

**For the attention of:** Fay Carter (Powys County Council)

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## ARWAIN

### Feasibility Study for the development of the Home-Grown Homes

#### Supply Chain Development Service

## FINAL REPORT

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**Prepared by:** Tabitha Binding and Gary Newman (Woodknowledge Wales)

**Preparation date:** August 2017

### Executive Summary

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***Powys aspiration*** “Powys county council is determined to develop innovative housing solutions to address the loss of young economically active households from our communities by creating jobs in the growth, harvesting, processing and manufacture of homes from natural timber resources grown in our rural communities.”  
Simon Inkson, Head of Housing, Powys County Council

***Project background*** The project was focused in Powys and represents the first stage in the development of an all Welsh timber industry supply chain development service with the aim of meeting the above aspiration and delivering substantial and profound economic, social and environmental value

***Project management*** The project was conceived and managed by Powys CC housing department of, steered by The Home-Grown Homes Partnership (consisting of 7 RSLs, Community Housing Cymru, The Welsh Local Government Association and NRW) and delivered by Woodknowledge Wales

***Project purpose*** The overriding purpose of this 1 year study was to lay the foundations for an all Wales Rural Development Programme project.

***Project approach*** The primary focus of this project was to undertake ambitious sector engagement activities to develop more detailed understanding of

the opportunities and barriers to sector expansion and pilot test the type of intervention that could be scaled-up in the all Wales RDP16.2 project. A secondary aim was to generate widespread knowledge and excitement around the Powys aspiration

**Project activities** Support Powys CC in running the Home-Grown Homes Partnership / develop and study exemplar construction projects and address barriers / develop a key policy driver within Powys county Council (the Wood Encouragement Policy) / run an extensive engagement programme through workshops, conferences and meetings / prepare the RDP16.2 project proposal

**Background context for RDP project (Well-being of Future Generations Act)**

**Globally Responsible:** Forestry and wood-products are a climate change mitigation opportunity  
**Prosperous:** using more home-grown timber is good for the Welsh economy  
**Resilient:** It is widely understood that forest expansion will improve soils, air and water, increase biodiversity, reduce flooding  
**Healthy:** The role of forests, trees and nature for human health is well understood. There is now emerging evidence of the mental and physical health and well-being aspects of timber construction (e.g. indoor air quality, acoustics, biophilia)  
**More Equal:** Amongst other things, low energy timber housing will help to reduce fuel poverty  
**Cohesive Communities:** Using local materials and regionally rooted businesses to construct housing can help to foster community development and cohesion  
**Thriving Culture:** Wales has entrepreneurial, adaptable, and localised cultures. Woodlands, timber and buildings are steeped in our history

**The purpose of the RDP16.2 project**

The purpose of the RDP project is to trial a supply chain development service that addresses the specific and systemic barriers to sector expansion. The project is founded upon supporting the construction of exemplar projects throughout Wales to enable construction clients to use timber and timber products in a way that maximises local benefit and provides demand-led stimulus to the supply chain

**Proposed activities in the RDP16.2 project**

The three main areas for intervention to be developed and tested will be technical support, development of decision making tools, education and a range of specific feasibility studies

## Background to the project

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Powys County Council have submitted a £1.5 million Rural Development Programme (RDP) proposal to undertake a study into the potential for an all Wales timber industry supply chain development service. The fundamental purpose of this service is to stimulate the development of the timber construction supply chain.

The Home-Grown Homes Project is driven and managed by Powys County Council Housing Department who seek to build high performance timber housing in Powys in a way that stimulates the local timber supply chain and thereby maximises the social, environmental and economic benefit from their development and procurement activities.

A previous study undertaken by Sosavi Ltd on behalf of Powys County Council provided a description of the challenge and opportunity. The study highlighted the fragmented nature of the Welsh timber industry and the compelling need for coordinated and sustained supply-chain development activity.

The project is overseen and advised by a steering group - the Home-Grown Homes Partnership (HGHP). The HGHP meets quarterly and is chaired by Simon Inkson, the Head of Housing of Powys CC and consists of representatives from 7 RSLs, Community Housing Cymru, Natural Resources Wales (NRW) and the Welsh Local Government Association (WLGA). The terms of reference for the Home-Grown Homes Partnership is given in **Appendix A**.

Woodknowledge Wales was appointed to deliver this Arwain funded project on behalf of Powys County Council.

## Purpose

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The overriding purpose of this 1 year Powys-based study is to lay the foundations for the all Wales RDP project. The project required an extensive engagement activity with the whole timber supply chain from forest to building.

The purpose of this engagement is:

- To establish and expand a motivated network of individuals and organisations with the collective capacity to drive change in the timber supply chain
- To widely communicate the aspiration of Powys County Council and the Home-Grown Homes Partnership
- To understand the barriers to the development of the Welsh Timber Industry
- To explore potential supply chain interventions to overcome these barriers

## Activities undertaken

The following activities were undertaken during the Arwain project. All learning from these activities and interventions has informed the specific details of the RDP project.

### Advise the development of the Home-Grown Homes Partnership (HGHP)

As part of our project activities Woodknowledge Wales (WKW) provided the management support for the quarterly HGHP meetings, developed the terms-of-reference and provided all discussion documents for the meetings.

### Develop Pilot Projects

One of the innovative aspects of this projects approach to supply chain development is to engage construction clients to help create the demand pull for the switch to more timber, more local manufacturing and more home-grown timber. We have worked extensively with WKW client members and Home-Grown Homes partnership members to identify and support pilot scale demonstration projects. These projects are in different stages of development but are summarised in the table below.

CLIENT	PROJECT DESCRIPTION	SUMMARY OF INTERVENTION
Wales and West Housing	Cwrt-y-fynach Rhos-on-Sea	Switch to timber frame using Home-Grown timber processed in Powys
Bron Afon Housing	Two Locks	Switch from PVC to timber windows Use timber cladding, decking and exterior staircases
Powys CC	Sarn	Complete redesign of project. Starting with timber being the primary element, passivhaus being the energy standard
Powys CC	Bowling Green	Switch to timber frame from Powys timber, wood fibre insulation, timber windows and timber cladding
Mid-Wales Housing	Welshpool	Switch from sips panels to local manufacturers, timber frame and towards Passivhaus energy standard
Wales and West	Welshpool care scheme	Switch from brick and block to timber frame and look at timber based products to enhance health and wellbeing

### Establish the Wood Encouragement Policy

Powys County Council believe that their aspiration to develop timber housing using local labour and local timber should be supported by a pro-active policy. Therefore, Woodknowledge Wales reviewed government led wood development policies from across the globe. The preferred approach was for a 'Wood Encouragement Policy' of the type first developed and implemented in Lantrobe City, Victoria in Australia in 2014. This policy provided the framework for the Powys Wood Encouragement Policy (WEP). The Victoria

policy was further developed by Woodknowledge Wales in consultation with relevant Powys departments, approved by Powys Cabinet in January 2017 and launched at Woodbuild Wales on 15<sup>th</sup> June in Llandrindod Wells. The Powys Wood Encouragement Policy is provided in **Appendix B**.

#### [Engagement activity - Woodknowledge Wales events](#)

The main aims of the sector engagement activities undertaken during this project was to develop more detailed understanding of the opportunities and barriers to sector expansion and pilot test the type of intervention strategy that could be scaled-up in the all Wales RDP project

**2# TIMBER CLADDING WORKSHOPS:** During the course of the Arwain project, WKW have run two events focused upon the use of timber cladding. WKW believe that it is necessary to take a construction element based approach to overcoming the barriers to timber use. For example, the barriers to successfully using timber frame are different from the barriers to specifying and delivering windows. We piloted the element based workshops with a focus on timber cladding. Timber cladding was chosen as a first element as it is fashionable, simple in concept but complex to get right, and has great potential for market expansion as well as for the use of local manufacturers and local species. We believe this element-based approach was very successful and should be expanded in the RDP project. The cladding events had a combined attendance of over 100 delegates including clients, processors and foresters. The programme, speakers and delegate lists for these events are provided in Appendix C.

**3# 'FUTURE CASTING' FACILITATED WORKSHOPS (Building the future of the Welsh wood supply chain):** It was initially proposed to create an advisory group drawn from the Welsh timber supply chain. However, it was decided that it would be difficult to maintain interest over an extended period. It is also clear that in a sector dominated by SMEs there is a degree of 'consultation fatigue'. Therefore, it was decided by Powys and the HGHP that we should run a series of workshops conceived to identify the main barriers to sector growth and begin to develop actions to overcome these barriers. The workshops were built around the hypothesis that it is 2050 and Wales is a high value timber nation with 75% of the houses made from wood, 75% of the products manufactured locally and 75% of the timber used grown in Wales. These workshops were attended by 55 individual delegates with some delegates attending more than one workshop. The workshop flyer and delegate lists, the workshop summary and the summary action plan are shown in Appendix D. A spin-off benefit from these workshop is the number of influential individuals engaged in the Powys timber housing development mission.



*L to R: workshop 2 & 3*

WOODBUILD WALES 2017 (New opportunities and innovative solutions: Featuring the launch of the Powys Wood Encouragement Policy): in 2016, Woodbuild Wales was held in Cardiff and sponsored by Welsh Government. This year in 2017, Woodbuild Wales was held in Llandrindod Wells. The purpose of the Powys location was to give maximum prominence to the activities of the Home-Grown Homes Partnership in general and the Wood Encouragement Policy in Particular. The conference attracted over 100 delegates. Woodbuild Wales was sponsored by BSW Sawmill (based in Powys). On the day before the conference BSW hosted a sawmill tour. The full conference programme, speakers and delegate lists is given in Appendix E.



