WOODfocus

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The magazine of the Institute of Wood Science

The Institute's Annual Convention Cardiff 10/11th October 2002

Building on the success of the recent Conferences, and the last one in Liverpool in particular, the Institute is taking the event a further step forward by re-naming it as a **Convention** and targeting not just those who are in the timber industry, research and academia but the **specifiers** and **users** too.

With technological advancement rapidly improving the scope and application of timber and wood products, this year's annual convention will have a broad appeal to manufacturers, engineers, architects and designers.

Eminent speakers from the world of architecture and design will discuss this year's theme '**How does wood help to sustain the built environment**?' providing an exciting programme to stimulate all those with an interest in this versatile resource.

The vibrant Welsh capital of Cardiff is the location for this year's Convention. Known for its fine architecture and cultural attractions, this city is now home to the new Welsh Assembly and fast developing waterfront area. The new Hilton Cardiff is a stunning landmark building overlooking the historic Castle in the very heart of the city, with easy access from the motorway network, Cardiff Central Station and the International Airport.

With major sponsorship from AHEC, wood. for good. and the TTF along with much valued support from Corporate Members and others committed to the cause of timber education, we are confident that the Convention will be a substantial milestone in the history of the Institute.

For further details please refer to our website (www.iwsc.org.uk) and the flyer which is being mailed to all members. The brochure and registration form will be circulated during the summer.

We look forward to an enjoyable event and hope that you will be able to join us.

The Hilton Hotel Cardiff

FOUNDATION COURSE ON TIMBER

Substantial Response for the Course in the Republic of Ireland

After the meetings with members of the ITTA training Committee during the latter part of 2001, the Irish Timber Trade came up trumps, registering 46 candidates on the Foundation Course.

During the planning phase for the launch it was agreed that the ITTA would act as the administrative and registration centre for those taking the Course in the Republic, but with the Institute retaining all the other supporting functions including the setting and marking of the examination.

To adjust certain sections of the Course for use in Ireland, for example, commonly used timber sizes and strength grade marks and standards, an appendix has been produced to accompany the Course with red markers inserted in the main text where the candidate needs to refer to the additional material. These differences will also be reflected in the examination questions for Irish candidates.

Ronny Guilford, Chairman of the ITTA, had certainly got the Course promotion rolling with a sizable queue forming as people arrived to sign in, collect their workbooks and attend the launch session presented by David Woodbridge Director, Institute of Wood Science. The launch was also attended by several senior trade members, including the Vice Chairman of the ITTA, Christy Conway.

David Woodbridge addressing mentors and candidates in Dublin

After a general resumé of the functions of the IWSc, its courses and the Foundation Course in particular, a workshop style session was given, in which selected tasks within each book were discussed and model answers produced. The purpose of this exercise was primarily to help the candidates to get the general idea of the type of answers needed, the level of technical information required and to point out that, in many of the tasks, the answers are not black and white but that they depend on the experience of the individual and the trading style of the company.

The meeting generated a visible enthusiasm for the Course and a study programme that would allow for the examination date to be at the end of April or early May was agreed. Following this the plan is to hold an award ceremony in June.

For further reports on the Course and recent examination successes see the training page 11

CONTENTS

MAKING THE GRADE - DRY GRADED STRUCTURAL TIMBER

By Anne McDonald of the Scottish Timber Trade Association

Timber is a wonderful material - strong, durable, beautiful and renewable. Highly popular as a construction product in both traditional and modern applications and frequently preferred on environmental grounds, information on the correct specification of structural timber has never been more important.

In the UK, most structural timber used in construction is softwood - European Redwood and Whitewood and British grown Spruce. Building Regulations require that all structural timber used in buildings has to be:

- Strength graded at a moisture content appropriate to the service environment in which it will be used and marked **DRY** or **KD** (signifying kiln dried), if it is to be used internally.
- Stamped with the appropriate grade marks, on each piece of structural timber.

For internal construction in the UK, Regulations (including BS5268: Part 2) require that structural timber must satisfy the dry grading requirements, i.e. dried to an average moisture content of 20% or less, with no piece exceeding 24% at the time of grading. Timber satisfying this requirement will be marked **'DRY'** or **'KD'**.

Where structural timber is to be used in a wet service environment, or has a thickness greater than 100 mm, the dry grading requirements are not applicable, although all other aspects of strength grading are required. Strength graded timber destined for such end uses will be marked **'WET'**.

Michael Walker, President of the Scottish Timber Trade Association, (STTA), which is campaigning to raise awareness of the importance of the supply of appropriate strength graded timber for structural use, says unequivocally:

"Everyone in the chain of timber procurement - designers, specifiers, importers, merchants, buyers and site staff - has to be aware of strength grading requirements and must demand the appropriate strength graded timber for the end use. If there is no grade mark on a piece of structural timber, or the marks are incomplete and there is no adequate explanation for its absence, the timber must not be used for structural purposes. The message is simple - if in doubt, ask".

What is strength grading and how is it carried out?

Put at its simplest, strength grading, formerly known as stress grading, is a method of determining the strength of a piece of timber destined for structural use. Specifiers and purchasers may encounter both the terms 'strength graded' and 'dry graded' used interchangeably. This is because although strength grading has been conducted for many decades, it is only relatively recently that moisture content requirements have been introduced into the Standards, hence the term 'dry grading'.

Strength grading may be carried out by either visual or mechanical methods; visually by individually licensed operatives and mechanically by companies operating individually licensed strength grading machines. **As every grade mark contains a unique identifying number of the grader or grading machine, total traceability of each piece of graded timber is ensured - a vital factor in ensuring timber quality and building customer confidence.**

The visual strength grading process is undertaken by specially trained individuals licensed by independent third party certification companies including, (BM TRADA Certification, BRE QA, CATG). Visual strength graders examine each piece of timber and assess it for the presence of naturally occurring growth characteristics which affect strength, including knots and slope of grain. Grading

Examples of strength grading makes on British-grown spruce from 2 UK companies

rules specify acceptable limits for these features. Visual strength grading produces two strength grades - GS (General Structural) and SS (Special Structural). BS4978 governs visual strength grading of softwoods.

