PROSIECT
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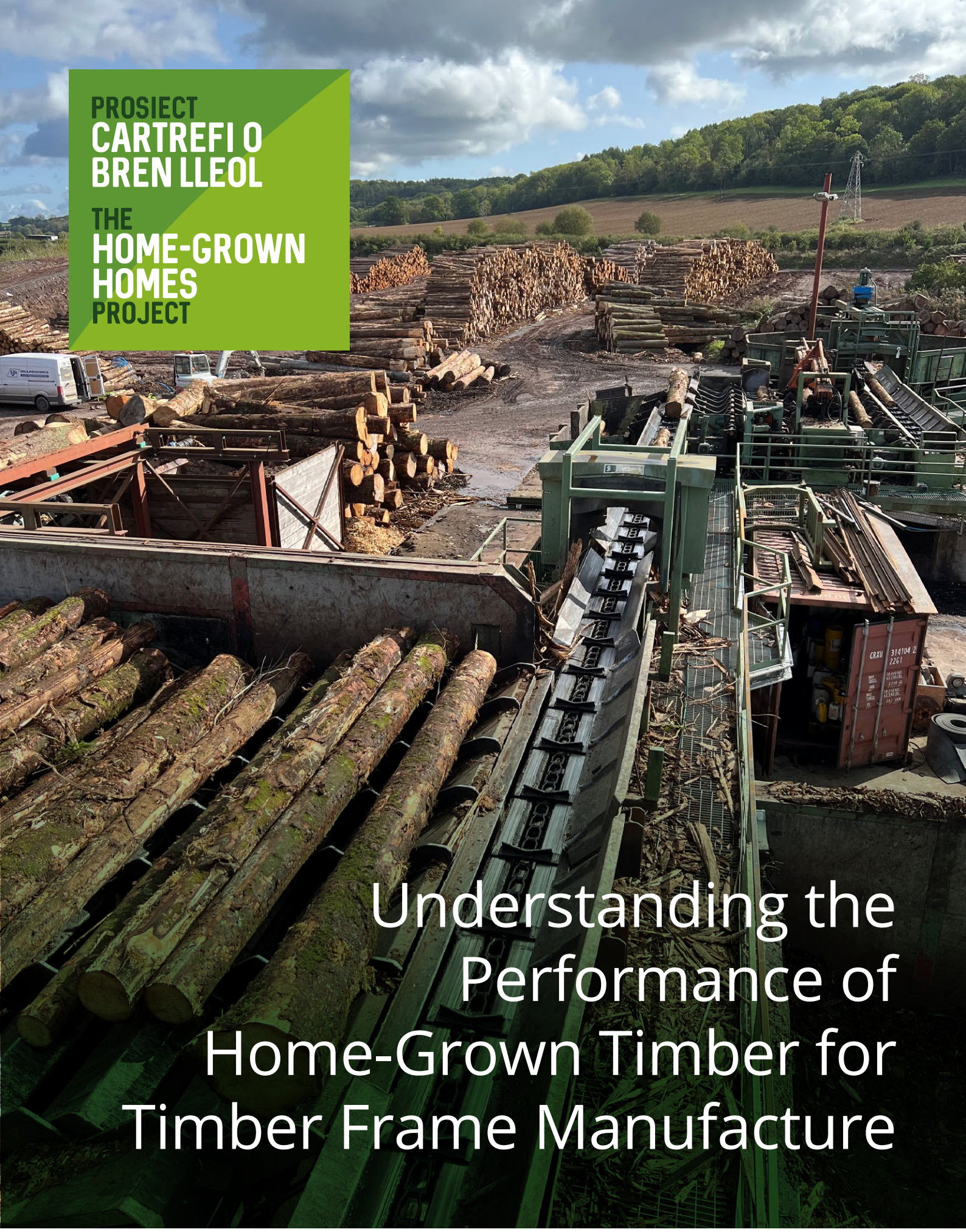
THE
HOME-GROWN
HOMES
PROJECT



Understanding the Performance of Home-Grown Timber for Timber Frame Manufacture

woodknowledge WALES

Ariennir gan
Lywodraeth Cymru
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Understanding the Performance of Home-Grown Timber for Timber Frame Manufacture

CONTENTS

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Woodknowledge Wales

EXECUTIVE SUMMARY

This report addresses the potential for greater use of home-grown structural timber in timber frame manufacturing in Wales as part of the urgent need to decarbonise the construction sector in Wales amid the ongoing housing crisis and climate challenges. Wales requires 14,000 new low-carbon homes annually for the next 15 years, with home-grown timber playing a key role as emphasised in the Welsh Government's first Timber Industrial Strategy.