*L to R: Woodbuild Wales & Launch of Powys Wood Encouragement Policy*

### Engagement activity - Other events

During the course of this ARWAIN funded project, WKW attended, spoke at, and exhibited at numerous conferences, workshops and exhibitions. The purpose of this activity was to engage as widely as possible with the clients and the timber supply chain. These activities included speaking at Community Housing Cymru One Big Housing Conference (October 2016), speaking at the Royal Forestry Society annual conference (October 2016), speaking at Community Housing Cymru Rural Housing Conference (January 2017) exhibiting at Community Housing Cymru annual conference (TAI April 2017), exhibiting at EcoConnect in Swansea (June 2017). Networking at Timber Expo 2016 with contacts across the UK.



*L to R: Meeting with NRW at WWAH Ewloe, Meeting WG Housing department at TAI*

### Engagement activity - Welsh Government and Natural Resources Wales

The focus of the Arwain project has been upon understanding and supporting companies and organisations with the potential to positively influence the wood supply chain. However, the policies of Welsh Government and of Natural Resources Wales have a significant influence on the opportunities for change. WKW sit on the Forest Sector Business Group that meets with Lesley Griffiths (Cabinet Secretary for Environment and Rural Affairs) and NRW two times/year. In collaboration with Wales and West Housing in May 2017 we met with members of the NRW board and CONFOR (the main forestry representative body) to introduce the Home-Grown Homes Partnership and explore the role that NRW could play in increasing the availability of timber for construction. WKW facilitated a meeting between Lesley Griffiths and Powys representatives - Simon Inkson (Powys CC Head of Housing), Jonathan Wilkinson (Powys CC portfolio holder for Housing) and Jasper Meade (PWC construction, Welshpool)) to explore the potential for Welsh Government to support the work of Powys CC and the Home-Grown Homes Partnership.



*Meeting with Lesley Griffiths Cabinet Secretary for Environment and Rural Affairs*

#### Engagement activities

A full table of organisations, businesses and individuals engaged with during the course of this ARWAIN project is given in **Appendix F**

#### Prepare and support the full RDP16.2 project proposal

During the course of this Arwain project, Woodknowledge Wales supported the development of the full Home-Grown Homes RDP project. This was submitted to Welsh Government by Powys CC in December 2016. The work undertaken during this 1 year ARWAIN funded project has substantially informed the proposed activities in the RDP project.



## Project Conclusions: The proposed HGH Supply Chain Development Service (to be piloted in the RDP16.2 project)

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### Background

There is a substantial opportunity for the development of the Welsh forest industries. Amongst other things, this means more and better forests, more and better wood product manufacturing and more and better buildings based upon wood. Wales could become a high value forest nation. This means a substantial increase in the economic output from forest industries and a substantial increase in the number of people whose economic and social well-being is linked to wood. In short, we need to create a stronger Welsh 'wood culture'.

In the language of the 'Well-being goals' of the Well-being of Future Generations Act, development of the Welsh timber industries would deliver in the following ways

**Globally Responsible:** Forestry and wood-products are a climate change mitigation opportunity. One third of global carbon emission are due to deforestation (Wales currently has less than half the European average forest cover). Two thirds of global industrial emissions (from manufacturing) are due to the production of Steel and Concrete (timber products are carbon negative – they typically store more carbon than is released in their processing). One third to one half of domestic carbon emissions are associated with the built environment (timber construction is the exemplar method for low-carbon development throughout the developed world)

**Prosperous:** As construction moves to more advanced systemised approaches (such as off-site modular and panellised sub-modular) the cost of construction will reduce and the technical performance will increase leading to a more prosperous country. Wood is proving to be the exemplar material to underpin the transition. Development of the wood industry will also lead to more prosperous communities with more people employed in the supply chain, which is particularly important in rural areas like Powys.

**Resilient:** It is widely understood that forest expansion will improve soils, air and water, increase biodiversity, reduce flooding and increase rural amenity. Furthermore demand-led expansion focused on high added value construction products will improve the economy, balance of trade in forest products and provide much needed jobs, particularly in rural areas.

**Healthy:** As we move to more air-tight and energy efficient construction the issue of occupant health is becoming an increasing focus of the construction industry. There is emerging evidence well-conceived and delivered timber construction (in homes, schools and hospitals) is having positive health impacts. This is due to some or all of the following – overheating protection (wood has high thermal mass), good Indoor air quality (wood helps regulate internal humidity levels reducing condensation and reducing airborne pathogens and has low or zero emissions of harmful volatile organic compounds), positive psychological impact (Increasing evidence of biophilia, which is an innate and genetically determined affinity of human beings with the natural world). Added to the above health

benefits to occupants, the timber industry helps to sustain a healthy natural environment. By way of contrast, the above claim cannot be made for the UPVC Window industry or the Polyurethane Insulation industry to give but two examples.

**More Equal:** Low energy timber housing will help to reduce fuel poverty. Furthermore, the timber industry is very diffuse and involves mostly small companies. Unlike large centralised industries (e.g. steel and concrete) the timber industry is largely run by regionally rooted businesses.

**Cohesive Communities:** Using local materials and regionally rooted businesses to construct housing can help to foster community development and cohesion (particularly in rural areas) whilst at the same time, delivering a better end product. This can be illustrated by contrasting the output from volume house builders and speculative developers with that of local authorities, RSLs, self-builders etc.

**Thriving Culture:** Wales has entrepreneurial, adaptable, and localised cultures. Woodlands, timber and buildings are steeped in our history. The development of a new **Vernacular architecture**, an architectural style that is designed based on local needs, availability of construction materials and reflecting local traditions and labour would reenergise our communities and native culture.

#### Opportunity

So, the benefits from an expanded Welsh forest industry and expanded wood culture are substantial. But there is a lot to do. At 14% forest cover, Wales has less than 50% of the European average. Despite a stated desire to increase Welsh forest cover by 100,000ha by 2030 currently new planting stands at almost nil. The Welsh forest industry is currently focused on relatively low added-value products with only 15% of UK construction timber coming from home-grown sources. Also, Wales does not currently have a national centre for timber development.

In notable contrast, timber construction is on the rise with almost 1 in 3 new houses in Wales being based upon wood. And with the current Welsh Government commitment to house building and innovation, the opportunity for demand-led transformation is great.

Wales does have a strong cultural and practical heritage in forest products. We have a structurally diverse processing sector across the value chain from wood-based panels to fence posts and everything in between. We have many joinery companies and a growing timber frame sector. Bangor University educated wood scientists and foresters are in senior positions all over the world. Our wet and warm climate is ideal for growing many commercially desirable types of timber.

The purpose of this RDP project is to trial a supply chain development service that addresses the specific and systemic barriers to sector expansion. The project is founded upon supporting the construction of exemplar projects throughout Wales to enable construction clients to use timber and timber products in a way that maximises local benefit.

### Proposed RDP Project Activities

During the ARWAIN project WKW have consulted widely, intervened in construction projects and motivated clients to explore the benefits and opportunities associated with timber industry development. The learning from these activities has led us to believe that the focus of the RDP supply chain development service should be upon the following activities:

**Technical Support:** Working with client design and procurement teams to address challenges and barriers, and working with the supply chain to help companies meet the demands of construction clients. Working with contractors to ensure practical delivery of timber based solutions. Woodknowledge Wales membership has drawn clients and the supply-chain into one value-adding network.

**Development of Decision making Tools:** There will be insufficient resource to provide technical support to individual companies in all cases. There is a need to develop decision making tools that enable the switch from current practice to a wood-based best practice approach. These online tools will be linked to learning from specific projects and follow an element level approach. In the ARWAIN project the focus was on timber cladding, but within the RDP project this will be expanded to include some or all of the following construction elements:

	Timber element
	timber frame
	timber joists
	timber studs / noggins
	timber trusses
	rafters/purlins
	battens
	wood fibre sarking board
	woodfibre render board
	timber cladding
	timber windows
	timber external doors
	wood fibre insulation
	timber flooring
	timber doors, architrave, skirting

	timber stairs
	timber fencing
	timber gates
	timber sheds
	fitted kitchens
	furniture
	timber product not listed above

**Training and skills:** Unlike other material sectors such as steel and concrete, the timber sector is extremely complex, diverse and dominated by small enterprises. This makes knowledge transfer more essential but also more complicated. There is a pressing need to (1) educate clients and client teams about timber and timber products (2) upskill those involved in the timber supply chain (3) enhance the education offering from higher and further education. Some specific needs identified during the ARWAIN project are shown in the following table:

Target group	Education Need	Content	Delivery Format	Potential Delivery partners
<b>ARCHITECTS / CLIENTS</b>				
Essential	PassivHaus basics	see below	1 day	CWIC/WKW/Elemental solutions/PYC
Enhanced knowledge	PassivHaus full course	see below	10 days	CWIC/WKW/PYC/WARM
Essential	Basic wood science	see below	1 day	CWIC/WKW/TRADA
Essential	Softwoods and Hardwoods in Construction	see below	1/2 day	CWIC/WKW/TRADA
Essential	timber frame introduction	tbc	1/2 day	CWIC/WKW/TRADA
Enhanced knowledge	Timber frame construction	see below	1 day	CWIC/WKW/TRADA
Enhanced knowledge	Timber frame for engineers	see below	1 day	CWIC/WKW/TRADA
Enhanced knowledge	CLT	designing, specifying, installation methods and detailed construction drawings	1/2 day	CWIC/WKW/TRADA/mft?

