PRESS RELEASE
2017-06-27
Contact: Sissel Niggeler
Phone: +41-44-633 3150 / email: niggeler@iabse.org

Outstanding Structure Award:
Phoenix Centre, Beijing, China

The International Association for Bridge and Structural Engineering (IABSE) awards the Phoenix Centre, Beijing, China, with the Outstanding Structure Award 2017. This Award recognises the most remarkable, innovative, creative or otherwise stimulating structure completed within the last few years. Prof. Fernando Branco, President of IABSE will present the Award to the Winner and the Finalists on September 21, 2017, on occasion of the 39th IABSE Symposium in Vancouver (Sept. 21-23, 2017).

“Phoenix Centre represents a complex spatial structure originated from 3D parametric design techniques resulting in an extraordinary interaction of architectural and structural aspects”.

The Phoenix Centre is located next to the southwest corner of Chaoyang Park in Beijing. The site is 18,000 m², with a construction floor area of about 72,000 m², and a building hight of 54 m. The Phoenix TV station proposed to build a media centre in Beijing in 2007. The building was to represent not only the corporation spirit of Phoenix TV but also the profound cultural tradition of China. The image of perpetual motion of “the Mobius strip” matches the spiritual pursuit of Phoenix for wisdom and ideal. It also resembles the Phoenix bird in the structural geometry and rhythm balances the Yin and the Yang. The theory of Yin-Yang is a perspective and methodology originated in ancient China. The shaded (Yin) part as production studio and the sunny (Yang) part as office building are wrapped up by the ecology Mobius shell. Several spatial public spaces are created to demonstrate cultural value of the Phoenix Media, which makes entire building vibrant and energetic. The building shape is in harmony with the surrounding infrastructure including the irregular shaped site, the varied intersection angles between urban roads and the scenery environment.

Using accurate 3D digital modeling techniques, the structures, especially the curtain wall supporting system, create enough spaces for different architectural functions, and also contributes to the aesthetics effects of the whole building. The overall design not only makes the entire building more vibrant and energetic, but also allows the public to have a closer experience with the Phoenix culture. The building successfully seeks the interaction and integration of structure, architecture, landscape and art. It achieves the extraordinary combination of architecture and structure.

Finalists

New Street Station, Birmingham, UK, the transformation of Birmingham New Street Railway Station fulfilled the most ambitious of architectural visions for a tired 1960s RC building. The existing building could not be proven to satisfy any current codes of practice. Therefore a profound, first-principles understanding of the building’s structural behaviour had to be developed, which was central to modelling the significant changes in the forces that would be applied during construction and when complete. Engineering design and constructability remained entirely in synergy to safely accomplish the works, with paramount consideration given to public safety as this principal UK transportation hub remained operational throughout the works.

The project aspirations were delivered through a complete remodelling of the old station layout, 6000t demolition of two floors from the old shopping centre, 7000t of demolition from the mezzanine floor of an old car park and a similar amount from the demolition of the 61m tall Stephenson Tower to the south of the site.
A new atrium, formed within the old structure has allowed natural light to enter the station for the first time since the 1960s, and central shopping facility in the city centre of Birmingham. The works included extensions to the building amounting to about 27,900 m² of floor space, accommodating a new stainless steel façade on the old building.

**Port of Valencia Lighthouse, Spain**, is the first structure ever built in the world using all composite materials. It is an innovative structure using new technologies especially in regards of the highly aggressive maritime environments and the difficult accessibility. This structure demonstrates how composites can be used intelligently and effectively.

The new lighthouse is a 32 m tall five storey structure. The floors, placed at every 6 m, are 200 mm thick glass fibre and polyurethane sandwich panels with an octagonal shape. Passing through holes near the vertices of these octagonal panels, and blocked by specially designed glass fibre cones, eight carbon fibre columns with a 250 mm diameter support the structure. A spiral staircase with 130 steps made of composite materials is placed in the centre of the structure, going from its base to its top. The steps rings form a cylindrical space which is filled with reinforced concrete, providing a stiffening core to the structure.

**Dandeung Bridge, South Korea**, is a suspension bridge supported by a sail shape “D” designed pylon, connecting Sinsi Island and Munyeo Island in South Korea and has been constructed in the second section of connecting road works of the Gogunsan islands in Jeollabukdo (2009-2015).

The bridge consists of the only one steel box girder for two traffic lanes and two pedestrian lanes with a 400 m span and a single concrete pylon with the height of 105 m. As this bridge has been designed as an earth anchored suspension bridge, two main cables with a diameter of 0.38 m are anchored within the concrete anchorages at both ends of the bridge. Innovative structural systems were introduced to realise the single pylon suspension. To overcome the difficulties, e.g., the atypical shape of the pylon, the spatially arranged main cables, and new type of lifting gantry could come into the world. It is expected that the techniques developed for this new bridge will contribute to the creation of more advanced construction techniques in the future.

###.

The International Association for Bridge and Structural Engineering (IABSE) was founded in 1929, and deals with all aspects of planning, design, construction, maintenance and repair of civil engineering structures. To fulfil its mission, IABSE organises conferences and publishes a quarterly journal, Structural Engineering International, as well as books and reports. The Association has a number of technical groups and presents awards in recognition of outstanding contributions in the domain of structural engineering.

Third parties may freely distribute this text or any part of it in print or electronic form. For more information, contact Sissel Niggeler, Marketing and Communications Manager: niggeler@iabse.org