Currently, the use of home-grown structural timber in new buildings is minimal. The Forest Research Forestry Statistics show that UK imports about 63% of sawn wood and panels used in construction. Greater use of domestic timber would support local forestry, enable regional customisation, cut transport emissions and reduce import dependence.

Many timber frame manufacturers in Wales view home-grown structural timber as inferior to imported material, because of issues of stability, strength grading, inertia, supply terms, pricing and more. The report focuses on challenges and potential solutions to improve the suitability of home-grown timber for precision timber frame manufacturing including growing conditions, silviculture and site selection, log/sawlog selection and cutting patterns, kiln drying protocols and moisture management throughout the supply chain.

The challenge for timber frame manufacturers is explored. At the heart of this study is how to best use timber from fast grown trees which produce wider growth rings, larger juvenile cores, higher microfibril angles, reaction wood, and spiral grain. Practical interventions across the supply chain (tree breeding, site/silviculture selection, log segregation, optimised cutting patterns, advanced kiln-drying protocols, and post-kiln moisture management) are explored.

Stakeholder input from foresters, sawmillers, manufacturers, researchers and specifiers confirms that dimensionally stable home-grown timber is technically achievable but stalled by current incentives and practices. The commercial reality is that technical fixes alone will not shift behaviour. Profit often trumps process change. The success of many medium and large sawmillers has been in supplying timber into the construction sector for Repair, Maintenance and Improvement (RMI) but not in supplying the timber frame manufacturers, meaning there has been limited impact on directing home-grown timber into social housing.

Forest Research data shows that the sawnwood market in the UK is dominated by imports (approximately 67% is imported) which basically sets the market and prices for homegrown sawnwood. This in turn reflects on the way processors buy logs and the prices they can pay and therefore there is no incentive for foresters to identify and market logs specifically for timber frame manufacture. Current approaches will need to change in a way that makes commercial sense. For home-grown sawlogs with the desired performance characteristics to be sourced, identified, and selected for timber frame markets, then an integrated approach is needed from the forest to consumer. That means an end-to-end system redesign, not isolated tweaks.

In short, the report shows that stable home-grown structural timber is possible, but without regulatory push, targeted funding (e.g. Social Housing Grant uplift), updated procurement rules, and new value propositions that make timber-frame manufacturers a more viable customer, the status quo will prevail. The conclusions are clear: technical knowledge exists; commercial viability with policy courage is now required.

The impact of future climate change, conflict and global pandemics might have a transformative effect and the interventions highlighted may become practically and financially more attractive. Carrying out the research and improving our knowledge in this area will help to prepare for any future change where home-grown structural timber becomes a more viable choice. Woodknowledge Wales will continue to engage stakeholders through its events, networks and projects to improve opportunities and find solutions that work.

ACKNOWLEDGEMENTS

Interviews took place with a number of specialists as part of this work – detailed below. They helped to explain the challenges and opportunities, where research and practice has already taken place and where they think most potential for change lies. Their contribution has been invaluable and Woodknowledge Wales is grateful for the knowledge, skill and experience of these stakeholders which has been essential to understanding why the current challenges to use of home-grown material are so pervasive and how realistic and practical the potential solutions might be.