Enhanced knowledge	engineered structural timber products	designing, specifying, installation methods and drawings	1/2 day	CWIC/WKW/TRADA
Enhanced knowledge	cladding	designing, specifying, installation methods and detailed construction drawings	1/2 day	CWIC/WKW/TRADA/TCD A
Enhanced knowledge	Windows and doors	u values, designing, specifying, installation methods and drawings, maintenance	1/2 day	CWIC/WKW/TRADA/WW A
Enhanced knowledge	timber for internal joinery and flooring	moisture and movement, designing, specifying, installation methods and drawings	1/2 day	CWIC/WKW/TRADA/BW WF

### CONTRACTORS

Essential	PassivHaus basics	see below	1 day	CWIC/WKW/Elemental solutions/PYC
Essential	PassivHaus Tradesperson	See below	5 days	CWIC/WKW/PYC/PH Institute
Essential	Basic wood science	see below	1 day	CWIC/WKW/TRADA
Essential	Softwoods and Hardwoods in Construction	see below	1/2 day	CWIC/WKW/TRADA
Essential	Timber frame introduction	tbc	1/2 day	CWIC/WKW/TRADA/STA

### TIMBER SUPPLY CHAIN

Essential	Basic wood science	see below	1 day	CWIC/WKW/TRADA
Essential	Softwoods and Hardwoods in Construction	see below	1/2 day	CWIC/WKW/TRADA
Essential	Growing Timber	ie growing right species, right place for construction and joinery markets	1 day	CWIC/WKW/CONFOR/B SW/COED CYMRU /SELECTFOR

### Basic Wood Science

biology of trees  
 wood properties / characteristics  
 natural durability  
 use classes  
 type / species  
 moisture and movement  
 insects  
 drying methods  
 distortion

	storage coatings and preservation
<b>Softwoods and Hardwoods in Construction</b>	timber properties species strength grading appearance grading sizes uses sources extraction processing log to planks / barks
<b>Timber Frame Construction</b>	industry overview design for durability Building Regulations foundations level thresholds walls air tightness thermal bridging party wall thermal bypass fire safety services and linings acoustic performance differential movement cladding
<b>Timber Frame for Engineers</b>	
<b>Timber frame</b>	<ul style="list-style-type: none"> <li>• types of timber construction – timber frame, SIPs, engineered timber (CLT and GLT)</li> <li>• methods of construction – open panel, closed panel, volumetric</li> <li>• system components/element build-ups – studs, rails, OSB, insulation, SIP etc</li> <li>• differential movement – what it is, issues with structural design</li> <li>• manufacture of elements – SE specifications for fixings, element sizes etc</li> <li>• connection details – methods of connecting and joining panels and other elements together</li> </ul>
<b>Timber engineering</b>	<ul style="list-style-type: none"> <li>• principles of timber engineering</li> <li>• guidance on standards (British and European)</li> <li>• timber and related materials, product characteristics</li> <li>• fasteners and connections, standards, guidance and pointers</li> <li>• design examples</li> </ul>
<b>Passivhaus Basics</b>	energy standard fabric first optimisation and PHPP form factor orientation solar gain and shading insulation and thermal bridging thermal comfort airtightness, indoor air quality and ventilation
<b>Passivhaus Designer/Consultant Course</b>	Fundamentals of Passivhaus Science of Passivhaus Construction of Passivhaus Building Services of Passivhaus PHPP

	Revision Exam
<b>Passivhaus Tradesperson</b>	<p>Skills and knowledge required to understand how to build to the International Passive House standard and information required for certification. Passive House requires:</p> <ol style="list-style-type: none"> <li>1. Exceptionally high levels of thermal insulation;</li> <li>2. Well-insulated window frames with double or triple low-e glazing;</li> <li>3. Thermal bridge-free construction;</li> <li>4. Air-tight building envelope;</li> <li>5. Comfort mechanical ventilation, with highly efficient heat recovery.</li> </ol> <p>These principles, together with good orientation, window shading and efficient design comprise a building that is very thermally comfortable and energy efficient.</p>

**Course details to be confirmed (tbc)**

**Feasibility Studies:** During the course of this project it has become apparent that to meet the desire for Wales to become a high-value timber economy with a dynamic wood culture, there is a need for a physical destination or national centre to engage, promote and support sector development. The RDP project will undertake a feasibility study for establishing such a centre. Other feasibility studies should include, the development of a tool or online platform to link demand to supply to reduce the fragility of the supply chain, new mechanisms to incentivise forest planting, new models of systemised timber house delivery to maximise local labour and timber use, the feasibility of establishing a Powys based business (possibly social enterprise) focused upon the growing and processing of timber on Powys CC land.

## Terms of Reference

(Revision A – 3<sup>rd</sup> November 2016)

(Revision B – 1<sup>st</sup> December 2016)

### AIMS AND OBJECTIVES

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The purpose of the Home Grown Homes Partnership is to provide demand-led stimulus for forest products sector growth in Wales in a way that maximises the economic, social and environmental benefits.

The Partnership will:

- (1) Support the construction of high performance, energy efficient, healthy, durable and affordable homes in Wales which are based upon the use of wood.
- (2) Stimulate the development of the Welsh forest products industries by using local manufacturers and contractors and using the home grown and locally grown timber resource where possible and practical
- (3) Identify the barriers to the expansion of the use of wood in general and home grown wood in particular and explore solutions
- (4) Create additional social value by supporting the creation of local jobs and training opportunities within the construction and timber supply chains
- (5) Undertake and advise on collaborative projects that support the delivery of the Partnerships aims and objectives

The Partnership Members recognise:

- (1) The importance of wood as a sustainable material suited to the construction of high performance new build and retrofit homes in Wales
- (2) The tremendous potential for the expansion of forestry and wood-based industries in Wales to increase economic, social and environmental value
- (3) The importance of construction timber for increasing value in the forest industries supply chain and as a key enabler for the expansion of forestry in Wales
- (4) The leadership role that Local Authorities and RSLs can take to encourage the development of forestry and wood-based industries in Wales
- (5) That a durable and long term approach is necessary

### MEMBERSHIP

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Membership of the Partnership will be fluid and will involve key partners from different organisations and sectors as activities require. The Partnership has been conceived by, and is chaired by Powys County Council. However, the Partnership should seek to reflect the all Wales nature of the opportunity within the membership.



Founder Members of the Home Grown Homes Partnership are:

Powys County Council	Wales and West Housing Association
Grwp Cynefin	Mid-Wales Housing
Newydd Housing Group	Pobl Group
Pennaf Housing Group	Melin Homes
Welsh Local Government Association	Community Housing Cymru
Natural Resources Wales	

The Partnership Members undertake to:

- (1) Support and promote the continued development of the Home Grown Homes Partnership
- (2) Support the delivery of the Home Grown Homes Partnership aims and objectives within their internal processes, procedures and external actions where appropriate.
- (3) Support the delivery of any Home Grown Homes projects and actions when possible

## GOVERNANCE AND MANAGEMENT

The Home Grown Homes Partnership will be run by a Partnership Board. Current Board members are as follows:

Simon Inkson (Chair) Terry Flynn/Dafydd Evans	Powys CC
Shayne Hembrow	Wales and West Housing
Sian Howells	Mid Wales Housing Association
Rhys Dafis	Grwp Cynefin
Elise Coalter	Newydd Housing Group
Deiniol Evans	Pennaf Housing Group
Gerrard Williams	Melin Homes
Jonathan Hughes	Pobl Group
Hayley Macnamara	Community Housing Cymru
Jim McKirdle	Welsh Local Government Association
Patrick Green	Natural Resources Wales

The Partnership Board will meet quarterly to review project progress against agreed actions. Additional project meetings may also be required on an ad hoc basis.

The Partnership Board should be supported by an Advisory Organisation with expertise in the construction and forestry sectors as well as in the delivery of social value. The role of the advisory organisation is to:

- (1) Support the Chair in running the Home Grown Homes Partnership
- (2) Support the delivery of the Home Grown Homes Partnership aims and objectives
- (3) Support Home Grown Homes Partnership members in delivering successful projects
- (4) Support the development of funding applications to further the aims of the Partnership



## Powys Wood Encouragement Policy

Powys County Council recognises the importance of forest and wood products industry to rural and regional employment and economic development.

This Policy seeks to:

- help stimulate sustainable economic development within the timber/wood products industry and encourage development of added value products;
- encourage services to consider the use of wood in the construction and fit out of council buildings, development and infrastructure (within any grant constraints);
- encourage developers, particularly those creating social and affordable housing to consider the use of wood in the construction and fit out of homes;
- recognise the benefits that make wood a smart choice for council buildings, development and infrastructure;
- encourage education, best practise, knowledge-transfer and take up of careers in the timber supply chain;
- encourage the use of wood in demonstration projects across Powys;
- demonstrate local and national leadership by adopting this policy.

### Implementation:

Powys County Council will;

- ensure that all briefs for new Council housing projects (subject to any grant constraints) incorporate the requirement to use wood as the preferred material for both construction and fit out purposes, where wood is deemed a suitable and cost effective material for the proposed application;
- seek those who can find, practical, efficient, versatile and cost-effective building and design solutions using wood when sourcing design and architectural expertise for such projects;
- ensure that all comparisons to the cost of building with other materials will take into account all long-term and life cycle benefits of using wood;
- where possible, source locally and home produced wood products for construction and fit out purposes;
- use development, planning and procurement processes to maximise opportunities for targeted recruitment and training in the timber industries;
- be a champion of the forest and wood products industry, by establishing a Wood Encouragement Policy and demonstrating commitment to the further development of the local forest and wood products industry;
- actively seek demonstration projects that showcase the use of wood within the County and Wales;
- actively work to support existing and attract new, innovative wood products manufacturers to Powys.

In using wood as a preferred construction material for council infrastructure, we advocate:

- the utilisation of wood products that are certified by: Forest Stewardship Council (FSC); PEFC; Grown in Britain(GiB), or are from local well managed sources;
- using wood only when it is the right material for the selected application.

