WOODfocus

ISSUE NO. 15 Autumn 2006

The magazine of the Institute of Wood Science

All change at the Institute

In 2005 the Institute celebrated its 50th anniversary at its Conference in London. After great celebrations, we have entered a period of great change, which will hopefully see the Institute grow in both numbers of members and in influence in the coming years.

In March of this year, our then Director Jim Lumsden decided to leave the IWSc after three years as Director and return to his HR career. We also became acutely aware that our Secretary Christine Bradshaw would also retire in September, which she has just done.

When Jim left, we were fortunate that David Woodbridge volunteered to stand in as Director, which he has done very ably. This gave us the opportunity to conduct a review of the operations and staffing of the Institute. The Officers took the decision to appoint a full time Administrator and a part-time Director. This would involve shifting some of the Director's more routine tasks to the Administrator, freeing up more of the Director's time for selling the Institute's courses and membership to the wider industry.

At about this time, we were also approached by the Institute of Carpenters (IoC). Their General Secretary was also leaving and we were asked if we would consider a collaboration with them involving a sharing of resources. The concept was to share a full-time Director and to move both Institutes to a single office.

This idea prompted many lengthy discussions and after two special meetings of Council it was agreed to proceed with the collaboration with the IoC and to appoint a joint Director and our own full time Administrator. The plan at that stage was to relocate the IWSc office to the Building Crafts College at Stratford in East London, where the IoC are currently based. The office space in Stratford is however, quite limited and would not have sufficed in the longer term. More recently however, we have been offered more suitable space at Carpenters' Hall in the centre of the City.

The changes are now being implemented and commenced with the appointment of a joint Director, Tony Willenbruch in mid-September. Tony is ex-RAF and has a background in materials science and aeronautical engineering. Although not from a "woody" background, I am confident that Tony is the right person to carry the Institute forward.

At the latest Council meeting on 4th October it was agreed, subject to the finalisation and approval of financial and leasing issues, to pursue the move to Carpenters' Hall. Although the date of the move has yet to be established, the new address details will be:

IWSc, 3rd Floor D, Carpenters' Hall,
1 Throgmorton Avenue,
London EC2N 2BY.
Tel: 020 7256 2700. Fax: 020 7256 2701.

The Council meeting also marked the end of my two-year term as President and I wish our new President, Geoff Taylor good luck in his term of office. I would also like to express my gratitude to: Jim Lumsden and David Woodbridge for their hard work as Directors during my term of office; Geoff Taylor and David Venables for their support and encouragement as Vice Presidents and Christine Bradshaw for keeping the office running so smoothly. I'm sure we all wish Christine a long and happy retirement.

I hope that our members will all give Tony and Geoff the support they need as the changes take place within the Institute and that it will leave us in a better position to approach the next 50 years.

Dr Vic Kearley
Immediate Past President, IWSc

Photo by Turnstone Communications Ltd

Tony Willenbruch

CORPORATE MEMBERS

The Council of management wish to record its thanks to those listed below for their support as Corporate Members:

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THE SAVILL BUILDING SWEEPS WOOD AWARDS

By Turnstone Communications

TheWoodAwards

The Savill Building in Windsor Great Park won the coveted Gold Award after taking two of the four architectural-based categories at The Wood Awards ceremony on the 18th October.

Held at Carpenters' Hall in London and presented by Sir Michael Lord MP, Deputy Speaker of the House of Commons and past president of the Arboricultural Association, so very much a "wood man", The Savill Building's architect, Glenn Howells Architects, and owner, The Crown Estate, were delighted with their success (Figures 1 and 2).

Referred to by the judges as "most impressive" and "superb", The Savill Building won both the Commercial & Public Access Category and the Structural Category before being named 2006's winner of winners by unanimous decision. The trophy, handcrafted by sculptor and artist in wood Ray Winder, is a replica of the projects' elegant leaf-shaped floating roof.

Hopkins Architects also enjoyed success this year by being awarded Highly Commended for both the Commercial & Public Access and Structural Categories with Broughton Hall Pavilion (Figures 3 and 4) and The Pavilion and Visitor Centre, Alnwick, respectively.

Winner of the Private Category was Holly Barn in Norfolk by Knox Bhavan, whose "excellent detailing" was highly praised by the judges (Figures 5 and 6). This follows a previous success in 2003 with their New Pavilion in Suffolk. Highly Commended in this category was Alison Brooks Architect's Wrap House in London.

The specialist nature of the Conservation & Restoration Category was once again demonstrated this year with bespoke architectural joiners Hetherington Newman Brown being Highly Commended for the "skill, patience and loving care" that went into Biddulph Old Hall in Staffordshire, using French oak supplied by Whitmore's Timber Company (Figure 7). But it was the "exceptional craftsmanship" from The John Deal Practice for the repair and re-shingling of the existing Spire & Tower at St. Mary & All Saints Church in Dunsfold that won the category (Figure 8).

2006 saw the introduction of the Furniture Category, with which the sponsors intend to recognise the full range of projects demonstrating excellence in wood and "made in Britain". Three specialist judges were engaged, and deliberations over the nine-strong shortlist were difficult. The winner of this new category was Katie Walker's rippled ash Ribbon Rocking Chair (Figure 9), described as "clever and graceful", and the "dramatic" Ellipse Dining Table in black walnut by Paul Gower Furniture was Highly Commended (Figure 10). The judges were so impressed with the quality of workmanship in the Furniture Category, they awarded citations for excellence in craftsmanship to two further shortlisted pieces: Philip Koomen's Pair of Collectors Cabinets and Andrew Varah's Lotus Table.

Figure 1. The Savill Garden Visitor Centre during construction.

Figure 2. The gridshell roof takes shape.

Figure 3. Broughton Hall, interior view..

Figure 4. Broughton Hall.

Figure 8. St Mary and All Saints Church.

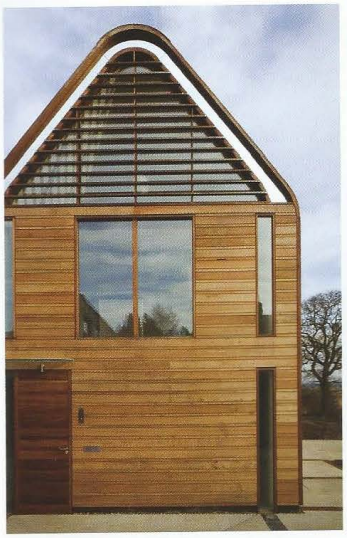

Figure 5 Holly Barn, exterior.

Figure 7. Biddulph Old Hall.

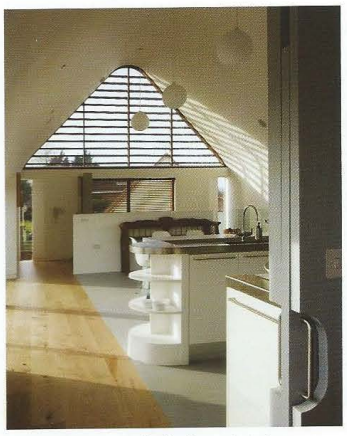

Figure 6. Holly Barn, interior.

Figure 9. Ribbon rocking chair in rippled ash.

Figure 10. Black walnut ellipse dining table.

Every year, several special awards are made at the discretion of the judging panel. New for 2006 was the Offsite Manufactured Project Award, introduced to recognise this increasingly important element of modern construction. This was awarded to Roche – New Head Office Project in Welwyn Garden City by the Building Design Partnership, for pointing the future direction for wood in building components (Figures 11 and 12). The judges and sponsors of The Wood Awards also awarded a citation to the Crest Nicholson SixtyK Consortium £60,000 Prototype House in acknowledgment of their contribution to the future of wood in affordable housing (Figure 13).