Paul Davies, John Smillie & Alistair Thomson, BSW
Barry Gardiner, INRA Bordeaux
Tony Hughes, Williams Homes
Darren Jarman, James Roberts and Tim Morris, Lowfield Timber Frames
Andy Leitch, Confor
Craig Leitch, Ransfords
Elspeth Macdonald, Forest Research
Rob MacKenna, James Jones & Sons Ltd
Jasper Meade, PYC
Phil O'Leary, Filros Timber Consultancy
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Rob South, Bronwin & Abbey
Rob Thomas, Hiraeth Architecture
Rob Wheaton, Stride Treglown
Richard Whittet, Forest Research

INTRODUCTION

We have very few years remaining to ameliorate climate change and biosphere damage. This requires decarbonisation of the construction sector (around 40% of global emissions), an essential but complex task particularly in the context of the Welsh housing crisis. Wales still needs around 14,000 new low-carbon homes every year for the next 15 years[1]. The use of home-grown timber in construction generally and in the manufacturing of timber frame components for new buildings in particular is at the core of this drive to decarbonise the sector. The essential role of timber in achieving these targets is reflected in Welsh Government's first Timber Industrial Strategy[2].

Sourcing and using home-grown structural timber in new buildings is currently (March 2026) negligible. The UK currently imports 63% of the sawn wood and timber panels used in construction[3]. More use of UK grown timber in the construction of new buildings is important as it supports the forest industry sector in the UK, enables easier customisation to the needs of the supply-chain (and regions), reduces wood miles, and reduces reliance on imports.

This report focuses on understanding the properties (and challenges) of manufacturing with home-grown structural timber. The experience of timber frame manufacturers in Wales has led them to consider home-grown timber to be an inferior product to imported material. Current timber frame manufacture is a form of precision timber engineering creating timber "house-kits" that support the building of high-performing homes. This requires components including structural sawnwood that does not distort and meets the precise strength grade, dimensions and tolerances that the sector requires. This report therefore focuses on practices that have the potential to positively impact on the provision of structural timber more suited for precision manufacture in the Welsh timber frame sector.

The timber frame manufacturers we have engaged with prefer imported structural timber for a number of reasons:

- **Overall quality** - finding home-grown sawnwood is less stable than imported materials in that it is more prone to distortion when used in the timber frame manufacturing process. In addition, sawnwood dimensions do not always meet the needs of today's timber frame manufacturer.
- **Inertia** – lack of familiarity with stress graded home grown compared to imported timber. Stress grading of home-grown timber began in the 1970s. The UK government asserts that "increasing demand for home grown softwoods in construction is limited by a lack of market demand for C16 timber which is the strength class most domestic softwoods are graded to. Home grown C16 timber is strong enough for the demands of most construction, but the current greater market familiarity with the higher grade C24 timber (the common grade of imported timber) leads to over specification"[4]. The Trust UK C16 campaign promoting use of C16 was launched in 2025 by three major sawmills[5]
- **Terms and Conditions of supply** - these tend to be more favourable from importers than from UK sawmills.
- **Cost** - prices for imported C24 are regularly competitive with home-grown C16.

[1] https://senedd.wales/media/xhonzkyv/ki-021-english.pdf

[2] https://www.gov.wales/sites/default/files/publications/2025-07/timber-industrial-strategy.pdf

[3] https://cdn.forestresearch.gov.uk/2023/09/Ch3_Trade_FS2023.pdf

[4] https://www.gov.uk/government/publications/timber-in-construction-roadmap/timber-in-construction-roadmap

[5] https://www.confor.org.uk/news/trust-uk-c16/

CHARACTERISTICS OF TIMBER

Trees grow in different ways depending on the species and associated environmental conditions such as geographical location, the site type and associated weather patterns. These variables can affect the characteristics of the timber produced by the trees.

Ideally sawlogs need to be selected for desirable timber characteristics such as:

- Straight stems
- Cylindrical stems
- Limited knot diameter
- Angle of branches from the tree stem near to perpendicular, creating smaller and less penetration of knots

Slower grown timber with closer growth rings has more latewood and therefore more strength. The wood in the juvenile core is less dense, with wider rings so has less strength but also shrinks along its length and has spiral grain which causes timber to twist.

Microfibril angle (MFA) is an important characteristic because it controls stiffness, tensile strength and longitudinal shrinkage. Juvenile wood usually has a naturally high MFA. This makes young trees more flexible (helpful for bending in wind without snapping), but the resulting wood is weaker, less stiff, shrinks more when dried, and is lower quality for most uses like construction timber or high-strength products.

