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The purpose of the IABSE Awards is to recognise the achievements and the importance of work accomplished by structural engineers, and to promote structural engineering to the public community. IABSE recognises personalities for their exceptionally great services to the Association with Honorary Membership.
William Baker was greatly influenced by one of his professors, Narby Khachaturian, during his graduate studies at the University of Illinois, Urbana Champaign. One of Professor Khachaturian’s phrases was “theory is practical”, and William Baker has used theory and structural principles as the basis for designs. He tries to develop structural systems that are based upon a clear idea, an idea that can be simply stated, perhaps with ideas so concise that they can be described with a noun plus an adjective. He also tries to always think about construction processes and have at least one idea about how a structure might be built. He seeks simple and clear solutions to the very complex problems that SOM works on, and aims to design structures that speak to the following values: Efficiency, Simplicity, Economy, Elegance, Utility, Harmony, Order and Hierarchy, Clarity, Proportion, Appropriateness, and Rational Design.

One of his best-known contributions has been to develop the ‘buttressed core’ structural system for the Burj Khalifa, the world’s tallest manmade structure. While widely regarded for his work on super tall buildings, his expertise also extends to long-span roof structures, such as the Korean Air Lines Operations Hangar and the Virginia Beach Convention Center, as well as specialty structures like Broadgate Exchange House and the GM Renaissance Center-North Lobby. William Baker has also collaborated with numerous artists, including Jamie Carpenter (Raspberry Island-Schubert Club Band Shell), Iñigo Manglano-Ovalle (Gravity is a Force to be Reckoned With), James Turrell (Roden Crater), and Jaume Plensa (World Voices).

William Baker is actively involved with numerous professional organisations
and institutions of higher learning. His many accolades include receiving an honorary doctorate in engineering from the University of Stuttgart; an honorary doctorate from Heriot-Watt University in Edinburgh; an ASCE Outstanding Projects and Leaders (OPAL) Lifetime Award for Design; and the Fazlur Rahman Khan medal from the Council on Tall Buildings and Urban Habitat (CTBUH). William Baker was also the first American to receive the Fritz Leonhardt Preis (Germany) and is one of only three living Americans to receive the Gold Medal from the Institution of Structural Engineers (IStructE). He is a Fellow of both the American Society of Civil Engineers (ASCE) and the IStructE, and a member of the National Academy of Engineering (NAE). Bill frequently lectures on a variety of structural engineering topics within USA and abroad.
The IABSE Prize honours a Member early in his, or her career for an outstanding achievement in the field of structural engineering, in Research, Design or Construction. The Prize is presented to an Individual member of IABSE, forty years of age or younger. IABSE has conferred the IABSE Prize 2014 to Prof. Guido Morgenthal, Germany, “in recognition of his significant contributions to the fields of structural dynamics and wind engineering and his involvement in many long-span bridge projects”

Guido Morgenthal studied at the Technical University of Berlin (Dipl.-Ing), Imperial College London (MSc) and at the University of Cambridge (MPhil and PhD) where he specialised in Structural Dynamics and Wind Engineering of Long Span Bridges. During his studies he had extended research stays at the University of Pavia, Italy, the Centre Scientifique et Technique du Bâtiment, Nantes, France; ETH Zurich at the Institute of Computational Sciences, and also made a field trip to Peru. During his studies he received several scholarships, which in his professional life have been followed by various awards.

After his studies Guido Morgenthal gained extensive experience in practical bridge design of cable-stayed bridges. He worked with Leonhardt, Andrä und Partner on the structural design and the wind engineering of large cable-stayed bridges. Thereafter he joined AECOM and worked as Principal Engineer for the construction engineering of the Stonecutters Bridge, Hong Kong. He was also responsible for erection engineering and wind analysis of erection stages of Sutong Bridge, China. In 2010, after having been engaged at COWI Denmark’s Major Bridges Department, he became Chair Professor of ‘Modelling and Simulation of Structures’ at the Institute of Structural Engineering at Bauhaus University, Germany. He leads a research group of some 10 PhD students working on various projects in structural engineering. Guido Morgenthal is also active as independent expert consultant in bridge engineering.

