2019

THE WELSH TIMBER SUPPLY CHAIN IN FURNITURE DESIGN & MANUFACTURING

/ CONVERSATIONS
/ EXAMPLES
/ RESOURCES

CONCEIVED AND CREATED BY

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Dendrochronology
by Clare E Potter

In Wales, our trees have their own language—
because of the hills, the rain, because of the rain,
growth, rapid growth of rings that out-tongue
the English database, defy accurate dating.
And what of it? What of not knowing
which wars this house stood in the face of
and whether Owain Glyndwr set alight
the forest, the forest these same beams came from?

This document brings together a collection of voices, information and further resources about the use of home grown timber in furniture design and manufacture. It aims to recognise some of the organisations and individuals already working in Wales across the supply chain, as well as show examples from across the UK and globally.

This document is intended as a conversation starter, not a complete resource. We appreciate there are other voices out there, and we aim to include them in future updates.

By beginning to gather this information together, we want to: celebrate the breadth of current activity; acknowledge key issues and opportunities to expand and scale these activties; make it easier for more people to access this topic (especially young students); and to stimulate more discussion, debate and experimentation.

We would like to thank everybody that participated, especially those that openly shared their conversations.

If you have questions or would like to contribute your perspective, we encourage you to get in touch:

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Coed Cymru
Welsh woodlands & timber

CAERPHILLY COUNTY BOROUGH COUNCIL
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Llywodraeth Cymru
Welsh Government

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WOOD LAB PREN

EDUCATE, INNOVATE, INSPIRE

The Wood LAB Pren project is supported though the Caerphilly and Blaenau Gwent Cwm a Mynydd Rural Development Programme which is part of the Welsh Government's Rural Communities – Rural Development Programme 2014-21, and is funded by the European Agricultural Fund for Rural Development and the Welsh Government. The project is based at Aberbargoed and is funded until 2021. The project's aims are to encourage and promote the use of locally sourced timber through improving the county's timber supply chain network, information and knowledge sharing, as well as research and development. The project to date has focused on furniture design and making to highlight how perceived low value small dimensional hardwood of various species can be made into high value-added furniture products. Working with local designers, woodworkers and other sectors of the timber industry, the project has facilitated a number of educational workshops at its base in Aberbargoed. By having its presence in the Caerphilly region, the Wood LAB Pren has seen great interest by businesses, educational establishments and individuals alike working in the timber sector.

The project aims are to 'Educate, Innovate and Inspire' people in the regions' timber sector. Through better understanding of well managed woodlands and support to the associated industries, Welsh timber could supply a growing and sustainable material for an expanding furniture industry.

Design, as a driver of innovation, contributes to getting new ideas to market with added value, competive advantage and user-led solutions. We have worked with Design Strategist Lynne Elvins to create this report, because we see design not as styling, but as a catalyst to understand current markets, stimulate new products and better communicate the connected eco-system between forest management, timber production and product design. With a strong design-led supply chain we believe it is feasible for Wales to grow both its forestry and manufacturing base, leading the way to creating skilled jobs and innumerable environmental benefits of well-managed forests producing financially sustainable materials.

Dylan Jones,
RDP Timber Operations Manager

Lynne Elvins
Design Strategist, Design Rally Ltd

ENGAGING THE SUPPLY CHAIN: CONNECTIONS AND SILOS

01 Forestry management
02 Felling & grading
03 Milling & grading
04 Design
05 Making & manufacture
06 Marketing & distribution
07 Sales & branding
08 Customers & users

Silo A

Limited understanding of the needs of designers and makers.

Competing on easier routes to market, such as firewood or biomass, rather than seeking high-value opportuntites.

Silo B

Limited understanding of forestry and timber.

Competing on design preferences rather than the natural character of timber or the changing needs of users.

Silo C

Limited communication of forestry or timber origins.

Competing on price and style rather than the whole story of origin and the importance of sustainable production.

Barriers to local timber:

- Poor perception of quality
- Expensive compared to international prices and/or price fluctuations
- Inconsistent quality and moisture content
- Not available in flexible or consistent quantities
- Not available in the right dimensions
- No clear indicators for consumers, but another 'label' could be confusing
- Lack of demand from customers. Do they even know?

Reference: Understanding the Barriers to Using Locally Grown Wood in the Forest Products Industry, Journal of Extension, Feb 2016.

Across the supply chain stages (see above) we see three major silos. Furniture makers and designers do not generally connect with the forestry industry. Creating a mutually beneficial relationship needs support. There have been mistakes in the past when attempting this, which are being acknowledged. Further down the process, although designers and makers are connected to the manufacture considerations, the role of distribution and marketing are either ad-hoc for smaller makers, or handled as a separated sales function. These silos of operation contribute to the vast distance between the end-user and the origin of the timber, with the story of timber and the changing needs of users getting stuck at opposite ends of the process. The supply chain needs to work as an eco-system rather than a series of linear steps. But collaboration to make this transition will need support. What is lacking is an organisation to keep everyone connected and motivated around the potential.

A NEW PATH TO COLLABORATIVE GROWTH

Wales lost much of its furniture industry from the 1990s on. Globalisation has brought cheaper imports, consumerism has encouraged everything to be fast and throw-away. Tastes for furniture have moved toward modern European styles and online shopping has impacted on storage costs and delivery expectations. Alongside these challenging market shifts, the management and supply of Welsh timber for furniture design and manufacturing has declined.

Given this context, It might be understandable to feel pessimistic about a future for furniture manufacturing in Wales, but there are signs for optimism. Wales still has its strong heritage of furniture design, and Welsh forestry management is now better prepared to reconnect with the furniture industry. Hardwood timber is forecast to see an eight-fold increase in Wales over the next 30 years (see table on page 11) and sustainable materials are gaining favour as consumers better understand the impacts of plastics and other environmental concerns. It is a critical time to be ready to take advantage of this boost in material supply and potential for rise in demand.

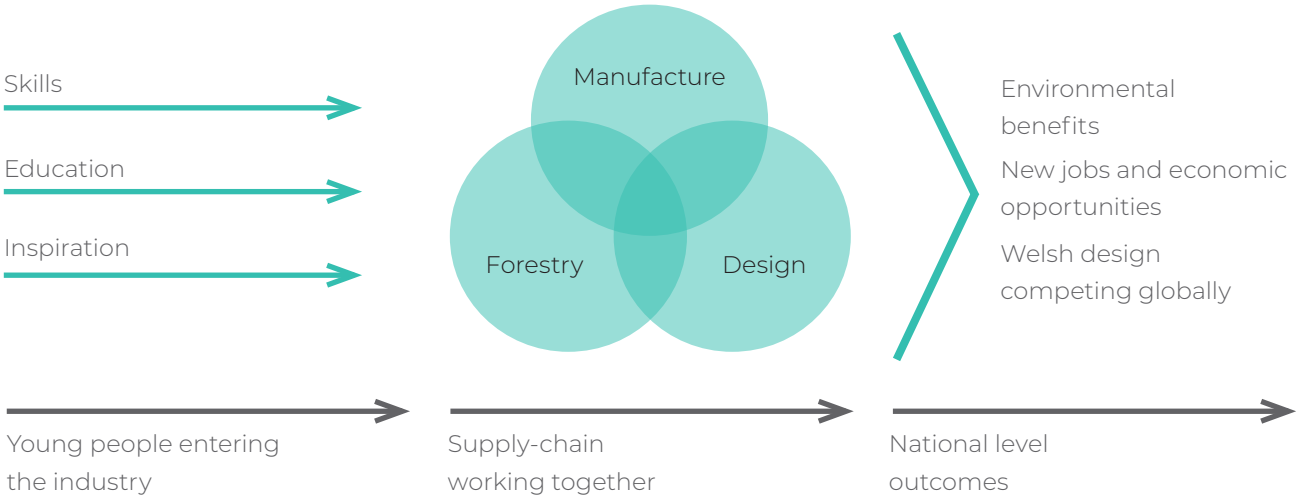
And yet furniture design courses are on the decline and young designers are in danger of losing touch with traditional skills and craftsmanship. With global supply chains, we become distanced from the source of materials through modern manufacturing, processing and retail distribution. The result is a general lack of understanding about where wood products come from and how forests are managed; and designers expect materials to fit and mold to their preferences rather than working with deeper experience of a material and its natural qualities.

It is a challenging space, but from talking with manufacturers, designers and those in forestry and timber we see positive opportunities. Ultimately it hinges on better collaboration across the supply chain so that everyone is in a position to add value at each stage. The biggest barrier is that stages in the supply chain are disconnected, with designers not knowing where to get timber and timber suppliers not knowing what designers might want. In the mean time, quality timber that could be used for furniture becomes low-value firewood or biomass. By connecting the gaps and facilitating knowledge exchange, there is potential to stop this and instead create high value, high skill products for a new generation of furniture manufacture and design.

It might be understandable to feel pessimistic about a future for furniture manufacturing in Wales, but there are signs for optimisism.

OPPORTUNITIES

High value, high skill products for a new generation:



We have Welsh designers, manufacturers, sawmills and forestry management to involve.
Let's connect as a 'cluster' for wider learning and bigger impact.