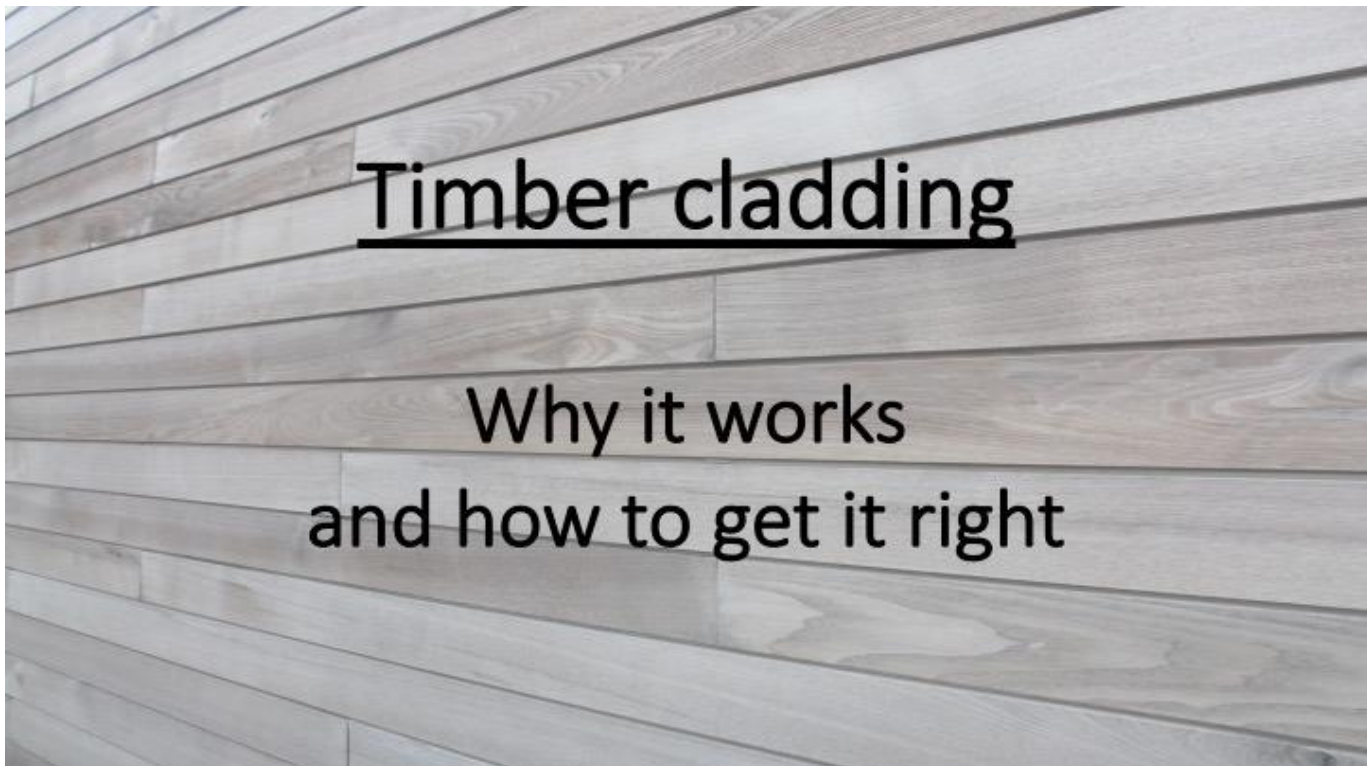


Image: Brimstone heat treated Ash cladding from Vastern Timber

**Date:** 16<sup>th</sup> November 2016

**Time:** From 9.15 until 12.00

**Venue:** Bron Afon Community Housing, Llantarnam Industrial Park, Cwmbran, NP44 3AB

**Purpose and context**

The aim of this timber cladding CPD is to enable participants to understand how to successfully specify, detail and use timber rain screens. The event will be of benefit to clients, architects, specifiers, planning and building control officers as well as sawmills and timber suppliers.

Timber is increasingly being used as a high performance rain screen. It is a durable low carbon solution that can also be grown and processed in Wales. Timber offers design freedom, but also brings technical challenges, which if not understood and addressed can lead to reduced performance. This event brings together leading industry experts who will illustrate how a basic understanding of the principles of wood science and moisture movement in timber can lead to better design and performance of timber rain screens.

**Booking and Cost**

The cost to attend the event is free but booking is required as numbers are limited. If you would like to attend please send an email directly to [ceri.loxton@woodknowledgewales.co.uk](mailto:ceri.loxton@woodknowledgewales.co.uk) stating (1) your name (2) the organisation you represent (3) your interest in timber cladding – e.g. end user, supplier, architect, client.

**Programme**

9:15 – 9:45 Registration

9:45 Welcome  
Rob Panou – Bron Afon Community Housing

9:50 Gary Newman – Chair of Woodknowledge Wales  
Introduction Woodknowledge Wales and the Campaign for Timber Cladding

10:05 Janet Sycamore – Timber Decking and Cladding Association

10:10 Niall Maxwell – Rural Office for Architecture  
An architect's perspective on timber cladding

10:30 Dainis Dauksta – Wood Scientist and sawmiller  
Basic principles of wood science  
Understanding moisture movement in timber  
Maximising performance through design

11:00 Prof Callum Hill – Director JCH Industrial Ecology Ltd  
Maximising performance through innovations in chemical treatments

11:20 Gary Newman – Chair of Woodknowledge Wales  
Comments and questions

11:40 – 12:30 Tea / coffee and networking

**Woodknowledge Wales relies on the support of our membership to help provide events such as this.  
Please consider membership.  
[www.woodknowledgewales.co.uk](http://www.woodknowledgewales.co.uk)**

**Speaker Profiles**



**Niall Maxwell RIBA, FRSA**

Niall is principal of Rural Office for Architecture (ROA), an architectural practice based in rural West Wales working on a range of residential and cultural projects across the UK. Classified as regionalists, the practice works predominantly within rural or vernacular settings, responding to the context and surroundings of each particular site. ROA was recently selected by the Architecture Foundation as one of the best emerging practices in the UK.



**Prof. Callum Hill**

Callum was a senior lecturer in wood science at Bangor University before taking up the post as Professor of Materials Science at the Centre for Timber Engineering, Edinburgh. Callum is now a Senior Visiting Research Fellow at the University of Bath and a Visiting Researcher at the Norwegian Institute of Bioeconomy Research and is also developing his consultancy (JCH Industrial Ecology). He has authored over 180 research papers, six book chapters and two text books (Wood Modification: Chemical, Thermal and Other Processes – John Wiley and Sons; An Introduction to Sustainable Resource Use – Routledge).



**Dainis Dauksta**

Dainis is MD of Wood Science Ltd, consultant and researcher for WKW and a visiting wood science lecturer for City and Guilds London School of Art. Dainis has worked in the field of forestry and design of timber structures for more than 25 years. With Woodknowledge Wales, LCRI and BRE Dainis has completed over 10,000 hours of research and published six major reports which demonstrate the potential for and desirability of using homegrown softwoods in construction. Dainis has co-authored the book "New Perspectives on People and Forests" with Eva Ritter.



**Gary Newman**

Gary is the Chair of Woodknowledge Wales and is also founder and Chair of the Alliance for Sustainable Building Products ([www.asbp.org.uk](http://www.asbp.org.uk)). Gary is a construction engineer by training and early career. After completing a wood science masters at Bangor University, Gary established Plant Fibre Technology Ltd and has been instrumental in taking a number of plant based products from concept to market.



**Wood for Good**



**Delegate List**

Tom	Barnes	Vastern Timber
Lyn	Barrett	Cilfiegan Sawmill
Kelly	Bednarczyk	Hall & Bednarczyk Architects Ltd
Tabitha	Binding	Woodknowledge Wales
Michael	Boyes	Hall and Bednarczyk
Alistair	Brown	Norclad
Charles	Champion	Cowbridge Design
Dainis	Dauksta	Wood Science
Andrew	Davies	Towy Projects
Mark	Doubler	Bron Afon Community Housing
Ed	Green	Cardiff University
Stephen	Harris	CRSH Architecture and Energy
Catherine	Harris	CRSH Architecture and Energy
Emily	Hall	Hall and Bednarczyk
Mark	Harry	Maison Design
David	Hedges	Cyngor Da
Callum	Hill	JCH Industrial
Hefin	Jones	Wales & West Housing Association
Richard	Jones	Clifford Jones Timber Ltd
Alan	Jones	Clifford Jones Timber
Steve	Lewis	Vintage Joinery
Sion	Llwyd	IBI Group
Dean	Lock	Bron Afon Community Housing
Ceri	Loxton	Woodknowledge Wales
Niall	Maxwell	Rural Office For Architecture
Jasper	Meade	PYC Construction
Don	Mitchell	Don Mitchell Associates
Liz	Mutch	Llais y Goedwig
Gary	Newman	Woodknowledge Wales

## APPENDIX C – TIMBER CLADDING WORKSHOPS

Cate	Owen	Turnkey Design Partnership Ltd
Robert	Panou	Bron Afon Community Housing
Ian	Parry	Bron Afon Community Housing
Glen	Peters	Western Solar
Karen	Pick	Bron Afon Community Housing
Anthony	Picton	IBI Group
Nic	Pugh	Coastal Housing Group
Ed	Sutch	Norclad
Kate	De Selincourt	
John	Sweeny	Mynydd Timber Services Ltd
Janet	Sycamore	Timber Decking and Cladding Association
Paul	Thacker	Turnkey Design Partnership Ltd
Rhys	Thomas	United Living
Chris	Thomas	Carmarthenshire County Council
Andrew	Tidy	Carmarthenshire County Council
Stefan	Tyrie	Vastern Timber
Adam	West	Coastal Housing Group
		Towy Timber Co-operative Ltd
Ian	Widdrington	Enterprise Consulting
Darren	Scammell	Mango Creative
Robin	Aldridge	Fforest Timber Engineering



Environment Centre Wales Building, Bangor

**Date:** 8<sup>th</sup> February 2017

**Time:** From 9.30 until 12.30

**Venue:** Neuadd Reichel, Ffriddoedd Road, Bangor, LL57 2TR

**Purpose and context**

The aim of this WKW event is to introduce the new external timber cladding standards and to highlight important durability considerations. The event will enable participants to understand how to successfully specify, detail and use timber rain screens and should be of benefit to clients, architects, specifiers, planning and building control officers as well as sawmills and timber suppliers.