The Small Project Award winner was Westarchitecture's "ingenious" Suspended Mezzanine in living space (Figure 14), followed closely by the Kenilworth Castle Admissions Building which was a "deceptively simple project exquisitely performed" by Price & Myers for English Heritage (Figures 15 and 16).

Two trophies for Innovation were given, the first to Roche – New Head Office Project by BDP, in recognition of a bespoke and patented unitised, cavity-ventilated walling system in solid American white oak, developed by Schneider, and the first installed in the UK. The second went to the Ribbon Rocking Chair by Katie Walker Furniture. Her laminated ash 'ribbon' is not independently rigid, nor is the stainless steel rod framework or the leather covered plywood seating shell, but the combination of all three elements work together to create a light, comfortable and stable structure.

Finally, the Best Use of British Timber Award was given to The Green Oak Carpentry Company for consistent high quality work in British wood, seen in projects such as the Weald & Downland Gridshell, Chithurst Buddhist Monastery (Figures 17 and 18) and The Savill Building.

"2006 was another year of record entries and spectacular quality of work for The Wood Awards." says organiser Michael Buckley. "Whether the building is a cultural centre of national importance by a leading architectural practice or an elegantly crafted piece of furniture, it is the sheer quality of workmanship that has shone through in all the winning projects."

The 2006 Wood Awards were presented in front of an invitation only audience of over 200 architectural, design, construction and wood professionals.

The Wood Awards is supported by twenty-two generic sponsors, led by the American Hardwood Export Council, the Carpenters' Company, the Forestry Commission and wood. for good.

Figure 11. Roche–New head office project.

Figure 12. Roche–Component detailing and features.

Figure 13. Crest Nicholson SixtyK Consortium–prototype house.

Figure 14. The ingeniously suspended mezzanine.

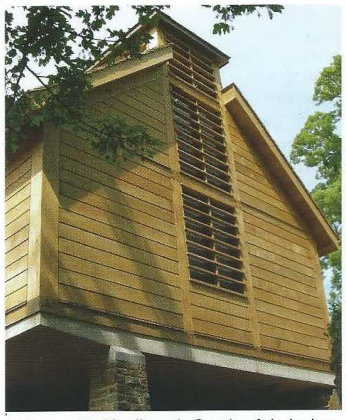

Figure 15. Kenilworth Castle–Admission building.

Figure 17. Chithurst Buddhist monastery

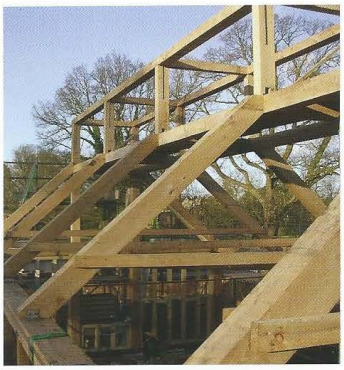

Figure 16. Kenilworth Castle–New timberwork for the admission building complex.

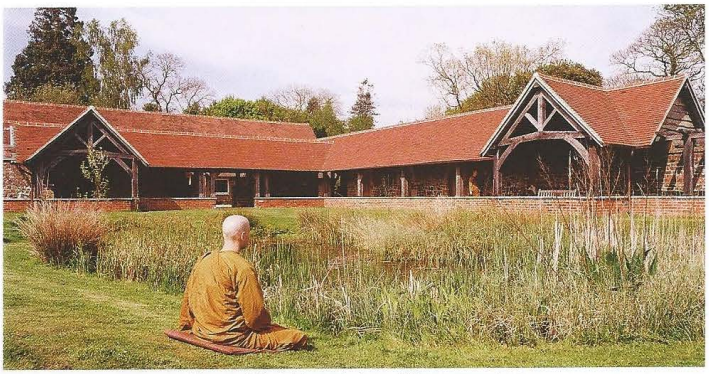

Figure 18. External view of the monastery

Full details of all sponsors and information on The Wood Awards can be found at www.woodawards.com.
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The TTJ Awards 2006 and Associateship Course

Report by David Woodbridge FIWSc

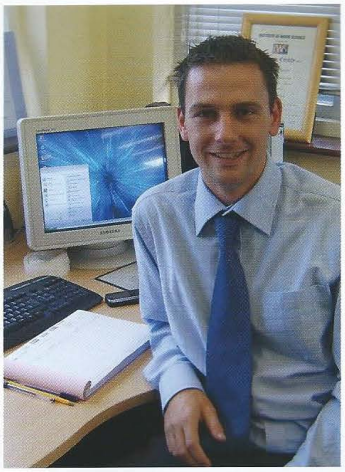
The 10th anniversary TTJ Awards was celebrated in September at the Savoy Hotel in London. The event and all the prize winners are reported in the 30 September/7 October issue of the TTJ.

In the category for the Career Development Award there were 14 candidates. These were divided into two groups, those 25 and under and those 26 and over. From an impressive array of entries in both groups six were chosen as being outstanding in their achievements and as it happened it was three from each group. From the six the judges had the extremely difficult task of nominating a winner. The contest was so close between two of them, Abel Munoz from James Jones and Sons Ltd (in the 26 and older group) and James Wheeler from Hoppings Softwood Products PLC (in the 25 and under group) that a decision was almost impossible! Ultimately Abel Munoz was chosen and it was he who had the privilege to collect the Award. In acknowledgement of James Wheeler's achievements Gold sponsor the Weinig Group have offered James a trip to their main production plant in Germany.

From the Institute's perspective it is interesting to note that in the younger entrant group all but one had successfully passed the Institute's Foundation Course on Timber and that, in addition, James Wheeler had recently completed the Institute's Certificate Course. Of those in the older group two had done the Foundation Course, one the Certificate Course and a further two had degrees in engineering.

Whilst this makes encouraging reading regarding the use of the Foundation Course as crucial training material in the timber trade it is disappointing that not more of the candidates had progressed onto the Certificate Course. Hopefully, with the new revised and formatted course now in use and being actively promoted by the Institute, this situation will improve.

It is gratifying for me that both the Certificate Course students amongst the entries were my students! James Wheeler, who has been in the industry six years has exceeded his sales budget and in particular, using his own initiative, has developed stockists of Hoppings' specific product ranges, notably the Q-Line quality machined sections and a childrens' playground manufacturer. The other entrant and former student, Marc Foster from Howarth (Timber Importers) Ltd, has been in the trade for ten years and after an extensive and varied training period within the Group has now been promoted to product manager of the Group's Arbordek Division.



James Wheeler

Marc Foster

The Associateship Course

The re-writing and totally new presentation of the Institute's Courses has been a carefully planned activity over the last six years and now the final phase has been completed with the launch of the new Associateship Course. This course is the Institute's most advanced course.

At Associate level the focus of study is the acquisition of further knowledge within a field of wood science or timber technology of special interest to the student and, where relevant, to his or her employer. This may be a more in-depth study of a topic that has been part of the Certificate Course or a new line of investigation. Whatever the choice, the line of study must be approved by the Institute. It will then form the basis for a Dissertation. This must demonstrate the use or application of new knowledge as it is upon this that a candidate's performance will be judged. The duration of the Course from the moment of entry to the completion of the Dissertation would be expected to be comfortably within one year.

The normal method of entry to the Associateship Course is through the successful completion of the Institute's Certificate Course and like that Course it must be undertaken in conjunction with a tutor approved by the Institute.

Unlike the other Institute Courses, there are no modules issued at Associate level. However, it is likely, depending on the study, that specialist textbooks will form part of the study package.

Associate Membership of the Institute of Wood Science

The successful completion of the Associate Course confers the right, subject to being a paid-up member of the Institute, to use the letters AIWSc.

The qualification may also be granted to an applicant who has either an equivalent qualification from another source, for example a BSc in Wood Science, or, in exceptional cases, can provide proof of relevant technical expertise.