Knots in timber are formed at locations where branches are or were in the tree. These reduce strength in timber particularly in structural applications, by disrupting the straight grain, causing stress concentrations, and acting as weak points.

Reaction wood is a type of abnormal wood that forms in leaning stems or stems exposed to windy conditions as a natural response to gravity. Reaction wood dries and shrinks differently compared to normal wood, leading to bowing, twisting, cupping, or warping.

Figure 1: Drawings of early/late wood juvenile corewood and knots

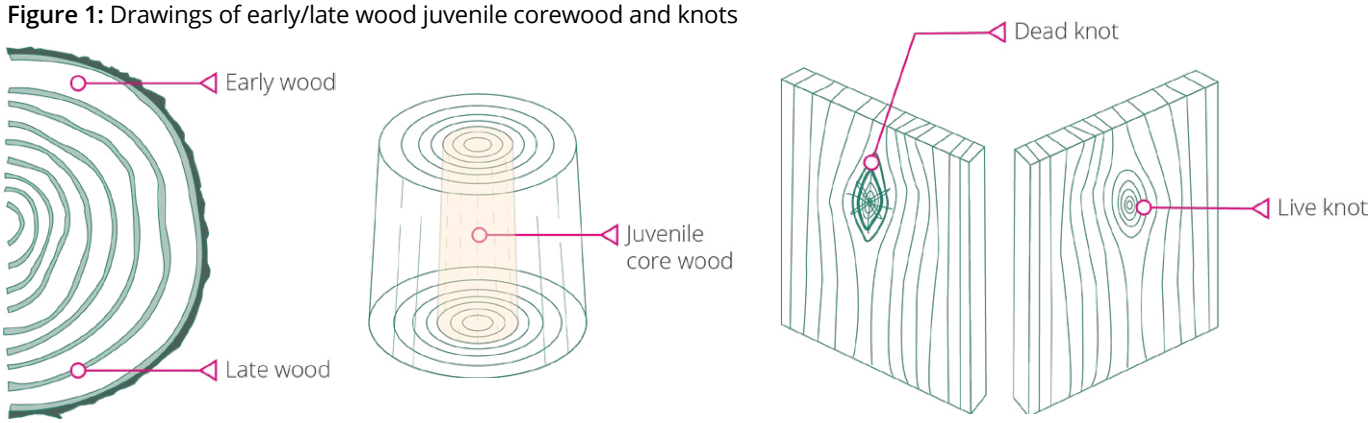
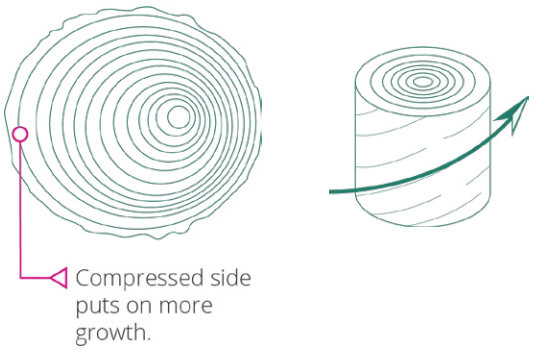


Figure 2: Drawings of reaction wood and spiral grain



GROWING CONDITIONS

Growing conditions in the UK can impact on the viability of the resulting timber for structural purposes. The temperate climate of the UK contrasts with the colder growing conditions in Scandinavia and the Baltic states. Sweden, for example, has a significantly colder annual climate compared to Wales, largely due to its higher latitude and continental, sub-arctic influences, whereas Wales has a temperate, maritime climate. While both areas are influenced by the Gulf Stream, Sweden has a lower average annual temperature compared to the warmer, more moderate climate of the UK and Wales . The result is that the UK provides excellent conditions for fast growth in conifer species such as Sitka spruce and Douglas fir.

