



Traditional *into* Modern

The Institute of Wood Science Annual Conference
hosted by BRE Centre for Innovative Construction Materials



UNIVERSITY OF
BATH

at the University of Bath, Building 4E
18th & 19th September 2008

cicm

the BRE centre for innovative construction materials



Welcome from the President

Mark Twain once said “it takes three weeks to prepare a good impromptu speech”. In answer to Mark I would say that “it takes several months to prepare a good, well-planned conference”! Therefore, it is my pleasure to invite you to attend our Bath 2008 Conference.

We had a brief pause and reflected on Edinburgh 2007 and then moved forward, clearly focusing our intentions on providing you with a selection of what we, as the Institute of Wood Science, do best! We have a stunning pre-conference tour venue, my President’s reception is being hosted in a remarkable landmark building and we are even

including a selection of local beers for you to taste. We then move onto Conference day itself and here we are presenting you with a variety of thought-provoking, stimulating and informative papers!

So, we have the location, we have the visual aspect, we have the social aspect and we would like to challenge your inquiring mind – join us in Bath 2008 for your very own Institute of Wood Science Conference! I very much look forward to welcoming you!

Geoff Taylor MIWSc
President of the Institute of Wood Science

Traditional *into* Modern - Programme

Thursday 18th September 2008

Conference tour

- 9.30 Leave Bath by coach for day tour (pick up points at University of Bath and City Centre).
- 10.30 Arrive Stourhead (National Trust)
- 10.30 Tour of Stourhead Forest
- 12.30 Lunch at Stourhead
- 13.30 Tour of Stourhead Gardens
- 15.30 Leave Stourhead for Bath

President’s Reception and Dinner

- 19.00 Reception at Roman Baths including local beer and wine tasting sponsored by Osmose, TTJ, Rotafix and Technology for Timber.
- 20.30 Dinner in Pump Rooms sponsored by Timbmet.
After Dinner Speech by
Dr Michael Forsyth, University of Bath

wood for good and the American Hardwood Export Council are overall Gold Sponsors of the 2008 Conference. The support of all sponsors is greatly appreciated.

Friday 19th September 2008

Conference, University of Bath, Building 4E

- 09.00 Registration and coffee
- 09.55 Conference opening, Geoff Taylor, President of the Institute of Wood Science
- 10.00 Jon Shanks (Buro Happold)
“Engineering of traditional oak construction”
- 10.35 João Custódio (LNEC, Lisbon)
“Repair of heritage timber structures”
- 11.10 Bill Keir (Oakwrights)
“Traditional oak frame construction”
- 11.45 Glen Howells (Glen Howells Architects)
“The Savill Building”
- 12.30 Lunch
- 13.30 Laboratory test of timber structures.
- 14.00 Speed Presentations
- 14.30 Helmut Holl (Baufritz)
“Baufritz, the different house builder – visions, values and ideas”.
Ms Tiffany Wood, owner of a Baufriz house in Bath featured in Channel 4’s Grand Designs, will give her impressions of this exciting project.
- 15.15 Nick Milestone (B & K Timber Structures)
“Hybrid timber construction”
- 15.50 Ben Brungraber (Firetower Engineered Timber)
“Heavy timber structures and traditional joinery”
- 16.25 Close (Geoff Taylor) and refreshments.



Biographies



Dr. Michael Forsyth

Michael studied architecture at the University of Liverpool and then won the Rome Scholarship in Architecture. After residence in Italy he moved to Canada to work on the design of the new concert hall for the Toronto Symphony Orchestra with the internationally distinguished architect Arthur Erickson. Returning to the UK, he taught architecture at the University of Bristol and during that time was awarded the degree of Doctor of Philosophy. He later formed Forsyth Chartered Architects and, through the practice, the University of Bath commissioned him to create a postgraduate Master of Science degree course in the Conservation of Historic Buildings, and he became its director of studies. The programme is now in its eleventh year. He is an assessor for the RIBA-AABC Register (Architects Accredited in Building Conservation), a member of the Education and Training Committee of ICOMOS-UK (International Council on Monuments and Sites) and a trustee of the Bath Preservation Trust. Michael's first book, *Buildings for Music: The Architect, the Musician, and the Listener from the Seventeenth Century to the Present Day* (The MIT Press and Cambridge University Press, 1985) won the American Society of Composers, Authors and Publishers' 19th Annual ASCAP Deems Taylor Award, and there are editions in French, German, Italian and Japanese. Recent publications include *Bath: Pevsner Architectural Guides* (Yale University Press, 2003) and edited books for Blackwell Publishing (2007), *Understanding Historic Building Conservation, Structures and Construction in Historic Building Conservation and Materials and Skills for Historic Building Conservation*. Pastimes include the violin.