This is a recognised and respected professional qualification within the timber industry and in educational establishments which offer studies in forestry and timber related subjects, both within the UK and overseas.

The door is now open for all those students who have, in recent times completed their studies at Certificate level, to improve on their already well earned achievements.

A detailed information leaflet is available on request and for further guidance on this, or any other Institute Course, please contact the Institute direct.

The Unsung Heroes of the Institute

David Woodbridge FIWSc

Education Committee. From left to right, Fred Warner (Finnforest (UK) Ltd), Dr Richard Murphy Chairman, (Imperial College), Dr Hugh Mansfield-Williams (BCUC), Peter Kelly (Howarth (Timber Importers) Ltd), Steve Jones (SCA Timber (UK), Ltd) Tom Shaw, Dr John Brazier (IWSc Chief Examiner), Martin Wall (I of W College), David Woodbridge (Timber Tectonics). Not present, Glenn Sharples (BCT)

The management of the Institute overall is the responsibility of the Council of Management and within this Council of elected members there is an elected President and two elected Vice Presidents. There is also an honorary Vice President resident in Australia. The post of President changes every two years thus from being elected to (Junior) Vice President one serves as a senior officer for the Institute for six years. There is an Honorary Treasurer and Editors of the Journal and Wood focus. The Council of Management meets four times a year with the result that important issues concerning the management and forward progress of the Institute seldom have more than three months to wait before they are on the agenda for debate. When a particularly urgent matter arises an Extra-Ordinary Meeting is called, as was the case recently when items concerning the collaboration between the Institute of Carpenters (IoC) and the IWSc required Council's approval and ratification.

What may not be such common knowledge is the existence of two other permanent and vital committees, namely the Membership Committee and the Education Committee.

The function of the Membership Committee is to rigorously appraise all applications for membership in every grade category. Whilst there are bold statements, contained in the Institute's Journal for example, that state the criteria for membership at the various levels, it is surprising how often a real debate develops as to an applicant's suitability for this or that grade. Occasions happen when, in the opinion of the Committee and upon their recommendation, an applicant may be offered a grade other than the one for which he or she had applied. The Committees recommendations are then passed to Council for ratification. Other tasks of the Committee include making recommendations on membership benefits. The outcomes from the Committee's deliberations are presented at Council by the Membership Chairman. If approved by Council the appropriate action is taken to carry the matter through.

Membership Committee. From left to right, David Woodbridge (Timber Tectonics), Brian Norris, Dr Vic Kearley (TRADA Technology), David Marshall Chairman, Andrew True (Forest Products Agencies Ltd), Dr John Brazier (IWSc Chief Examiner). Not present, Dr Andy Saunders (Osmose), Eddie Pierce (American Softwoods), Richard White (TRADA Technology).

The Education Committee performs a similar function but this time it is focused on training and education issues. The writing and launch of the Foundation Course four years ago and the more recent launch of the new version of the Certificate Course, all eleven modules of it, were entirely driven by the loyalty and enthusiasm of the Committee Chairman and its Members. In recent times this Committee has also been responsible for initiatives that include the recruiting of more tutors for the courses, the highly successful tutors' workshop held in June and increasing the frequency of examinations to make the registration onto a course attractive at any time of year. As with the Membership Committee all major recommendations are taken forward for approval by Council.

A particular feature of the make-up of these two committees, as can be seen in the captions to the photographs, is the breadth of experience that the members bring to the meetings, representing, as they do, a broad sector of the timber industry and higher education. The Institute benefits from a similarly broad range of background and experience from those elected to the Council of Management.

It has to be said that the Institute is indebted to its officers and all committee members for the work that they put in and the enthusiasm in which they carry out there duties. Apart for being able to claim travel expenses the work is voluntary and for many has to be slotted into an already full lifestyle.

A particularly good attendance at two recent meetings provided the opportunity for photo calls, the results of which are printed in this article.

Other committees or working groups are convened according to need. They are usually short lived and are required to fulfil a certain brief and then to disband. Recent groups have included the Conference Committee and the working group that masterminded much of the style and content of the new Certificate Course.

9th World Conference on Timber Engineering, WCTE, Portland, Oregon, USA 6-10th August 2006

Report by Dr Martin P Ansell (FIWSc), University of Bath

Portland, in Oregon State, in the far north west of the USA, was the place to be in August 2006. The weather was very warm, the atmosphere was relaxed and sales tax in the plentiful shops was set at zero. Excellent quality liquid refreshment was available in the bars and restaurants, as Oregon is the home of many vineyards and 140 microbreweries. However, the biggest attraction was the 2006 World Conference on Timber Engineering held at the Portland Marriott Downtown Hotel close to the banks of the Willamette River. The conference was the latest in a series of conferences previously held in Seattle (1988), Tokyo (1990), London (1991), New Orleans (1996), Montreux (1998), Whistler (2000), Shah Alam, Malaysia (2002), and Lahti, Finland (2004). The conference was organised with great efficiency by David Rosowsky, the Conference Chair, and his Secretariat, and it was attended by 525 delegates from 45 countries.

The Columbia River Gorge

On the Sunday afternoon before the start of the conference a technical tour was organised to some notable glue-laminated timber (glulam) structures in the Portland area including a vast potash storage facility, 450 metres long with a floor area of 22,000 square metres, sheathed in plywood and green shingles. Potash, used for manufacture of fertilizer, is highly corrosive and a timber structure is the ideal solution for its containment. The tour party also viewed a 45 metre long bowstring truss pedestrian footbridge, a 90 metre diameter timber dome covering a basketball arena at the University of Portland Chiles Centre and the Beaverton City Library constructed as a forest of glulam "trees". The "trees" are laminated from Douglas fir at 8.5 metre centres and the photograph shows conference delegates admiring the ceiling.

The conference was organised over four days with a truly American-scale breakfast laid on for all delegates in the main meeting room. Unlike previous WCTE conferences, only one keynote lecture was presented on the first morning and, thereafter, papers were presented in six parallel sessions to maximise the number of oral deliveries. The conference content was organised by topic and the six most popular topics were Connections (9 sessions), Seismic (5), Architecture (4), Shear walls (6), Timber Engineering (4) and Bridges (4). Notable presentations attended by the author included two Swiss papers on friction welding of wood with spectacular video sequences of the welding process which forms joints of high integrity and can be used for the manufacture of snowboards as well as elements for building. An intriguing paper on textile reinforcements for timber construction (Dresden) concerned improvements in strength perpendicular to the grain and embedment strength. In a presentation from the UK, bonded-in reinforced plastic rods were used to achieve the effective repair of a historic structure in St. Albans whilst retaining the maximum amount of historic material.

The Beaverton City Library

The conference proceedings can be obtained via the WCTE website: http://oregonstate.edu/conferences/wcte2006/

The UK and Ireland were represented by delegates affiliated to the Building Research Establishment, Centre for Timber Engineering at Napier University, Arup, University of Bath, University of Brighton, National University of Ireland, Galway and Rotafix Ltd. Delegates enjoyed a reception at the Portland World Trade Centre and banquet at the Portland Art Museum accompanied by some cool jazz with a free viewing of works of art afterwards to allow contemplative digestion of a fine repast. The author and wife Frances enjoyed a short holiday in the Portland area at the end of the conference and they included timber-related destinations in their itinerary. These included the drive to the excellent Johnston Ridge Observatory opposite Mount St Helens, where the force of the eruption in 1980 can be vividly imagined, mapped out by the orientation of trees flattened by the blast. Trips to the Pacific Coast at Cannon Beach and the Columbia River Gorge with its waterfalls allowed many forested areas to be enjoyed. Two air museums of considerable interest were the Tillamook Air Museum, housed in a vast timber WW2 timber blimp hangar, and the purpose-built Spruce Goose Museum at McMinnville. Howard Hughes's flying boat is made principally of laminated birch and dwarfs the numerous aircraft exhibits which surround it.