This difference in growing conditions means that the resulting characteristics of home-grown timber diverge from imported material in that home-grown softwood trees have wider growth rings which means less strength and a larger juvenile core which can lead to twisting, cupping or bowing in sawnwood whilst drying. Fast tree growth may support rapid carbon sequestration and storage but risks more distortion in sawnwood than imported material. Many UK forests have been established in upland areas where growing conditions are more challenging and weather conditions can have a greater impact. Upland slopes and strong wind pressures can cause trees to grow differently and the stems become less cylindrical due to reaction wood (see above) which is a significant cause of distortion during drying.

QUALITY CONTROL OF TIMBER PRODUCTS

When sawlogs are converted into sawn timber pieces, the cutting patterns depend on the size of the log and the dimensions of the required products. The cutting patterns are designed to efficiently optimise the volume of sawnwood products from the log. Although cutting patterns can be designed to optimise stable timber products, under current business models, sawmills cut the largest dimension sawn wood from the centre of the log which includes juvenile corewood. These larger sawn timber pieces often reflect the sizes needed for construction and can be the strength graded timber elements. As it dries, juvenile corewood shows greater propensity to shrink unlike mature heartwood. Sawnwood end products with greater juvenile wood are more prone to distort or warp during kiln drying which is amplified if the sawnwood is rewetted during subsequent use. Repeated cycles of drying and rewetting are not desirable, and steps should be taken to avoid this by weather-protecting timber through its storage, transportation and erection on site to ensure that dried timber is kept dry.

Some architects promote measures to avoid rewetting of timber to contractors and the wider supply-chain, but the guidance is variable and not consistent. The Structural Timber Association (STA) provides advice on moisture management strategies for manufacturers aligned to the RIBA Plan of Work[6].

Manufacturers are focussed on minimising waste in order to reduce cost and act responsibly. They are reluctant to use a product that goes against this. Movement or warping of structural timber elements or panels outside of construction tolerances causes problems during and after erection. ‘Making good’ during and (especially) after construction is extremely difficult and costly. In order to minimise problems timber needs protecting from moisture at every stage of its journey from sawmill through timber merchants to off-site manufacturers and then to construction sites.

[7] https://www.structuraltimber.co.uk/wp-content/uploads/2022/09/STA-Moisture-Management-Strategy-v1-July-2022.pdf

WOODCHAIN INFLUENCES

Timber frame components include open and closed panel systems. Panel manufacture can tolerate some timber defects especially where the overall panel assembly resists movement from individual pieces of timber during rewetting and drying - but there are limits. Timber sizes, delivery requirements and payment terms are part of the mix that helps to define the needs of timber frame manufacturing. Timber that is “fit-for-purpose” enables ease of manufacture with little (or no) movement or shrinkage during the sourcing, manufacture, storage, transportation, and erection of the timber frame. Timber frame components need to be stable for the lifetime of a building. If home-grown sawlogs that exhibit desired performance characteristics are to be sourced, identified, and selected for timber frame markets then an integrated approach is needed from the forest to the consumer. Generating better quality dimensionally stable timber should also help to increase the home-grown share of other construction markets. This means the mills need to develop sawnwood products for a new but growing customer base. Current business models will also need consideration.

Larger sawmills servicing Wales have business models aimed at markets for fencing, amenity and pallets. Historically the timber frame manufacturers have not been important customers for mills which generally supply sawnwood end products to different markets e.g. builder’s merchants. Medium and large sawmillers have had significant financial success supplying timber into the construction sector for RMI but not in supplying the timber frame manufacturers, so the contribution of mills to sustainable new build construction, particularly in the social housing markets has been limited. A fair presumption would be that they continually review markets both in terms of products and value, to look for any changes, openings, or opportunities. They will be aware of global trends and fluctuations including within the money markets to see how sterling is performing now and in the future. They do this in the context of being a relatively minor player in the UK timber market: one dominated by overseas suppliers.

