IABSE Prize 2013: Mauro Overend

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. This year the IABSE Prize is presented to Mauro Overend, UK, “for pushing the boundaries in the structural use of glass in façade design, and for related research”.

Dr Overend has a leading, international reputation in the field of structural glass. He leads a research group at the University of Cambridge and he uses his knowledge as a designer of “cutting-edge” facades and other glass structures.

Mauro is a lecturer in Building Engineering Design at the Department of Engineering in Cambridge and a Fellow of Christ’s College. After working as a structural and façade engineer on a number of notable buildings he returned to full-time teaching and research and he set up the Glass and Façade Technology Research Group (www.gft.eu.com) that he currently leads.

Mauro’s work is rooted in structural engineering but is interdisciplinary in nature and is at the interface of engineering design and research. For example during his former roles in consulting engineering he established the Research & Development Task Group at Ramboll UK (formerly Whitybird) and he worked on projects that involved prototype testing and development to push the boundaries of glass and façade engineering.

The Yauatcha store in London with its extensive use adhesive bonding of glass elements and the glass structure and connections specially developed for the Breathing Sculpture located on top of BBC Broadcasting House are two such examples. Similarly in his current role at the University of Cambridge he collaborates very closely with industrial partners to steer the fundamental research of his group towards solving real-world problems in glass and façade engineering. This approach is evident in his research collaborations that range from specialist SMEs across Europe where he is leading the development of adhesive and soldered connections for glass elements that can outperform the conventional bolted glass connections, to large multi-national companies where his work on composite glass structures, post-fracture performance and multi-objective optimisation of facades is leading to structurally efficient, safer and thermally efficient facades.

Mauro has more than 40 peer-reviewed publications on structural glass and façade engineering to his credit. His research on structural glass, particularly on glass strength models, fragmentation and connections has a significant impact in this field. For example the IABSE Structural Engineering Document (SED 10) that he co-authored in 2008 is a reference text in several universities and design offices and his paper on the “Recent development in design methods for glass” was awarded the IStructE’s Guthrie Brown Medal in 2011. The impact of his research however extends beyond the built environment as seen in his recent collaborations on monolithic fire resistant glass for marine applications with Trend Marine Ltd,
and his on-going work on window pane testing for the manned spacecraft with Magna Parva and the European Space Agency.

Mauro has several active research collaborations internationally. For example together with colleagues from Austria, Germany and Belgium he secured funding for a European Research Network on Structural Glass (COST Action TU0905 – www.glassnetwork.org). The network currently has more than 80 active members in 21 European countries and Mauro chairs one of the four working groups; Working Group 3 – Post fracture Performance. In addition Mauro has project-specific collaborations with several other Universities (IIT, LBNL, Sydney, EPFL, Pisa, Turin, TU Delft and TU Denmark). In addition to publishing in peer reviewed journals and conferences, Mauro serves on the editorial board of two international journals and is an active peer reviewer in nine other journals. He also reviews research grants for the Swiss and Belgian national engineering and science research agencies. In the last 3 years he has served on the scientific committees of seven international conferences. Mauro has also served on the Institution of Structural Engineers Research Panel and the international panel of technical experts convened by the EC Joint Research Centre to advise on the Eurocode for glass in buildings. He currently serves on the British Standards Committee for ‘Glass and Glazing in Buildings’, the IABSE working group on Glass Structures and he is the convenor of the Façade Engineering Study Group at the Institution of Structural Engineers.

Since returning to full time teaching and research Mauro has also contributed to the devolvement of challenging real-world projects notably the numerical form finding work for the Grand Theatre in Rabat, Morocco designed by Zaha Hadid Architects and the experimental and analytical work on the stability of perforated brickwork façade on Tate Modern, London designed by Herzog & de Meuron Architects.

Experimental investigations on post fracture performance of laminated glass