Timber is increasingly being used as a high performance rain screen. It is a durable low carbon solution that can also be grown and processed in Wales. This event brings together leading industry experts with detailed knowledge of critically important design and performance issues.



**Wood for Good**





### Booking and Cost

The cost to attend the event is free but booking is required as numbers are limited. If you would like to attend please register via Eventbrite (<https://wkw-timber-cladding.eventbrite.co.uk>)

### Programme

9:15 – 9:45 Registration

9:45 Welcome

Rob Elias – The BioComposites Centre

9:50 Gary Newman – Chief Executive of Woodknowledge Wales

Introduction Woodknowledge Wales and the Campaign for Timber Cladding

10:05 Janet Sycamore – Timber Decking and Cladding Association

How TDCA can help with your cladding projects

10:20 Dr Ivor Davies– Centre for Wood Science and Technology, Edinburgh Napier University

Maximising performance through design

BS 8605 External timber cladding, Part 1 specifying, Part 2 design and installation

11:00 Dr Morwenna Spear – BioComposites Centre

Weathering and durability

Timber modification, experiences of heat modification of Welsh species for external cladding

11:20 Gary Newman – Chief Executive of Woodknowledge Wales

Comments and questions

11:40 – 12:30 Tea / coffee and networking

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[www.woodknowledgewales.co.uk](http://www.woodknowledgewales.co.uk)

**Speaker Profiles**



**Janet Sycamore**

Janet has been director of operations at the Timber Decking and Cladding Association since August 2013. Prior to that she worked for many years with timber protection specialist Arch Timber Protection (now Lonza Wood Protection) where she worked principally on its pan European marketing activities and developed her knowledge on how to get the most out of timber used outdoors.



**Dr. Ivor Davies**

Ivor is a Research Fellow in the Centre for Wood Science and Technology at Edinburgh Napier University’s Institute for Sustainable Construction. His main focus is research and expert services involving timber and timber products. Ivor’s research interests include timber facades, wood water relations and sustainable construction; this ranges from large trans-national projects through to product development and testing for individual companies. He is chair of BSI technical panel B/543/0/02 and technical author of the BS 8605 series of British Standards on external timber cladding. He also provides expert witness services.



**Dr Morwenna Spear**

Morwenna is a senior researcher at the BioComposites Centre, Bangor University. Her main areas of research are in wood modification technologies, and the characterisation of mechanical and physical properties of wood and biopolymer composite materials. Morwenna works closely with the timber industry in Wales and the UK and has conducted market studies on the forest products sector, the use of timber in construction and biocomposites. Morwenna is a fellow of IOM3.



**Gary Newman**

Gary is the Chief Executive of Woodknowledge Wales and is also founder and Chair of the Alliance for Sustainable Building Products ([www.asbp.org.uk](http://www.asbp.org.uk)). Gary is a construction engineer by training and early career. After completing a wood science masters at Bangor University, Gary established Plant Fibre Technology Ltd and has been instrumental in taking a number of plant based products from concept to market.

**Delegates**

Barry	Allen	Isle of Anglesey County Council
Gareth	Aubrey	Isle of Anglesey County Council
Philip	Barman	Howarth Timber and Building Supplies
Richard	Beatson	Ainsley Gommon Architects
Tabitha	Binding	Woodknowledge Wales


## APPENDIX C – TIMBER CLADDING WORKSHOPS

Patrick	Borer	Patrick Borer Architect
Ed	Clark	Duchy of Cornwall
Nigel	Clark	Isle of Anglesey Council
Guy	Corbett-Marshall	Woodland Heritage
Barry	Cravetto	Conwy County Borough Council
Ivor	Davies	Edinburgh Napier University
Bryn	Davies	Grwp Cynefin
Owen	Eden	Conway County Borough Council
Rhian	Evans	Rhian Evans Architect: Pensaer
Edward	Humphreys-Jones	
Alan	Hunt	Natural Resources Wales
Hefin	Jones	Wales & West Housing Association
Clinton	Jones	Coed y Cardi.
John	Jones	Isle of Anglesey County Council
Iona	Jones	Grwp Cynefin
Ceri	Loxton	Woodknowledge Wales / BioComposites Centre
Andrew	Mitchell	Natural Building Technologies
Liz	Mutch	Llais y Goedwig
Gary	Newman	Woodknowledge Wales
Philip	O'Leary	Exova Group Plc
Robert	Panou	Bron Afon Community Housing
Justin	Peckham	Accsys
Philip	Potter	TOP Woodfuel and Sustainable Forestry
Sean	Pritchard	Isle of Anglesey County Council
Mark	Rayment	
Simon	Ronan	
Alan	Rowlands	Creu Architecture Ltd
Dave	Rowntree	Pawswood
Ned	Scharer	The Natural Building Centre
Craig	Sinclair	Cyfoeth Naturiol Cymru / Natural Resource Wales

## APPENDIX C – TIMBER CLADDING WORKSHOPS

Martin	Smith	Grwp Llandrillo-Menai
Sarah	Smith	Clifford Jones Timber Ltd
Morwenna	Spear	BioComposites Centre
Janet	Sycamore	Timber Decking and Cladding Association
Simon	Venables	Ainsley Gommon Architects
Greg	Vickers	Grosvenor Estates
Heather	Wathan	Anglesey Wood Products
Gareth	Williams	CITB
Adrian	Williamson	WM Design & Architecture Ltd
Julie	Winrow	Greenheart Architects

**APPENDIX D – FACILITATED WORKSHOPS Programme, delegates, outcomes**



Inspiring innovation through collaboration


woodknowledge  
WALES

WORKSHOP INVITATION

Building the Future of the Welsh Wood Supply Chain

Invited participants will explore how they can help shape the development of Welsh timber industries from forests to buildings.

The output from three workshops will inform how construction clients, housing associations and local authorities can help to catalyse and support innovation and growth within the forest industries sector to provide reliable local supply chains that benefit Welsh forestry, jobs, economic growth, as well as help to improve the natural and built environments.







**Workshop 1**  
It's 2050 and 75% of housing in Wales is based upon timber

**Workshop 2**  
It's 2050 and 75% of the timber products are manufactured in Wales




**Workshop 3**  
It's 2050 and 75% of the timber used in construction is home grown

The positive 'future casting' approach of the workshops will help participants step outside current challenges and constraints to explore radically different and innovative development strategies. The workshop outcomes will inform the industry decision-making tools being developed by Woodknowledge Wales, Powys County Council and the Home-Grown Homes Partnership.

Our future depends on the decisions we make today...

### WORKSHOP PROGRAMME


<b>Date:</b> Thursday 25 <sup>th</sup> May	<b>Venue:</b> Mid-Wales Housing Ty Canol house, Ffordd Croesawdy Newtown, SY16 1AL	
This workshop focuses on the built environment - participants will be drawn from clients, architects, developers, timber frame manufacturers, building policy and regulators plus other professionals concerned with the design and delivery of the built environment.		
<b>Date:</b> Thursday 22 <sup>nd</sup> June	<b>Venue:</b> Wales and West Housing Archway House, 77 Parc Ty Glas Llanishen, Cardiff, CF14 5DU	
This workshop focuses on timber products and manufacturing - participants will be drawn from the manufacturing, timber component and joinery sectors, certification and specification sectors, WG and academia.		
<b>Date:</b> Wednesday 5 <sup>th</sup> July	<b>Venue:</b> Coed y Brenin Visitor Centre, Dolgellau, LL40 2HZ	
This workshop focuses on growing the quality and quantity of timber required – participants will include the whole forestry sector from tree nurseries through to primary processing, large and small scale woodland owners, WG and NRW.		

*The workshops are organised by Woodknowledge Wales on behalf of Powys County Council and the Home-Grown Homes Partnership and facilitated by Forum for the Future*

The Home-Grown Homes Partnership is chaired by Powys County Council housing department and consists of social housing providers, the Welsh Local Government Association (WLGA), Natural Resources Wales (NRW), and Community Housing Cymru (CHC). The purpose is to provide demand-led stimulus for forest products sector growth in Wales in a way that maximises the economic, social and environmental benefits.

Woodknowledge Wales is a for-public-good member organisation with a mission to champion the development of wood-based industries for increased prosperity and well-being in Wales. WKW began in 2001 as a publically funded sector organisation and re-launched as a member organisation in March 2016

Forum for the Future is a global non-profit organisation with a 20-year track record in driving sustainable development. Their mission is to accelerate the big shift to a sustainable future by transforming whole systems and business sectors.