We have great examples of designers working with wood in Wales. See p.22

Let's inspire the next generation of Welsh furniture makers.

Customers are ready and willing to appreciate craftsmanship and local materials. See p.34
Let's communicate the story of craftsmanship with more confidence.

Sustainability is a business priority. Local materials, well managed forests and community craftsmanship has revived potential. See p.32
Let's capitalise on the commercial opportunities.

Welsh timber is available. It has unique qualities and character that needs to be understood. See p.26

Let's teach the skills needed to work with Welsh timber.

We have a strong history of Welsh design principles. These are relevant for modern customers. See p.20

Let's apply Welsh design principles in contemporary ways.

30%

FROM CHINA

Among EU countries, the UK is the largest importer of timber and wood furniture products from China (2)

€877

MILLION IMPORTED

In 2011, the EU-27 imported timber products valued at €877 million from high risk countries outside the EU (2)

THE INTERNATIONAL CONTEXT FOR TIMBER AND FURNITURE TRADE

In 2011, China was the largest external supplier of timber to the EU, contributing €4.7 billion of product, nearly 40% of all timber imports during the year. Amongst EU countries, the UK is the largest importer of timber and wood furniture products from China, accounting for 30%, followed by Germany (15%), France (14%), the Netherlands (8%) and Belgium (7%).

Germany, France, the UK and Italy together account for two thirds of all EU furniture consumption (64%). Germany, France and the UK depend on imports for around 50% of total consumption, with the UK relying more than the others on extra-EU suppliers.

Wood furniture is 57% of the EU furniture production market. This includes solid wood furniture (a marginal share) and wood-based panel furniture (substantial).

£8.4bn

UK furniture manufacturing sales reached £8.4 billion in 2016; 4.5% higher than the previous year. (4)

One quarter of the world's furniture is produced in the EU. (1)

Wood furniture is 57% of the EU furniture market (1).

£298m

Welsh furniture exports rose in 2016 and totalled £298m (up 7.4%), with the USA being the most active destination. (3)

The wood manufacturing sector is characterised by a vast majority of SMEs, which in 2010 were responsible for 85% of the employment and 77% of value added.

Access to sustainably-sourced raw materials, the cost and complications of harvesting wood in the EU, price increases driven by competing demand, comparatively higher energy costs in the EU and a more complex and demanding policy environment affect all segments of the value chain, including the furniture sector.

Furniture manufacturing in 2013 equated to 1.35% of the UK's total manufacturing turnover, whereas in 2016 this increased to 1.60%, a sign that the sector is performing better than some of its counterparts.

References

(1) The EU Furniture Market Situation and a Possible Furniture Products Initiative. Final Report submitted to the European Commission DG Enterprise and Industry by the Centre for European Policy Studies, 2014.

(2) European Trade Flows and Risk. Forest Trends and Forest Intelligence Ltd, 2013.

(3) 'Furniture Exports Rise in Wales'. Cabinet Maker Magazine, May 2017.

(4) Statistics Digest for the UK Furniture Industry. FIRA, 2018.

WELSH TIMBER AVAILABILITY

Gareth Davies, Coed Cymru

Production of timber in Wales has been focused on high volume softwoods, which are typically grown in large areas of single-species plantation to supply volume markets., However, much of Welsh woodland is fragmented, with a lot of it on farmland. As a result, smaller forests have suffered from decades of under-investment in management as they are perceived as uncompetitive in commercial terms. Coed Cymru works to maintain a level of management, to underpin commercial and natural value. There are many manufacturers that want to source local timber, particularly for construction, but we must be able to better manage the consistency and quality of supply. Uncertain supply becomes a risk, but if the supply chain can work together as a group, we can mitigate those risks. And furniture manufacture has an important part to play in that supply chain.

Separated smaller and mixed areas of forest are costly to manage. By joining together, we might be able to achieve scale, identify buyers for different types and sizes of timber, and mitigate the risks across the supply chain. In construction, commercial regulations and standards are driving demand toward more environmentally responsible materials, production and use. But consumer knowledge of the issues when it comes to timber is much lower. Most people buying wood furniture wouldn't have any idea about where the materials are coming from, even though there is a general understanding now that tropical hardwoods are a no-go and that FSC labelling relates to sustainable paper and wood products.

Without a consumer demand for local timber products, it is difficult for furniture manufacturers to make the case for switching from cheaper timber imports. We have the potential to produce plenty of furniture grade timber in Wales, but it is only part of the timber crop. Often that 20% is lost to the lower value market for firewood. If it was instead prepared and sold for furniture, it can be a very high value material. That requires furniture manufacturers to be on board and ready to buy, and that means their customers must see the added value too.

There needs to be a clearer positive message about choosing products made from local timber. Now that we are all re-thinking plastic, there are opportunities to capture the interest in alternatives and bring people with us. At Coed Cymru, we have the technical knowledge of sourcing and using local timber. We've got all sorts of tests and samples that we can show manufacturers and designers. What we need to know is what they want: what species would they prefer, Oak, Ash Birch? And what sizes and quantities are they interested in? When we have explored that further, we can source the supplies and prepare storage. Without that, we risk storing furniture grade timber that isn't required, and we've suffered from that before.

If we can bring everyone together, we can make the system work. The biggest benefit is not just that we can create a viable Welsh timber supply chain, but that the well managed forests in that supply chain have the connected impact of creating jobs in rural communities, improving recreational land, and supporting clean water and air.

1. **A.W Hardwoods Ltd.**
   07885 729416
   www.awhardwoodsltd.co.uk
2. **BSW Timber Ltd.**
   01982 552406
   www.bsw.co.uk
3. **Chris Howell Timber Supplies,**
   029 2088 4974
   www.timber-and-landscape.co.uk
4. **Cilfiegan Sawmill**
   01291 672805
   www.cilfiegansawmill.com
5. **Coed Dinefwr Ltd.**
   01558 822833
   www.dinefwr.co.uk
6. **Hoyle Hardwoods**
   01745 860376
   www.hoylehardwoods.com
7. **JM & EA Jones**
   07974 549712
   jones.plasonn@gmail.com
8. **James Davies Ltd.**
   01239 682477
   www.jamesdaviessawmills.co.uk
9. **Llandre Sawn Wood Ltd.**
   01982 570329
   www.llandresawnwood.co.uk
10. **Milled Wood Company**
    01446 774000
    www.themilledwoodcompany.com
11. **Orielton Mill**
    01646 661393/661224
    www.orieltonmill.co.uk
12. **Pabo Tree Services**
    01745 771380
    www.pabotreeservices.co.uk
13. **Pontrilas Timber**
    01981 240444
    www.pontrilastimber.co.uk
14. **Premier Forest Sawmilling**
    01633 254422
    www.premierforest.co.uk
15. **Ridgeway Timber**
    01348 873179
    www.ridgeway-timber.co.uk
16. **Teifi Timber Products Ltd.**
    01559 395325
    www.teifitimber.co.uk
17. **Valley Sawmill**
    01974 241521
    www.valleysawmill.co.uk
18. **Wentwood Timber Centre**
    01633 400720
    www.wentwoodtimbercentre.co.uk
19. **Whitney Sawmills**
    01497 831656
    www.whitneysawmills.co.uk.

Hardwood availability forecast for Wales

thousand m3 p/a	NRW	Private	Total
2013-2016	12	26	38
2017-2021	11	46	57
2022-2026	17	77	94
2027-2031	12	100	112
2032-2036	14	115	129
2037-2041	19	153	172
2042-2046	56	243	299
2047-2051	19	227	246
2052-2056	28	198	226
2057-2061	28	139	167

Hardwood timber is forecast to increase in importance in Wales' overall timber availability. Estimates suggest an eight-fold increase in Wales over the next 30 years (see 2018 Forestry Commission timber availability forecasts). This provides an opportunity to manage some of this resource by thinning to improve quality and to deal with potential threats. In addition there is a significant area of broadleaved woodland that is currently under managed in Wales, which presents a more immediate opportunity to increase timber production for furniture and other markets. This will require investment in harvesting, processing drying and marketing but steps are already being taken towards this.

Coed Cymru provides free and impartial advice and training in forestry. It promotes co-operation between woodland owners, woodland contractors and timber users to develop timber products and markets to ensure that woodlands have a firm economic base to ensure their continued management.
www.coed.cymru

MAKING THE BEST OF EVERY TREE

Chris Howell, Sawmill Owner

Every company feels it is unique, but I really do feel that we offer something special, not just in the facilities we have here, but also in the way we approach what we do. I was brought up in a sawmill and I love the forest. Being in the forest, and working around the smell of timber, is something that once you do it you never forget it. It's not like working, it's a way of life. We've built the company so that we can make the best of every aspect of a tree and get the best added value from it all - whether that is the bark chippings, sawdust or properly grading the timber to be used for specific applications. We also know how to saw timber to get the right cuts and maximise the timber we produce from each log. I hate to see good timber being wasted or lazily sent off for something like biomass burning when it could be used for something more valuable.

