WOOD focus

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The magazine of the Institute of Wood Science

# THE FOUNDATION COURSE – ONE YEAR ON

The Institute can now review the first full year of the success, and we use that word with confidence, of the Foundation Course. Since the launch in July 2001 to August 2002 246 students have been enrolled on the course and of those 99 have successfully passed the examination and been awarded the Institute's Timber Studies Award.

This is not to say that there have been no glitches along the way. Because the course is designed, as its name implies, as a Foundation Course in Timber, there has been criticism that, for the specialist company, there is insufficient information on certain sectors of the timber trade. For example panel products or hardwoods.

The institute accepts this criticism but at the same time draws attention to the title of the course and the function that it is intended to fulfil, namely a broad grounding in timber and wood based products, viewed largely from a practical and not too technical standpoint.

This is in keeping with the underlying philosophy of the Institute in that it sets out to provide a raft of training and education for all those active within the timber industry or user industries, and for that matter, anyone with an interest in wood.

What is especially interesting in this first year of marketing and examining the Foundation Course is the feedback that, almost without exception, applauds this broad brush approach.

This view was generally confirmed at the September meeting in Dublin, of 31 candidates (and their mentors) who had assembled to receive their Timber Studies Awards resulting from the large group registration reported in the spring 2002 Wood Focus.

Within this group, who represented a wide range of Irish timber companies, 8 candidates achieved a credit and 3 a distinction. The Irish Timber Trade Association is committed to supporting and encouraging training for its members and it was particularly pleasing for the writer to be at the award ceremony and to witness the presentation of a handsome challenge trophy to the top candidate, Sean Gallagher, of Brooks Harley. (See pictures overleaf)

Returning to the overall reaction to the year's achievements it has become clear from the examination results that a substantial element of the successful outcome of the course rests with the mentors.

For anyone not familiar with the mode of

(Continued on Page 2)

## 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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*TRADA Ltd*
*Travis Perkins plc*
*TTJ*
*Weyerhaeuser Europe Ltd*

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delivery of the course, it is a distance learning course which is contained in two workbooks. As part of the Institute's package it is necessary that for every candidate there is a nominated mentor. The mentor, ideally, should be someone within the company employing the candidate and preferably at the same location. In other words readily on hand for encouragement, assistance and to ensure that the agreed study programme is kept on schedule. Notwithstanding the Institute has witnessed some groups who have been very ably managed by an external mentor.

*David Woodbridge presenting the award to one of the students who gained distinction*

Now that a number of companies are on repeat business with their second or third groups of registrations, some companies are getting consistently good results. Whilst the Institute respects the effort and achievement of the candidate, a pattern of results has emerged that indicates to us that there are amongst the nominated mentors, company directors and managers who are playing a really vital role in the overall success of the venture and – at the end of the day – making a substantial contribution towards achieving a level of professionalism (in respect of product knowledge) within their staff.

After this first year there is another important outcome. This is a substantial increase in interest in the Institute's Certificate Course. Quite a number of those who have succeeded in the Timber Studies Award have embarked on, or are currently considering studying, the Institute's Certificate Course. At the award ceremony in Dublin mentioned above the writer emphasised that the Foundation Course provides an ideal stepping stone to the Certificate Course and that everything, but everything, learnt at Foundation level, will be relevant to the study of the Certificate Course.

The principal differences between the two are that:–

- The Certificate Course is a timber technology course.
- The subject areas, whilst overlapping, are covered in much more detail.
- The course is supported by a tutor, and usually, a series of tutorials.
- It can be studied by distance learning but all the candidate's work within the units is assessed and counts towards the final mark.
- There is an examination, but this time reference books and course material are not allowed in the exam room.
- It is at a more advanced level and will take somewhat longer to do, usually about one year depending on the mode of study.
- It contains project work that includes softwoods, hardwoods, and strength of timber.

The Institute, partly as a result of the success of the style of presentation of the Foundation Course, and partly for the need to up-date the course text, is embarking on a substantial revision of the Certificate Course. However we would stress that this must not be treated as a reason for delaying registration. As it is a tutored course the tutors responsible will automatically be building into their tutorials up-dated material where necessary.


*Ronny Guilford, TTTA Chairman presenting the Challenge Cup to Sean Gallagher*

The Institutes mission statement is to promote and encourage a better understanding of timber, wood based materials and associated timber products and processes.

It is our hope that these courses, the Foundation and the Certificate, will help maintain the Institute's role as a major training force within the Timber Industry and that, for those wishing to study at a higher level still the opportunities offered in the Associate Course should not be forgotten.

The Institute's officers and headquarters staff will be pleased to provide more details on any of the courses.

David Woodbridge

## THE INSTITUTE'S NEW PRESIDENT

**James C. Coulson, AIWSc FFB**

Jim Coulson is a Wood Scientist and Timber Technologist with extensive experience of the use of wood in construction and joinery. He studied at Buckinghamshire College (now Buckinghamshire Chilterns University College) in High Wycombe, in the School of Art, Design, Furniture and Timber, gaining a Distinction in Timber Studies, and then going on to win two further prizes for his Certificateship and Associateship IWSc exams. He has been on the IWSc Council of Management for almost twenty years.

*Geoff Bagnall, the retiring President of the Institute, investing Jim Coulson, who took over as President from the 5th November 2002, with the badge of office*

He was formerly Manager of the Regional Technical Services for the Timber Research And Development Association before leaving at the end of 1990 to set up Technology For Timber (TFT) - his consultancy and training practice, which deals with all aspects of timber and wood-based products.

In 25 years as a Wood Scientist and Timber Technologist, he has developed a very broad and detailed knowledge of manufacturing processes and practical applications in the timber, construction, shopfitting and furniture industries. He is also an Approved Expert Witness registered with the Law Society.

He is currently very busy acting as Trainer/Mentor on numerous groups of students up and down the country, taking the IWSc's highly popular Foundation Course.