## APPENDIX D – FACILITATED WORKSHOPS Programme, delegates, outcomes

### Delegates

Powys		woodknowledge WALES	
Home Grown Homes: Workshop 1 – The Built Environment			
Venue: MWAHA, Newtown		Date: 25 May 2017 10am to 5pm	
NAME	ORGANISATION	SIGNATURE	
Alan Hunt	Natural Resources Wales	A.H.	
Charles Brotherton	Mid Wales HA	C. Brotherton	
Andy Sutton	BRE Wales	A. Sutton	
Craig Sparrow	Pennaf	C. Sparrow	
Dafydd Evans	Powys County Council	D. Evans	
David Palmer	Cooperative Housing	D. Palmer	
Eluned Tibbott	Powys CC farm & estates	E. Tibbott	
Gary Newman	Woodknowledge Wales	G. Newman	
George Mikurchik	Architype	G. Mikurchik	
Geraint Roberts	Mid Wales HA	G. Roberts	
Graham Hilton	Resource Efficiency Services	G. Hilton	
Helge Hanson	Construction Scotland	H. Hanson	
Ian Gillespie	Wales and West HA	I. Gillespie	
Jasper Meade	PYC Construction	J. Meade	
Mark Bodger	CITB	M. Bodger	
Mark Davies	Powys County Council	M. Davies	
Martin Hunt	Forum for the Future	M. Hunt	
Owain Rhys Roberts	Cartrefi Conwy	O. Rhys Roberts	
Paul Wyatt	Melin Homes	P. Wyatt	
Phil Dark	Powys County Council	P. Dark	
Robin Aldridge	Forest Timber Engineering	R. Aldridge	
Robin Lancashire	Exova BM TRADA	R. Lancashire	
Sian Howells	Mid Wales HA	S. Howells	
Tabitha Binding	Woodknowledge Wales	T. Binding	
Tom Simmons	Powys County Council	T. Simmons	
Wyn Pritchard	Neath Port Talbot College	W. Pritchard	
Sali Campbell - Tate	Powys County Council	S. Campbell - Tate	

Powys		woodknowledge WALES	
Home Grown Homes: Workshop 1 – Products and Manufacturing			
Venue: WWHA, Cardiff		Date: 22 June 2017 10am to 5pm	
NAME	ORGANISATION	SIGNATURE	
1	Andrew Davies	Towy Projects	A. Davies
3	Andy Pitman	Fibre 7	A. Pitman
2	Bill Somerfield	WG NRW	B. Somerfield
4	Dylan Jones	Caerphilly timber project	D. Jones
2	Ed Green	Cardiff University	E. Green
1	Gary Newman	Woodknowledge Wales	G. Newman
1	Graham Hilton	Resource Efficiency Services	G. Hilton
4	Iain McIlwee	Wood Windows Alliance	I. McIlwee
3	Iwan Thomas	WG Business Development	I. Thomas
4	John Littlewood	Cardiff Metropolitan University	J. Littlewood
1	Jon Harvey	Wales & West Housing	J. Harvey
2	Lewis Taylor	Exova BMTRADA	L. Taylor
1	Mark Davies	Powys County Council	M. Davies
1	Martin Hunt	Forum for the Future	M. Hunt
4	Mike Lewis	Accsys	M. Lewis
1	Peter Wong	WG AM	P. Wong
2	Phil Dark	Powys County Council	P. Dark
1	Rob Thomas	Davies Sutton	R. Thomas
4	Rob Panou	Bronafon Housing	R. Panou
3	Robin Aldridge	Forest Timber	R. Aldridge
3	Sam Roberts	PYC Group	S. Roberts
3	Simone Hodges	Powys County Council	S. Hodges
1	Steve Coombs	Welsh School Architecture	S. Coombs
2	Steve Lewis	DRU Vintage Joinery	S. Lewis
1	Tabitha Binding	Woodknowledge Wales	T. Binding
	Charles Brinklow	MLHA	C. Brinklow

Powys		woodknowledge WALES	
Home Grown Homes: Workshop 3 – iForestry & Timber			
Venue: Coed y Brenin, Dolgellau		Date: 05 July 2017 10am to 5pm	
NAME	ORGANISATION	SIGNATURE	
Alan	Jones	Clifford Jones	A. Jones
Alan	Hunt	NRW	A. Hunt
Ben	Sharples	Exova BM TRADA	B. Sharples
Bryn	Dearling	Dyfi woodlands	B. Dearling
Bryn	Davies	Grwp cynefin	B. Davies
Carol	Gittens	Powys County Council	C. Gittens
Chris	Jones	Natural Resources Wales	C. Jones
Dafydd	Evans	Powys County Council	D. Evans
Dainis	Dauksta	Wood Science Ltd	D. Dauksta
Eluned	Tibbott	Powys County Council	E. Tibbott
Gareth	Jarvis	Wales and West Housing	G. Jarvis
Gary	Newman	Woodknowledge Wales	G. Newman
Geraint	Jones	Farming Connect	G. Jones
Graham	Hilton	Resource Efficiency Services	G. Hilton
Greg	Vickers	Grosvenor Estates	G. Vickers
Guy	Corbett-Marshall	Woodland Heritage	G. Corbett-Marshall

Powys		woodknowledge WALES	
Jasper	meade	PYC Group	J. Meade
Jim	Knight	Powys County Council	J. Knight
Jonathan	Wilkinson	Powys CC Councillor	J. Wilkinson
Kim	Caruana	Powys County Council	K. Caruana
Martin	Hunt	Forum for the Future	M. Hunt
Mike	Harvey	Maelor Nursery	M. Harvey
Patrick	Green	NRW	P. Green
Peter	Bottoms	Esgair Timber	P. Bottoms
Rhoswen	Leonard	Coed Cymru	R. Leonard
Richard	Jones	Clifford Jones	R. Jones
Robin	Aldridge	Forest Timber	R. Aldridge
Sian	Howells	Mid Wales Housing	S. Howells
Tabitha	Binding	Woodknowledge Wales	T. Binding
tbcc		Grwp cynefin	T. Binding
Thomas	Hoepfner	Bright forest Ltd	T. Hoepfner
Tom	Jenkins	NRW Forest Research	T. Jenkins
Tom	Simmons	Powys County Council	T. Simmons

## **Home Grown Homes: 2050 Vision for Welsh Timber**

### **Workshops Report**

#### **Introduction**

This report summarises the results of a series of workshops which assessed the desirability, feasibility and actions required for a future in which Wales achieves a step change in wood based housing, wood processing and home grown timber supply.

The Workshops, delivered in May June and July 2017, as part of the Arwain, home grown homes project, engaged with 70 decision makers from across the timber supply chain, from housing providers and architects, through wood processors and builders, to foresters land owners and farmers.

Using its “future-casting approach”, Forum for the Future (and Welsh consultancy RES) helped Woodknowledge Wales to guide delegates through a future scenario where 75% of houses in Wales are based upon wood, with 75% of that wood processed within Wales and sourced from Welsh forests or woodlands. In each case, this represents at least a doubling of current capacity, with benefits across the economic, environmental and social fabric of Wales.

Across the workshops, this vision was embraced as both possible and highly desirable, with widespread engagement identifying key actions required to achieve this positive change and to overcome a range of challenges along the way.

#### **Current Situation**

Forestry is a key part of the identity of Wales, a land of lakes, mountains, forests and independent communities. Wood increasingly represents a key, renewable, resource for building, fuel employment and the rural economy. After a sustained period of house building characterised by “brick and block”, the challenges of adequate housing supply are increasingly being met in Wales by timber frame housing which has increased from a quarter of housebuilding to a third, in the last five years.

The picture for domestic supply is currently less rosy, with the UK as a whole, being the third largest timber importer in the world, and availability of commercial softwoods in Wales forecast to fall by 45% over the next 30 years. This is likely to exert unwelcome pressure on the processing sector in Wales, with imported wood products capturing an increased share of volume in addition to their current higher unit values.

#### **The Case for Change - Trends**

The workshops considered both the ample evidence of rapid changes in society and direct impacts on housing needs, rural economy and technology. The emerging challenges, for housing of an ageing population and climate change are increasingly conducted under the spotlight of social media and “radical transparency”, often un-curated. Alongside rural depopulation and a decline in traditional skills, these challenges will require fresh approaches from the wood supply chain. Examples from Scotland, where wood based construction, accounts for 76% of new housing, together with rapid adoption of both new technologies (including automated production, remote monitoring and new wood technologies) and business models (Uber, AirBnB, L&G wood based rental property) suggest that future options may be more widely available than current and past practice might sometimes suggest.

#### **2050 Vision - Opportunity**

The vision of a vibrant Welsh timber supply chain in 2050, was presented by Woodknowledge Wales, with healthy high-quality housing delivered by locally sourced and processed timber. This was subsequently tested against wider evidence and delegates experience, with an overwhelming view that the vision was achievable and that the ambition might be usefully delivered in a shorter timescale, subject timber supply responding in time.

## APPENDIX D – FACILITATED WORKSHOPS Programme, delegates, outcomes

### **2050 vision (continued)**

The availability of new wood technologies and markets (including engineered timber, wood based co-products such as insulation, wood fuel and wood based chemicals) is expected to create new options for an efficient “systems based” approach, collaboratively optimising the value of wood products and in turn, the trees that they come from. This in turn delivers value to national and regional economies and employment, encouraging more processing and woodland creation with additional benefits for flood control and climate management. These benefits, recognised in re-balanced procurement, also contribute to a wider wood culture, supported by education, demonstration projects and research accessible to the Welsh public.

### **Challenges**

The road to this bright future will not be without its challenges, with delegates pointing to a fragmented industry, overly reliant upon support from the public sector, to which it struggles to argue its case against a backdrop of public attitudes to forestry which appear to presume that commercial forestry is at odds with their priorities of conservation, amenity and biodiversity. Supply capacity, is threatened by pests, diseases and lack of investment in infrastructure, with supply of sufficient labour, particularly skilled dwindling, in part due to rural de-population. These multiple uncertainties, weigh heavily upon a supply chain with a high percentage of SMEs and act as a discouragement to new investment, with further barriers to growth and innovation from a range of regulation which inhibits new planting and plays to “business as usual” from large suppliers in products and building.

### **Actions**

The workshops identified specific actions, across building procurement, timber supply and optimising the supply chain, incumbent upon the participants and others, required to deliver the compelling vision of 2050.


- **Enhanced Procurement of Wood Based Buildings**
  - Revised weightings, more 3 and 4 storey buildings, and “innovative housing”.
  - Driven by fabric first, material performance, health and value/quality standards
  - Address skills availability and supply agendas for housebuilding
  - Drive investment in timber, processing and skills
  - Regional targets and engagement with end users (estate agents/buyers)
- **Improved Supply Chain - R&D, Delivery and Demonstration**
  - Centre of Excellence – delivering R&D, education and demonstration
  - Supply hubs – collaborative working and strengthen role of SMEs
  - National Housebuilding competition and demonstrations
  - Best practice guides including pattern books and standardised approaches
  - Natural Capital protocols
- **Improved Timber supply**
  - Encourage more planting – post Brexit better use of land, including farms and less obstacles
  - Financial Innovation – integrated model investing in quality supply at landscape scale
  - More management –of unmanaged and local authorities, including new community woodlands (for both amenity and useable timber output, for community use)
  - Resilience of Woodland – species to sustain supply, water management and biodiversity
- **Public Engagement**
  - Hearts and Minds campaign to demonstrate benefits of Forestry to public, government and NGOs
  - Forestry and wood on curriculum from school to universities and industry apprenticeships.