Visual strength grading is carried out on both softwoods and hardwoods destined for structural use. BS5756 provides a single structural grade for hardwoods, HS (Hardwood Structural)and Temperate Hardwoods (Oak) in four grades, namely TH1/2 & TH A/B.

Machine, or mechanical, strength grading also requires the assessment of every piece of timber. Strength grading machines measure the stiffness of timber, as there is a correlation between the stiffness of timber and its other strength properties. Strength grading machines are licensed by independent third party certification companies including (BRE QA BM Trada Certification and BSI QA), as are the companies which own and operate them. BS EN 519 governs the mechanical strength grading of softwoods. The machines can grade to the traditional strength grades, direct to a Strength Class or to a specliased strength grade such as TR26, for trussed rafter material.

Strength grading to the same Standards to those employed in the UK is also carried out in several overseas countries which supply the UK market. These overseas strength grading operations are also subject to the same stringent third party certification requirements as companies operating in the UK.

An independently validated system

The independent third party certification required for strength grading operations is further validated by the United Kingdom Timber Grading Committee (UKTGC). This independent body oversees the certification companies - in effect, 'checking the checkers'. The UKTGC is the ultimate arbiter of any timber grading dispute in the UK. It is an organisation with real teeth, with powers to suspend the licences of individuals and companies who are found to have contravened the rules.

Why use strength graded structural timber?

A key question and one which STTA President, Michael Walker answers crisply. *"As structural timber is a safety critical element of construction, the use of strength graded timber is required by Building Regulations".*

Using strength graded timber which satisfies the dry grading requirements also brings additional advantages to the construction process. As a material which is 'fit for purpose' in structural engineering terms, it quite simply gives a better quality job. It is stronger and its dry nature increases its dimensional stability. This reduces the risk ofshrinkage or distortion. The post-construction 'snagging' process is also much reduced. Dry graded timber - lighter because of its reduced moisture content - is easier to handle and it also machines better, giving a smoother finish, thereby providing improved appearance.

How do you identify strength graded timber?

Commenting on the importance of identifying the appropriate timber for structural use, Michael Walker is clear that everyone in the supply chain has a responsibility. He says, *"I want to flag up how important it is for everyone to know what grade marks to look for and to look for them proactively".*

Each piece of strength graded timber is clearly marked and provides vital information. The key elements of these marks are:

- The moisture content condition at the time of grading, i.e. DRY, KD or WET.
- The strength grade or strength class of the piece.
- The timber species or species combination.
- Identification of the grader and company responsible for grading.
- The relevant British/European Standard number.
- The mark of the independent certification body.

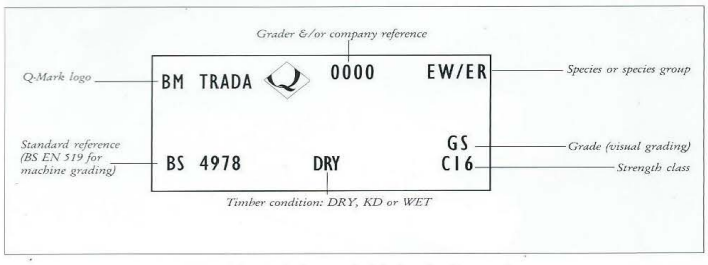
The use of the term 'DRY' or 'KD' confirms that at the time of grading the piece of timber satisfied the moisture content requirements of the Standard. 'KD' indicates that the timber has been kiln dried as opposed to air dried. 'DRY' indicates that either air drying or kiln drying has been undertaken. The strength grade or strength class confirms the minimum strength of the piece of timber. The strength class system was introduced by BS5268: Part 2. The requirements of each of the strength classes, for both softwoods and hardwoods, are satisfied by combinations of timber species and strength grade. For example, European Redwood or Whitewood of GS grade (strength graded visually or mechanically) satisfies the requirements of strength class C16, the same species graded to SS grade satisfies the requirements of strength class C24. In construction, the most commonly encountered strength grades/classes for softwood are C16, C24 and TR26.

It is essential that every piece of timber to be used for structural purposes is strength graded and appropriately marked. If there are any doubts about the validity of grade marks on timber then either the timber supplier or certification company should be consulted.

In conclusion, to ensure that the construction industry and its clients benefit fully from the qualities which timber delivers - strength, durability, beauty and environmental friendliness - the STTA and its Member companies are committed to supplying dry graded structural timber appropriate for the designed end use.

Further information is available from
The STTA Office 14 John Player Building
Stirling Enterprise Park Springbank Road
Stirling FK7 7RP
Tel:01786 451623 Fax: 01786 473112
email mail@stta.org.uk
www.stta.org.uk

The Timber Trade Federation
Tel: 020 7839 1891
The United Kingdom Timber Grading Committee Contact through the TTF at
Tel: 020 7839 1891



BM Trada's mark for graded timber is shown above:

STRUCTURAL PLYWOOD - GETTING IT RIGHT

By Anne McDonald of the Scottish Timber Trade Association

In the UK plywood is amongst our oldest man-made construction products, characterised by fitness for purpose and reliability. While there are many types and grades of plywood available in the UK today, imported from many countries - North and South America, Europe, Scandinavia and the Far East - only certain types and grades, from certain countries, are currently deemed suitable for structural use in the UK.

The issue of appropriate plywood for structural use has been "live" for some time now, with a growing, consensus about the need to educate those involved in the specification, supply and purchase of structural plywood in the UK - and to stamp out the use of unapproved plywood.