Professor Morgenthal’s achievements include amongst others: the initiation of a new continuing education degree certificate course on Bridge Design and Construction at Bauhaus University; the development a software system for Computational Fluid Dynamics analysis of structures, e.g. bridge decks, for the numerical simulation of wind-induced dynamic response, and the
development of new bridge monitoring technologies, as well as practical consulting work on long-span bridge aerodynamics.

Some of his other activities: he is the founding member and former Chair of the bridge engineering section of NGO ‘Engineers Without Borders Germany’ which has engaged him in various bridge projects for Rwanda; he is expert member of the German Certification Agency for Construction Products DIBt; Member of fib Task Group 1.2 ‘Bridges’, Honorary Editor of ICE journal Bridge Engineering, and a former expert member of the German Ministry of Transport’s ‘Future of Construction’ programme.

At IABSE he has contributed to various Technical Groups, as well as the Editorial Board of the journal Structural Engineering International (SEI) of which he is currently the Vice Chair. Recently he was appointed as Chair of the German Group of IABSE, and held the first Young Engineer’s Colloquium for Germany in Dresden in April 2014. Currently he is part of the Core Group preparing the IABSE Geneva Conference 2015.
Outstanding Paper Award

The Outstanding Paper Award is remitted each year to the author(s) of a paper published in the preceding year’s issues of Structural Engineering International (SEI), rewarding contributions of the highest quality. The Award is presented in the categories ‘Scientific Paper’ and ‘Technical Report’.

‘Scientific Paper’

IABSE presents the Outstanding Paper Award in the category ‘Scientific Paper’ to Yozo Fujino and Dionysius Siringoringo, Japan, for their paper:


Dynamic performance is an important consideration in long-span bridge design. Owing to its flexibility and low damping, various types of vibration from different sources of excitation could occur during the lifetime of a long-span bridge. This paper reviews important studies and developments on long-span bridge vibration mechanism and control under wind, seismic, traffic and human-motion excitations. Types of vibration commonly observed on the long-span bridge are discussed from the viewpoint of structure engineering. Discussion for each subject is commenced by describing the vibration mechanism followed by the survey on observed phenomena in many long-span bridges associated with the type of vibration. The paper also describes the engineering solutions adopted as countereasures for each type of bridge vibration problem.
IABSE presents the Outstanding Paper Award in the category ‘Technical Report’ to Antonio Reis and Claudio Baptista; Portugal, for their paper: "Rehabilitation of the Suspension Bridge over Zambezi River in Mozambique”, SEI 1/2013 (February), pp. 89-93.

The suspension bridge across the Zambezi River at Tete in Mozambique was built between 1965 and 1970. It is a multi-span suspension bridge with a total length of 720m and an unique structural scheme. Inspections during 1999 and 2005 identified three major problems: unbalanced load on hanger system with major misalignments in deck geometry, hanger failure by fatigue and corrosion, and damage to the concrete caused by excessive rotations of main transverse beams suspended by hangers. This paper describes the most important design options and solutions put forth for the rehabilitation of the bridge and for extending its lifespan under increasing traffic loading.
Outstanding Structure Award - The Winner

IABSE presents the Outstanding Structure Award 2014 to:

Taizhou Bridge, Jiangsu, China

“a breakthrough in engineering and construction to span over large distances, the Taizhou Bridge ushers in a new generation of multiple-long-span, continuous suspension bridges”.

This Award recognises the most remarkable, innovative, creative or otherwise stimulating structure completed within the last few years. The Finalists were the ‘Kings Cross Western Concourse Roof’, UK; ‘Las Arenas’, Spain, and the ‘Canton Tower’, China.

The Taizhou Bridge over the Yangtze River is the world’s first long-span, three-pylon, two-span suspension bridge and was opened to traffic in November 2012. It is a pivotal element of infrastructure in the east of China and will play a vital role as a link in the freeway network in Jiangsu Province and the Yangtze Delta region.

The spectacular suspension bridge has two continuous 1080 m main spans. It carries dual-six traffic lanes, with a deck with of 33m. The central pylon is of an inverted-Y shape on elevation, 200m tall, constructed in steel, and founded on a 58m by 44m caisson. The pylons at each end of the main bridge spans are
concrete frame structures, 180m tall, and each founded on 46 number 2.8 diameter friction poles.