# The CE Marking of Timber Products: Its Implications for Manufacturers, Suppliers and Users.

by Eddie van der Straeten FIWSc

**Introduction**
CE marking of timber and timber products has been the subject of discussion and speculation since 1988, when the European Committee for Standardisation (CEN) was asked by the European Commission to prepare families of standards to define tests and requirements to determine the suitability of construction products for their intended use according to the Essential Requirements of the Construction Products Directive (*89/106/EEC*) —the CPD. The CPD has been transposed by the UK in the form of the Construction Products Regulations 1991 and the subsequent Construction Products (Amendment) Regulations 1994.

The mechanism by which construction products are assessed so that they may be "legally placed on the market" in compliance with the CPD has taken the last fourteen years to develop. CE marking of Wood-based Panels will thus not be a legal requirement in most (see below) member states until April 2004, although it is likely to be adopted voluntarily from April 2003.

This article is based on a paper presented to BS Technical Committee B/541(of which the author is chairman) on behalf of the Industry's 'CE Marking and Fair Trading Working Group'. Permission to use their material is gratefully acknowledged. This short summary leaves many questions unanswered and enquiries may be directed to any of the relevant Trade Associations.

Although dealing with the wood-based panels market in detail, the principles described also apply to solid timber and other timber products.

**The Construction Products Directive and Harmonised Standards**
The CPD is one of the many 'new approach directives' aimed at removing 'technical barriers to trade' thus enabling 'completion of the internal market'. The target for the latter was the end of 1993!

Recognising that the Member States were very unlikely to voluntarily replace their long standing prescriptive requirements for the safety and stability of building products with a universally accepted set of new prescriptive requirements, the CPD gives a set of essential performance requirements for specified characteristics. These are expressed as numerical values determined by EN test methods.

The Essential Requirements (ERs) of the CPD are as follows:
1. Mechanical resistance and stability;
2. Safety in case of fire;
3. Hygiene, health and the environment;
4. Safety in use;
5. Protection against noise;
6. Energy economy and heat retention.

The Commission classified all construction products into groups, each of which is the subject of a Mandate to CEN for the production of a Harmonised Standard (hEN). The list of products within each separate mandate was determined initially by the Commission, but was then subject to refinement by a certain amount of consultation in each Member State.

Wood-based panels are the subject of Mandate M113 and the harmonised Standard is EN 13986 *Wood-based panels for use in construction – Characteristics, evaluation of conformity and marking.*

EN13986 specifies all the conformity elements that need to be satisfied by products that are to be CE marked, except where a new product, or a product for a specified use, has its conformity requirements specified by a European Technical Approval (ETA) for that product:

- the Technical Class appropriate to the product and the requirements specific to that class (ER 1);
- the Reaction to Fire Class (ER 2);
- the Formaldehyde Class (ER 3);
- a maximum (threshold) Value for pentachlorophenol content (ER 3).

together with:

- the itemised Marking Requirements;
- the required Systems for Attestation of Conformity, including the degree of involvement of a Notified Body. These are dependant on whether the product is to be used as a structural, or non-structural element and the Reaction to Fire Class to which it belongs. Details are given in Annex III of the CPD and Annex ZA.2 of EN 13986.

**CE Marking**
CE marking is a way of staking a claim that the product has been legally put on the market within the EU as required by the CPD (and by extension, legally put on the market within the EEA) on the grounds that it has been subject to an appropriate system of attestation of conformity with one or more technical specifications; that it does, in fact, conform to the relevant aspects of such specifications and that it is therefore fit for its express intended use, or within its implied range of suitable uses.

Article 2 of the CPD states that construction products are fit for their intended use if:

> "...they have such characteristics that the works in which they are to be incorporated, assembled, applied or installed can, if properly designed and built, satisfy the essential requirements referred to in Article 3 when and where such works are subject to regulations containing such requirements."

Whilst complying with the requirements of a Harmonised Standard is one way of declaring that a product meets these conditions they may also be satisfied by compliance with a European Technical Approval (ETA), or in rare cases, where neither hEN or ETA exist, a National Standard.

The majority of EU and EEA states will make CE marking a legal requirement for placing construction products on the market, but the UK Construction Products Regulations, whilst making it an offence not to conform with the Essential Requirements of the CPD (see above), do not require the CE Marking of a conforming product. Such non-CE Marked products do not have to comply with an hEN, or ETA and the manufacturer may choose to use some other technical specification. Such products could not be legally put on the market in most other EU – EEA states.

UK manufacturers compete in both the home and export markets and in practice it is anticipated that non CE Marked products will not normally be available.

Construction Products manufactured outside the EU – EEA and imported will have to be CE marked (with the consequent implication that they have been independently assessed as meeting the Essential requirements), except where the importing country chooses not to require regulatory CE Marking.

EC Guidance Paper D states:

> "It is the name of the producer, not

> the authorised representative established in the EEA, that shall accompany the CE Marking ... The authorised representative" [who may take responsibility for affixing the CE mark] "is a legal entity expressly designated by the producer, legally entitled to act on his behalf within the EEA, and is not to be confused with the importer. The latter is any legal entity who places a product from a third country on the EEA market, and is responsible in law for ensuring that all legal requirements on the product applicable to the EEA market have been fulfilled".

and further:

> " In the case where a producer from a third country does not have an authorised representative established in the EEA and a problem arises, the market authorities would address themselves to the importer, according to their national legislation".

The nature and content of the information which must accompany the CE mark are too complex to be described here, but may be obtained from members of the CE Marking and Fair Trading Working Group.

**Enforcement, and supervision of products.**
After March 2004 responsibility for verifying that construction products comply with claims of legality in respect of their CE Marking will be the responsibility of the Trading Standards authorities.

It is likely that many non-conforming products will be placed on the UK market, either through ignorance, or deliberate deception. In the interests of safety, and of those suppliers and manufacturers who are dedicated to maintaining the quality of the market, it is essential to report every case of suspect material to Trading Standards officers. The industry's CE Marking and Fair Trading Working Group has been formed to provide Trading Standards Officers with much needed expertise and to notify them of suspect products or organisations. It is hoped that those Institute members working in relevant areas of the Industry will also add their support to such work.