The Spruce Goose Museum McMininville

The next WCTE conference in 2008 is to be held at Miyazaki, located in the South Eastern part of the island of Kyushu, the Southernmost of the four main islands of Japan. Timber production in Miyazaki Prefecture is 1.25 million m3/year, which is the second highest output of the 47 prefectures in Japan. About 90% of the timber is "Sugi", Japanese cedar, with the largest production in Japan. The very high standard of the WCTE conferences, including the excellent meeting in Portland, will no doubt be maintained in Japan.

IWSc Annual Conference Report
Oxford 2006

Report by Turnstone Communications

The Institute's National Annual Conference, held at St Hugh's College, Oxford, commenced this year, rather appropriately for Oxford, with a dinner addressed by local author Colin Dexter of "Morse" fame. This was preceded by drinks, courtesy of TTJ, in the evening sunlight in the College gardens, - a truly delightful venue. In an amusing speech, for which he donated his fee to a hearing charity, Colin claimed to have created Oxford as the murder capital of the country.

Welcoming all the dinner guests, IWSc President prepared everyone for what turned out by general consent to be one of the most interesting programmes for years and thanked all the sponsors for their generous support, singling out the national wood distributor Timbmet whose head office is close to the City and who also provided one of the speakers.

Dr Vic Kearley, President IWSc

Chairing this year's conference, Ruth Slavid opened the proceedings by saying:

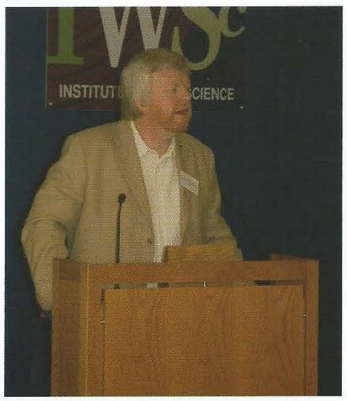
"This is a good time to talk to architects. Wood is pressing all the right buttons. Communicating with architects shows that there is a real need for knowledge in order to add value and there is reliance by architects on suppliers' knowledge."

Ruth, editor of AJ Specification and author of two books on wood in architecture, also referred warmly to the aesthetics and sustainability of wood buildings. So, among the many issues that came out of this well received conference, it was the

Ruth Slavid, editor of AJ Specification.

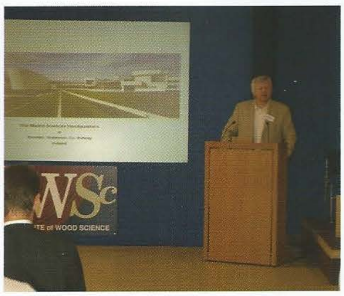
fact that communication of knowledge is key, and there was an abundance of that for those who attended. For those who did not, the papers are now posted on the Institute's website www.iwsc.org.uk.

Following Ruth Slavid's introduction and under the theme of "Why Wood?" the programme started with Ciaran O'Connor presenting a case study of newly built Marine Institute in Galway, Ireland. This project by the Office of Public Works in Dublin, for which he is the Assistant Chief Architect and was project architect, demonstrates the use of wood in many forms and applications. "Longevity is key" said Ciaran whose previous work with wood includes the now well known EU Food & Veterinary Offices, located outside Dublin.



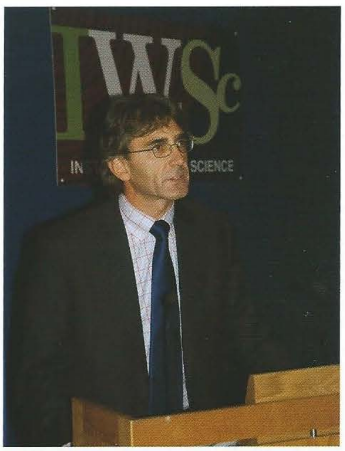
Ciaran O'Connor

His philosophy is to use the natural characteristics of wood and to "confront the Taliban attitude to preservation of the industry." He clearly likes timber as a material for a building, which "should be embellished not embarrassed by it." He discussed the effect of climate on the



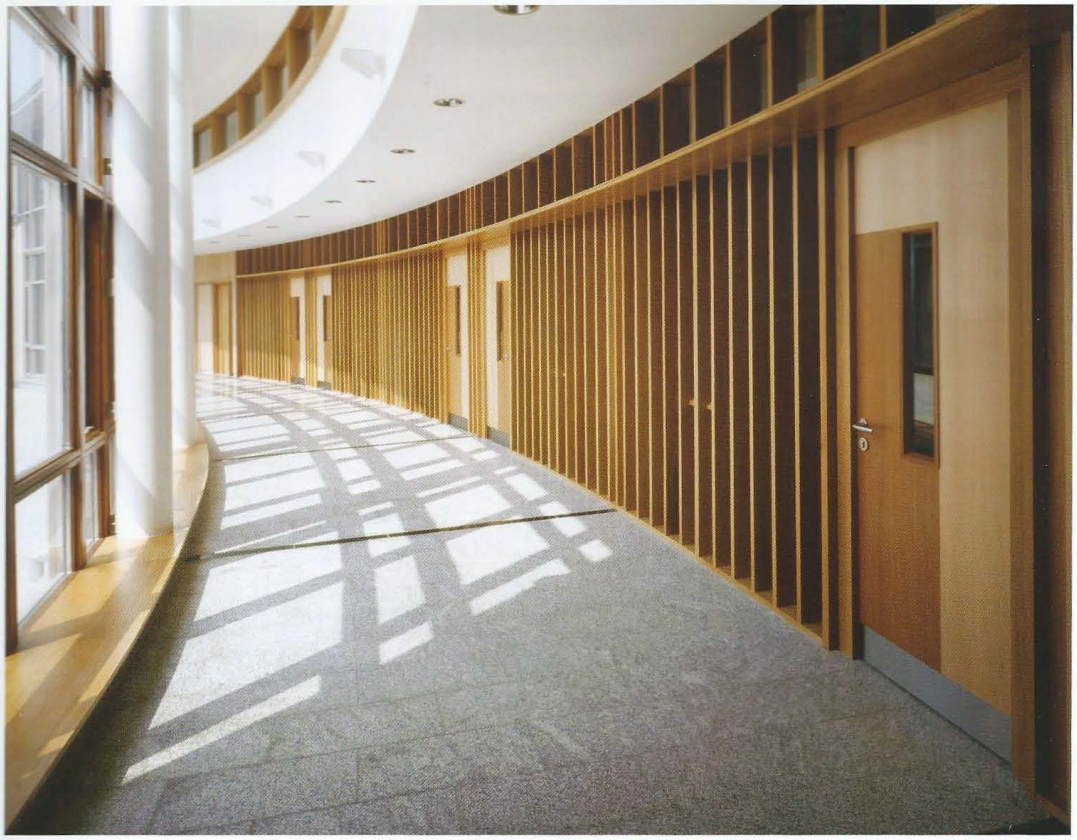
Ciaran O'Connor explains the sighting of the Marine Institute in Galway

building, set in such an ocean-exposed site. He also likes the effect that timber has on warming the light. In a refreshing reference to the complexities of wood he suggested that there is nothing so specialist that you cannot learn about it. But, his concluding advice to the wood industry is to provide knowledge to facilitate the specifying process, which may take place in a short time frame. Ciaran has been a leading light in the Wood Spec publication in Ireland which is to be re-issued shortly. Ruth Slavid, thanking Ciaran, referred to his intelligent and imaginative thinking in his use of wood.