Bruce Muirhead immediate past President of the Scottish Timber Trade Association (STTA), many of whose members are involved in the importation and supply of structural plywood, is very clear on the position. He says:

"It is vital that we in the timber trade recognise the importance of this issue. If the wrong grade of material is supplied and subsequently suffers structural failure, timber as a whole loses market share; and ignorance of end use is no excuse: STTA members are clear that as suppliers we share responsibility with specifiers and purchasers to check end use so that the correct grade can be supplied.

There are, of course, many applications such as site hoardings, packaging etc. where the use of less costly non-structural plywood is adequate. The responsible supplier must, however, ensure that the customer is aware of the right grade for the job - and that the customer does not choose just on price.

Where non-structural plywood is supplied, documentation from the supplier must make this clear".

Summarising the STTA's stand, Bruce Muirhead says:

*"Plywood is an excellent material - it's versatile, reliable and predictable and it offers a guaranteed performance. We in the STTA want to see responsibility for the use of appropriate plywood for structural applications taken by **all** the sectors involved: designers and specifiers; importers and merchants; buyers and site staff".*

Current Situation

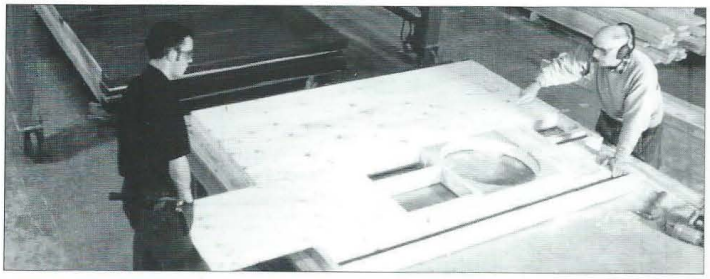
Choosing the right plywood for structural applications is, however, easier than you might think. Here are some pointers which will help to "get it right" - ensuring that the correct type and grade of plywood is used:

1. Plywood for structural use in the UK is described in BS5268: Part 2. Such plywood is manufactured under the auspices of independent third party quality assurance programmes providing assurance of the physical characteristics and properties of these products. *If it isn't in BS5268: Part 2, or alternatively does not have an Agrement Certificate, then it is not for structural use in the UK.*

2. BS5268: Part 2 also requires that **every sheet** of plywood recommended for structural applications is clearly marked with the appropriate structural plywood grade mark. Examples of these grade marks are given in BS5268: Part 2. *If a sheet of plywood isn't marked with the appropriate grade mark then it is not for structural use in the UK.*

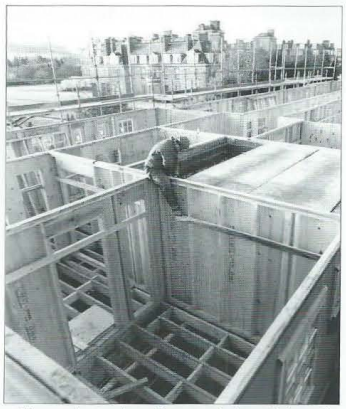
3. BS5268:Part 2 lists only certain types and grades of plywood produced in Canada, Finland, Sweden and the USA as appropriate for structural use in the UK. It should be noted that only certain specified grades from each of these countries are permitted for structural use - see BS5268: Part 2 - and that the correct grade must be specified for each application. BS5268: Part 2 also provides essential design guidance and design data for specified plywood types and grades.

It is also possible for products to demonstrate that they meet the requirements of Building Standards/Regulations through product conformity certification from the British Board of Agrement (BBA).



The manufacture of timber frame panels using structual softwood plywood

The situation for suppliers and specifiers is thus straightforward: anyone who uses any of the plywood products listed in BS5268: Pt 2 can be confident that the product will, without question, meet current requirements for structural plywood, as long as the correct thickness is specified and used. Similarly, with the same provisos, plywood products with BBA certification can be specified and supplied with confidence.



The constructural use of structural softwood plywood

Information and Advice

Information and advice to specifiers and users is readily available from various sources and the message from the STTA is "If in doubt - ask!"

Experts in this area include the Timber Trade Federation (TTF) 0207 839 1891, the Scottish Timber Trade Association (STTA) 01786 451623, TRADA Technology Ltd. (TTL) 01786 462122, the Engineered Wood Association (APA) 01202 201007 and The Canadian Plywood Association (CANPLY) (formerly COFI) 01252 522 545.

In addition, The Timber Trade Federation's National Panel Products Division (NPPD), has circulated a list of the types and grades of plywood which are listed in BS5268: Part 2 as being for structural applications or which have an Agrement Certificate to this effect. The full text is available for reference on the STTA's website - www.stta.org.uk.

The Way Forward - "Buying with Confidence"

The NPD is producing a **Code of Practice** which all TTF members who deal in panel products, will be required to adopt, comply with and display. The aim is to ensure that specifiers and users of structural plywood can "buy with confidence" from TTF members who, as signatories to the Code, are committed to selling all panel products with accurate and precise descriptions and with the appropriate advice.

Articles reproduced by Courtesy of the Scottish Timber Trade Association.

Conference Mariott Hotel Liverpool City Centre Sept 2001

by David Woodbridge, FIWSc

The Study Tour and Social Programme The Study Tour to the Jaguar Car Plant at Halewood was attended by 50 delegates (representing about half of the full complement of delegates attending the actual Conference). The main focus of the tour, lead by David Crisp, Manager, Corporate Affairs, was to see a demonstration of the processing, crafting and polishing of the veneered components for the car interiors.

The Jaguar Car museum

This fascinating insight into the highly skilled work was by way of a prelude to the lecture at the Conference given by Terry Williams. Delegates also had the opportunity to observe the car production lines.

The Jaguar Car museum

The Jaguar tour was followed in the early evening by the President's Reception for which delegates were bussed to the fine City of Liverpool Town Hall. Here delegates and officers of the Institute were welcomed and entertained by the Lord Mayor, Councillor Gerard Scott JP KHS. In addition to a very generous selection of pre-dinner appetizers the Mayor showed the group around the impressive rooms of the Town Hall including the famous Council Chamber.