## *TRAINING COURSES*

### Distance Learning in Forest Industries Technology

*Provided by The School of Agricultural and Forest Sciences, University of Wales, Bangor, UK*

**Course Launch**

On 13th July 2002 10 people from Wales attended the launch of the first UK-hosted distance learning Master of Science Degree course in Forest Industries Technology. The course is provided by The University of Wales Bangor and was launched at Gregynog Hall, a large country mansion in mid-Wales owned by the University. These students are mainly forest owners, sawmill managers and staff of board mills, however the different levels of qualification we offer (University Certificate, Diploma and M.Sc.) mean that distance learning packages are now available at levels appropriate to suit most people employed in the forest products sector or seeking to enter this area.

**Worldwide Provision**

Although originally aimed to satisfy a demand for training within the UK, the provision of this distance learning facility has attracted worldwide interest, with applications for registration already being received from Chile, Malaysia, Peru, Saudi Arabia and Russia.

Clearly, visiting Bangor for any purpose connected with their studies will not be an option for many students - however this need not prevent anyone from taking the course. The British Council has offices around the world and the University can make arrangements with the Council for the necessary examinations to be hosted at their offices.

**Course Objectives**

- to provide an understanding of the science of wood as a material.
- to introduce the principal technologies of converting and using wood as an industrial material.
- to provide an understanding of the commercial and economic aspects of the forest industries.

If you are interested in finding out more about the course then contact Dr. Martin Breese (HYPERLINK "mailto:m.c.breese@bangor.ac.uk" m.c.breese@bangor.ac.uk), phone: +44 (0) 1248 382503 or c/o The School of Agricultural & Forest Sciences, University of Wales, Bangor, Gwynedd LL57 2UW, United Kingdom

### Training that Meets Wood Industry Needs

The newly re-validated post-graduate courses in Forest Products Technology will commence in September 2003 at Buckinghamshire Chilterns University College, conveniently located close to the M40 at High Wycombe.

These courses provide up to date training for those who wish to start or further their careers in the forest products sector. They are designed to be flexible and relevant to the industry. Taught modules are delivered in intensive blocks, supported by evening tutorials so that students may study while continuing to work. Alternatively the course can be undertaken full-time over twelve months.

All modules are accredited at Masters or PG Diploma level and allow part-time students to accumulate modules towards a formal post-graduate qualification over a number of years. Each module can also be viewed as a short course for industry wishing to train their personnel in key skills for the sector. Entrants to the industry can thus add on the skills and knowledge of forest products that they need.

Subjects covered by modules include material science of wood, the timber business and marketing of forest products and the importance of eco-certification in the context of business environmental management.

The staff of the Forest Products Research Centre at BCUC have trained post-graduate students for over ten years. They have a wealth of experience, excellent facilities and a first rate library. In a recent teaching quality assessment the government rated their teaching as excellent.

For further information about module content and a course brochure contact the Dr Andy Pitman on 01494 605103 or apitma01@bcuc.ac.uk. Information about other activities within the Centre can be found on our web site http://www.fprc.co.uk.

# TRAINING MATTERS

Ronseal Trade have a group of their surveyors studying the Associate Course. One of their tutorial workshops was held at Sykes Timber in Atherstone.
In a day that was planned to cover timber drying, wood machining and timber identification the location proved to be of enormous value.

Lectures and demonstrations were provided by David Woodbridge and for those on timber drying and wood machining they were followed by a mini study tour of the Sykes drying and machining plant, presented with great enthusiasm by Managing Director, Richard Sykes. What was also immediately apparent was the fund of technical and hands-on experience that Richard was able to offer to these students.

This type of tutorial workshop is of tremendous value especially when, in these days, the Institute Courses are often studied on a distance learning basis. The group intend to take the exam in September 2002

David Woodbridge FIWSe

*Richard Sykes (2nd from right) explains a point concerning the moisture content of oak*

*The vacuum kiln control unit being explained*

*Richard explains the principals of rotary planing and moulding at the 6 cutter*

*The group at work on the use of the handlens and drawing the transverse section*

## A first for Callander's

Falkirk based James Callander & Son Ltd.'s first candidate has been awarded a National Vocational Qualification ( NVQ ) in Sawmilling. Jim, Jackson, took two years to gain his Level 2 NVQ after studying all aspects of timber preparation. Director, Gordon Callander, said the lack of availability of a formal qualification for operators prompted the firm to use external training providers for the first time. The newly developed NVQ training was provided by Andrew Gibson AIWSc of the Glasgow based training provider ATT with the initial contact having been made through the UK Forest Products Association (UKFPA).

Gordon Callander said "' We have been very happy with both the NVQ and the quality of the training provided and have already started another candidate. "David Sulman, Executive Director of the UK Forest Products Association, said " We are very pleased to see the success of Jim Jackson in the Sawmilling NVQ and send him our congratulations. This is a very worthwhile and valuable qualification. We hope others in the sawmilling industry will follow the example set by James Callander & Son Ltd. who clearly recognise the important role that education and training play in maintaining competitiveness."

*Jim Jackson holds his NVQ certificate with Andrew Gibson of ATT (left)*

## Foundation Course Workshop and TRADA visit by Travis Perkins delegates

As part of the Foundation Course Study programme for the group of 14 students from the South Eastern region of Travis Perkins plc, a study day at TRADA was arranged by the Institute. During the day David Woodbridge, Director, lectured and led discussions on various sections of the course. After lunch Dr. Gill, Director of TRADA, gave a talk on the role of TRADA and the type of work that it currently undertakes. This was followed by an interesting tour of the fire and structural testing laboratories.

The Travis Perkins group were led by Ron Kidmann (Regional Director) and Steve Munford (Training Department) and all agreed that the day was both extremely interesting and a valuable supplement to the distance learning and self study style of the IWSc Foundation Course in Timber.