Dr Jon Shanks

In 2005 Jon completed a PhD at the University of Bath investigating the engineering of traditional green oak carpentry connections. For this work he was awarded first prize at the IStructE Young Researchers Conference and the Forestry Commission Award for Research in Timber Engineering. Between graduating and starting his PhD he worked as a green oak carpenter. This close link with carpenters remained throughout his PhD studies and into his engineering consultancy career in which he regularly works with traditional carpenters on a variety of timber projects. He has published international journal papers on traditional carpentry and co-organised a timber conference at the University of Bath including carpenters, engineers, researchers & architects. Following his PhD he spent 4 months studying Japanese carpentry at Kyoto University as a JSPS research fellow. Jon now works as an engineer at Buro Happold designing new timber structures as well as appraising existing timber buildings. Recent projects include a 40m timber roof with a glulam lamella, a modern Douglas fir 'cruck' frame and appraising existing medieval trusses at Longleat House.

João Custódio

João Custódio graduated in Technological Chemistry in November 2002 in the Faculty of Sciences of the University of Lisbon (Portugal). Since then, he has been conducting research in the Timber Structures Division of Laboratório Nacional de Engenharia Civil (National Laboratory for Civil Engineering) in Lisbon. João's research focuses primarily on service performance and durability of repair and reinforcement systems for historic and contemporary timber structures using adhesive bonding technology. He is currently writing up his PhD at Oxford Brookes University on the performance and durability of composite repair systems for timber structures. He has participated actively in National and International Projects including: European CRAFT Project LICONS (Low Intrusion Conservation Systems for Timber Structures) and COST Action E34 (Bonding of timber) and a Portuguese National Research Project (Characterization of glued joints and behaviour of timber-based glued structural composite elements).

Bill Keir

Bill Keir worked on his first oak framed building in 1986 as a carpenter in the Hamptons, New York which made a lasting impression. When he returned to the UK he joined the Wiltshire-based team that became Carpenter Oak and Woodland, often described as the foremost oak frame builders of the nineties. He moved on to Oakwrights Ltd at Hereford, which is arguably the foremost oak frame builder of the noughties. Oakwrights took the brave step into the world of CAD-CAM CNC timber production using Hundegger machinery to build complex oak frames properly. Thankfully Bill wasn't there to see 5000 ft³ of prime oak robotically reduced to firewood during the 'learning process'! However the Herefordian way prevailed, with the result that both Hundegger (the manufacturer) and Dietrich (the software company) have stated that there is nobody on the planet who does so many carpentry operations per cubic foot of timber as Oakwrights. This summer Oakwrights take delivery of a second Hundegger beam processing joinery machine, costing nearly three times as much as the 2002 model and the most complex machine Hundegger have ever built. It is the first to have 3 heads (a total of 13 axes for the milling heads alone). Bill comments that, other than nails & screws, at the end of the building's life every component can be reused, recycled, burnt as fuel, or composted, and every component can be grown again. There are no membranes, plastics, foams or petrochemicals.

Glen Howells

Glen Howells is the founding director of Glenn Howells Architects and established the practice in 1990. Over the last 18 years, the practice has built a track record as one of the foremost, innovative architectural practices in the UK winning numerous major design competitions and over 50 awards for a diverse range of building types including residential, commercial, urban regeneration, education and arts projects. Glenn has an overview of all aspects of the practice and regularly reviews all projects during design development and construction stages. Glenn sits on the Commission for the Built Environment (CABE) Olympic Design Review Panel and is chair of MADE. He is also Chair of the IKON Gallery in Birmingham and advises Bradford Centre Regeneration, Birmingham City Council and Sheffield City Council. In the academic field, he is a visiting lecturer and tutor at Universities throughout the UK. He was previously an external examiner at the University of Nottingham and Queen's University, Belfast.