All elements of the planning, design and construction have been determined to minimising the ecological impact on the environment. The three-pylon two main span suspension bridge scheme was chosen for environmental reasons, as a means of minimising impact on the river hydraulics and ecology though reducing the number of bridge piers in the water while providing for two main navigation channels to facilitate ship movements and encourage the development of port facilities in the region. The scheme was also cost competitive given the site constraints and project conditions.

The structural behaviour of the suspension bridge system is different from that of a conventional two-pylon suspension bridge system. The design must ensure that no cable slip occurs over the cable saddles under all loading conditions, in order to prevent collapse. Conflicting demands on
the central pylon stiffness therefore arise—a flexible central pylon helps prevent cable slip but is ineffective in the control of girder deflection; a stiff central pylon renders it difficult to help prevent cable slip, although it improves on deflection control of the girder. The main challenge issues are concentrated on the design of the middle pylon.

The Taizhou Bridge is high on aesthetic merits. The shape of the high-profile inverted Y-frame central pylon resembles the Chinese character for ‘human’, complimented by an aerodynamically efficient streamlined steel box girder deck, and a spectacular suspension cable profile. The silhouette is a stunning imagery night and day in all seasons. Its graceful and slender profile exudes simplicity and elegance and the bridge will become an iconic structure not only for China but also for the international scene.

The three pylon, two main span integral suspension bridge system has enabled not only a breakthrough in spanning over large distances, but also the beginning of a new generation of multiple-span continuous ultra-long-span bridges for conquering difficult terrains and obstacles.
IABSE Outstanding Structure Award Finalists

In addition to the Winner ‘Taizhou Bridge’, China, the Outstanding Structure Award 2014 Committee also selected the following three Finalists:

Kings Cross Western Concourse Roof, UK

The transformation of King’s Cross station was one of London’s most challenging infrastructure projects in recent years. Updating this building involved a combination of modernisation, restoration and place making. The most significant challenge was creating the new 8,000m² concourse needed to increase the station’s capacity. Opened in time for the London 2012 Olympics, the new Western Concourse provides a fitting and elegant addition to Lewis Cubitt’s magnificent train shed and a modern multi-modal transport hub. The design for the Western Concourse roof evolved through collaboration between Arup and John McAslan and Partners, the architects. Together they developed a spectacular, slender and carefully detailed diagrid shell roof that sweeps among listed buildings without imposing loads on them.

Constructing this roof on a constrained, operational site required careful planning and sequencing. Prefabricated ladders of the roof structure were dropped onto a scaffold and connected in situ. Maximising off-site fabrication ensured the high quality needed for such a visible structure. Once the shell was complete, the scaffold was gradually removed to let the roof settle under its own weight. Recorded deflections were within the limits predicted, demonstrating the accuracy of understanding of the analysis. Opened in March 2012, the new concourse represents a stunning new landmark for London that redefines the station as a modern transport hub. The lightness with which the roof touches the ground and its careful integration with the surrounding historic buildings is a triumph of collaborative engineering and architecture.
Las Arenas, Barcelona, Spain

The Las Arenas shopping and entertainment mall is a distinctive building, the fruit of innovative and avant-garde architecture in which achievement of the established objectives depended heavily on the structural engineering effort deployed during design and construction. Its construction involved complex architecture and engineering as well as a wide variety of building materials, elements and processes (diaphragm walls, pile-columns, micro piles, anchorages, reinforced and prestressed concrete, steel and composite structures, laminated wood). Furthermore, it was subject to strict compliance with requisites imposed by the need to conserve, restore and integrate the former brick masonry façade on the existing Las Arenas bullring.

One of the most prominent features of the new mall is the dish that roofs the building constructed inside the historic façade. Its structure, a series of radial and circumferential steel beams, rests on four distinctive stand-alone ‘tree-like’ columns that rise from the ground storey. The vibratory behaviour induced by the enormous flexibility both of these columns and the dish structure required an in-depth analysis of dynamic actions.