*The Travis Perkins 1st Foundation Course group*

*Dr Chris Gill (far right) explains a point to Travis Perkins Regional Director, Ron Kidman*

*David Woodbridge explaining the technique of knot plotting for visual strenght grading*

# THE 2002 CONVENTION:
# How does wood help us to sustain the built environment?

This year the venue was Cardiff with the Convention being held at the Hilton Hotel on October 11th.

A number of features, including the change of name from conference to convention, set this event apart from previous years and in so doing it has represented a very substantial landmark in the history of the Institute. This was made possible by the generous sponsorship given by the organisations listed in the box below.

This Convention has undoubtedly broken new ground and in addition to seeing Institute members and delegates from the timber industry present, the new faces from the specifying professions will encourage the Institute to endeavour to continue to gain the support from this sector in the future and not to overlook the opportunities that this offers for new membership and the use of the Institute's timber technology courses- a point that was vigorously put forward by David Woodbridge, Director, at the award ceremony of the TTJ Challenge Cup to Nick Fox, the Certificate Course winner 2001.

The theme of the Convention–***How does wood help to sustain the built environment?***– was purposely planned to attract architects, engineers and specifiers. With a line up of speakers chosen for their acknowledged experience and professional status, the registrations for the Convention featured a far higher proportion of delegates from the design and specifying professions than in previous years. Of the listed total of 152 there were 133 delegates and of those 34% were practicing architects, architectural lecturers, engineers and students from the Welsh School of Architecture and the Architectural Faculty at the University of the West of England, Bristol.

The format of the Convention was different too. Divided into three specific topic areas, with three speakers in each, the actual presentations were confined to 30 minutes. This allowed for a thirty-minute open debate at the end of each session. Judging by the interest generated this format was much appreciated and gave all those attending a sense of being very much part of the proceedings.

The quality of the presentations was first rate to the extent that it is virtually impossible to pick out any one as outstanding. This would depend to some extent on an individual's leaning towards the three linked, but individually different, subject areas. The session topics, the speakers and their presentation titles were as follows:-

**Session 1**
Wood and the Environment
**Dr. Penny Bienz, Forests Forever**
*"Responsible Timber Purchasing".*
**Suzy Edwards,**
**Building Research Establishment**
*"Environmental Comparison Tools: The Timber Verdict".*
**Michael Dickson, Buro Happold**
*"Timber - A Growth Material for Construction".*

**Session 2**
Wood Treatments, Coating Systems and Window Refurbishment – Their Environmental Impact
**Gordon Ewbank, Osmose**
*"Assessing the Environmental Benefits of Preserved Wood".*
**Geoff Taylor, Akzo Nobel Woodcare**
*"Coating Systems....an informed choice to drive environmental change?".*
**Des Raj, Window Care Systems**
*"Achieving the best value in window maintenance through partnership". The repair, maintenance and conservation of wood.*

**Session 3**
Wood in the Built Environment
**Peter Ross, Ove Arup**
*"Engineered Timber Structures - examples in both hardwood and softwood which attempt to achieve commodity, firmness and delight".*
**Matthew Hoad,**
**Michael Hopkins & Partners**
*"High performance Timber Cladding Systems for the Future".*
**Michael Buckley, World Hardwoods**
(replacing C.O'Connor, OPW Dublin)
*"A new EU Food and Veterinary Office in Ireland - a showcase for timber".*

Some papers from the Convention will be published in the Institute's Journal along with a short report on the technical content compiled by the Editor. It may also be possible to include a paper in the next issue of Wood Focus.

During the refreshment and lunch breaks delegates were able to see and discuss an impressive range of display stands mounted by several of the sponsors.

On the preceding afternoon a study tour for 32 delegates, IWSc officers and some of the speakers went on an informative tour of the Cardiff Bay development. This included a stop to view the barrage and a boat trip across part of the bay. Although the use of timber in the scheme is minimal the engineering accomplishments overall are highly impressive.

Much of the planning of the Convention was aided by an active steering group, which consisted of David Venables, AHEC, Geoff Taylor, Akzo Nobel Woodcare, Michael Buckley, Turnstone Communications, along with Geoff Bagnall, IWSc President and David Woodbridge Director. Thanks are also due to the staff of Turnstone Communications for the production of the pre Convention flyer and the brochure as well as a wide reaching promotional campaign.

David Woodbridge FIWSc

Main Sponsors:-
**AHEC**
**Timber Trade Federation**
**wood for good**
*Also Supported by:-*
**Akzo Nobel**
**Arch Timber Protection**
**APA**
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**MTC**
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**Ronseal Trade**
**SCA**
**Smee Timber**
**Sustainable Forestry Initiative**
**TFT**
**TTJ**
**Timbmet**
**TRADA Technology**
**Window Care Systems**

# PROFILE – AHEC in EUROPE

The American Hardwood Export Council's European Office has been located in London for almost 15 years, and during this time has established itself in the forefront of wood promotion and marketing. The essential pillars of its programme are public relations, distribution of technical publications, technical seminars and event sponsorship. Members of the Institute will be well aware of the growing level of sponsorship by AHEC of the Annual Convention, culminating in Cardiff this year when 150 delegates participated in an architecturally based programme. Currently, the former and present European directors of AHEC are on the council. AHEC also sponsors the former Carpenters' Award (now The Wood Awards), the Irish Joinery Awards and this year, the RIBA Stirling Prize for the first time. Recently, AHEC co-sponsored the RIBA Journal "Hardwood" guide, which was launched in Cardiff by the assistant editor of RIBA Journal. Such initiatives form the same link with the architectural profession, which was the Institute's objective in Cardiff. Considering that AHEC's London office covers a region from Iceland to India, and further to South Africa, this support for the UK and Irish timber trade is exceptional, but has provided the seed-bed for developing promotion throughout the region. An annual European convention has been held for the last 10 years, rotating around major cities, the next of which will be in Hamburg in October 2003.