On the Conference day, after lunch, a short presentation ceremony was arranged at which Sally Spencer, Managing Editor of the TTJ, presented the Timber Trades Journal Challenge Cup to the winner of the 2000 IWSc Certificate Course Examinations, Chris Turle.

Chris is a manager at the Jewson Depot in Farnham and his company's PR TV crew were on hand to film the event along with some of the Conference proceedings. For a relaxing break after the Conference and before the Gala Dinner, a reception, given by courtesy of the TTJ, was held at the top of the Radio City Tower. The visit was blessed with a near clear sky and a stunning sunset. At the Gala Dinner the President, Geoff Bagnall presented a impressive account of the Institute's achievements over the past year, singling out the headquarter staff, David Woodbridge, Director, and Christine Bradshaw, Membership Secretary, for special praise.

The Reception in the Town Hall

He then spoke of the future plans for the institute and in particular he emphasised the significance of the new Foundation Course in Timber as a major innovation for the training of new entrants to the timber industry. He concluded by warmly thanking the Conference Sponsors for their support, without which a Conference of this style, professionalism and impact would just not be possible. Responding on behalf of the 13 organizations that had sponsored the Conference, Charles Trevor, Managing Director of wood. for good, confirmed the need for training within the industry. He commended the Institute for its unflagging work in this field, mentioning too wood. for good's commitment to CPD seminars for specifies and users as but one example of the campaign's education initiatives. He went on to give a concise account of the groundbreaking achievements and aims of the wood. for good campaign.

Delegates in the Town Hall Council Chambers

For those remaining in Liverpool on the Saturday morning the City coach tour and cruise on a Mersey ferry-boat was highly entertaining and one of the high spots was undoubtedly the visit to the Anglican Cathedral. The impact of the tour was heightened by hot and sunny weather.

The Conference itself was reviewed extensively in a TTJ article and a short review is published in the Winter 2001 issue of IWSc journal

Mr Chris Turle with the TTJ challenge cup

Company Profile - Sykes Timber

Sykes Timber
George Sykes Limited
Timber Specialists Since 1962

By David Woodbridge

George Sykes Ltd Atherstone Warwickshire

This year George Sykes celebrates its 140th anniversary and is now run by brothers Richard and Bob Sykes, the fifth generation in this unbroken line of timber trading. Originally the Company traded from Sheepcote Street in Birmingham. Equipped with sawpits the Company imported Cuban and British Honduras mahogany logs of up to 4ft in diameter. No mean feat converting a 20ft log of that size to saleable boards!

In the 1960's a big decision was reached by the directors, to move from Birmingham to a ten-acre purpose built site close to the quiet market town of Atherstone near Nuneaton. As Richard Sykes says, this was one of the most farsighted decisions in the history of the Company. Since the 1960s the motorway system has developed and now, situated in what those in Atherstone may well claim, the true heart of England, the Company is ideally situated to serve its customers, not just in the Midlands, but Nationwide.

General view of timber yard

From its early trading days the Company has maintained a high degree of specialisation, for example supplying timber to the pattern making and foundry industries, industries that in the past were abundant in the West Midlands. Although now more spread geographically, Sykes continues to be a key supplier of the pattern making timbers, Quebec yellow pine, Brazilian mahogany and Jelutong. A business however cannot survive on one market outlet and it is true to say that, within the joinery, cabinet making and furniture industries Sykes's reputation runs high.

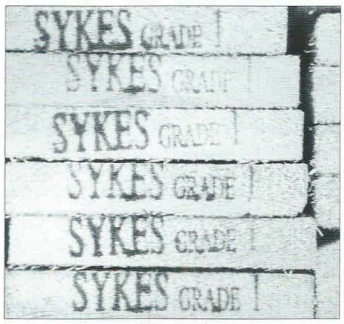
Why is this, one might ask? To visit the Atherstone premises provides one of the clues. The expression that *one could eat ones breakfast off the floor* is apposite! With all dry stocks held undercover the roadways and the storage and processing areas are immaculate.

The stocks, of some 40 different species, mostly hardwoods, are without exception quality timbers. That is quality in the broadest sense and not just the actual timber species. Every imported or home produced timber is individually sorted and graded according to known markets. This grading extends to the actual nature of some of the timbers and their suitability for specialised end uses. For the pattern making already mentioned only the lower density and the straightest grain Brazilian mahogany is used. The higher density and more figured timber being separated out for its decorative features and value.

Selecting Hardwood timber to meet customer reequirements

The Sykes Timber stock list is interesting in itself. Apart from the expected range of commercial hardwoods stocks are held of sweet chestnut and lime, both temperate woods with a great tradition of use. And in their tropical range, wenge, lignum vitae and Honduras mahogany. Apart from oak (*Quercus* species), European, English Japanese and American, they stock a wood with a distinctly colonial history, namely silky oak (*Cardwellia sublimis*) from Australia. Whilst not a true oak this is a timber with a quite remarkable figure that resembles highly figured quarter sawn *Quercus* spp. The figure is produced by the broad rays, as it is in the oaks, but silky oak is not ring porous. Two other timbers stocked illustrate how the company is prepared to develop new timbers. Firstly, Koto, from West Africa, is a case in point. This creamy white timber, that has a tendency towards a slight interlocked grain and interesting ray fleck figure on a true quarter sawn face, makes an excellent alternative to ramin. Secondly, they have imported coconut logs and from this strange palm wood (a monocotyledon rather than a dicotyledon) have produced mouldings that show off the unique but attractive figuring produced by the vascular bundles or strands. These are of different colour from the ground tissue and on longitudinal surfaces have the appearance of quills, hence the name *porcupine wood* by which palms are sometimes known.