Helmut Holl

Helmut Holl was born in 1952 in Memmingen, Germany. After he left the Rosenheim University of Applied Sciences with a degree in wood work engineering he started working for a company producing furniture for TV and radio sets in 1978 in the position of Production Manager. He left this company in 1981 and began to work for Baufritz, first as Plant Manager then as a member of the Baufritz Management and in 2004 he was appointed Managing Director. Since 1999 he has been a member of the expert advisory committee of the Rosenheim University of Applied Sciences. Baufritz as a manufacturer of prefabricated timber houses has specialized in offering family homes being produced not only with environmentally friendly production methods but also using pollution free materials for their houses thus creating an unrivalled healthy living environment combined with high levels of comfort and unique design.

Nick Milestone

Nick has a BSc in Quantity Surveying, BSc (Hons) in Project Management and an MSc in Project Management all from Leeds Metropolitan University and is a Member of the Chartered Institute of Building. He trained as a quantity surveyor for 7 years and then spent 9 years working for Atlas Ward Structures (part of the Severfield Rowen Group) working his way from Quantity Surveyor to Senior Contracts Manager. He worked on many steel framed structures within the UK before transferring to the Kiev office in the Ukraine for 2 years as estimator, Qs and Project Manager. He eventually joined B&K Steelwork Fabrications Ltd (a wholly owned subsidiary of the Bowmer & Kirkland Group) in 2002 as Construction Manager and was promoted to Construction Director in September 2005. The current annual turnover is in excess of £20m. In January 2007, Nick set up B&K Timber Structures (a trading division of B&K Steelwork Fabrications Ltd) to service the demands of retail customers who wanted structural framed solutions using low carbon sustainable materials. The first year of trading successfully achieved a £4.25m turnover; however the UK market demands for Eco- Frames outside of retail will see an anticipated growth of 50% for 2009. Learning and innovating within the UK steel construction industry over the last 20 years has been the key driver to developing a successful timber structures division.

Dr Robert L. ("Ben") Brungraber

Ben Brungraber holds a BSc in Civil Engineering from Cornell, an MSc in Timber Structures from Colorado State University and a PhD from Stanford on mortise and tenon joinery. He worked in the construction industry included the inspection of concrete built in the Washington DC subway and helped to build high rise steel buildings, long-span bridges and wonderful steel mills with American Bridge. He jumped at the chance to be a Teaching Assistant at Colorado State, where his final design project was a panelized and prefabricated timber covered bridge. This led to a couple of wonderful years as lead engineer for an A/E firm in the Empire State Building [linked to Steven Winter Associates], designing log homes and manufactured housing, along with a very few of the earliest homes built by the North American timber frame revivalists. He left NYC for Bucknell University, to try teaching and to get his finances and liver back in order. He loved teaching enough to leap to an Exxon Fellowship at Stanford. His three years there were filled with teaching surveying, studying structures and construction management, and picking up two sons. Ben's best surveying student at Stanford became his Teaching Assistant and is now his partner - Mack Magee. After two years teaching at the University of Connecticut he left to join Benson Woodworking Co., Inc. as the first full-time engineer in the fledgling timber framing industry. During his twenty years as lead engineer, he oversaw the engineering aspects of more than \$100m worth of timber framed buildings. Ben also served on the Board of Directors for the Timber Framers Guild of North America [TFGNA link]. Ben parted, very amicably, to pursue his long-standing lust for his own enterprise, Firetower Engineered Timber.

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Technology for Timber

Dinner venue: Pump Rooms, Bath City Centre

Conference venue: Building 4E, University of Bath



The Institute of Wood Science was founded in 1955 for the purpose of advancing and encouraging scientific, engineering, practical and general knowledge of timber and wood-based materials whilst embracing commercial and trade practices.

The IWSc publishes a refereed journal bi-annually and the magazine Wood Focus which includes information on the latest events and awards, updates on education issues and informed articles on wood, timber and construction. The IWSc organises courses in wood technology and timber utilization

in conjunction with a number of colleges and training agencies in the UK and awards appropriate qualifications. Membership is available to anyone with an interest in wood, timber and their application in the broad range of timber industries. Visit our website for full details of membership and an on-line application form.

Tel: 020 7256 2700
email: info@iwsc.org.uk

Fax: 020 7256 2701

www.iwsc.org.uk