*David Venables, AHEC European Director speaking at the IWSc dinner in Cardiff, October 2002*

*American hardwood lumber drying - broadleaf forest background*

AHEC is the leading international trade association for U.S. hardwood industry, representing the committed exporters among U.S. hardwood companies and the major U.S. hardwood product trade associations. AHEC's member companies service the growing global demand for U.S. hardwood and represent the full range of U.S. hardwood products including sawn lumber, veneer, plywood, flooring, moulding and dimension materials. AHEC provides the hardwood trade - importers, specifiers, users – with promotional assistance, technical information, and sources of supply for U.S. hardwoods. AHEC has also supported many trade shows in the UK, Italy, Germany and Spain, but as individual member companies increasingly exhibit individually, the emphasis on shows is being reduced, and funds diverted to new initiatives. For example, a programme of testing American hardwood species for strength values has been commissioned at BRE, the full results of which should be available in the new year. Another


*David Venables discusses FAS American white oak lumber*

project for 2003 is the publication of "Hardwood References" which will feature prominent buildings with public access in which American hardwoods have been successfully used.

*American soft maple logs*

Through careful forest management, the United States is growing more hardwood each year than it harvests, assuring reliable long-term supplies. Accordingly, AHEC Europe is launching a new website to provide data, at www.sustainablehardwoods.info

The AHEC programmes are run through the joint efforts of the U.S. hardwood industry and the Foreign Agricultural Service of the U.S. Department of Agriculture.

A membership directory is available free of charge on-line.
For more information visit www.ahec-europe.org

# The New Building Conservation Centre and Museum Store at the Weald & Downland Open Air Museum Singleton, Chichester

*by Richard Harris, Museum Director*

Most people think of buildings as being made of piles of things – bricks, stones, blocks, earth or concrete. Traditional carpenters made buildings out of prefabricated two-dimensional frames – flat frames forming rectangular buildings. But the Gridshell is based on an entirely different principle: a grid of slender timbers formed flat then *bent* into a complex double-curved shape to form a rigid shell.

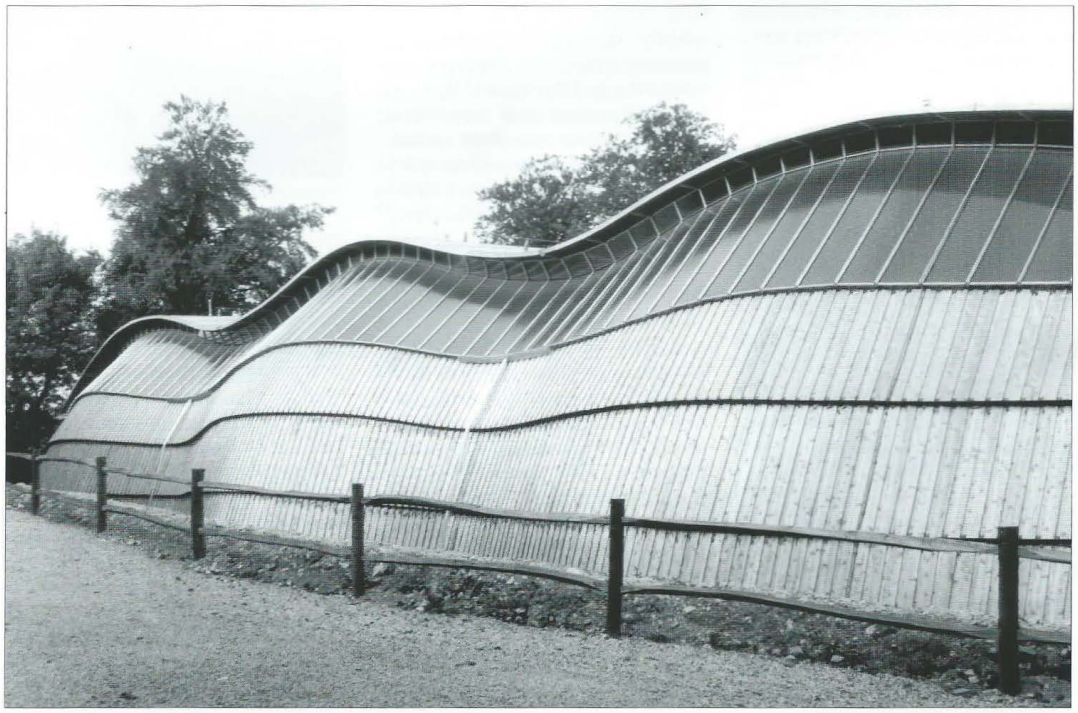
In. January 2001 all that could be seen was a great cube of scaffolding, looking like an aircraft carrier marooned in the South Downs. Eight weeks later the team of carpenters had laid the grid of oak laths on top of the scaffold – each lath 120ft (36m) long, but just 50 x 35mm in section, spaced at one metre centres, the grid connected at the intersections by over a thousand specially designed (and patent-applied-for) bolted steel plate assemblies. The weather remained wet, keeping the moisture content, and therefore the flexibility, of the oak high.

Then, on March 2nd the bending operation started with the lowering of the first jacking point by a few centimetres. The flat grid obediently deformed, without so much as a creak, and the carpenters scattered over the scaffold platform to lower all the other jacks by precisely predetermined amounts. Every day this was repeated. The engineers entered the dimensions into their spreadsheets to check progress, and the carpenters anxiously watched for cracks and splits in the laths. When the jacks reached the bottom of their 'throw' the operation was interrupted while the carpenters turned into scaffolders and removed another layer of scaffold to make room for the grid to be bent further. Each day a photo and video clip were taken from a fixed camera position on the top of the special tower, and the resulting timelapse sequence was posted on the scaffolding company's website (www.peri.de) and the video was eventually shown on BBC's Tomorrow's World.

