PRESS RELEASE
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IABSE Awards 2018

The International Association for Bridge and Structural Engineering (IABSE) is pleased to announce the Laureates of the IABSE Awards 2018. The President of IABSE, Fernando Branco, will present the awards on the occasion of the 40th IABSE Symposium Nantes which will be held in on Wednesday morning, September 19, 2018.

THE INTERNATIONAL AWARD OF MERIT IN STRUCTURAL ENGINEERING

The International Award of Merit in Structural Engineering is presented to people for outstanding contributions in the field of structural engineering, with special reference to usefulness for society. Fields of endeavour may include: planning, design, construction, materials, equipment, education, research, government, management. The first Award was presented in 1976.

The International Award of Merit in Structural Engineering 2018 is presented to Tristam Carfrae, UK

Tristram Carfrae is a world renowned structural engineer and designer. He is one of the very few engineers to be appointed as a Royal Designer for Industry in 2006 (by the Royal Society of Arts); to receive the MacRobert Award in 2009 for best engineering project in the UK (from Royal Academy of Engineering for all engineering projects including IT, biotech and manufacturing); and to receive the Gold Medal from the Institution of Structural Engineers.

He has spent all of his thirty-five year career at Arup, half in Australia and half in the United Kingdom. His projects are distinguishable for not accepting the status-quo but using digital technology to deliver greater benefit (however this may be measured); at less cost (material, time and money). In this way, he has helped drive structural engineering towards a brighter, sustainable and affordable future. He uses digital techniques to challenge the status-quo and produce better outcomes at less cost in terms of materials time and money. His approach has inspired a whole generation of structural engineers to create a beautiful built environment that is more sustainable and more affordable. His designs are often spectacular but always driven towards trying to provide better outcomes for people; for society. As a young engineer, he was told by one of his mentors, Peter Rice, that “it doesn’t matter how clever your structures are because nobody cares. The only thing that matters is how they make people feel” and he took this to heart. He has collaborated closely with many of the world’s greatest architects, trying to join structure and architecture into a seamlessly integrated whole; one where the design of the resulting project cannot be easily attributed to either party rather than to the collective endeavour.

Perhaps his most famous building is the Water Cube – the Beijing National Swimming Center – designed for the 2008 Olympics. Inflated ETFE pillows were mated directly to the primary structure which followed the geometry of Weaire Phelan Foam (the most efficient division of space) to form a “box of bubbles” that functions as an insulated greenhouse. As well as being a very efficient structure with incredible redundancy and seismic resistance, the whole building captures and uses more solar energy than if it had been entirely clad with photovoltaic panels. The use of ETFE pillows gave the building its unique identity; minimised weight; removed the need for any secondary structure and gave the greenhouse a beautiful
acoustic that would not have been possible using more expensive glass. This use of one facet of the building to provide multiple benefits is a recognised hallmark of Tristram’s designs.

In 2013 Tristram was honoured to be invited to help complete Sagrada Familia, Gaudi’s famous church in Barcelona. Having taken 135 years to build 60% of the church, the Sagrada Familia Foundation set themselves the challenge of completing the remaining 40% in ten years requiring a ten-fold increase in construction progress. Tristram’s solution was to design the six large towers on top of the church (extending to 170m tall) using post-tensioned stone panels. The panels are accurately mass-produced from precise, computer controlled sawn stone blocks, and post-tensioned using duplex stainless steel rods, in an off-site facility. The panels are brought to the site and bolted to stainless steel columns that act as temporary works before being embedded within the stone tower itself. The construction programme allows for one panel to be erected every hour for the next four years whereas, after off-site prototyping of two full-sized panels, the first real panel was erected in just 35 minutes using special guiding wedges and spheres designed by Tristram and his team.

Tristram Carfrae is Arup’s Deputy Chairman and has been a member of the Arup Group Board for the past ten years He is a leading structural designer, responsible for the structure of a dazzling array of award winning buildings over his 35 years with the firm, in Australia, the UK and elsewhere. Tristram has also been fortunate to work with many of the world’s leading architects; combining structural behaviour with architecture to form the overall building expression.