The dish itself is partially roofed by a sizeable laminated wood dome that stands at its centre. The participants in the project naturally assumed the architectural and structural challenges posed and successfully surmounted the obstacles characteristically encountered in such a distinctive endeavour.
Canton Tower, Guangzhou, China

Canton Tower is located in Guangzhou. Its total site area is 175,460 m² and building area is 102,000m², the height is 600m. It consists of a 454m main tower and a 146m antenna mast. The Tower consists of five functional segments and four hovering segments from bottom to upper. It has 39 floors, including 2 underground floors with 5m story height. The tower provides sightseeing, restaurant, theatre, television broadcasting technology centres, and recreational areas, etc. The architectural design was carried out by Architects Mark, integrated with architecture, structure and aesthetics, turning waist of the Tower brings different façade effects and multidimensional facades.

The Canton Tower has higher difficulty on design codes and key considerations because of its special shape and height. The design difficulty are resolved by using universal hinge point, supported connection, initiative and passive control for structural vibration, temperature impact analysis, antiseptic and fireproof steel, stability analysis etc., furthermore, the safety and economy efficiency are ensured, it can be used for reference for other analogous projects.

The Tower integrated structure style and architectural effect and has become a landmark building in Guangzhou with innovative technologies in active and passive control for structural vibration, temperature impact reduction, and safety and economy efficiency.
Honorary Membership

Honorary Membership is presented to an individual Member of IABSE, for exceptionally great services rendered to the Association. IABSE has presented Honorary Membership to two Members this year.

Predrag Popovic, USA

Predrag Popovic, USA, Vice-President and Senior Principal at Wiss Janney Elstner Associates Chicago, recent President of IABSE, has been awarded Honorary Membership, “in high appreciation of his outstanding and dedicated services to the Association”.

Pete Popovic’s fields of expertise are the design, assessment and repairs of bridges and buildings. He has in particular expertise in assessment and repair of concrete structures and of fatigue damage in steel bridges, and exterior facades of high-rise buildings.

Pete Popovic joined IABSE as a Member in 1985, and has since then been involved in many activities within the Association. He has been a member and the Chair of Working Commission 8; a Member of the Technical Committee and of the Outstanding Structure Award Committee. He has been involved in many IABSE conferences, in particular as the Chair of the Organising Committee of the excellent 17th IABSE Congress in Chicago 2008. He served as Vice-President on the Executive Committee (2005–2009), which he subsequently chaired as an enthusiastic and committed IABSE President (2010–2013). Today he is a Member on the Advisory Board of the Executive Committee and an Alternate Delegate to the Permanent Committee.
Sung-Pil Chang, Emeritus Professor of Seoul National University, former Vice-President of IABSE has been awarded IABSE Honorary Membership, “in high appreciation of his outstanding and dedicated services to the Association”.

Since 2008, he is Prof. Emeritus of Seoul National University where he served for 32 years. He has been actively involved since 2009 to develop the design technologies for cable-supported bridges as a programme director at the Super Long Span Bridge R&D Centre. His major scientific research areas are the dynamic behaviour and the health monitoring technology of cable-supported long-span bridges.

Won by the enthusiasm and energy he experienced at the 10th IABSE Congress in 1976, Sung-Pil Chang joined IABSE the same year and was the first Chair of the Korean Group that was founded in 1997. He has been active in numerous Scientific Committees of IABSE conferences, and was first a member and subsequently Vice-Chair of Working Commission 5 (2003-2005). He was Vice-President of IABSE from 2005-2013. As Chair of the OC he organised the 18th Congress of IABSE in Seoul, which was a magnificent success. In 2013, before the end of his 2nd term as Vice-President, he became the first ‘flag bearer’ of IABSE, bringing its banner to the top of the Mount Eiger, Switzerland. Since 2013 he serves on the Advisory Board to the Executive Committee and is a Delegate to the Permanent Committee.
Nominations for IABSE Awards

Members of IABSE can propose nominations for the following IABSE Awards by contacting the Chair of their National Group. The Chairs will submit their proposals to IABSE Secretariat by the following dates:

December 15, 2014:
- International Award of Merit in Structural Engineering 2015
- IABSE Prize 2015
- Honorary Membership 2015

June 30, 2015:
- Outstanding Structure Award (OStrA) 2016
The International Association for Bridge and Structural Engineering (IABSE) is a scientific and technical Association with Members in 100 countries and 49 National Groups around the world. IABSE's mission is to promote the exchange of knowledge and to advance the practice of structural engineering worldwide in the service of the profession and society, taking into consideration technical, economic, environmental, aesthetic and social aspects. IABSE was founded in 1929 and has its seat in Switzerland.

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