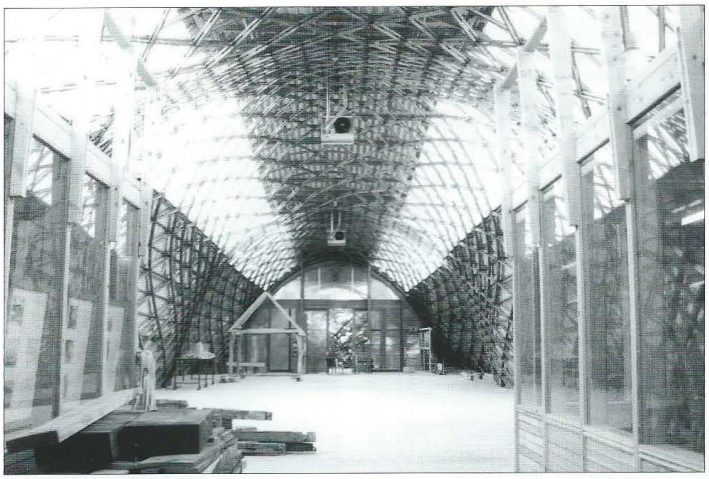
On 19 April, after seven weeks of bending, the edges of the grid at last touched down on the perimeter of the timber deck which forms the ceiling of the basement store - the eagle had landed!

Three months of worried frowns gave way to delighted smiles, and the team of carpenters, led by Stephen Corbett for the Green Oak Carpentry Company, celebrated in the traditional manner, down at the pub.
After final adjustments to the shape – the carpenters had again been transformed, this time into sculptors – the next operation was to apply the additional laths that triangulate the grid and give it its stiffness. At the lower level these run horizontally (at 180 feet long they are probably the longest pieces of oak ever produced) and will be used to fix the vertical boards which form the cladding, while at the top of the gridshell they run 'vertically' - over the top of the shell.

The gridshell was finally 'signed off' by the engineers on 1st June, and the carpenters then started to build the roof. Universally known as the 'ribbon roof', this is formed of sheets of plywood bent to follow the undulations of the gridshell. In early September, the roof covering was applied (an extraordinary – and little-known – material called Roofkrete), and the carpenters and main contractors



*An external view of the gridshell showing the British grown western red cedar boarding*



*The Interior of the gridshell*

(E A Chiverton Ltd) began to apply the cladding boards and building the clerestory glazing strips.

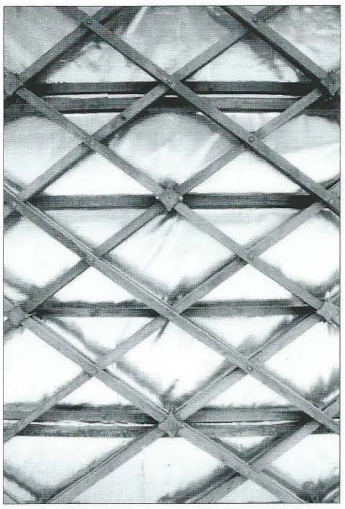
Once the cladding was complete the contract moved into the final stages of joinery, internal fittings and services.

*The main entrance to the gridshell showing the specially constructed glulam arch*

The building finally became completely weathertight just before Christmas, with the completion of the glazing – polycarbonate sheets running at high level on each side, just below the roof. When the interior scaffolding was removed we could at last experience the interior space. It is simply breathtaking! Its sheer size takes most people by surprise, but the main feature is the fascinating patterns made by the gridshell laths as they twist and turn from one side of the building to the other.

The British grown western red cedar board cladding has created a beautiful shape and surface, fascinating and eye-catching yet completely in sympathy with its surroundings.

The Gridshell has been a complex and innovative project, and it is greatly to the credit of those involved that the structure has been successfully completed.



*The grid of oak laths as seen from the interior of the finished Building Conservation Centre*

Activity on the upper floor of the building – the great open space covered by the gridshell – will have a different and very varied character. It is designed as a workshop and layout space for the Museum's activities in repairing timber-framed buildings, which have been dismantled and are to be re-erected as exhibits. This core activity requires a floor area big enough to lay out horizontally the largest constituent frame of any building, with working space around.
At one end of the space are two enclosed rooms. One will be the carpenter's enclosed workshop to contain and protect all the necessary tools and machinery. The other will be used to support the practical training courses which will take place in the building. All the courses that now take place in the temporary facilities elsewhere on the site will move to the Gridshell, with discussions and presentations in the enclosed room, and practical work being done out in the main space. Thus, a visitor to the Downland Gridshell might see any one of the many varied courses we offer, from Timber Framing from Scratch to pole lathing, traditional painting techniques, or gauged brickwork.

*David Woodbridge with members of the Timber Identification Course, October 2002*

The official opening of the building took place on June 24th and was the venue for a major international conference on the modern use of timber – Time for Timber – on June 27th. This has been reported in the Timber Trade Journal issue 20/27 July 2002.

The Conract Team

*Client:*
**Weald & Downland Open Air Museum**

*Architects:*
**Edward Cullinan Architects**

*Engineers:*
**Buro Happold**

*Project Managers & Quantity Surveyors:*
**Boxall Sayer Ltd**

*Main Contractor*
**E A Chiverton Ltd**

*Carpentry Subcontractor:*
**The Green Oak Carpentry Company Ltd**

# The Canadian High Commision's Forestry Tour, July 2002

*by David Woodbridge*

To represent the interests of the Institute of Wood Science I was invited to join the British Delegation on the Forestry Tour organised by the Canadian High Commission and led by Counsellor Daniel de Bellefeuille. This article for Wood *Focus* takes the form of an overview of the trip.

The Mission Objective was to provide an opportunity for the delegates to learn more about Canada's sustainable forest management policies, practices and achievements with emphasis on briefings, field visits and an exchange of views with a broad range of organisations and personnel of the Canadian forest community.

The British Delegation was nine in number with the other members of the group representing the interests of the RIBA; the University Sector; The Forestry Commission; The Building Centre, London; Socially Responsible Investments (SRI); Printing and the DIY Markets. Of particular interest to all members of the group was the question of Forest Certification.

To visit three provinces from the east to the far west of the country, involving three local time changes, all within a week was quite a challenge and every credit is due to the High Commission, together with the hosts in each province, for a near trouble free tour. In fact the only real set back to a series of morning visits during the tour was due to torrential rain and an overhead thunderstorm!