The majority of our timber is from local forests and we sell to mostly local customers. We've built up a reputation and contacts in our area so that we have regular suppliers as well as getting random calls when a forest owner might have timber that needs to be collected. Most of our timber

that goes into landscaping products is treated softwood – for example for decking or fences. But we also handle local hardwoods such as Ash, Beech and Oak and we will happily talk to furniture designers or other specialists about what they need.

We like to accommodate people as best we can. But as a business, there is knock-on impact with hardwood for us. It takes longer to saw and we don't handle as much of it. This means it might delay a bigger, faster job we might have with softwood. We have to factor that into the costs. But if people can appreciate that, we can cut up to 1 meter by 1 meter in width and 6 meters in length to specifier's requirements. We get calls from all sorts of people, but we don't advertise. The reality is that we have enough business to handle, so if we started marketing ourselves more widely, we just wouldn't meet the demand. Most of our business is word-of-mouth, and we like it that way. It means we get to know our customers and they realise they can trust us to do a good job.

One factor we keep in mind when we buy logs from smaller private owners, such as farmers, is that trees on the outside of forests often have barbed wire fencing nailed to them to deter livestock, which in time can get embedded and the bark grows over it. On an older tree this can often be impossible to detect as it is deep inside. Unfortunately, if this has happened, we only find that out when we are sawing it. It can damage our equipment and means the timber isn't good to sell on for a higher value product. But this only happens occasionally. We like working with these people and we have built the business to have all the equipment to collect and process when suppliers might have smaller areas of local forest.

There is a definite increase in the demand for local wood. You can see that generally in the last few years and also in specific requests that come in. We don't just buy-in any timber and sell it out, we know our local foresters and agents and we take care to use every part of a tree in the best way. That's how I work and have passed that knowledge on to my son. It is a business and we have to make money, but it's about doing a proper job, and there is not much we don't know about how to handle and process timber properly – from fence posts and feather edge cladding, to specific hardwood cutting for furniture.

"We don't just buy-in any timber and sell it out, we know our local foresters and agents and we take care to use every part of a tree in the best way. There is a definite increase in the demand for local wood. You can see that generally in the last few years and also in specific requests that come in."

Image: Artisan Media

Chris Howell Timber and Landscape Supplies have been in business for over 20 years. The company prides itself in offering outstanding quality products at affordable prices. It is Caerphilly`s number one supplier of timber and aggregates and it specialises in a wide range of Landscaping products.

www.timber-and-landscape.co.uk

Images: Artisan Media

Letting in the Light
by Clare E Potter

I walk in forests beside him, along the river where we pause
and he points and names, helps me re-see trees, species, the understory,
lets me feel the pulse of the root that holds onto me
(even though I'm lost)
he talks of the bench he made, the people
he's trained to know the old ways, he's a missionary
tapping the trunks to let me hear the difference
the song, the prayer, the heart fibre, these are just words
no matter, he recalibrates my tongue so it's not
end product fixated, poem page completed—
he asks me of my first tree, what it meant, what it means to me
that got me weeping, that got me in the bough again
swinging and hiding, free thinking and knowing,
he has chiselled the metaphor, can tell if the tree grew
in shadow. For the wood to be good, for growth,
there needs to be a thinning,
to let the light in, and although that fills me with faith again,
it's that I climbed a tree,
I learned to see in the dark.

FLS Tree Care

BOTEX
25m
FLS

DESIGNS THAT STARTED IN THE FOREST

Emyr Davies, Conservator

Welsh stick back chairs are often said to start with the seat. The chair is then constructed down from it with the legs, and up from it with the back. But early 18th Century Welsh chairs started entirely differently. They begin with the arm piece, carved from a single piece of timber with a natural bend that was suitable for a chair. In these early chairs, that piece of timber for the arm piece would not have been something that was found to order, it would have been a piece that was spotted in the forest.

Today designers create a design, perhaps as a sketch, and materials are cut or molded to fit what they want. These Welsh chairs were created in the complete reverse of that – the nature of the material dictated the design. In this way, the process behind these chairs has similarities to native American ways of living with the land. Having an ongoing relationship with what nature gives you, and an understanding that you only use what is needed. It is a process, and a way of life, that has a gentleness and a humility about it so

very different from how we make today that it can be difficult to grasp or explain in a text book.

Each chair from this time is an object that comes from a combination of the person who happened to have made it, the timber they happened to have to hand, and the timing of when and why a chair happened to be needed. These dictate the character of a chair and add meaning into it. Without understanding this, people can look at them and see something primitive and unrefined, but the skill and beauty of them is stunning when you appreciate the process and way of life that they represent.

Chairs like these can have different species of wood and this again would be dictated by what was available rather than what someone ordered. Most remaining chairs from this time are made of Oak and that is why they have survived. Other chairs would have deteriorated, not because they weren't well made, but because Rosewood or Elm just doesn't survive in the same way.

Although the tree can be seen in the design, the look of the grain was not important as it can be with furniture that is made today. We now want wood furniture where we like to see the beauty of the grain and we value that, but these chairs sat in dark cottages. Nobody would see the grain. It was the silhouette of the whole chair that was important and gave the piece its impact and integrity.

These chairs can have simple shapes carved into the ends of the arms or legs, or they can have shapes carved into the back of the arm piece, but they are not covered in decoration. There is a simplicity and truthfulness in the finished pieces. Time was taken to add something a little decorative without needing to make it false with unnecessary pattern.

They are chairs that encourage you sit and think, they give you that sense. We don't know if they would have been chairs for the fireside or chairs for the head of a table. They would have been a significant item in any home that had them. They are not everyday items and would have had importance, but it is very difficult to date them or know the specific ways they were used.

"It's about having an ongoing relationship with what nature gives you. It is a process, and a way of life, that has a gentleness and a humility about it so very different from how we make today that it can be difficult to grasp or explain in a text book."

Emyr is Senior Furniture and Horological conservator at National Museum Wales. Numerous examples of Welsh furniture can be seen at St Fagans: www.museum.wales/stfagans/makinghistory/gweithdy/

The new gallery and activity space at St Fagans celebrates the skills of makers past and present, and encourages visitors of all ages to experience traditional skills first-hand.

APPRECIATING OUR FORESTS AND TIMBER MANAGEMENT

David Colwell, Furniture Designer and Maker

The wood that I use is unseasoned. That works well for me in terms of steam-bending and the designs I produce, so this is a reason why I seek local wood, such as Ash. With green wood I can control the drying process, whereas imported wood is already dried. Because I'm seeking that, it takes me to the forests where I can get timber in that raw state. I get to visit estates and forest owners directly, which allows me to see that end of the supply chain, as well as enjoying the woods and engaging with foresters. Because I want the wood green, in small quantities and for use in relatively short lengths, buying a whole section of a tree directly provides a much more flexible and affordable source than the industry caters for.

In the UK, we don't manage forests with the level of quality they do in France and Germany, so the quality and quantity of UK wood is generally poorer. Most people here have very little understanding of that and consequently we are importing the vast majority of all our wood. Over centuries now, we haven't appreciated the role of forestry and the value of well managed quality timber. In more recent times, as in the 1980s, we lost a lot of sawmill companies through decline.

We are now seeing some new people coming into this area – people taking new ownership of sawmills and buying areas of forest as custodians, but without necessarily knowing how to handle timber and maintain it as a viable crop.

At the same time, the rise of wood burning stoves has meant that sales of firewood have been boosted – Ash makes very good firewood. Small estates might sell planks and firewood, but they don't have the ability to handle and supply furniture grade sections, or find the furniture designers that would want it. These are the places that I find, and they suit my needs, but I am only a small buyer. I'm making 100s of chairs, not 1,000s.

High-value products suit local wood supply, but the companies making items need wood in the correct formats for production. In the meantime, suppliers from countries like Denmark provide the formats they need and are already out there supplying. The question is, how do suppliers and producers find each other, and who makes the move to introduce local wood and then commit to the change? We need a shared map of the UK showing where graded timber supplies are situated to start helping these situations.

In another part of the chain we have the buying customer. Most of my customers buy because they like the style of my designs. I can discuss my designs in terms of ergonomics, structure or the way they might make someone feel, but these aspects are not where the main interest lies. Most of the design industry is geared toward creating styles and forms based on our interest in the work of great designers like Charles Eames. As designers, we like drawing on history. We are not good at inventing a new future. And in terms of explaining the use of local wood to customers as a desirable feature, this is another aspect that becomes a complicated message when what people want is something simple.

If there was a collective movement or campaign promoting local wood designs, I could be part of that and it might work better. On my own I've not seen a demand for that story, and the organisations working in that area haven't managed to gain any traction with customers. What are the words we need to tell that story? Where is the charismatic voice to help with marketing?

Wood stands head and shoulders above other structural materials. Merely growing it has environmental benefits. Of hardwoods, Ash stands out above all others. It is the toughest, and remarkably, is strongest when fast grown. It is self seeding and has no sap wood, so less wastage in conversion. It, together with Douglas Fir, absorbs more atmospheric carbons than any other tree. It grows particularly well in UK. It is excellent for steam bending. It is plentiful and not too expensive.