The current markets targeted by the processor define the processing practices as well as the business dealings between forest agents and foresters in terms of sales and woodland management. If the sawmills are going to perform more strongly in the timber frame market, a market with concerns about the suitability of home-grown softwood, then an approach and value proposition needs to be considered and developed with the help of key stakeholders. Foresters and forest owners need to improve how timber is marketed and sold. Processors set the prices acutely aware of imported sawnwood prices. This impacts upon the way that the foresters manage timber production and how it is presented to the market. There have been exceptions where individuals have varied their approach via targeted marketing but usually for very small volumes and only on odd occasions.

Unless there is a significant increase in home-grown timber values which outweighs the costs of modifying efficient yard and processing systems then sawmills are unlikely to deviate from their through and through cutting systems. To isolate individual pieces of timber within the processing line which are likely to be stable on drying and then maintain that stability will be difficult to achieve throughout the supply chain. Smaller and medium sized processors may be willing to change and adapt but those that can operate at the scales required don’t have adequate kiln drying facilities, or have the incentives to do so.

DISCUSSION

As part of understanding the challenge of using home-grown timber in timber frame manufacturing, a number of experts familiar with these challenges and potential solutions were asked for their views. They work across the woodchain, have a wide range of skills, knowledge and experience and come from a range of organisations in academia, research, architecture, forestry design and management, tree breeding, timber consultancy, timber processing and timber frame manufacturing.

The feedback from this stakeholder engagement highlighted a number of potential areas for intervention.

- **Species and tree breeding** – tree species have particular characteristics that make the timber they produce suitable for particular uses. Some of these characteristics can be improved through breeding. Research shows that it's possible to grow trees with the qualities timber processors value. Some of these qualities are contained within a tree's genetic make up and so can be bred over successive generations to enhance those qualities. Microfibril angle is a heritable characteristic which has an impact on timber stiffness, strength and stability. Studies show it is a viable target for breeding programmes where lower microfibril angles can produce improved structural timber. Research work by the Conifer Breeding Co-operative on Sitka spruce in particular has shown the kinds of genetic characteristics which have a correlation with improved timber.
- **Site types** – these will significantly influence the way particular tree species grow and can affect the rate of growth. For example, the slope of a site, its exposure to the elements, soil types will all impact on how productive tree species are and they will also influence the characteristics of the timber produced from those trees.
- **Silviculture** – this is the care and cultivation of woodlands and forests practiced by foresters and land managers. Depending on the particular objectives of the forest owners, trees will be grown and managed using different silvicultural regimes.
- **Tree selection within a stand in the forest** – there is some research to suggest that it's possible to select standing trees which might have the right characteristics to produce dimensionally stable material. Trees need to be selected for positive attributes and negative characteristics could be excluded. Positive and negative attributes are sufficiently well characterised that it should be possible to design practical selection systems. Their selection within a stand of trees would enable harvesting operators to segregate suitable logs.
- **Tree selection between stands in the forest** – tree species, site conditions and silivicultural practice could be used to select dimensionally stable timber to be fed into the cutting and drying process at the sawmill.

DISCUSSION

- **Sawlog Selection at the sawmill pre-drying** – there is potential for more selection at the sawmill to deliver suitable material for kilning which would have implications for sawmill processes including the way sawlogs are cut. Older large diameter spruce can be readily processed in patterns that exclude juvenile core wood for example. Studies have shown that mature heartwood from large diameter old spruce has significant stiffness. Positive characteristics associated with different species may require different cutting patterns and different kilning methods.
- **Timber selection at sawmill post-cutting** – once sawn, timber needs to be graded and finished to produce planks or boards which then need to be kiln dried. Research and stakeholder feedback tells us this is perhaps the most critical process in turning sawlogs into dimensionally stable material for timber frame manufacturing. There is a view that if the correct kilning protocols are followed, most sawn timber can be transformed into stable material. Past research into kiln drying suggests that it is possible to produce much more stable timber. This needs to be reviewed especially as the current (2026) price of energy in the UK would make the additional cost of kiln drying a further disincentive. A number of stakeholders felt that it was the kilning and aftercare of timber that presented the biggest challenge, in that increasing moisture and poor stacking was leading to inferior material arriving at the timber frame manufacturer.
- **Specifying the process and product** – a number of stakeholders have suggested that the way to meet the challenge of producing and selling at scale the kind of stable material required by the timber frame manufacturers is to develop an appropriate specification. Specifications can be used at different points in the timber supply chain to set out requirements for products and processes. Standard contract clauses could be developed.
- **Using regulation, funding and innovation** – a number of stakeholders felt that whilst the research on how to produce more stable material has been developed and shown to be possible, in reality it's not being exploited. The extra time, trouble and costs have all been highlighted as reasons. There is the potential to use various levers to encourage change which could involve action by stakeholders at different points in the supply chain.