### **Next Steps**

Woodknowledge Wales will convene a series of follow up meetings to address the actions above, with those proposing them or upon whom they are incumbent. A road map for their delivery, will be created and integrated with other current initiatives and any additional opportunities as they evolve.



**APPENDIX D – FACILITATED WORKSHOPS Programme, delegates, outcomes**

 <b>WORKSHOP OUTCOMES</b>	<b>MORE &amp; BETTER HOMES USING WOOD</b>	<b>MORE &amp; BETTER LOCAL MANUFACTURING</b>	<b>MORE &amp; BETTER HOME-GROWN TIMBER</b>
<b>ENABLE</b> (e.g. Design specification, procurement support and decision-making tools)	Develop design and procurement decision making tools to support the switch to wood  WS1.5 LA & RSL to build more multi-storey timber dwellings	WS3.3 Improved species mix	WS1.3/1.8 Land-use policy change  WS3.1 New incentives for growing and processing  WS3.2 Planting schemes on LA farms and land
<b>ENCOURAGE</b> (e.g. support the supply chain, product R&D, marketing, certification, technical advice and networks)	WS1.4/2.2 Timber homes first campaign  Targetted R&D support for timber growers, processors and manufacturers  WS2.8 Develop WKW standardised design  WS2.9/10 Create Centre of Excellence for timber processing	WS3.3b Create regional supply hubs	WS3.8 Actions to increase woodland management
<b>EXEMPLIFY</b> (e.g. Promotion and marketing, demonstration projects, case studies)	WS3.3c Cooperative action between forest owners and house builders  WS1.1 Create WKW exemplar housing as part of WG Innovative Housing Programme  WS3.3a Integrated regional model from tree to building  Home Grown Homes LA and RSL pilot projects		
<b>ENGAGE</b> (e.g. Education, training, workshops, competitions, site visits, events)	WS1.2 Create dynamic apprenticeship training programme  WS2.1 Timber house building competition  WS2.3 Establish inspiring education centre for wood (e.g. Techniquest)  WS2.7 Promote natural capital approaches to investment decisions	WS3.6 'Hearts and minds' marketing campaigns	WS3.5 Education in schools
<b>ENFORCE</b> (e.g. WG, LA, RSL, NGO and corporate regulations, policies and targets)	WS1.7 Materials based performance targets  WS1.6 Higher fabric standards  WS2.4/5 Procurement changes to support local companies  WS2.6 National and regional targets for timber building  WS3.7 Embodied carbon incentives		WS3.9 Allow land-use change



Wood for Good



ORGANISER

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**NEW OPPORTUNITIES AND INNOVATIVE SOLUTIONS**

**WOODBUILD WALES 2017 – Thursday 15<sup>th</sup> June 2017 – Metropole Hotel, Llandrindod Wells**

**Understanding the Opportunities**

**09.00 - 10.00: Registration, refreshments and networking in exhibition area**

**10.00: Welcome**

*Shayne Hembrow Deputy CEO of Wales and West Housing and Chair of Woodknowledge Wales*

**10.10: Keynote address - Rethinking timber housing for today and tomorrow:**

*Peter Wilson Timber Design Initiatives*

**10.40: MORE | BETTER: evaluating the potential of alternative approaches to inform housing delivery in Wales:** *Ed Green Cardiff University*

**10.55: Launch of the Powys Wood Encouragement Policy:**

*Simon Inkson Head of Housing, Powys CC*

**11.05: Update on the Welsh Government Innovative Housing Programme:**

*Speaker tbc Housing Dept, Welsh Government*

**11.15 - 11.35: Tea/Coffee & networking in exhibition area**

**11.35: The outlook for home-grown timber in Welsh housing:**

*Hamish Macleod BSW Timber Group*

**11.50: Everyone's talking timber frame – are they right?**

*Robin Lancashire Exova BM TRADA*

**12.05: Structural Timber Frame - the solution to the housing crisis:**

*Andrew Carpenter: Structural Timber Association*

**12.15: Radical simplicity – How to achieve high performance timber building, affordably:**

*Nick Grant Elemental Solutions*

**12.30 -13.00: Q&A on the morning session**

**13.00 - 14.00: Buffet lunch and networking in exhibition area**

**Innovative Timber Solutions**

**14.00: Introduction to the afternoon session:**

*Doug Hughes: Hughes Architects*

**14.10: Design and Build – removing the performance gap:**

*Jasper Meade: PYC Group*

**14.30: Strengthening Communities through sustainable building:**

*Adrian Farey: Elwy Woods*

**14.50: Lessons in Sustainability:**

*Glen Peters: Western Solar*

**15.10: Use of home-grown timber in sustainable low energy buildings**

*George Mikurcik: Architype*

**15.30 - 15.50: Q & A on the afternoon session**

**15.50 - 16.30: Networking in exhibition area**

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SUPPORTERS

Woodbuild Wales 2017 - Speakers



Shayne Hembrow



Peter Wilson



Ed Green



Simon Inkson



Llywodraeth Cymru  
Welsh Government  
Speaker - tbc



Hamish Macleod



Robin Lancashire



Andrew Carpenter



Nick Grant



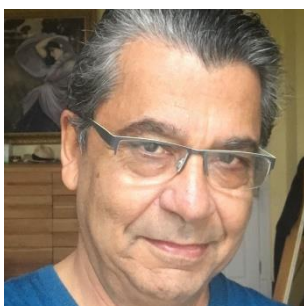
Doug Hughes



Jasper Mead



Adrian Farey



Glen Peters



George Mikurcik



Gary Newman

## Woodbuild Wales 2017 – Speaker Profiles



Shayne Hembrow

### Wales & West Housing

Shayne has more than 20 years' experience in housing and regeneration, working in both England and Wales. After seven years in the private sector, Shayne came in to social housing working for Gloucester City Council and then for the Audit Commission managing their housing work in the South West of England. As Deputy Chief Executive / Commercial Director of Wales and West Housing Shayne is responsible for Development, Care & Support, PR & marketing, and Systems Thinking.

In addition Shayne is chair of Shelter Cymru and chair of Wood Knowledge Wales.



Peter Wilson

### Timber Design Initiatives Ltd

Peter is a registered architect and an affiliate member of the Institute of Structural Engineers. He was director of Edinburgh Napier University's Wood Studio Research Centre until 2015. Peter is now managing director of Timber Design Initiatives Ltd (TDI) delivering a European wide approach to education, innovation and demonstration of best practice in the use of wood in architecture, design and construction.

TDI seeks to identify new and innovative ideas that, through market appraisal, research, development and rigorous testing, have clear potential to be mainstreamed commercially.



Ed Green

### Welsh School of Architecture, University of Cardiff

Ed has practiced as an architect for the last fifteen years, following completion of an MPhil (urban design) and a PhD (energy efficient housing). He is now located at the Welsh School of Architecture, Cardiff University, and is a Design Commission for Wales panel member. He has produced work for numerous exhibitions and publications, and has won a number of international design competitions.

Ed is currently working in association with Welsh Government on the delivery of prototype non-traditional housing for the private and social / affordable housing sectors.



Simon Inkson

**Powys County Council**

Simon’s career started in third sector and housing association projects working with single homeless people, before commencing 15 years’ service in local authorities in South Wales. He then spent 13 years as a self-employed housing & equalities consultant /researcher, before his appointment to Head of housing Services for Powys CC in 2015.

Simon is passionate about the added value that housing can bring to other policy areas, in particular employment, anti-poverty, social care and social justice and as a consequence he is keen on collaboration – hence his involvement as chair of the Home Grown Homes Partnership.

WG

Speaker tbc



Hamish Macleod

**BSW Timber Group**

Hamish has over thirty years’ experience in the timber processing industry. He oversaw the design and construction of a £15M high-speed sawmill line at Dalbeattie for Howie Forest Products Ltd in 2007, where he was MD. BSW acquired that business in 2009.

From 2008 to 2015 he was as a Non-Exec Forestry Commissioner and Chairman of Forestry Commission Scotland’s National Committee.

Since 2011 he has been Director of Public Affairs for BSW Timber, based in Carlisle.



Robin Lancashire

**Exova BMTRADA**

Robin is senior timber frame consultant and the leader of Exova BM TRADA’s building performance section. He joined TRADA in 2001 with ten years’ experience in the construction industry

Robin has contributed to a number of Exova BM TRADA publications. He is a co-author of The Site Manager’s Pocket Guide to Timber Frame and the 4th and 5th edition of the Timber Frame Construction book. Robin is also advisory editor of Low-energy Timber Frame Buildings and represents TRADA on the technical committee of the Structural Timber Association.

Robin advises the timber frame industry on best practice and regularly provides talks on timber frame construction at national building exhibitions and conferences.



Andrew Carpenter

### Structural Timber Association

In a career spanning over 40 years, Andrew Carpenter, CEO of the Structural Timber Association, has played an active part in the construction industry, focusing on business development, best practice and technical Health & Safety guidance - particularly in relation to fire. He is also a Director of Constructing Excellence in the South West.

Andrew joined the UKTFA as CEO in January 2011 and oversaw the rebrand to the Structural Timber Association in 2013 and is now very much at the centre of the sustainable construction agenda, whilst continuing to promote structural timber products and systems within the UK construction industry.

In 2006, Andrew joined Constructing Excellence until 2008 when Government funding was withdrawn so became a consultant for them and other 'best practice' organisations. Previously Andrew has worked for CRH (Cement Roadstone Holdings) from 1977-2005. This included Forticrete Ltd (concrete blocks), Ibstock Brick (clay bricks) and F.I.Systems (Offsite Steel Frame).