Though Ash grows particularly well throughout the UK it has come under increasing threat since 2012 from a fungal disease called Chalara Ash Dieback. It is now present throughout Wales and the rest of the UK but some mature trees are showing resilience. This highlights the importance in taking better care of great trees such as Ash for future generations to enjoy as well and the environment that it benefits. There is going to be a lot of Ash felled due to the disease, let's dignify this tragedy by making sure we make good things out of it, rather than it ending up in wood burning stoves.

Based at his workshop in Presteigne, David is one of the UK's most respected designers. Trained in Furniture Design at the Royal College of Art, his designs are timeless and his passion is to create furniture that addresses real issues for the future.

His furniture has won many awards and appears in permanent and private collections across Europe including London's V&A Museum and the Vitra Design Museum in Germany.

www.davidcolwell.com

CREATE A MODERN PIECE OF SEATING INSPIRED BY WELSH HERITAGE...

A final year degree project by Fraser Smith

As a young designer from North Wales, Fraser Smith used his background as an influence in his studies, but when he researched Welsh furniture, he found it was still very traditional with an antique look. Other countries had managed to move forward, retaining culture and heritage yet creating modern and innovative furniture. Why had this approach to vernacular furniture not been developed more in Wales? For his degree project at Nottingham Trent University, the goal was to design, develop and create a modern piece of seating that reflected Welsh culture and heritage, but would push the Welsh style forward.

The result was The Caerphilly Chair, which rejoices everything Welsh, and is a contemporary interpretation of the classic Welsh stick chair. It is constructed from local solid Welsh Oak timber, freshly felled from the Ruperra forest, east of Caerphilly. The upholstery was woven in Pembrokeshire by Melyn Tregwynt using traditional processes and machinery.

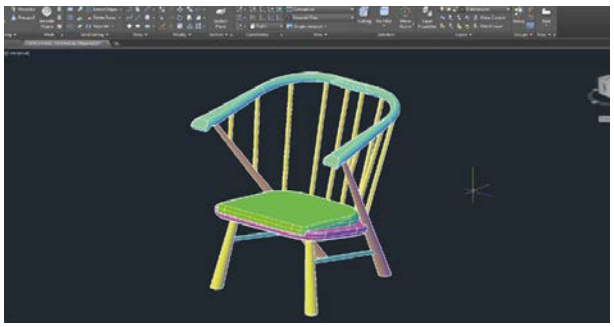
Fraser spent a one-month residency at Wood LAB Pren to help develop his design. He was given access to equipment and workshop facilities as well as guidance and mentoring.

A historical perspective:
Brynmawr Furniture Makers Ltd

In Brynmawr, a small town in South East Wales, many families suffered from the closure of collieries during the 1920s. At the Gwalia Works, Brynmawr Furniture Makers Ltd was established as a source of employment. Twelve unskilled men were taken on to manufacture furniture designed by Paul Matt, with early orders coming from Quaker societies. Workers were then assisted by young apprentices between 14 and 18 years old. At its peak, the venture employed up to 40 men.

Matt designed furniture that was simple in style and easy to put together, influenced by the Arts and Crafts movement, the simple lines of which sat well with Quaker philosophy.

Importing materials became difficult after the onset of World War II and the demand for high quality furniture rapidly declined forcing the Brynmawr Furniture Company to close its doors in 1940.



The prototyping process

Designing and making furniture has many stages and each stage typically involves numerous iterations depending on the complexity, aesthetics and technical difficulty.

1. Initial sketches and drawings
To-scale drawings with dimensions.

2. Mock-ups
Simple, three-dimensional to-scale models to assess the general overall ergonomics and aesthetics. It is usual that this stage reveals a number of changes to be made. Subsequent mock-ups are made, and the process repeated.

3. Final drawings
Sign-off final drawings before prototyping begins.

4. Prototyping
Components are assembled to create a working prototype. This is not a finished piece and further changes will be made. Materials, processes and finishes are suitable to make informed decisions to sign-off the final prototype.

6. Final design
Made to the agreed final design including the specific timber, processes and finish.

EXAMPLES: WELSH FURNITURE & WOOD DESIGNERS

BARRY / Louise Tucker
www.louisetucker.net

Inspired by traditional weaving techniques and organic forms, the PREN lighting range has been woven out of sustainably sourced specialist wood to draw in attention and allow people's eyes to explore the changing patterns. Designs are finalised when the organic forms balance with the subtle beauty of the wood to create a refined simplicity, resulting in both a sculptural object and delicate light feature.

TENBY / Fresh West
https://freshwest.co.uk/

Childhood friends Marcus Beck and Simon Macro came together as Freshwest in 2005. Following a nationwide competition funded by Arts Council Wales, their Oriel Myrddin bench seating was constructed of Welsh Oak locally sourced to the gallery of the same name. In order to gain stability in such a slender form, an internal metal frame had to be engineered and then concealed within the Oak.

PEMBROKESHIRE / Evan James Design
www.evanjamesdesign.com

Founded by Emily Skinner, Evan James Design is an innovative surface design company combining traditional quality craftsmanship with new technologies. The modular surface system can respond to the changing demands of an interior setting, with surfaces created from an extensive range of woods including Birch, Walnut and Oak.

WELSHPOOL / Kenton Jones
www.kentonjones.com

Kenton Jones represents over 35 years of making beautiful handcrafted kitchens, bedrooms and solid wood floors.

Timber is selected from managed forests and control is maintained throughout the whole production process; from timber drying and preparation through to design, manufacture and final installation. Kenton Jones was one of the industrial partners in the Tŷ Unnos 'house in a night' project that tested the use local timber for housing, as well as working on the Endgrain Tile project.

ST CLEARS / Chris Williams
www.welshstickchairs.com

Not to be confused with the 2018 designer of the Bardic Chair, this Chris Williams is a chair maker based in the workshop of Phoenix Conservation near Carmarthen. Chris is inspired by the craft of the Welsh stick chair makers, whose methods remain largely unchanged since the 13th century. His chairs are made entirely with the use of traditional hand tools and made from Oak, Elm and Ash sourced in Wales.

ABERGAVENNY / Elizabeth Rowan
http://welshstickchairs.weebly.com

Elizabeth Rowan makes contemporary interpretations of traditional Welsh stick chairs using hand tools, a pole lathe, an old shave horse and fresh green wood. She sources Ash, Oak, Chestnut, Walnut and fruitwoods from local sustainably managed woodlands. Trees are selected and felled according to what is required, looking for natural forms that will become parts of the chairs. The chairs reflect the spirit of the trees and the landscape they come from.

LLANGEFNI / Vousden design
www.tomvousden.co.uk

High-end furniture and tableware designed by Tom Vousden, made using the highest quality materials. Stylish furniture and products are designed not only with beauty in mind but also functionality and comfort. All pieces are hand made to order, keeping a keen eye on the attention to detail and giving every piece its own exclusivity.

HAND CRAFTING

Gareth Irwin, Furniture Craftsman

I work in an old dairy building on a Welsh estate where I have direct access to most of the wood I need. I make individual pieces to order and many of my customers meet me, see the workshop and understand how their pieces will take shape.

Because I sell direct, I can make enough money and charge comparable prices to high-end retail pieces that involve a longer chain of distributors and marketing. I could have a bigger team and they could make furniture with me, but their pieces would be theirs, not mine. They would be slightly different and unique, even if we set-out to make the same style. There is a spectrum of furniture production from people like me at one end to large factories at the other. I can be successful if I remain unusual and people recognise the added value. But we have a tradition of furniture making in Wales and there is an opportunity for people across the industry to connect and discuss the different ways that we work with wood and how our customers understand where that wood is coming from.

People can misunderstand hand crafted country furniture. They might think pieces are slightly wonky or the legs don't exactly match and

mistakenly think that there isn't the skill to make a more 'precise' chair. In fact, it is the opposite. Working by hand, pieces retain the uniqueness as a one-off. For me, this is why Welsh chairs have a more natural look about them, because they are not so precise. That natural off-set aspect to the details alongside the overall proportions of a piece, for me is what makes them 'right'.

These chairs do represent Welsh design because they are created here in Wales and they come from a tradition of Welsh life. The chairs are the way they are designed because of the mentality toward wood and living near forests, the tools, the skills and the pace of demand for pieces of furniture. A carpenter working in the 18th Century would recognise my workshop and all the tools in it. I feel that I do understand, and have an affinity with, that person and how they lived. But at the same time I don't think there is such a thing as 'Welsh design'. Styles and forms wouldn't have been shared or understood on a national level, it would have been at the regional and local level. Country carpenters would have worked in their village and the surrounding area, making beds, chairs, coffins or other items. They would have known the local blacksmith, the cooper or the wheelwright, so those skills were also brought across into furniture design. A carpenter who knew the local cooper might have asked them to steam bend an arm piece for chair. Someone who worked as a wheelwright might make the occasional chair and then they might make an arm piece from jointed pieces as they did with wheels.