We arrived in Halifax late afternoon on Saturday 13th July and transferred to two 8-seater planes for the journey across the Bay of Fundy touching down at Mockton, New Brunswick. After a welcoming talk and introduction to the New Brunswick forest resources and followed by a much-appreciated meal, we retired for the night (01.30AM UK time).

The following morning we were up early for a 07.30 breakfast and briefing session for the first day's visits. These included operational sites belonging to the large private company, J D Irving, and a private woodlot belonging to the McLeod family. Of special interest was the diversity of the woodland areas seen, both in terms of the mix of hardwoods and softwoods and the habitats for wildlife. The Mcleod woodlot is a Fundy Model Forest (FMF) site. FMF works largely with the private woodlands and has taken on over 200 research projects in the last ten years. We were shown how natural regeneration of the forest is nurtured and the ways in which, even in major extraction operations for the Irving production, the local habitat is protected with buffer zones along side the streams, protected areas and deer parks.

*A natural walkway in the McLoed woodlot within an area of mixed deciduous and coniferous trees*

In the evening the Delegation was hosted to an elaborate dinner at Adair's Wilderness Lodge in a remote location surrounded by woodlands and lakes.

The next day we visited J D Irving's Parkindale seed orchards. This was followed by a visit to a softwood forest area under their management to see large-scale timber extraction being carried out in carefully planned lots.

*Tree harvesting*

A short flight to Toronto followed by a rather longer one (and a three-hour time change) to Edmonton and thence by coach northwards to Lac la Biche, concluded a remarkably long day (we arrived at 02.30 on Tuesday morning!). The organisers were kind to us and we were not called to the day's briefing until

*Log transportation to the mill*

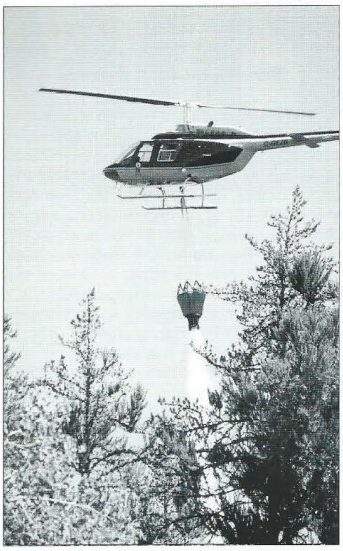
*The delegation together with the tour leaders and government officials*

09.30. This was followed by various tours of the forestry areas being managed by Alberta-Pacific Forest Industries Inc (Alpac) for the supply of wood fibre for their *state of the art* kraft pulp mill. In addition to witnessing the largely self seeded and regenerated poplar and conifer woodlands that are grown to feed the pulp mill we caught up with the tail end of a small fire outbreak that had been substantially brought under control. This part of the country is particularly prone to forest fires and part of Alpac's forestry practice is to leave structured stands, rather than clearcutting, similar to the pockets that are left after fire damage.

*A briefing in the field on the forest areas*

On the Tuesday evening we were entertained, by local community leaders and our forestry hosts, a dinner in the community centre alongside Lac la Biche.

On the Wednesday we were scheduled to see further forest workings but the rain on the forest roads made the coach slip around as if on ice. So that was abandoned and we were transferred to



*Dousing the smouldering forest floor with water from the nearby lake*

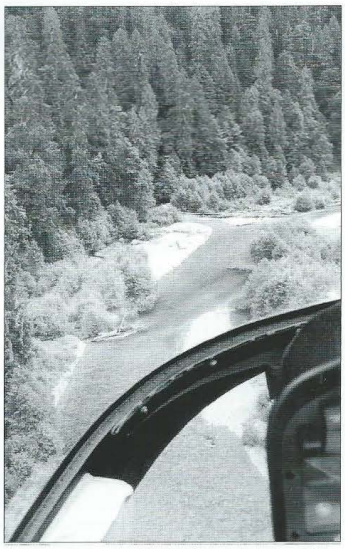
the Alpac mill for a very well presented and illustrated talk on their predictions for forest management and harvesting in the future.

There followed a lunch stop and the journey south to Edmonton to meet with the senior officials of the Canadian Forest Services and Sustainable Resources Development Department for Alberta. After the experiences in the field it was most interesting to hear and discuss the Government's views, plans, policies and predictions. After a meeting that seemed all too short we returned in a rather hot coach (the air conditioning had failed and the temperature in Edmonton was 33 degrees Celsius!) to the airport for the final leg of the trip and the final time change, only one hour this time, to Vancouver.

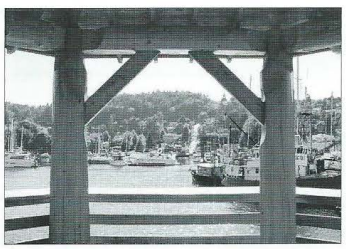
Thursday morning was taken up with a series of really outstanding presentations by the Ministry of Forests BC along with representatives from the First Nations, Green Peace and Forest Ethics. We were then taken to the South Terminal floatplane dock for the short flight to Sechelt, a small town on the Sunshine Coast. Our accommodation, the Bella Beach Inn, was literally on the seashore. At our last formal dinner, hosted by members of the community and forestry leaders, the evening was considerably enhanced by the excellent red wine from BC's Okanagan Valley.

On Friday another early start began with a breakfast briefing at the Ministry of Forests District Office and was followed by boat trip past hectare upon hectare of softwood forest. At the first stop we were able to witness the soft foot-print approach to timber extraction and the way in which, once the chosen logs have been taken out, the access roads are decommissioned and the area returned to its natural state to regenerate with minimum human intervention.