David Venables, European Director AHEC

This was followed by a panel of three speakers who first commented briefly on some of the wood aspects of the Galway



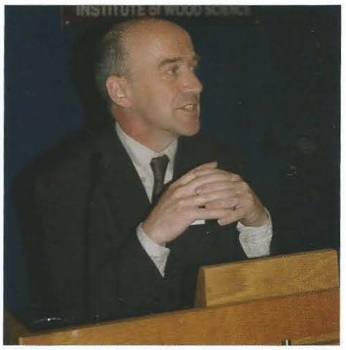
Marine Institute, Galway

project. Sean O'Sullivan of Timbmet discussed exterior hardwoods, with David Venables of the American Hardwood Export Council tackling some of the interior hardwoods used. Gordon Ewbank of Osmose picked up on Ciaran's question of "why treat", with the idea that for an increase in cost of 15-20% can give a disproportionate life extension. Many questions arose covering certification, hazard classes, local forest resources, the use of iroko, and the absence of paint until a halt for coffee was called by able chairman Ruth.

The Panel Discussion chaired by Ruth Slavid

The first speaker under the title "Wood-fit for purpose" was Luke Hughes, Managing Director of Luke Hughes & Co Ltd, who gave another spell-binding insight (following the success of the paper that he presented at the 2006 IWSc conference) into the extent to which he understands the practical problems of wood in his world of furniture making, although he did suggest that it is architecture that drives the timber industry. In any case his Sherlock Holmes approach to problem solving led him to the conclusion that the expertise of the wood sector is not sufficiently made available to the likes of him. He likened the situation to that of the vicar thanking the congregation for the full amount of cash needed for his appeal but regretting that it was still in their pockets!

Luke Hughes



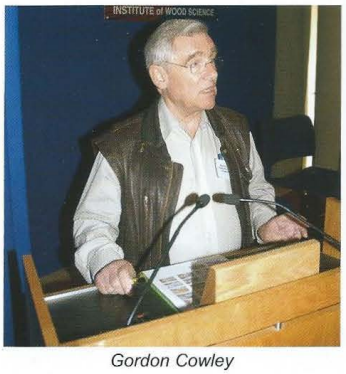
Ivor Davis

Ivor Davis, Research Fellow at The Centre for Timber Engineering, Napier University, Edinburgh, discussed innovations and options for wood treatments. He went on to emphasise the importance of detailing for durability giving examples of external woodwork that had been designed in this way and which did not act as a trap for water to penetrate into joints and end-grain. "Keeping wood at moisture content below 20% is the biggest single factor in maintaining durability" he said.

Dr Ruth Nussbaum

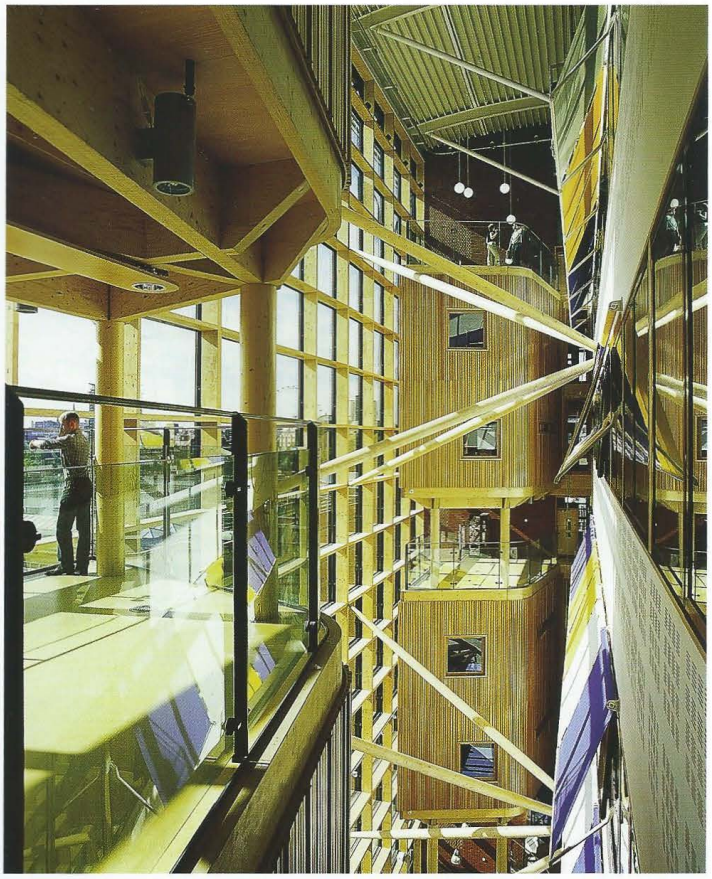
Ruth Nussbaum, co-founder and director of Proforest, enlightened the conference with a very well illustrated talk on the current thinking about government procurement and certification policies as applied all wood. She acknowledged the acceptance of SFI certification as evidence of legal and sustainable practices. She also spoke of the growing acceptance of PEFC due to changes made in response to government. She also suggested that certification is only one answer to the issue, but in answer to a question, did not see mutual recognition of certification schemes overall as a possible reality in the short term.

The afternoon session entitled "Re-engineering wood performance" was devoted to a range of technical papers on subjects from acetylation of wood to structural timber composites and microwave treatment.

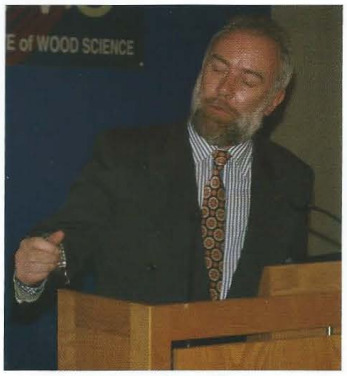


Gordon Cowley

The first speaker was Gordon Cowley, Director of Timber Engineering Connections. He presented a concentrated but far reaching presentation. Gordon helped to de-mystify the plethora of structural timber composites and components that have been, and still are, emerging on the scene today. As a highly experienced timber engineer, with an enviable record of timber structures to his name, he was able to draw from a wealth of examples that ranged from the modest and practical to the complex and spectacular, to illustrate the enormous and growing potential for structural timber composites.



Southbank University, London - Timber Engineering Connections



Professor Peter Vinden

The second speaker in this session was Professor Peter Vinden. It was the Institute's privileged to have Peter on the platform to recount the recent and on-going research that he and his team at Melbourne University, Australia, are engaged in, namely, the microwave processing of timber. This is an area of research that extends into timber drying and bending as well as associated research in the impregnation into wood of resin and metal.

Concluding the session Dr Callum Hill from Bangor University, presented a paper, along with John Alexander of BSW Timber/Accuya, on the acetylation of wood. This process has a profound and lasting effect on the structure of wood increasing its stability and durability with remarkable effect. Their mission is to convert this mainly laboratory centred work into a wide range of commercial applications that will open the way for the use of woods not hitherto associated with exterior work.

Dr Callum Hill

After the afternoon speakers' panel and tea there were two final presentations. Firstly, on the potentially alarming implications of a lack of timber knowledge made on behalf of the Institute by Jim Coulson of Technology for Timber. And secondly, by Peter Kelly, representing Howarth Timber (Importers) Ltd., with whom he is the Group Training and QA Manager, who spoke on the current philosophy and availability of wood science and technology training as provided by the Institute in its Foundation, Certificate and Associate courses.

The generous proportions of the conference auditorium and adjoining circulation areas provided excellent viewing opportunities for the exhibition stands installed by some of the sponsors.

In summing up, Ruth Slavid said that the communication of knowledge by the Institute was really encouraging and suggested that everyone should ask for a moisture meter for Christmas! She thanked the speakers for their contributions and the delegates for attending.

In his closing remarks the President of the Institute, Dr Vic Kearley, reiterated the thanks to the delegates for attending, he extended his thanks to the team of speakers and acknowledged the excellent facilities and support provided by St Hugh's College. He went on to thank the IWSc Head Office and Turnstone Communications for their administrative and managerial work in support of the conference and its promotion. A special vote of thanks was recorded for David Woodbridge who had stepped in at short notice as Director during the interim period from April until a new director had been found. He also did not let the opportunity pass without, once again, acknowledging the enormous support of the sponsors, without whom it would just not be possible for the Institute to mount a conference of such international stature and professionalism.