I started working in this way as a hobby, picking up hand tools sometimes because they were cheaper. My entire collection of tools is perhaps a few hundred pounds in total. To have all the same ability with power tools and machines would cost thousands. But working with hand tools is not about saving money, it is a totally different way of working. When you use hand tools you feel the way the wood wants to go – each piece being different. The aim, even when planing a flat piece, is not to create a clean straight line. There will be natural curves and twists, and with hand tools you work with them, not against them. It starts with the wood, which I can get from the local estate. It's then split, not sawn, so from the very beginning of the process I'm working with the natural grain, not forcing the wood through a band saw.

"There is an opportunity for people across the industry to connect and discuss the different ways that we work with wood and how our customers understand where that wood is coming from."

Gareth Irwin works in the tradition of country carpenters making 'Welsh Vernacular Furniture' with hand tools and using locally sourced wood from the 2,000 acre 17th Century Penpont Estate in rural Wales where his workshop is in the old dairy building.

SUPPLY AND DEMAND

Chris Williams, Furniture Designer

I don't always use local timber in my work, because sometimes it is just not available in the way I need it, or projects demand a specific look and that means using wood that wouldn't be Welsh. When I do use it, it can be hit-and-miss in terms of getting the quality of timber that I'm looking for. I root around at sawmills asking about what they might have tucked away. And that is usually the case, that a small amount will be somewhere if you ask.

For one particular project, I needed kiln-dried Beech and although I looked, I couldn't get it in Wales and instead had to use a supplier in Bristol. Particularly when it comes to hard woods, many of the Welsh suppliers just have imports. Even for the Eisteddfod Chair, when I explained to some Welsh suppliers what I needed and what it was for, some were just not interested at all. I found that very difficult and disheartening. As a furniture maker, you must be prepared to go out of your way, and this is then one of issues that any designer using local wood has to face.

But using Welsh wood is great for marketing and there is desirability and public interest in it, particularly in Wales. I make stools from Welsh wood, and when I have a stand somewhere like the Eisteddfod, this is something people ask a lot about and really appreciate. Local wood is so much more interesting, especially in comparison to something like American Oak, which is really boring. But the other side to that is that Welsh wood can be a nightmare to work with because of various 'defects'. I like the non-uniform grain and working with the properties of the wood to dictate the form. You have to be ready to work with all the knots, but you can't have it so wild that it just isn't suitable for furniture. I've had various conversations with other furniture makers, and we laugh about it – it's not easy to work with, you have to love it.

There is certainly a lack of engagement with the timber industry in terms of what furniture designers need. For me, in terms of making Welsh chairs, I need clean Ash for spindles and legs and two-inch thick Elm to make seats. I want it kiln dried, when often it has only been air dried. I don't always know where the wood is or how to get access to it. For example, there is a wood near me where some trees have been felled, but I have no idea where that timber goes or how I might find out. But, on the other side, I also appreciate that makers like me are not buying huge quantities of wood, so why would sawmills or timber merchants go out of their way for me when I just don't buy enough.

Rhondda-based Chris Williams is a practicing artist who is a member of The Royal British Society of Sculptors. His work can be found in both private and public collections and is available through a number of galleries across South Wales.

Chris, along with Gayle Rogers, run the Workers Gallery: www.workersgallery.co.uk

"As a furniture maker, you must be prepared to go out of your way, and this is then one of issues that any designer using local wood has to face."

The 2018 Cardiff Eisteddford Bardic Chair
Image: www.huwdale.co.uk

Chris Williams' design was inspired by a number of different chairs researched in the St Fagans collection. The seat and back are made from Elm, using Ash for the legs and arms. It is a modern chair, which nods to the traditional, yet has the presence of a ceremonial chair. Many of the pieces were created by hand using traditional tools, while the patterning on the seat and back were engraved using a laser-cutting machine to apply a traditional wool pattern, based on a carthen (a traditional Welsh blanket). The Wood LAB Pren project provided access to the laser-cutting equipment.

EXAMPLES: FURNITURE INDUSTRY CLUSTER MODELS

Creating clusters around groups of interrelated organizations, research institutes, equipment manufacturers and consultants to reinforce and support the core industry and foster the development of value-added products is a recognized factor in being competitive for many industries.

SCOTLAND / Real Wood Studios
www.realwoodstudios.com

A center for wood design, production and supply. It is home to some of Scotland's finest designer-makers producing bespoke furniture and interiors. With its own sawmill it specialises in the supply of sustainably sourced Scottish hardwoods. By working closely with local foresters and landowners it is able to source high quality logs from sustainably managed woodlands.

ENGLAND / Hooke Park
www.hookepark.aaschool.ac.uk

Hooke Park is the Architectural Association's woodland site in Dorset, southwest England. The 150-hectare working forest contains a growing educational facility exploring design at the intersection of craft knowledge, innovative technologies and natural materials. Through the realisation of full-scale prototypes and permanent buildings, students conceive and construct experimental architecture driven by the principle of design-through-making.

Danish Furniture Design Success

The strong international reputation of Danish furniture is linked to two aspects: the foreign promotion of Danish furniture in the 1950s, and the consumption trends at that time. The development of Danish furniture was also supported by several very influential Danish architects, such as Kaare Klint, Børge Mogensen, Hans Wegner and Arne Jacobsen. They helped to fuse the understanding of Danish furniture as a product of 'high quality craftsmanship and design'. Combined with the trend of consumption in the post-war era, where social status related to home furniture, it made an important back-drop for competitiveness.

A major reason why Danish furniture manufactures were not affected by strong global competition was because of the formation of the industry, which was located in regional clusters. The geographical closeness among the furniture manufactures, created some fundamental protective qualities and capabilities,

such as high trust and localized learning. These made it possible for the manufacturing firms to maintain their competitiveness, despite the high labour costs. Today, the Danish Design Centre promotes a strategy based on respect for history but which is also clearly oriented towards the future. The centre's vision is to make design one of the three main positions of strength for Danish companies.

Reference: The Internationalization of Danish Furniture: A Value Chain Perspective. Lars Hedemann and Mogens Rostgaard Nissen, 2013.

POLAND / Wielkopolski Design Furniture
www.wiph.pl

This industry cluster creates innovative furniture products to increase the competitiveness of member companies. It uses uniform branding of the cluster, promoting ecological design furniture from Wielkopolski. Indirect goals of the initiative are to strengthen SMEs in the furniture sector of the Wielkopolski region and to promote network cooperation within the business community.

LONDON, UK / Clerkenwell Design Week
www.clerkenwelldesignweek.com

Clerkenwell Design Week is a showcase of leading UK and international brands and companies presented in a series of showroom events, exhibitions and special installations that take place across the area.

As the UK's leading independent design festival it attracted over 30,000 attendees and over 300 exhibiting brands in 2017.

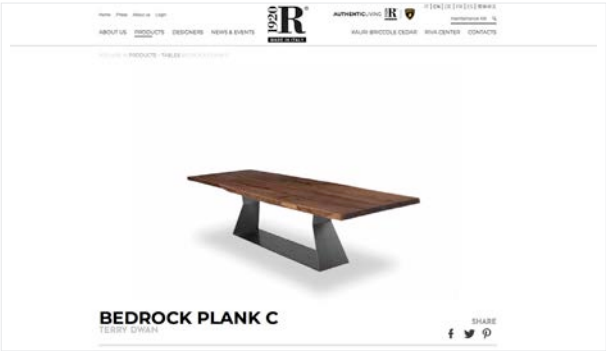
USER-CENTERED DESIGN AND NEW BUSINESS MODELS

An important driver of innovation in the furniture industry has been the need to meet new consumers' demands and values. Furniture is a product with a relatively long life span. Disposable income and the lifestyle expectations of each household, workplace or individual have an important impact on consumption patterns.

Changes in how people live has major implications for the location, type and size of housing that people can afford to live in. This in turn has repercussions on furniture consumption trends. Smaller houses imply less space for furniture and leads to an increase in space-saving furniture. Also, housing rental affects not only the amount of furniture purchased but also the type. Home owners tend to spend more for furniture than tenants, but the rise of shared living spaces in major cities has created a demand for co-living spaces that offer tenants smartly designed, serviced rooms in shared apartments with communal lounges. The demand reflects how young people, who accept they can't afford to buy properties, now value the living experience over the ownership of possessions.

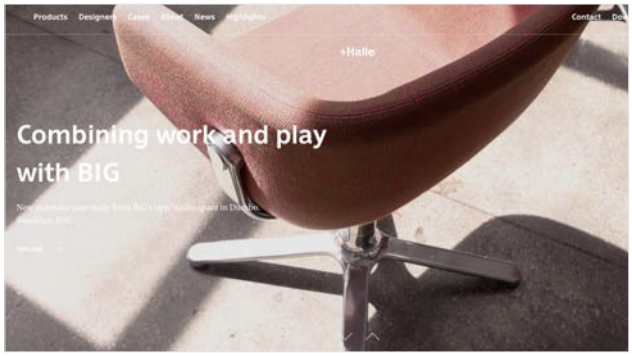
How do we adapt furniture to meet these new demands? Design is one of the best means of differentiating products away from cheap mass production and of attracting high value markets. It is widely recognised as offering furniture producers a competitive advantage through creativity and innovation. But that is not just about designing a new style of chair or table.