With many of their imported stocks, in both hardwoods and softwoods, they have arrangements with the shippers to select and mark to their own appearance grading standards, producing a unique 'Sykes Grade' of timber



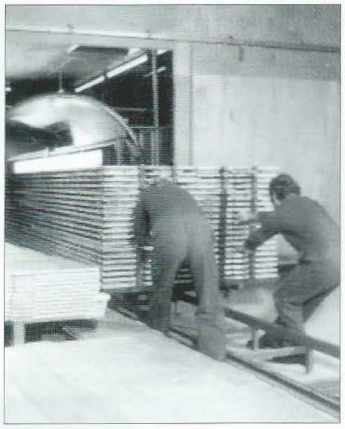
Sykes Grade

Richard Sykes emphasises the point that the Company's approach to trading is long-term, looking 5 to 10 years hence. One of the reasons for this is the way that they care for their stocks, which in comparison with some importers and merchants are substantial. Such stock holdings enables them to value add by fully air-drying all timber prior to sale or kilning. Under the conditions of storage in large slatted side sheds

drying is very even and degrade minimal. There will be the pundits who decry large stock holdings on account of the capital locked up. Notwithstanding, the very nature of hardwood trading, and in particular the much wider range of species that are handled, will mean that the presence of large stocks are not necessarily synonymous with the George Sykes operations. However, as far as Sykes are concerned, there are advantages in their style of business that off set this potential problem. Firstly, they pride themselves in being able to offer a wide specification in lengths, thicknesses and widths in each stock thus saving on re-conversion. Secondly, it allows them to buy wisely, when the time is best (although it will never be quite right!) and without the pressure of having to buy against orders.

Western red cedar air dying in stick

Their kilning facilities are based on vacuum drying and dehumidifiers. Their log bandsaw, secondary conversion and machining capacity allows for further value adding and perhaps more significantly, their ability to meet exactly their customers requirements. Some of their English hardwoods come from their own woodland areas in the Midlands, where in recent years the company has planted around 28,000 broadleaf trees. Particularly interesting is their approach to giving information. They have a justifiable reputation as specialists and receive many technical enquiries about timber, specification, uses and finishes. To further satisfy such enquiries and to service the seminars mentioned below, they have produced technical leaflets on various timbers in some cases working with other organisations. For example, western red cedar literature published in partnership with Ronseal Trade that includes information on finishes.



Unloading the Kiln

In the 1990s George Sykes opened a large and impressive showroom in which they hold seminars and meetings, many run in conjunction with other specialists and respected authorities, for example TRADA Technology. These are mainly aimed at the specifying professions. Naturally the building itself is a scene-setter in just what one can do with timber, in particular the western red cedar cladding and the quarter sawn oak joinery for the doors and windows.

The acquisition of knowledge and experience however has to start at base and indeed it does. The Company aims to have its staff appropriately trained and this includes in-house training sessions together with tuition from external providers. **The Institute of Wood Science** currently has a group of office and yard staff taking the **Foundation Course** and it is likely that some may progress ontothe **Certificate Course**. But perhaps most significant of all, with so much experience being gained from their extensive handling of timber, to initially grade for quality and secondly to hand pick for orders, the practical knowledge and experience of the staff is impressive. And what is more, there is an enthusiasm to share this knowledge with others.

The outside of the showroom

Sykes Timber can justifiably stand by the title –' Timber Specialists since 1862'

The showroom set out for a seminar

SWEET CHESTNUT - A New Role for the Future? *(Castanea sativa)*

By Nigel Braden *of Nigel Braden Timber, Burghill Oast, Chiddingly, East Sussex BN8 6JF*

In this article I want to show the utilisation of sweet chestnut, a homegrown timber, for construction, although it has not generally been used in this country as a building timber. The modern processing technologies that have allowed small dimension timber to be commercially utilised and a new building, which has recently been constructed in Sussex, demonstrate the exciting ways that sweet chestnut can be used.

Chestnut *(Castanea sativa)* is classified as not native to the UK, but has been grown in England for over two thousand years, it is widely believed to have been introduced by the Romans. There are examples of ancient trees in this country probably the oldest being the Tortworth chestnut in Gloucestershire estimated to be 1,200 years old. In Southern Europe there are large orchard and forest areas planted for nut and timber production. In this country chestnut is grown entirely for its timber.

Traditionally chestnut is grown as coppice, which involves cutting poles from a stool or rootstock, which then re-grows and is harvested on a continuous cycle at intervals between 12-20 years. Neglected coppice eventually reverts to high forest. The main chestnut coppice growing area is in Southern England and principally within the counties of Kent, East and West Sussex.

The UK National Inventory for Woodland and Trees[1] (NIWT), which is currently being prepared by the Forestry Commission, indicates that within the UK there are 18,788ha of chestnut woodland. Of this, 10,875ha are classed as high forest and 7,913ha as coppice.

Historically the growing of chestnut was closely linked to the growing of hops, which was centred in the South East of England, as large quantities of poles were required for the hop gardens. With the decline of hop growing, fencing and craft uses have utilised some of the annual production, but increasingly large areas are now harvested for low value pulpwood or are not being managed allowing the coppice to decline.

The natural durability of chestnut, its cleavability and ease of working have always been recognised as important characteristics of the timber, especially for external use. Large sound timber has been valued for joinery and furniture applications, with ironically considerable volumes of logs from England now being exported to Southern Europe.

Chestnut's propensity to develop ring shake in trees over 40 years of age has restricted the growing of standard trees and limited the availability of timber for commercial sawing

and for use in traditional construction. Also in the geographic areas in the UK where chestnut grows, ample supplies of English oak have been available to convert into large dimensions for construction use.

There have been examples in the UK of current construction using sawn chestnut with mechanical jointing techniques. Limited technical information was available to designers and until recently no official large section strength testing had been carried out on the timber and properties had been derived from analysis of small timber samples.