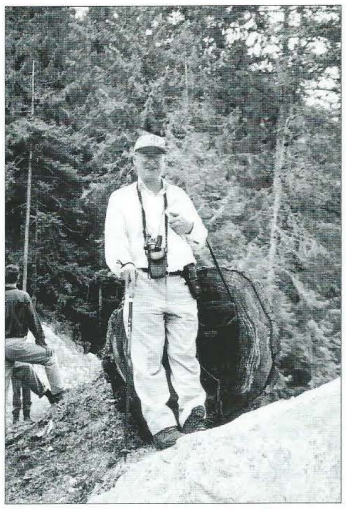
Following the picnic lunch the group took to the air in helicopters on flights that included a landing in the old growth temperate rain forest and an aerial tour that passed over a wide range of forestry and extraction operations. These included large clear fell sites from the past (mostly now regenerated satisfactorily) and the more recent, less invasive, forestry practices.
After a ferry trip back to Vancouver and a debriefing session we had a few hours to explore the city before our report time for the Air Canada Saturday night flight to Heathrow. I have to say that, after all the stunning scenery and the forestry and woodland experiences, I was not moved to do that much foot slogging in the city. Others did venture into Stanley Park and Granville Island to return clutching various traditional mementoes of BC and its culture.



*Old growth hemlock in the Skwawka River Valley*

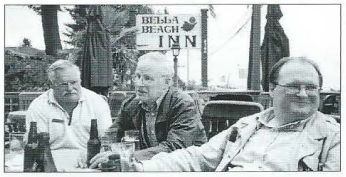


*The timber theme in evidence on the Sunshine Coast*



*David Woodbridge in a typical BC forest location*

Without exception everyone agreed that the tour, although very arduous, was an amazing experience. We were especially struck by the warm reception that we received at every point along our journey and we all came away with the impression that, in the three provinces visited, a very genuine resolve exists to meet the challenges ahead in respect of sustained forestry along with a resource that has to be shared with many others on this planet and that includes wildlife of all descriptions.




*Canadian High Commission Counsellor and tour leader Daniel de Bellefeuille (right) relaxing at the Bella Beach Inn*

I am not sure what happened to Sunday but I guess it must have just passed me by!

## Editorial Comment

**It was decided, in conjunction with our principal Convention Sponsors to slightly delay the publication of this issue of Wood *focus* in order that a full Report on the Institute's Annual Convention at Cardiff could be included. This appears on page 6**

# BRANCH NEWS

### The Midlands Branch

From a survey to establish if Branch members wished to keep the Branch alive the response was:-

112 mailings
30 (27%) replies
20 (18%) favouring continuation
14 (13%) pledging support

In view of these results the consensus of the Membership Committee and HQ is that the Branch is not viable and will cease to function in its present format.

Traditionally the Branch centred around the Birmingham area, but with the wide increase in our geographical spread, travelling distances have become a disincentive for attendance.

One positive aspect that the survey revealed was that substantial numbers are located both East and West of Birmingham. Should any member(s) wish to take the initiative, the possibility exists for a smaller branch which would receive the full support of Council and HQ.

Notwithstanding the Branch Chairman, Mr Tom E Shaw FIWSc, has agreed to remain the regional contact in the Midlands Region. We welcome this since, even if there is no branch functioning, a local contact for anyone – an IWSc member or not – to talk about Institute matters and common interests is to be commended and encouraged.

### The TTJ Cup Winner 2001


*At the 2002 Convention in Cardiff the Publishing Director of the TTJ, David Wildman (left) along with David Woodbridge, IWSc Director, presented the TTJ Cup to Nicholas Fox of George Walker Ltd, Syston (right) who obtained the highest examination marks in the Certificate Course in 2001*

### South African Branch

It is with regret that we have to announce the closure of the South African Branch despite noble efforts by Don Priest to keep it active. The members in South Africa will now be serviced from Headquarters and they have already been contacted to this effect. Whilst it is a great pity that the Branch is unable to continue we very much hope that the members will remain as subscribers to the Institute.

### A New Overseas Branch

The inaugural seminar presentation of the Institute of Wood Science (Canadian) Branch took place on Tuesday 15th October at the University of British Columbia. The speaker was Dr. Laurie Cookson, CSIRO Forestry and Forest Products Laboratory, Melbourne, Australia and his subject the 'Degradation and Protection of Wood in the Marine Environment'.
For further information on the Branch and its programme, please contact:-

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Director
Centre for Advanced Wood Processing,
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2900 - 2424 Main Mall
Vancouver, B.C. Canada V6T 1Z4
e-mail: phevans@interchg.ubc.ca

### Branching Out in Sweden

IWSc President, Geoff Bagnall was at the recent Tra & Teknik and Elmia Timber international wood products and technology trade fair in Gothenburg. Co-organisers, Elmia Timber AB are Corporate Members of the Institute and Alan Sherrard, who is based in Sweden with Elmia, is an active IWSc member. He invited Geoff to speak to potential new members at one of the seminars before meeting trade fair exhibitors from both industry and education. Membership in Sweden is small at present but early indications are encouraging with significant interest already being expressed by colleges and universities. Perhaps surprisingly is what appears to be the lack of timber education courses. Current IWSc courses would have to be modified to suit the requirements of the Swedish wood industry but existing UK links with companies such as SCA Timber could open the way.

*Geoff Bagnall, IWSc President, (left) discussed the Institutes Courses with Alan Sherrard, Elmia Timber and Professor Anders Baudin, Växjö University (right)*

## REGIONAL CONTACTS

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

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Chilterns and Thames Valley - Dr. Vic Kearley AIWSc (01494 563091)
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Ireland - Sean McNamara (Fax: +00 3531 6246188)
Liverpool and the North West - Geoff Bagnall CMIWSc (0151 724 1206)
London - John Park AIWSc (01252 522545)
Scotland - Andrew Gibson AIWSc (01416 321299)
South Coast - Patrick Gilbert MIWSc (023 9259 2715)
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Yorkshire - Neil Ryan AIWSc (01977 671771)

**Overseas**

Australia - Jeff Hann (e-mail: jhann@unimelb.edu.au)
Canada - Prof. Philip D Evans (e-mail: phevans@interchg.ubc.ca)

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

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