IWSc Display stand

David Woodbridge, IWSc and David Venables, European Director AHEC

The visual impact of many of the presentations was enhanced by a highly professional and discreet Audio-Visual team engaged on the recommendation of St Hugh's.

Situated on north Oxford and a little outside the City centre, St Hugh's stands in its own ample grounds of spacious lawns and mature trees. This along with the self-contained conference building provided a refreshingly undisturbed venue for the conference and in the fine late September weather an ideal place for delegates to socialise and network during the conference breaks.

Dr Andi Pitman from BCUC enjoys a break in the conference proceedings with colleagues

Photos by Turnstone Communications Ltd

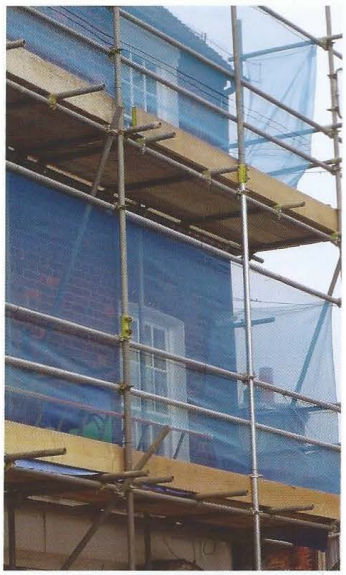
This article has been kindly facilitated by the American Hardwood Export Council - longstanding supporter of the IWSc and its conferences. AHEC publications and technical information on the range of American hardwoods species, products and sources of supply can be ordered free of charge from www.ahec-europe.org and the environmental credentials of American hardwoods can be viewed at www.sustainablehardwoods.info.

Scaffold Boards - Their Grading and Use in the UK

by Jim Coulson FIWSc, Technology For Timber Ltd

I have been training people to grade timber for structural purposes since 1975 – and although scaffold boards are not permanent load-bearing timbers, they nevertheless have both a structural and a Health & Safety role to perform. For this reason, I believe that it's vitally important to have personnel in any company that deals in scaffold boards, trained to understand why and how they are graded.

The grading of scaffold boards – like the strength grading of timber, or the selection of wood for any specific purpose – is a skill which takes some time and practice to acquire: but it can easily be taught and it is readily picked up by those willing to learn it. Most importantly, it is my belief that company personnel should have an understanding of the particular defects that weaken timber: and they should be able to spot them in suspect boards. Yet all too often, the workers - and the managers too - seem to concentrate on defects such as checks or splits, dirt or staining, that are of little or no consequence; whilst ignoring (or more correctly, not even being aware of) defects such as slope of grain, large edge knots, or decay, that could make the boards unsafe to use.



It is a strange and somewhat perverse peculiarity of the UK scaffold board industry that, whilst there is a perfectly valid and useable British Standard (BS 2482), the industry nevertheless insists on producing the majority of its boards to a vague and rather mysterious specification called "Grade A" – for which no written rules exist, so far as I have been able to discover! As a consequence, it is all too possible to find "Grade A" boards from all over the UK which frequently will fail the rules for BS 2482: and too often may fail in service [and let's face it, one fatality or serious injury due to the breakage of a scaffold board, is one failure too many].

As in any business, there are notable exceptions: and at least one company that I deal with on a regular basis (training BS 2482 graders for them) has invested in special machine grader settings for its own version of Grade A - called by them "Alpha plus" – on their Computer-matic machine. These settings have been established for them by an independent research company; and thus they will exclude any "weaker" boards from production – but also they will achieve much greater consistency of product output. However, they also produce a large number of properly-graded and fully "Kitemarked" BS 2482 boards, for those customers who know the difference and insist on something a bit better.

Sadly though, that company (sorry - no prizes if you've guessed who they are!) is almost the sole exception in this high-turnover industry. Practically every week, I come across badly-graded or ungraded boards being used on our construction sites. Or – just as bad – I can find BS 2482 boards that have been damaged, or have decayed to an unsafe extent, or that have been severely notched or cut about: and these boards have seldom if ever been subjected to any form of site management or quality control, before being re-used. And where such an "inspection" does take place, it often fails to spot the "weakened" boards and yet throws out the "ugly" (but still useable) ones instead.

So my message here, in this short article for the IWSc, is: "Don't trust Grade A boards, even though you may see them everywhere. Insist on properly-graded BS 2482 boards either with (preferably) or without the BSI Kitemark. Only then will you be sure that you are using a safe product on site.

Photographs by David Woodbridge

THE SAVILL BUILDING – THE INSIDE VIEW

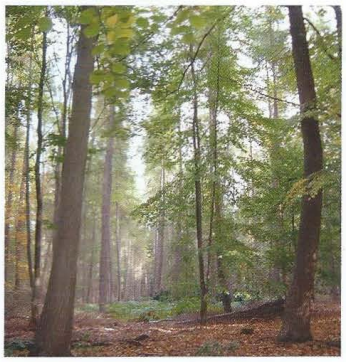
by Steve Corbett, MSc, AIWSC

The Savill Building, the new visitor centre at Savill Gardens in Windsor Great Park, with its triple-domed roof and silvery-grey oak cladding, has been variously described as a floating leaf, hovering above the landscape, and following the undulating tree line of its verdant surroundings. Although only opened this summer, it is already making an impact on the architectural world, and at the Wood Awards 2006 on October 16th it was adjudged the worthy winner of the Gold Award, and individual winner of both Commercial and Structural categories. The full story of the building, its architectural merits and structural features, will doubtless be told elsewhere, as more recognition follows. For the immediate benefit of Wood Focus readers, this article will elaborate on the specialities of the building from the point of view of its primary feature: the timber gridshell roof, its design, specification and structural detail.

The structural form of a timber gridshell can be summarised as a curved plane roof surface which spans large areas using very lightweight components, all the loads being concentrated into discrete paths using flexible timber members of slender section. The complex properties of timber in simultaneous bending, tension, compression and torsion allow the development of complex, doubly curved geometrical forms which directly express the structural and architectural language of the design.

Out-of-plane resistance is achieved by separating the roof into layers, connected by shear blocks into a composite interlocking lattice of curved timbers. In-plane stiffness is provided in this case by a double layer of birch plywood acting as a diaphragm to tension the structure, and also serving as a visible soffit to the roof with great economy of material. The roof of the Savill Building, the largest timber gridshell in the UK, is notable for its use of British-grown larch *(Larix europea)* for the primary structure, not heretofore a material much favoured for structural use. It is further distinguished by the fact that all the timber was sourced from managed plantations within a few miles of the building's location, sending a strong message in support of the sustainability and practicality of using home-grown timber as a structural resource with high potential.

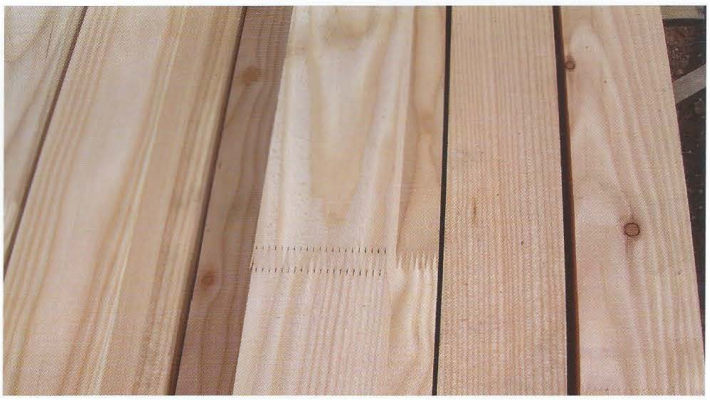
The Crown Estate Forestry department have the guardianship of long-managed stands of woodland, both broadleaf and coniferous, in the environs of Windsor Great Park. Once the possibility of using this resource for the new building was put forward, a rigorous testing programme was put in place to establish its viability. Good stands of Douglas fir, larch and scots pine were available for felling in line with the long-term forest management plan of the Estate. Early tests from sample trees felled for the purpose soon established that the quality and quantity of the larch available made it a prime candidate for selection.