Capitalising on new opportunities is about watching emerging trends in materials and technologies; reconsidering the services that surround furniture purchasing; and embracing new business models that can deliver a complete customer experience. As the examples show, companies are already out there telling positive stories about heritage, craftsmanship and where materials are coming from. They are taking advantage of digital sales platforms and catering for how they effect customer communication. And they are selling the true value of furniture in our lives, as something that provides comfort, beauty and calm as well as functionality, reliability and convenience.



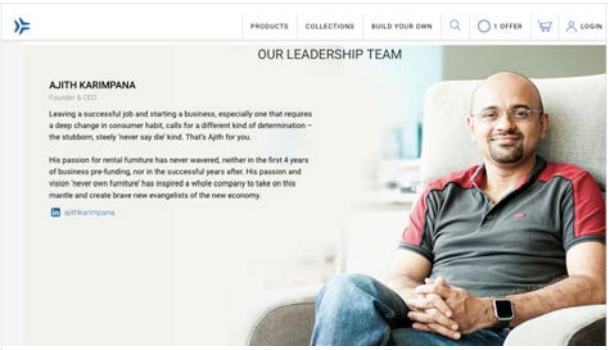
ITALY / Riva 1920
www.riva1920.it

This Italian furniture maker has been designing and producing for three generations. Culture, design and social sensitivity have become key features of its activities, without ever forgetting the importance of healthy living and eco-sustainability. Some of their products such as the Piano bookshelf are designed to facilitate easy replacement and upgrading of components. The Bedrock Table is sold “with knots”. Any cracks or splits in the table legs, before or after sale, are presented as absolutely normal and typical features of solid wood.



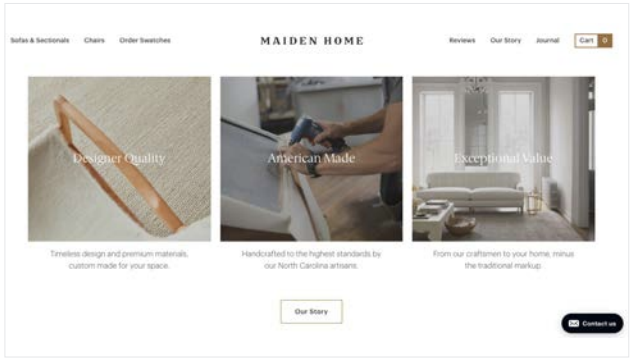
DENMARK / +Halle
www.plushalle.com

This Danish company researches, analyzes and thinks carefully about creating furniture that helps people get the most out of the environment they are in. With advances in multidisciplinary research and collaborative design projects, their designs are continuously pushing the boundaries of what a piece of furniture could possibly deliver. For example, ‘True Love Chairs’ were specified to create room, space and comfort for the waiting passengers in Heathrow, one of the world’s busiest airports.



INDIA / Furlenco
www.furlenco.com

The ‘sharing economy’ is not just about a new transaction method it’s about a new, more socially minded, marketplace. Furlenco is a thriving Bangalore-based furniture rental company that quickly secured thousands of active consumers. Furlenco believes in “Have Everything, Buy Nothing” with the average customer renting furniture for around 18 months per house. Furlenco employs a large team of designers to create furniture that is fit for re-use purposes. Despite the short lifespan in each location, the pieces are designed with overall longevity, using a lot of solid wood that can be easily maintained.



UNITED STATES / Maiden Home
www.maidenhome.com

Maiden Home have partnered with some of the best custom workrooms to offer their products directly to consumers online. Every Maiden Home piece of furniture is handmade in the North Carolina region, with “heritage quality, direct from our craftsmen, minus the retail markup” being the marketing offer. The business works with artisans in the area, establishing zero-inventory and no-minimum arrangements, but lead times are tough and the service is hands-on. Every week a “build update” email alert is sent to customers to ensure all pieces are delivered within six weeks from order.

SUSTAINABLE DESIGN OPPORTUNITIES

Huw Williams, Cardiff Met University

In recent years, many established furniture manufacturers suffered in the face of increased globalisation and business relocations to seek cheaper labour costs. However, it is possible to see a brighter future for the Welsh furniture industry if we look through the lens of the growing importance of sustainability and how we can design for it.

The UK government is one of 34 signatories of the United Nations influential "Transforming our world: the 2030 Agenda for Sustainable Development". This sets out 17 ambitious sustainable developments goals, which address key global challenges such as poverty, inequality, climate, environmental degradation, prosperity, and peace and justice. Each of the goals are interconnected, with goals 12 and 15, 'Life on Land' and 'Responsible Production and Consumption' being particularly relevant to the home grown timber industry in Wales. 'Life on Land' specifically addresses the need to "Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss" and the second seeks to ensure "sustainable consumption and production patterns".

As well as being an inherently renewable material, home grown timber within Wales shortens supply chains between forest and factory, resulting in reduced costs and less environmental impacts associated with transportation i.e. fuel consumption and emissions and more opportunities for local transportation businesses.

Local design and production also presents opportunities for services as well as products. Furniture repair was once widely practiced by homeowners and craftspeople. However, interest in this dwindled with the advent of inexpensive, 'one trip' consumer furniture and a preoccupation with intensive consumption and sales within many furniture markets. With a new emphasis on the 'circular economy', furniture repair is seeing a resurgence. This can be found in the form of upcycling by individuals, the provision of various commercial repair services or the growth in not-for-profit community ventures such as the Repair Café initiative and online communities such as ifixit.

The potential for repair can be improved when considered during the design stage. Design for disassembly and modularity, where components are arranged into accessible modules, and the availability of spare parts and repair guidance can all help. Many innovative business models are emerging where 'the product' is only one part of the customer experience. And, furniture designed for repair by the user also influences behaviour, helping us to relearn ways of caring and maintaining.

Another design strategy for extending the life of furniture is to consider the materiality of products, particularly the way in which materials respond during day-to-day use and wear. Many of the inherent qualities of timber, which have allowed objects to age gracefully into treasured antiques, could be designed for in new ways. For example, in the ability for designs to evolve with individual use, or for users to become co-creators in the customisation of surfaces.

In addition to repair and maintenance services, long-life furniture made from home grown timber has another relevance to sustainable furniture design, through enriching the user experience by clearly linking 'product' to locale and maker. In doing so, this provides an important and more meaningful relationship with users that can last.

"Long-life furniture made from home grown timber enriches the user experience by clearly linking 'product' to locale and maker. In doing so, this provides an important and more meaningful relationship with users that can last."

For further information concerning research into Sustainable Furniture Design undertaken within Cardiff School of Art, Cardiff Metropolitan University please contact:

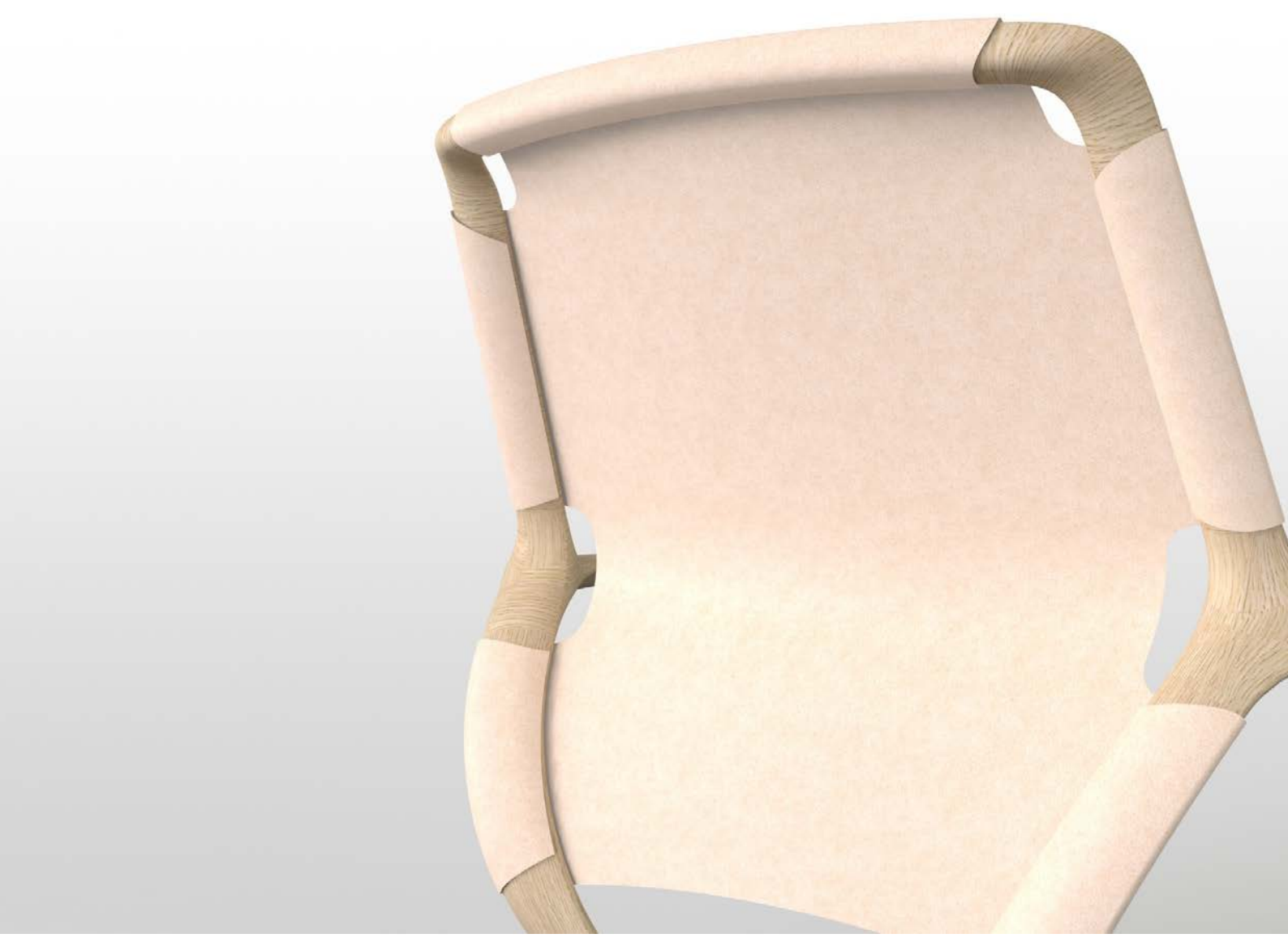
Huw Williams
hrwilliams@cardiffmet.ac.uk

