen Vorbereitung, der Vorfertigung und der Baustellenprozesse voranzutreiben. Grosse Bedeutung kommt dabei der Nutzung geeigneter CAD/CAM-Systeme zu.

Die Anforderungen an die Bauindustrie sowie die wirtschaftlichen Bedingungen in der Gegenwart bedingen generell ein ressourcensparendes Bauen, die Entwicklung besserer materialökonomischer und energieökonomischer Lösungen. Insbesondere ist dem industriellen Bauen eine grössere Flexibilität und Komplexität abzugewinnen. Das erfordert das innerstädtische Bauen mit Ersatzneubauten und Lückenschliessungen ebenso wie die Rekonstruktion der Industrie. Systeme sind zu entwickeln, die eine Verflechtung von industriellem Bauen und individuellen Lösungen gestatten.

Der Kongress ist in 3 Sektionen aufgeteilt:

- Funktion und Konstruktion
- Vorbereitung und Durchführung der Bauproduktion
- Bauökonomie

**Vortragmeldungen:** Kurzfassungen bis 31. August 1987