To obtain the structural performance required for the roof (designed to a minimum strength class of C24 for the primary softwood members) it was clear that slow-grown, high quality larch was a requisite. The density, bending strength and flexibility of the timber had to be determined, and the frequency of defects, principally short slope of grain and large knots, evaluated. The larch under scrutiny had been planted in 1930, carefully managed to ensure straight and slow growth, thinned and high pruned as appropriate, to deliver the quality now available. In effect, once initial testing had verified the properties of the timber, the specification within the contract for supply was composed around the material available, and further tests during the production phase needed to ensure that this was consistent.

Another level of specification required the elimination of sapwood, allowing the structure to be left untreated within the open roof space. The heartwood of larch is classed as naturally durable and even within an area where house longhorn beetle *(Hylotropes bajulus)* is present it was acceptable to take this route. Hence only slow grown trees of a minimum age and diameter would yield sufficient quality heartwood to make this specification viable, particularly as juvenile wood was also graded out on grounds of density.

All told in excess of 500 bending tests were carried out to evaluate the key criteria, starting with species, section size, growth ring and joint orientation, through to density, modulus of elasticity, moisture content, growth ring size and natural defects. To address this last issue it was a natural choice to remove all oversized knots and short grain by grading and fingerjointing the larch to achieve an improved performance, as well as of course producing uniform long lengths of material to fabricate the roof members. One key feature of a timber gridshell which underlines the elegance and efficiency of the design is that the highest grade timber is concentrated in the long continuous laths for the primary structure, which carry the high bending and axial loads, whereas the secondary structure, comprising shear blocks and blocking members, which work more in compression and shear, can be specified as a lower grade material allowing re-use of all the non-preferred stock and minimising waste.



High grade laths were fingerjointed by Inwood Developments into 6 metre lengths and transported to site where these were connected using scarf joints to create the principal roof members, up to 35 metres in length. Even the scarf joints were subjected to a test regime, to verify the consistency of quality and the carpentry skills employed in the temporary workshops on site. The very fragile and flexible components were manhandled into position over the roof scaffold and connected as a flat lattice prior to manipulating the doubly curved form.

After several weeks of careful assembly, and setting out more than two hundred three-way co-ordinate positions to determine the roof geometry, the fragile lattice was lowered into position using adjustable formwork props and beams, each one arriving at a predetermined point to fix the height and degree of curvature of the roof plane. Then after careful adjustment each of the 130 individual laths was connected to the steel perimeter beam. Each connection point was individually designed and calculated to collect the compound forces arriving around the edge, using a complex hierarchy of structural materials. The paired larch laths were first connected with solid blocking pieces between the layers,

using lower grade C16 members, which in turn clasped long fingers of LVL (laminated veneer lumber from Finnforest), selected for its longitudinal strength and the ability to harness the accumulated axial and bending loads at the edge, particularly around the main supports. The LVL then provided the interface for connection to the tubular steel beam, bolted to 160 galvanised steel plates each uniquely shaped and specified for an exact number of bolts to suit the edge condition at each location. Finally the four-layered shell was completed by adding two further layers of larch lattice, twinned and fixed to the lower layers and clamping the edge connections in the central zone of the roof structure. The shell structure is triangulated by the addition of two cross-laid layers of 12mm birch plywood fixed over the larch. The first layer, running parallel to the laths, takes vertical loads and serves as a visible soffit to the roof. The second layer which acts as a shell diaphragm runs longitudinally over the grillage and is fixed down through to the main structure. In addition the butt joins of all plywood sheets were connected with thin steel strips bonded above and below, to transfer tensile forces and in effect produce plywood strips acting continuously over the 100 metre length of the roof.

Finally, to weather the entire roof surface, aluminium standing seam panels were fixed over 150mm of insulation, and these in turn supported the oak rainscreen, comprising 100mm slats fixed over counterbattens to the upstanding seal, thereby avoiding any penetrations through the envelope.

Although this description is a seemingly straightforward succession of layered components it should be borne in mind that in every case all the materials, fixings and specifications had to take account of the demand for cladding a doubly curved surface of quite complex geometry, whilst avoiding the more costly route of using bespoke profiled sections as in other large roof structures of similar nature. The flexible and torsional properties of timber were exploited to the full with spectacular results. All the oak for the rainscreen cladding, graded and specified accordingly, was also sourced from the Windsor Estate, FSC certfied and felled in line with their ongoing forestry management.

It is not easy to do justice to such an achievement in this short article, but perhaps this overview will suffice for the present to offer some insight into the enormous amount of expertise in design, engineering and craftsmanship which combined here to produce a building of such undoubted quality. Perhaps the most meaningful accolade at the Wood Awards was the contribution this project made in the nomination of the Green Oak Carpentry Company for the Best Use of British Timber Award. It has demonstrated the huge untapped potential for the use of a much neglected resource, both hardwood and softwood, available right on our doorstep. By careful specification, and good communciation and consultation with carpenters, wood processors, sawmillers and forestry providers, a real case is here to be made for the future development and encouragement of the declining British timber industry. Some of our earliest examples of large span roofs and outstanding timber architecture, from the great barns at Cressing Temple to the hammer beams of Westminster Hall, made spectacular use of this precious resource: there is no reason why this tradition and expertise should not continue into the twenty-first century.

Steve Corbett, MSc, AIWSC, is a project director for The Green Oak Carpentry Company Ltd, and worked with the design team and construction team for the Savill Building from 2003-2006

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For further information visit www.greenoakcarpentry.co.uk

Timber Packaging Procurement

By the Timber Packaging and Pallet Confederation (TIMCON)

In this article, reproduced with the permission of TIMCON some of the current issues facing this substantial sector of the timber industry are discussed.

Timber pallet standards must be maintained. Whether involved directly, or indirectly, in the procurement and use of timber pallets with current supply conditions as they are, it is more important than ever to make absolutely sure the pallets that are bought are fit for their purpose.

That is the message from the timber packaging and pallet confederation (TIMCON), the national trade association representing the interests of the timber pallet, packing case and crate manufacturers in the UK. Heavy demand for pallets across Continental Europe combined with reduced supply due to adverse weather conditions in Scandinavia this year, the main source of UK softwood,– are some of the main reasons contributing to a temporary supply shortage.

As a result, there has been a temptation for some less reputable pallet companies to under specify the amount of wood required to keep prices down, therefore producing pallets that fail to meet the high standards required by industry regulatory bodies.

TIMCON and its members have built an extremely high reputation for themselves in recent years and it is a reputation they intend to uphold, not just through the production of high quality pallets, but by operating responsible companies that have high levels of employee safety as well.

Even for the experienced buyer the situation can be something of a minefield and to help purchasers meet standards and maintain compliance, TIMCON have highlighted some key issues for consideration.

Optimum design efficiency...

The market leading American Pallet Design System (PDS) software is now available to all TIMCON members through specially negotiated licensing rights. This is a CAD tool that designs the optimum pallet for the job – and it has proved that reduced or inaccurate specification can have a dramatic effect on the life and quality of a pallet.

For example, if a pallet takes one tonne of goods and is to be stacked three high, it must be designed to take a static load of three tonnes. Is it going to be re-used, how is it going to be secured in transport, where is it going to be stored – inside or out. These are just a few of the many criteria to be considered.