References:

The UN Sustainable Development Goals
www.un.org/sustainabledevelopment/

There are over 1.500 Repair Cafés worldwide.
https://repaircafe.org/en/

A growing resource of free repair manuals
www.ifixit.com



THE IMPORTANCE OF THE STORY

Luke Palmer, Product Designer, Orangebox

In recent years, the way people work has changed rapidly, and as a result the workplace has become more domestic in style. People want to feel as comfortable in work as they do at home. Cellular offices are now the exception and consequently office furniture is no longer just swivel chairs or boardroom furniture. Our ranges have expanded massively and include sofa systems and other soft furnishings for flexible open meeting spaces that promote group collaboration as well as booths for those that need privacy. In the past, we have struggled to find UK manufacturers of solid wood components or assemblies for our product portfolio that are realistically priced for our commercial markets. High-end sofas with exposed wooden frames or just simple foot details have proven too expensive for us to source locally, so we have had to go outside the UK to find what we needed. But now we are very excited to be working with UK companies and British wood, as well as exploring sources of locally sourced Welsh wood.

We've experimented with steam bending, working with craftsman who can interpret some of our designs made with plastics and create a crafted version from wood and leather. These are high value pieces that are not for everyone's budget, but people love the story of craft that they represent. We sell to Facilities Managers allocating company budgets, but they are still humans. They are passionate about handmade and it has a lot of currency in the workplace market right now. We see large corporate companies that are including a mixture of wood furniture into their office environments as part of the changes in workplace design. Wood comes with provenance, the beauty and softness of natural materials, and has a myriad of benefits when considering environmental impacts such as resource depletion and carbon emissions.

Consequently, for corporate companies that are monitoring their environmental impacts, there are huge savings to be made with wood, particularly on aspects like embedded energy compared to materials such as aluminium. Wood also has a longevity factor because it ages well. After ten years, plastic and metal surfaces can look worn, but a great piece of Oak gets better with the knocks and wear of age. Plastics also evoke a sense of disposability, whereas solid wood becomes cherished. Wood grain does something that you just can't achieve in plastic. We are always researching trends and also see interest for industrial-style wooden pieces like re-purposed school chairs or cabinets.

We're very excited about the potential for wood. We've always liked the idea of using it, and known it has an environmental case, but now we see a business case too. We want more local wood and we've found sawmills to visit, but they don't always understand what we need. They might have a small section of stunning Oak sitting in a corner, which they hope an artisan maker will come along and buy. When we ask about a larger and more steady supply, there is a sense of interest, but also a cautiousness about being able to commit. There are some definite missing links in the supply chain from the sawmills connecting with design-led manufacturers like us who want to use more wood. We are keen to work with companies to make this happen. It's important to us and we see it as part of our future strategy.

"Wood has a longevity factor because it ages well. After ten years' plastic and metal surfaces can look worn, but a great piece of Oak gets better with the knocks and wear of age. Plastics also evoke a sense of disposability, whereas solid wood becomes cherished. Wood grain does something that you just can't achieve in plastic. "

With its head quarters and main manufacturing base in Nantgarw, Orangebox design and manufacture office furniture. The company also has offices in London, New York and Dubai, and other manufacturing bases in Huddersfield and Michigan in the US. It has a workforce of 450, with the majority (350) employed in Nantgarw, just north of Cardiff.

www.orangebox.com

orangebox

EDUCATION AND INSPIRATION

Skills and education are prerequisites to innovation but what matters is not just the level of education, but its content and ability to inspire. Developing people's own understanding of the problems means they can bring about solutions. Once sparked with an improving mentality, there are opportunities everywhere.

Since the Wood LAB Pren started in April 2017 there have been a number of workshops and educational events held at its base in Aberbargoed. These have been aimed at all sectors of the timber supply chain from foresters and processors through to manufacturers and designers. What is evident is how enthusiastic participants are to learn new skills and fuel their passion and commitment to Welsh Forestry and the products that derive from it. For many people who work as sole traders or for companies and organisations it is an opportunity to network and share common experiences.

Visual Strength Grading of Softwood

This five-day course on grading softwood to the visual strength grades set out in BS 4978: 2007+A1:2011 was facilitated by Mr Phil O'leary from Exova BMTRADA. With day 1 in the classroom and the next 4 days in the classroom and the timber yard, it covered species and natural growth characteristics; strength classes and visual grading, the marking systems; an understanding of the responsibilities of the grader and the grading company; drawing knot plots and grading softwood timber to GS and SS. An exam at the end confirms certification to visually strength grade softwood timber to BS 4978.

The inspirational message needs to be that the inter-related eco-system of forests, timber and furniture is an important part of our life experience, which offers tremendous opportunities for new ideas.

Timber Supply Chain in Action

This workshop is in collaboration with Cardiff Met University for their 2nd year makers course, giving students a better understanding of wood and the workings of timber supply chains. It aims to link these future designers with the local forests and inspire them to work more closely with foresters and manufacturers. It included a talk on how trees are grown and their importance and benefit in the eco-system. This was followed with an explanation of timber conversion and drying, and a demonstration of local timbers and their qualities with the chance to try machining and green woodworking techniques.

Steam Bend a Chair in a Day

In these one-day workshops, participants learn the ancient technique of bending timber through immersing the green timber in steam before forming into various shapes over molds and by free-hand.

The course is run under the expert tutelage of Charlie Whinney (www.charliewhinney.com) and timber provided by Ruperra Conservation Woodlands near Machen. During the day, various chairs are made and participants can take them home to give them final finishing touches. The aim is to demonstrate how high value furniture can be created from perceived low value timber.

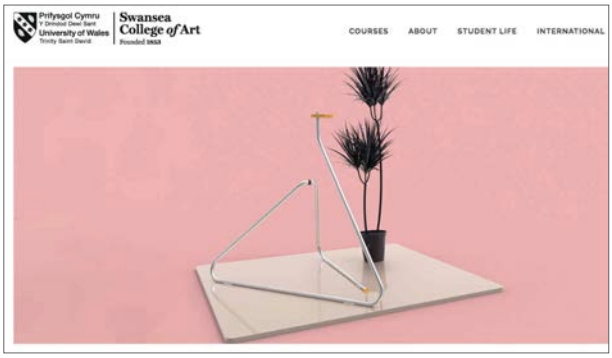
Intro to Green Woodworking

These one-day courses introduce the techniques and theory of working with green timber (recently cut and still has most of its moisture). Tutored under the skilled eye of Gareth Irwin, participants learn a new skill and are connected to the simplicity, quietness and closer relationship with timber that comes with this form of making.

Gareth demonstrates how to take a small green log through the various stages to produce a simple and elegant mallet. This encapsulates the fundamental elements needed to make chairs from green timber.

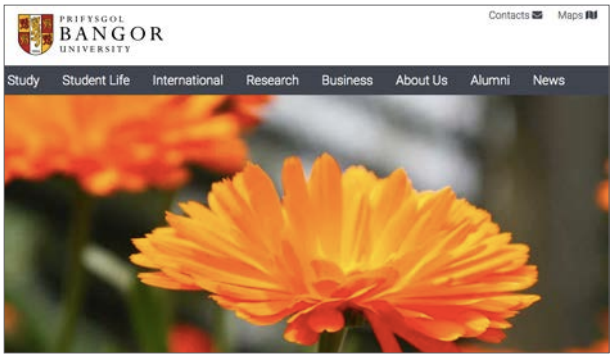
EXAMPLES: COURSES AND SKILLS TRAINING IN WALES

> **“We must look back and see how it was done, not to copy, but to learn. How did my forefathers go about their life? What equipment did they possess? What was the spirit of making? We are entering the age of the craftsman, where skills will be what matters.”**
>
> John Brown, author of *Welsh Stick Back Chairs*



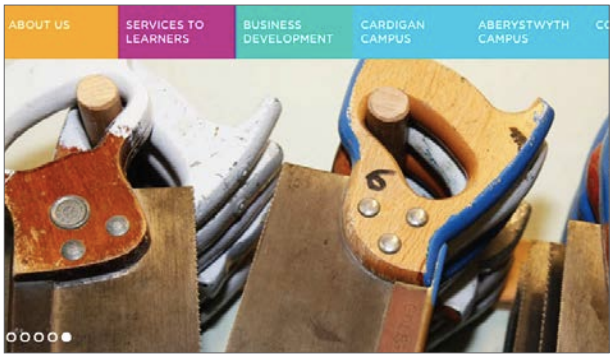
University of Wales, Product Design BA
www.uwtsd.ac.uk/ba-product-design/

This course explores the human-centred aspects of product design. Students are encouraged to explore, innovate and then incorporate their understanding of aesthetics and other complexities through form-making and product concepts and interactions. Approaches for idea generation, form development and product interaction are taught through studio and workshop practice, allied with a sound understanding of materials and manufacturing.