Mechanical testing of large sample sections of chestnut at the Building Research Establishment (BRE), funded by a joint Forestry Commission, Home Grown Timber Trade and Local Authorities initiative, has now been completed and it is planned to include chestnut within the forthcoming revision of BS 5268: Part 2. BRE Digest 445[2] includes the grade stresses obtained for chestnut. The results indicate that generally chestnut has 83% the strength values of English oak and can meet TH1 grade in accordance with BS 5756. This is the first time chestnut has been officially classified as a structural timber in this country and opens up new opportunities for building with the timber.

These results were based on a wide sample range, which included timber sawn from old trees with restricted growth and narrow annual rings. Chestnut timber grown from coppice is characterised by fast growth. Being a ring porous timber a larger proportion of late wood to early wood increases the proportion of fibre to vessels, which improves the strength properties. Optimum strength values appear to be achieved from timber with 5 to 7 annual growth rings per 25mm.

Coppice grown chestnut does have important advantages:-

- Entirely sustainable timber as coppice re-grows from the same rootstock
- Naturally durable heartwood with narrow sapwood margin even in young timber
- Small movement potential and finishes well
- Appearance similar to oak
- Timber sawn from small diameter logs generally has straight grain with no hidden internal variations or large knots.

The decline in traditional markets for chestnut coppice has made available large volumes of chestnut round wood. A potential for the resource to be considered for constructional use was restricted by the ability to obtain long straight defect-free sections.

West Elevation at Flimwell

By adapting modern softwood timber processing techniques, specifically for smal
log conversion, it is now possible to utilise small diameter hardwood logs. The use of finger jointing and the recent improvements in glue technology has created the opportunity for the conversion of small diameter logs, which can be graded to achieve superior mechanical properties by cross cutting and
removing defects from the timber and jointing to create long lengths of high quality timber. Nigel Braden Timber (NBT) and In Wood Developments Ltd together with Woodland Enterprises Ltd have pioneered these advances and were able to demonstrate the potential in an outstanding new development in East Sussex.

[1] National Inventory of Woodland and Trees 1995-1999, Forestry Commission, UK (in press).

[2] BRE Centre for Timber Technology and Construction, March 2000, Digest 445, Advances in timber grading – sweet chestnut for structural use.

Flimwell Gridshell

The Woodland Enterprise Centre at Flimwell in East Sussex is a pioneering development to develop a centre for the interaction between commercial timber based industries, forestry organisations and a point of reference for learning about timber and forestry.

The focal point to the site is the new visitor centre building, which creates a combined exhibition/ conference area with offices on two floors for organisations involved in forestry. The design for the new building was decided by an architectural competition.

The design of the building is intended to show modern timber engineering adapted to utilise locally produced timber as a main element in the construction. The building is a curved roofed modified gridshell consisting of 5no. 6m bays divided by curved laminated arches with a gridshell supporting the roof between the arches. The roof is a single 12m span, raised onto propped eaves beams with machined rounded external diagonal struts specially sawn from local Scots pine.

Details of Flimwell support Positions

The building design required continuous 10m lengths of timber for the gridshell roof, which are bolted together at 600mm centres. Chestnut was promoted as an important local species to be used in the building construction. Because of the lack of mechanical data available at the time, a full structural testing evaluation of timber samples sawn from 15-20year growth chestnut coppice was carried out by the Building Research Establishment, which led to the development of a visual grading specification. This was then used to process and grade the timber. Because of the curved roof design, bending forces are applied to the timber roof components and the selection for minimal slope of grain was a requirement. The chestnut from coppice sources produced a high yield of straight grained timber with minimal knots, higher than comparative yields from old growth trees of both oak and chestnut. The graded chestnut produced stave lengths of between 450-2000mm and these were then finger jointed and glued green using a polyurethane glue which was specially tested to ensure the strength and durability of the bond. Because of the lack of facilities in the UK the initial test production had to be undertaken in Europe but the main jointing was carried out in the North of England. Installation of the chestnut staves was carried out on site and each section was bolted together at ground level and craned into position. The roof required approximately 2 km of gridshell staves! All were visually graded and finger jointed with approx 2,500 joints. Remarkably only 2 timber failures occurred during installation. The timber framed walls of the new building are insulated with recycled cellulose sheathed in bitumen impregnated fibre board and clad externally with finger jointed chestnut, spaced to allow ventilation gaps that allow the walls to breathe.

The use of glue lamination technology to process small section graded chestnut makes the possibility of creating large section beams and construction components possible. The utilisation of glue-laminated timber also creates interesting possibilities. Glue-laminated chestnut is used for external joinery, where the timber's natural durability is preferable to treated/ preservative softwood and the timber's dimensional stability and low movement are an advantage over oak.

The cost of the completed building with infrastructure costs will be in the region of £650 M2, which compares favourably with conventional building costs.

This project has more than adequately shown that chestnut is an excellent timber and will undoubtedly become more important in construction due to its natural durability and the advances in processing technology to utilise small diameter low cost logs. The utilisation of a fast growing hardwood, harvested from coppiced woods, which already exist and are renewable every 20 years, has excellent environmental credentials. For the first time chestnut has been officially classified as a structural timber and opens up new opportunities for building with the timber.

This article has been modified from the paper presented by Nigel Braden at the Institute's 2001 National Conference

The completed Woodland Enterprize Centre at Flimwell

The project team comprises:
Client - Woodland Enterprises Ltd.
Architects - Fielden Clegg Bradley
Structural Engineers - Atelier One
Construction Managers - In Wood Developments Ltd.
Groundworks - Derek Greenwood & Son Ltd.
Timber Frame Contractor - Cowley Timberworks Ltd.
Timber Supplies - Nigel Braden Timber

Friends of the Earth

The Good Wood Guide.

A completely revised and rewritten guide has now been published.