By inputting all of the customer's pallet design alternatives and the materials needed to build the pallet, the program produces low cost and accurate performance forecasts; identifies potential problem areas and redirects the supplier and user to more practical design alternatives, without costly trial and error or expensive prototyping and testing.

Integrated handling benefits...

Pallets which are dimensionally precise lead to efficiency benefits throughout the entire supply chain, resulting in longer life through less stress on the pallets, easier handling by fork lift and pallet trucks, safer high bay stacking and no snagging on pallet glide systems. TIMCON members will be pleased to work with customers to produce an integrated pallet design and warehouse plan that will result in better protection of the goods, help make cost savings and meet compliance with health and safety regulations.

If hygiene is an issue...

Modern milling technology and reputable pallet suppliers combine to provide a high quality, kiln dried product that when subjected to best practice handling and sanitation methods make wooden pallets ideal for almost any application in the food and other sensitive industries. High temperature treatment, and microwaving both provide effective pallet sanitation, with no post-treatment bacterial growth. If properly maintained – ask advice of a TIMCON member – timber pallets provide poor living conditions for bacteria, even in comparison to plastic laminates and steel.

Pallets for international use...

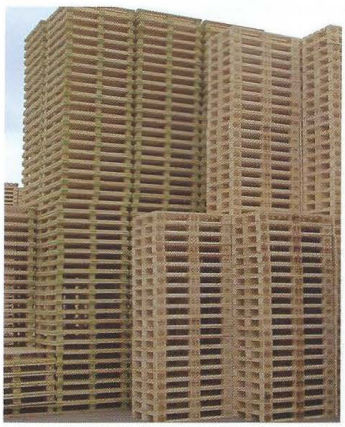
The UK timber packaging industry is a key player in the international initiative to help safeguard against the spread of pests and fully endorses a new programme to meet agreed standards for the treatment of all forms of wooden packaging. Known as ISPM 15 it is one of the International Standards for Phytosanitary Measures under a programme implemented by the United Nations Food and Agricultural Organisation. For some time now the UK has implemented its own compliance scheme controlled by the Forestry Commission. These schemes are administered by TIMCON. To meet compliance, wooden packaging has to be either fumigated, using methyl bromide, or undergo heat treatment by an approved source. When the material is accepted as fully treated, the manufacturer can apply the internationally recognised mark for ISPM 15 compliance. The marked wood packaging should not need re-treatment unless it is repaired.

Responsible sourcing and the environment...

Timber is the most popular material in the world for the storage, transport and movement of goods and in almost every way is a responsible choice environmentally. Wood from well managed sustainable forests is a renewable resource, the forests absorb CO^2, produce oxygen and help reduce the build-up of greenhouse gases. Timber packaging is also repairable and bio-degradable.

Renewability though is the key and it is imperative – particularly in the current supply conditions – that wood for use in the UK pallet industry is both legal and sustainable and therefore procured from an accepted certificated source. Over 90% of the softwood used in the UK is sourced from the European forest industry, an industry which clearly recognises that its future is firmly linked to the protection and expansion of its forests. Through the professional management of these resources, more trees are planted annually than are harvested and these well-managed forests are expanding every year by an area about the size of Cyprus.

TIMCON will be happy to provide further information on any aspect of timber pallet procurement and use. Tel. 0116 264 0579.



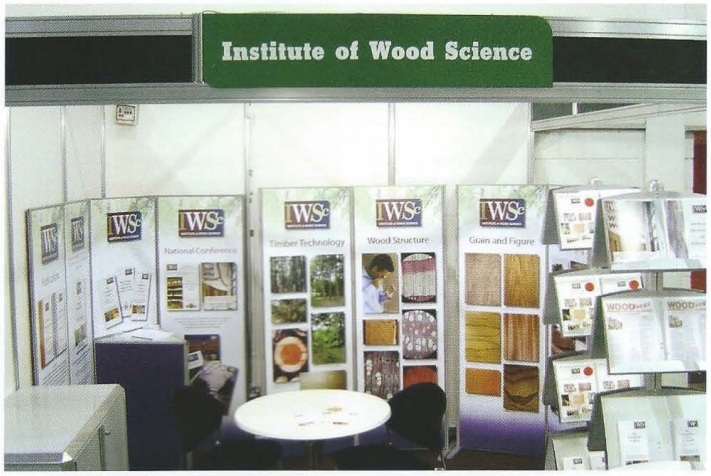
The Institute has a stand at The Timber Show, September 12th-14th ExCeL London

Report by David Woodbridge FIWSc

This, the first ever UK exhibition dedicated to solutions in timber for the construction, merchanting and manufacturing industries, provided an appropriate and unique opportunity for the Institute to display its educational courses, membership details and publications. The sectors of the industry represented along with the type of audience attracted to the show are all likely to have a requirement to have an understanding of timber and timber products and for many, a more in depth study of wood science and technology would be pertinent.

The opportunity to be represented was made possible by the generous donation by a Council Member of a free stand shell. For the occasion we at the Institute took the opportunity to totally review our display material adding further themed panels relating to wood structure and timber properties.

On two of the show days the Institute was involved in CPD Seminars presented by Barry Matthews FIWSc (Matching the Timber to the Application) and Jim Coulson FIWSc, Technology for Timber (Softwood-what, where and how). We were able to muster a team to man the stand on each day and I think all of those involved found it to be an interesting experience.



The new look display stand had a further outing the following week at the Institute's own Conference.

Photograph by David Woodbridge

Christine Bradshaw retires.

In September Christine retired from her role as Membership Secretary and Office Administrator.

She joined the Institute in April 2000 and before that was with the Timber Trade Training Association until it closed earlier in the above year. During the time when the TTTA was functioning there was frequent collaboration between the two organisations and therefore Christine was familiar with our Institute even before she joined us.

Thinking back over the last six and a half years the Institute has witnessed several milestones, not the least the launching of the Foundation Course and more recently the new Certificate Course. Christine played her part in these initiatives with considerable diligence and enthusiasm as well as bringing up-to-date and totally up-grading the membership database.

All of this is now a chapter in the Institute's history that is closing fast and I am sure all of those who have had dealings with Christine during this period will wish her and Brian, her husband, a long and happy retirement!

John and Nancy Brazier along with David and Carolyn Woodbridge wish Christine (2nd from the right) good luck at a local restaurant.

The New President of the IWSc-Geoff Taylor AIWSc

Geoff has spent over 30 years in the UK construction industry. He is an acknowledged expert on coating systems and started his career with an apprenticeship in Painting and Decorating. He has since gone onto gain experience in technical, customer support, sales and marketing environments. He has been employed by each of the three largest coating manufacturers in the world; namely, Akzo Nobel, ICI Paints and Sherwin Williams. Currently he is Business Development Manager for Sikkens representing the company in the UK and Ireland, Geoff looks to establish added value partnerships with Europe's forward thinking companies.

He is a longstanding and very active Associate member of the Institute and a Council Member. Geoff is an experienced speaker, frequently making presentations on timber and other associated timber topics, to trade, manufacturing and architectural audiences worldwide and, last but not least, at a previous IWSc National Conference.

Geoff Taylor receives the badge of office from Dr Vic Kearley at the AGM on 4th October 2006

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Examination Dates in 2007

The new Certificate Course structure requires students to take an examination on completion of the Core Module.

To provide maximum flexibility for when students start the programme, there will be four exam sittings per year.

For 2007, the exam dates will be on the third Friday in February, May, August, November.

REGIONAL CONTACTS

For information on branch and/or regional and overseas activities, the contacts are:

Chilterns and Thames Valley - Dr. Vic Kearley AIWSc (01494 563091)

Great Western - Jerry Wilson AIWSc 02920 762712

Midlands - Tom Shaw FIWSc (01789 840605)

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London - John Park AIWSc (01252 522545)

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For details of individual and corporate membership, contact the Institute direct.

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