CONCLUSIONS

This report seeks to identify ways of increasing the use of home-grown structural timber in timber frame manufacturing. This means exploring how the market might develop and become more sustainable. All interested parties, including those relying upon timber frame manufacturing need to understand the relationship between silvicultural conditions, their effects on structural timber properties and how this satisfies the needs of customers. The sector is fast paced and scaled for efficient workflows that provide the throughput of timber products e.g., timber wall, floor and roof systems and requires dimensional stable structural timber that performs to its needs.

Discussion of fine technical detail cannot coalesce climate politics, politics and implementation of practical ameliorative measures. If governments and researchers agree that the use of sustainably managed home-grown timber in construction is necessary, then government policy and regulation will be needed to help drive this more effectively.

The thinking elaborated upon in this report identifies how the Welsh Forest Industries might supply structural timber that competes with imported alternatives. The use of home-grown timber in timber frame construction is challenging. The supply chain for timber used by timber framers is complex and fragmented and is one of the reasons why maintaining quality and consistency is an issue. At each stage in the process from primary producers, through forestry agents, harvesting contractors, hauliers, sawmills, merchants to timber framers, contractors, specifiers and architects there have been significant tensions historically.

Foresters and processors alike are likely to need incentives for them to change current practice but the impact of future climate change, global conflict and pandemics might have a transformative effect and we may find that the interventions highlighted here become practically and financially more attractive. Carrying out the research and improving our knowledge in this area will help to prepare for any future change where home-grown timber becomes a more viable choice.

The report suggests a number of potential interventions which might lead to the production of dimensionally stable material for timber frame manufacturers. Each intervention poses questions for stakeholders about the extent to which it might present practical, viable, economic and realistic options for them. Woodknowledge Wales will continue to engage stakeholders through its events, networks and projects to improve opportunities and find solutions that work.

NEXT STEPS

If wider use of home-grown structural timber is to take place in Wales, further research is needed to understand the impact each of the discussion items detailed above might have in order to answer the following questions:

- What more could more be done to explore the opportunities offered by tree breeding when it comes to the timber qualities needed by timber frame manufacturers?
- What are the key site features likely to produce more dimensional stability in timber and are some features likely to have more of an impact than others?
- What are the species, site and silvicultural regimes best suited to grow trees likely to produce dimensionally stable timber?
- How can trees be selected before they are harvested, or at the time of harvesting, to produce more dimensionally stable material? What would be involved and would there be a time and cost implication to this? How practical would it be to use technology like ground based laser scanning, drones or acoustic devices on harvester heads in the selection process, what would be involved and would there be a time and cost implication to this?
- How practical might it be to identify particular stands specifically to sell for processing for timber frame manufacturing? What are the tools and techniques available to enable this kind of selection?
- Can sawlogs which have arrived for processing at the sawmill, be scanned, segregated and cut in a way that delivers suitable material for kilning whilst also providing the yield and volume sawmills need to achieve to retain efficiency and remain profitable?
- Can sawlogs be selected, optimised, and properly valued for their potential to be converted into high strength structural or joinery grades?
- Would very different sawmill cutting patterns be required to avoid those parts of the home-grown material known to be less stable? How practical would this be for processors, what elements of their process would need to change and what might be the implications for processing time and price?
- To what extent can smaller and medium sized mills compete to supply what timber framers require or will the largest mills remain the only reliable supplier of material at scale? What might be needed to create more opportunities for small and medium sawmills?
- Can most sawn home-grown timber be transformed into stable material through the adoption of appropriate kilning protocols?
- What lengths of time and what temperatures would need to be achieved in order to dry timber to produce suitable stable material at the right moisture content and what would this mean in terms of handling and energy costs?
- Once kiln dried material leaves the kiln, what process needs to be followed to ensure that it is kept dry during storage ahead of purchase and in transportation to a timber frame manufacturer? How willing would processors be to produce this material and what guarantees would they reasonably demand on the supply of the right raw material, demand for the product and the price?
- To what extent can the production of stable material be written into specifications by the client/customer, designer/architect, contractor, timber frame manufacturer etc. and how could these be tested for effectiveness? Could standard clauses for contract documents help make the process efficient?
- How could the push of regulation and the pull of funding be used to enable the demand and supply dynamic to change? If Welsh Government wanted to link its objectives in its Timber Industrial Strategy to see more of the home-grown timber it owns in the Welsh Government Woodland Estate used for example to build social housing how could this be achieved?
- How effective would amendments to the Welsh Development Quality Requirements be which require use of home-grown timber? Could the likely additional costs housing associations and local authorities would incur as a result be funded through an uplift to Social Housing Grant?
- How can the Tai ar y Cyd social housing collaboration offer opportunities to research and test many of the potential solutions outlined above?
- Could these projects also offer opportunities to test out dimensions, lead-in times, payment terms, credit arrangements with contractors and procurement related issues which some stakeholders have indicated as significant barriers to delivery?