The guide looks at the problems facing the world's forest today with chapters covering timber products and alternatives, buying timber from well-managed forest and reviews of the timber trade, country by country.
There is a section, which discusses the credibility of certification schemes and another that expands on the subject of waste. The opportunities for reclaiming timbers, beams and flooring for example, are discussed as are the opportunities that may exist for recycling used timber into new products.

Other points mentioned are the importance of the correct specification for timber and linked with this, the importance of acquiring a wood that has the appropriate properties for the intended end-use.

There is an A to Z table of timbers in use, giving brief information on:
origin; uses; UK levels of use; and Global threat status.

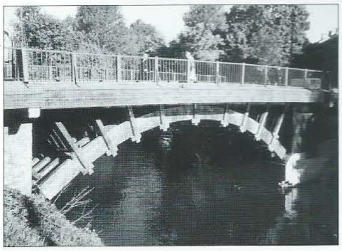
Whilst this short survey is not intended in any way to be a critical review of the Guide it is appropriate to bring the publication to the attention of the readers of Wood Focus as they may well wish to purchase a copy for their own reference and study.

For those so interested the publication costs £7.50 plus postage and can be ordered by phoning 020 7490 1555

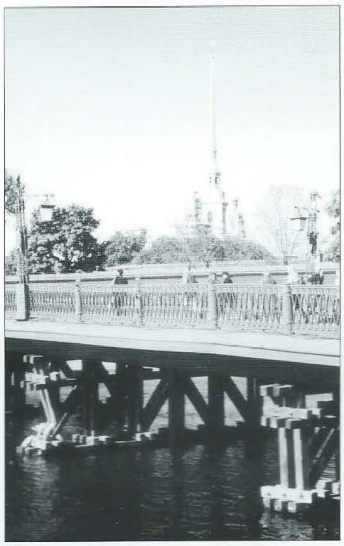
David Woodbridge FIWSc

Scenes in St Petersburg

The glued laminated arched bridge takes pedestrian and vehicular traffic over one of the many waterways, which are a prominent feature of the city. It is interesting in its design in that the laminated arches supports the bridge deck from below incorporating a series of simply blocked and bolted timber struts rather than the arches being above the deck and supporting it with a series of tension members. The method used means that multiple arches can be used and thus the laminated members can be quite modest in their cross sectional area.



The scaffolding erected around the nave and copular of the St Peter and St Paul Cathedral to allow access for the cleaning and renovation of the structure is a remarkable feat of timber and steel design. A somewhat unusual feature of the scaffolding is the way in which the timber deck boards span across the walkways rather than the UK custom of lengthways planks. The upper part of the scaffold utilises timber for the vertical supports, rather than the traditional steel



scaffold pole and incorporates a regular scheme of diagonal bracing to provide the necessary stability.

The accompanying photograph shows the building in its normal state and it also gives the clue as to why an all-wood structure was favoured for the scaffold around the copular. The use of steel would have added substantially to the weight and with that the problems of how to support it without imposing a substantial additional load onto the main roof.

David Woodbridge FIWSc

CORPORATE MEMBERS

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

AHEC
Anglo-Norden Ltd.
Arch Timber Protection
British Woodworking Federation
BSW Timber plc
Buckinghamshire Chilterns University College
Richard Burbidge Ltd.
BWPDA
Carver (Wolverhampton) Ltd.
A W Champion Ltd.
Coillte Teoranta
Crown Timber plc
Elmia AB
Finnforest
Forest Services N. Ireland
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James Jones & Sons Ltd.
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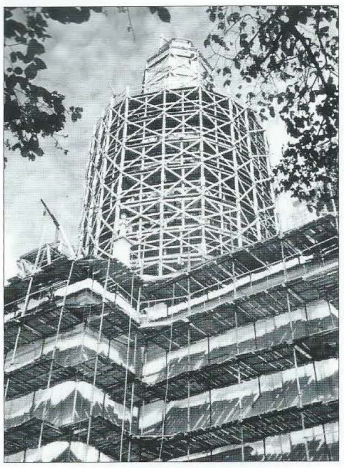

TRAINING MATTERS

The Continuing Success of the New Foundation Course on Timber

The two groups that started the course last summer and who were featured in the autumn Woodfocus completed their exams in December. All passed the Timber Studies Award exam successfully, one with a **distinction** and two with a **credit**. One candidate has already commenced the Certificate and others are considering starting in the autumn.

The IWSc Director with candidates at Morgan Timber.

Mr Derek McCluskey (2nd from left) with the candidates at Morgan (Timber and Plywood) Ltd

Since then, many more candidates have sat the exam and enquiries and enrolments for the Course continue to be brisk. The Institute's Director has had the opportunity to promote the IWSc Courses at several Timber Trade Area Association meetings, namely Scotland, Bristol Channel, the North West, Northern Ireland and the Irish Republic. Other promotional opportunities for both Timber Trade Area Associations and individual companies are scheduled for the spring and summer.

Letters

The first two extracts from letters recently received commend both the new Foundation Course and the value to both the student and the company of successfully achieved training.

"I think the Institute of Wood Science have a winner with the launch of their Foundation Course in Timber.

The course is well presented and it stimulates students' interest and widens their horizons. It makes a good introduction for the progressive student to study the Certificate Course.

Congratulations to all concerned at the Institute."

"When I first read about the course I was immediately on the phone to the Institute to find out more about it. The Director's enthusiasm won me over, and consequently, following a meeting with my staff, we decided to enrol two men and three women. They enjoyed it immensely and indeed as their mentor I also found it very interesting.

The course had just the right mixture of topics to keep the students interested. Not too demanding, but at the same time it was necessary to study the course books and spend time on research in preparation for the exam. Well done to the Institute for showing the initiative with the Foundation Course. It's just what the trade needed.