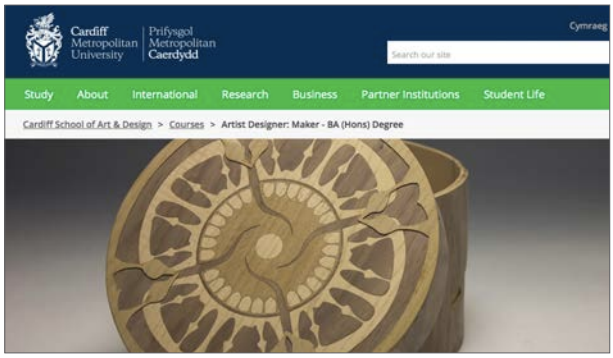
Bangor University, Forestry BSc (Hons)
www.bangor.ac.uk/courses/undergraduate/D500-Forestry

Bangor University has been teaching forestry for over 100 years. This degree prepares students for the challenge of managing forests for the many benefits they provide, at a time of global environmental change. This course is accredited by the Institute of Chartered Foresters.



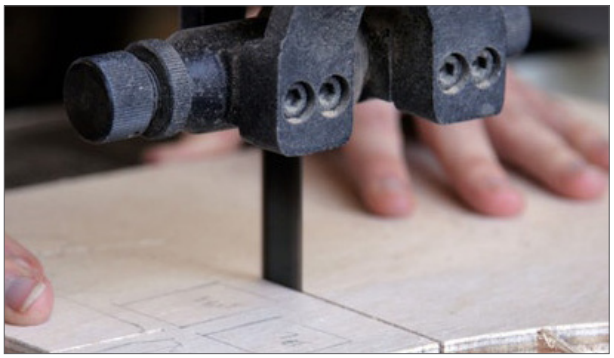
Coleg Ceredigion
www.ceredigion.ac.uk/en/department/furniture/

Courses in furniture making and restoration at Levels 2 and 3. The facilities at the furniture workshops include a comprehensive machine workshop as well as its very own solar kiln used to dry wood sustainably. Students gain knowledge and experience, both in the practical sessions as well as master workshops held each year by renowned craftspeople in the industry.



Cardiff Metropolitan University
Artist Designer: Maker - BA (Hons) Degree
www.cardiffmet.ac.uk/artanddesign/courses/

Students gain hands-on experience with materials from metals, glass and ceramics through to wood and textiles. They learn to bridge the gap between age-old skills and the latest technology – and create new ways of making for our ever-changing world.



Welsh School of Architecture
www.cardiff.ac.uk/architecture/

Established in 1920, the Welsh School of Architecture combines a strong tradition of architectural education with an international reputation for research excellence in key aspects of the built environment. The School combines creativity with a focus on making, its research portfolio and high calibre staff.

St Fagans Gweithdy
www.museum.wales/stfagans/makinghistory/gweithdy/

This new gallery/activity space celebrates the skills of makers past and present, and encourages visitors of all ages to experience traditional skills first-hand. Activities bring people together, allowing them to draw inspiration from the products of past craftspeople and use the flexible space to make artefacts that reflect their own lives and experience.

USE OF SHORTLENGTH TIMBER IN FURNITURE

Written by David Jenkins, this report, published in 2005, outlines the findings of the Shortlength Project, a project partnership between Fira and Coed Cymru. It researched the commercial viability of using small diameter timber stocks (defined as not exceeding 22.5cm for the purposes of the project), which are abundant in the UK, but are poorly utilised and under-valued. The furniture manufacturing industry offered an avenue to add value to this material while seeking to meet economic and environmental expectations.

The report looked at issues around effective felling, conversion and drying techniques focused on Oak, Beech and Sycamore as common species. It proved the technical viability of use in higher value applications within the realities of commonly used sawing equipment and simple kilns.

A key design consideration in the use of shortlength timber is the size of sections. The most common size used in the project trials was 25 x 100mm board which could then be jointed for larger lengths. The appearance is also a factor, given that there is a demand for light coloured, defect-free, straight-grained finish in furniture products. But the report suggested that there were signs of movement away from 'bland' surfaces toward 'character timber' that retains natural defects as a reflection of craft.

Opportunities for product development were seen to be in garden furniture, cabinet making, frameworks in upholstered furniture, table tops, chairs and turned items. Prototypes in the report show examples of small tables, garden chairs and a simple office chair design (see below). The overarching theme of the report was the great potential for shortlength timber in the furniture and joinery industries. It proved that this under used resource can be converted, machined and dried successfully to provide a good quality product with local provenance.

Copies of the report are available for download to TRADA members:

https://www.trada.co.uk/publications/info-from-other-organisations/use-of-shortlength-timber-in-furniture-manufacture/

APPEARANCE GRADING OF WELSH HARDWOODS FOR FURNITURE PRODUCTS

Appearance grading is used to assess the suitability of a piece of timber for non-structural uses, such as furniture or joinery, based on surface characteristics such as knots, shake or grain run-out.

Unlike much of the imported timbers, home grown timber has a wide variety of character and colouration in its grain, which gives it a distinctive visual appearance. The quality can vary widely according to a range of factors such as: species, growing conditions, age, and method of sawing the log into boards. To simplify the selection process, the various visual appearances of timber are sorted into similar groups.

There is a European appearance grade Standard EN 975-1 introduced for Oak and Beech which is not mandatory, and little used in the industry. This is in part due to the presentation of the standard being unnecessarily complex and does not fully suit the characteristics of UK timber. A simplified version was developed and published for the British hardwood sector. It provides detailed information on the range of quality available from our sawn hardwood timber and highlights the special features of UK grown hardwoods that are often difficult to obtain from imports. The guide also gives information on timber measurement, the properties and uses of UK hardwoods, and an illustrated technical glossary.

Grading Method Summary

There are six main features of Welsh and UK grown hardwood timbers to consider when selecting boards

1/ Knots - pip, burr and character

2/ Colour - various

3/ Grain – straight, wild or rippled

4/ Decorative stains – such as spalted Beech, olive or brown Ash, brown or tiger Oak

5/ Sawing – quarter sawn, plain sawn, rift sawn

6/ Moisture content – for example: for internal joinery with rooms at a range of 12 to 21 degrees the timber needs to be between 9% and 13% moisture content

Making The Grade - A guide to appearance grading UK grown hardwood timber, published in 2005 as a national commentary on European standard EN975-1.

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Extract from:
Timber has a Memory
by Clare E Potter

I've gone to the process, the free
and liberating way of working, how the wood maker
goes to his own made shave horse, axe and chisel
as if meeting an elder, open hearted and willing
not to be the master, to be apprentice.

He walks in the forest, the source of where the timber's breathing
it feeds him and the spoon he carves is god's offering.

What he says is, the moment it's hot, the wood takes a breath again,
and its last breath is not its death it's the gift of surrendering.

Clare Potter is a writer, performer and educator from Cefn Fforest, and has won the John Tripp Award for Spoken Poetry. She has written for the Welsh National Opera in community theatre and singing projects, and has received various commissions to write poetry in collaboration with artists, including street poetry in the pavements of Pontypridd.

FURTHER RESOURCES

British Furniture Confederation

www.britishfurnitureconfederation.org.uk

Business Wales

www.businesswales.gov.wales

Caerphilly Cwm a Mynydd

your.caerphilly.gov.uk/cwmamynydd/welcome

Coed Cymru

www.coed.cymru

Design Council

www.designcouncil.org.uk

Menter a Busnes/Agora

www.menterabusnes.co.uk/en/services/agora

Natural Resource Wales

www.naturalresources.wales

Oak Village, Japan

www.oakv.co.jp

Silverlining Furniture

www.silverliningfurniture.co.uk

Sylva

www.sylva.org.uk

TRADA

www.trada.co.uk

Wood Knowledge Wales

www.woodknowledge.wales

Coed Cymru
Welsh woodlands & timber

CAERPHILLY COUNTY BOROUGH COUNCIL
CYNGOR BWRDEISTREF SIROL CAERFFILI

Blaenau Gwent

cwm a mynydd - hill and valley

Llywodraeth Cymru
Welsh Government