GLOSSARY

C16	The 'C' in C16 stands for conifer. In terms of the bending strength of C16 this refers to 16N/mm^2 or 16 Newtons per square millimetre.
C24	The 'C' in C24 stands for conifer. In terms of the bending strength of C24 this refers to 24N/mm^2 or 24 Newtons per square millimetre.
Closed-Panel Frame	A timber frame system that typically includes studs, insulation, inside and outside boards.
Distortion	Timber distortion occurs when it is less stable i.e. prone to the impacts of growing conditions and sub-optimal characteristics.
Forest Agent	A professional who works on behalf of a forest owner.
Grade / Grading	Grading refers to the process of assessing and categorising wood based on its quality, appearance, and structural characteristics. This involves evaluating factors such as knot size, grain pattern, moisture content, and defects to determine the suitability of the wood for various applications.
LIDAR	LIDAR, which stands for Light Detection and Ranging, is a remote sensing technology that uses laser pulses to measure distances to the Earth's surface. It is commonly used in forestry for mapping terrain, vegetation, and canopy structure with high precision and accuracy. LIDAR data can provide detailed information about forest characteristics, including tree height, canopy density, and topography, facilitating forest management, ecological research, and conservation efforts.
Juvenile Corewood	This is the initial wood formed near the pith (centre) of a tree, characterised by lower density, shorter fibres, high spiral grain, and greater flexibility than surrounding mature wood.
Open-Panel Frame	A framing system that typically combines a board on one side of the timber frame. Insulation and a second board are typically installed at the construction site.
Processing	Converting sawlogs and other material into timber, which in this report mainly means use of saws at a mill.
Sawlogs	A sawlog is a log of suitable size for sawing into timber. It's typically a straight, relatively large-diameter log harvested from a tree that is suitable for processing at a sawmill.
Sawnwood	Sawnwood refers to wood that has been cut or sawn from logs into specific shapes and dimensions for use in construction, carpentry, and various other applications.
Stable	In this report this refers to a piece of structural timber that keeps its shape when used within an open or closed panel. It does not deform when transported, at the manufacturing stage, in construction or in use.
Stands	In forestry, a "stand" refers to a contiguous group of trees that generally have similar characteristics such as species composition, age, size, and density. Stands are managed as units within a forest landscape and are often delineated based on ecological, silvicultural, or management objectives.
Sylviculture	Sylviculture is the branch of forestry concerned with the cultivation and management of forests, specifically focusing on the growth, development, and maintenance of trees and forest ecosystems. It involves the application of various techniques and practices to promote healthy and sustainable forest growth, including tree planting, thinning, pruning, harvesting, and regeneration. Silviculture aims to optimise the production of forest products while maintaining ecological balance, biodiversity, and other ecosystem services.

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