Four more of the team (one woman) have just commenced the course and they, like their predecessors are very excited about it. Keep up the good work! I strongly believe that if this wonderful timber industry of ours is to improve, then we must heavily invest in education. The process of improving its image must also continue. We have to make it more appealing for a greater number of graduates to want to make a career of the timber industry. The Institute has certainly re-vitalized the interest in training with this Foundation Course."

Sadly, the response to training within the trade is not always so positive and forward looking. The following extract from the third letter paints an altogether gloomier picture.

In the opinion of the writer, "It is without doubt that if the British Industrial Training system, either private or government funded, continue to ignore the requirement of well trained and informed people within our commercial and industrial companies, then the future looks bleak. It remains to say that only those that can project themselves with the desire to obtain knowledge will succeed and the government of the day will have to pay a hefty price for unemployment and those poor souls with nothing to offer!"

IWSc Course Costs 2002

Associate – 2 core modules – Optional module – Project assessment and examination and Certificate plus student membership for 1 year - **£240.00**

Certificate – 10 Course modules – 5 Project modules and examination and Certificate plus student membership for 1 year - **£280.00**

(Both the above Courses require the tutorial services of one of the approved training agencies. Their tutorial fees are additional to the above, although in some cases they are built into an overall package price).

The next exam sitting for AIWSc and CMIWSc candidates will be 20th September 2002.

Foundation Course – 2 workbooks – examination and Timber Studies Award - **£125.00**

All the figures quoted above are subject to a 20% discount for Corporate Members

University of Ulster

On the 4th of March we welcomed to HQ a delegation of four from the University of Ulster and the East Antrim Institute. The purpose of the visit was to discuss the University's Foundation Degree programme and the input that the Institute of Wood Science might have in respect of a Foundation Degree in Timber Technology. This is potentially a very exciting initiative and it is hoped that the IWSc will be able to both contribute to (course material) and benefit (new members) from this New Degree Course.

The SCA Training Initiative

The Institute are delighted to report that SCA will now be introducing the **new and highly successful Foundation Course on Timber** into their training package, which is managed and presented by Jim Coulson of TFT. Successful candidates will receive the Institute's Timber Studies Award.

List of tuition centres for the Institute's courses

BCT – 1 Gainsborough Avenue, Morecambe, Lancs LA4 6DT
Contact: Mr. Glenn Sharples CMIWSc (Tel: 01524 832052)

Buckinghamshire Chilterns University College – High Wycombe Campus, Queen Alexandra Road, High Wycombe, Bucks HP11 2JZ
Contact: Dr. Hugh Mansfield-Williams (Tel: 01494 522141)

East Antrim Institute – 400 Shore Road, Newtonabbey, Co. Antrim, N. Ireland BT37 9RS
Contact: Mr. Tom McFadden (Tel: 028 90855 000)

Isle of Wight College – Medina Way, Newport, Isle of Wight PO30 5TA
Contact: Mr. Martin Wall AIWSc (Tel: 01983 526631)

Technology for Timber – 42 Market Place, Ripon, N. Yorks HG4 1BZ
Contact: Mr. Jim Coulson AIWSc (Tel: 01765 601010)

Timber Training Services– 12 Westfield Crescent, Wellesbourne, Stratford-upon-Avon, Warwicks CV35 9RP
Contacts: Mr. Tom Shaw FIWSc and Mr. Erle Smith FIWSc – (Tel: 01789 840605)

TRADA Technology Limited – PO Box No. 387 Barnsley S7O 6YH
Contact: Margot Reeves (Tel: 01226 786161)

BRANCH ACTIVITIES

Chilterns and Thames Valley Branch

Wednesday 24th April 2002: "Dendrochronology"

Speaker: Cathy Groves, Sheffield University
Venue: Buckinghamshire Chilterns University College at 7.3Opm

Cathy Groves is a member of the research staff in the Archaeology Department the University of Sheffield. Her research interests are in tree-ring analysis and wood studies, dendrochronology of conifers, imported oak timbers, chronological development of vernacular architecture in Devon and climatic change in north-west Europe during the last two millennia. Her presentation will describe the principles of dendrochronology and will be illustrated by a series of case studies from her research.

Wednesday 15th May **2002: AGM followed by "Timber in Classical** Guitars"

Speaker: Stuart Mewburn
Venue: Buckinghamshire Chiltems University College at 7.OOpm

Stuart Mewbum was born in Canada and trained as a journalist. After a short stint as a miner, he fled to Europe but only got as far as England before the money ran out. Here he conceived theromantic vision of making guitars to earn a living, but found that writing commercials and ads was financially more rewarding. After 25 years he realised he was in the wrong job and what he really wanted to do was make guitars.

Although self-taught as a luthier he enrolled at Guildhall University and passed with distinction, this being his only formal qualification. He was pleasantly surprised when his guitars began to sell and one of his guitars was displayed at the exhibition "The art of the luthier" (London 2001).

June 2002: "Rycotewood College Exhibition"
Speaker: Chris Hyde
Venue: Rycotewood College, Thame
Further details to follow in due course.

Southern Branch

13th **April 2002**
Joint visit with Woodland Heritage to the Weald &
Downland Open Air Museum, Singleton, West Sussex, together with a talk by the resident carpenter.

6th **June 2002**
AGM and guest speaker Mr W Shaw
Further details to follow

REGIONAL CONTACTS

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

Bath and the South West - Dr. Martin Ansell FIWSc (01225 826432)
Chilterns and Thames Valley - Dr. Vic Kearley AIWSc (01494 563091)
East Midlands - Tom Shaw FIWSc (01789 840605)
Ireland - SeanMcNamara 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)
North East - Jim Coulson AIWSc (01765 601010)
Yorkshire - Neil Ryan AIWSc (01977 671771)

Overseas

Australia - Jeff Hann (e-mail: jhann@unimelb.edu.au)
South Africa - Don Priest (013 7642352)

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

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