Nick Grant

### Elemental Solutions

Nick is the principal of Elemental Solutions and Technical Director of the Passivhaus Trust. He is a sustainable building consultant with a lifelong passion for doing more with less. His interest in closing the performance gap between design and reality led him to the Passivhaus Standard of which he is one of the UK pioneers. He has worked on a wide range of projects from low budget self-build to schools, offices and archives.

Nick is not only an active contributor to discussions on sustainable design but is also a practical engineer and hands-on self-builder.



Doug Hughes

### Hughes Architects

Doug grew up in Mid Wales, surrounded by trees. He has worked and studied internationally, the experience of which has taught him the value of designing sustainable buildings that not only look and feel inspiring but work as practical and uplifting solutions to living well. Since 2001 Doug has been Director of Hughes Architects, which now has offices in Cardiff as well as in Powys and Ceredigion.

Doug is committed to exploring the untapped potential of Welsh timber and for Wales to become a world leader in delivering exemplary architectural and structural solutions using home-grown materials.



Jasper Mead

### PYC Group

Jasper and his brother Ben founded Pen Y Coed Construction and Insulation Ltd (PYC) in 1993 specialising in timber frame systems using Warmcel cellulose fibre insulation.

Their 25 years of experience in the sustainable building industry has shown them 'the good, the bad and the ugly...' and so PYC Group was formed.

From a new factory and offices in Welshpool, they are able to offer - Full turnkey packages or simple design details; Modular units to multiple units; In-house architectural and construction teams.

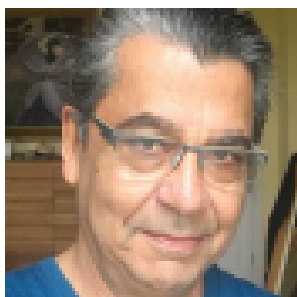


Adrian Farey

### Elwy Woods

Adrian has been running a commercial sawmill and traditional timber framing company in Conwy for 20 years. He is a Director of Elwy Working Woods (EWW), a social enterprise committed to managing local woodlands for job creation. The co-operative is currently working on an affordable housing scheme for eight members, an 'assisted self-build' project.

Adrian believes passionately in using local timber, community and rural employment. By teaching creative skills to young people enabling them to build houses from the local resources.



Glen Peters

### Western Solar

Glen spent 35 years in the oil and gas industry, a senior partner at PWC as a consultant before turning to renewables. For the last three years he has been on a mission to build sustainable, energy efficient housing.

From their factory in North Pembrokeshire Glen and his team developed Ty Solar, the energy efficient homes, from Welsh timber: Structure - C16 Sitka spruce; Cladding - Larch; Windows & doors - Douglas Fir. The project has enabled local businesses to collaborate, young people to be trained and created employment opportunities in a rural area.

Using this model Western Solar has developed Pentre Solar, a hamlet of 6 solar homes in Pembrokeshire let to those on the social housing register. Western Solar are looking to replicate this model throughout Wales.



George Mikurcik

### Architype

George has worked for Architype for the past 10 years. He enjoyed being the Project architect for St Luke's – Britain's first BREEAM Excellent primary school in Wolverhampton, and subsequently led the team for the Blakenhall Neighbourhood Centre on the adjacent site.

As a keen mountain biker, George was well suited as the project architect on a Forestry Commission Wales' Visitor Centre project at Coed y Brenin in Snowdonia, using innovative timber construction from homegrown timber. Other projects include a number of private houses, feasibilities and recently the Passivhaus social housing dwelling models for Swansea Council and Passivhaus primary schools in Burry Port and Trimsaran for Carmarthenshire County Council.

George has a particular interest in Passivhaus design, methods of construction and sustainability, and is currently busy with his own timber/ straw self-build project in Herefordshire.



Gary Newman

### Woodknowledge Wales

Gary is the CEO of Woodknowledge Wales and is also founder and Chair of the Alliance for Sustainable Building Products ([www.asbp.org.uk](http://www.asbp.org.uk)).

Gary is a construction engineer by training and early career. After completing a wood science masters at Bangor University, Gary established Plant Fibre Technology Ltd and has been instrumental in taking a number of plant based products from concept to market.

### Woodbuild Wales 2017 – Delegates

Adam	West	Coastal Housing
Adrian	Farey	Elwy Wood
Adrian	Johnson	Cartrefi Conway
Alan	Jones	Clifford Jones Timber Ltd
Alison	Swabey	Powys County Council
Andrew	Carpenter	Structural Timber Association
Andrew	Mitchell	Natural Building Technologies
Andrew	Osborne	Torfaen County Borough Council
Andrew	Bronwin	Andrew Bronwin and Co
Andrew	Davies	Towy Project
Andrew	Hopkins	Natural Resources Wales
Andrew N	Davies	SIPS Wales
Aneirin	Matthews	Towy Timber



Ben	Meade	PYC Construction
Bruce	Philips	Swansea University
Callum	Hill	JCH Industrial
Carol	Gittins	Powys County Council
Ceri	Loxton	Woodknowledge Wales
Chris	Offa	Charles Ransford & Son Ltd
Christiane	Lellig	Wood for Good
Craig	Sinclair	Natural Resources Wales
Dafydd	Evans	Powys County Council
Dainis	Dauksta	Wood Science Ltd
David	Kelsall	Cartrefi Conway
David	Colwell	David Colwell
David	James	Monmouthshire County Council
David	Smith	Structural Timber Magazine
Dennis	Jones	Consultant
Dewi Llwyd	Evans	Grwp Cynefin
Donald	McIntyre	Donald McIntyre Design
Doug	Hughes	Hughes Architects
Dylan	Owen	Grwp Cynefin
Ed	Green	Cardiff University
Eifion	Price	Llandre Sawn Wood
Eluned	Tibbott	Powys County Council
Fin	Gilding	BSW Timber Group
Gareth	Dauncey	Western Solar
Gary	Newman	Woodknowledge Wales
George	Mikurcik	Architype
Glen	Peters	Western Solar
Graham	Hilton	Resource Efficiency Services
Hamish	Macleod	BSW Timber Group
Harry	Bowen	Mid Wales Property
Ian	Fraser	Hughes Architects
Ian	Sachs	Natural Resources Wales
James	Moxey	Woodknowledge Wales
Jamie	Miller	Ty Pren
Jane	Abbott	Denbighshire
Jasper	Meade	PYC Group
Jens	Schroeder	Western Solar
Jim	McKirdle	WLGA
Jim	Knight	Powys County Council
Joanna	Morgan	Swansea University
John	Littlewood	Cardiff Metropolitan University
Joyce	Gervis	Ty Mawr Lime
Kate	De-Selincourt	Kate de-Selincourt
Keith	Davies	Ceredigion County Council
Keith	Corbett	Clifford Jones Timber Ltd
Kim	Caruna	Powys County Council

Leanne	Roberts	Welsh Government
Leila	Sharland	Tir Coed
Luke	Brennan	Welsh Government
Maria	Wilding	Llais y Goedwig
Mark	Davies	Powys County Council
Matt	Miller	Carmarthenshire County Council
Melanie	Meaden	Natural Resources Wales
Natalie	Lemon	Natural Resources Wales
Ned	Sharer	The Natural Building Centre
Neil	Turner	Ecological Building Systems UK Ltd
Nick	Grant	Elemental Solutions
Nigel	Gervais	Ty Mawr Lime
Patrick	Borer	Patrick Borer Architect
Patrick	Green	Natural Resources Wales
Paul	Holder	Paul Holder
Peter	Bottoms	Esgair Timber Company
Peter	King	Aereco
Peter	Wilson	Timber Design Initiatives
Phil	Hoskins	Mid Wales Housing Association
Phil	Lowndes	Fibre 7
Pippa	Knight	Natural Resources Wales
R Bryn	Davies	Grwp Cynefin
Rhys	Dafis	Grwp Cynefin
Robert	Alexander	Timber Expo
Robin	Aldridge	Robin Aldridge
Robin	Lancashire	Exova BM TRADA
Sarah	Smith	Clifford Jones Timber Ltd
Shayne	Hembrow	Wales and West Housing Association
Shirley	Wiggam	Monmouthshire County Council
Simon	Inkson	Powys County Council
Simon	Ronan	Simon Ronan Landscape Architect
Simone	Hodges	Powys County Council
Stephen	Bowen	Mid Wales Property
Steve	Coombs	Welsh School of Architecture
Steve	Porter	WWHA
Steve	Lewis	Vintage Joinery
Tabitha	Binding	Woodknowledge Wales
Tallulah	Chapman	FSC UK
Victoria	Kelly	Grwp Cynefin
TBC		WWHA

Engagement	Name of Business	Nature of Business	Target met?
<p><b>Business engagement</b></p> <p>Businesses engaged is as broad as informing them of plans for further development.</p> <p><b>Target 15</b></p>	<ol style="list-style-type: none"> <li>1. Pen y Coed</li> <li>2. BM TRADA</li> <li>3. Fforest</li> <li>4. P Holder</li> <li>5. A Mason</li> <li>6. Mid Wales Manufacturing Group</li> <li>7. Houghs</li> <li>8. Lowfield Timber Frame</li> <li>9. G T Evans</li> <li>10. Hughes Architects</li> <li>11. Clifford Jones Timber Ltd</li> <li>12. Ty Solar</li> <li>13. Elwy Working Woods</li> <li>14. Build Collective</li> <li>15. SWG</li> <li>16. G Ottaway</li> <li>17. Eco Struct</li> <li>18. PAR Homes</li> <li>19. Dyfed Homes</li> <li>20. Llandre Sawn Wood</li> <li>21. Plas Onn Timber</li> <li>22. Woods of Wales</li> <li>23. Jamie Richardson</li> <li>24. Ty Mawr</li> <li>25. Swansea CC (LA)</li> </ol>	<p>Mft and insulation</p> <p>Timber R&amp;D specialist</p> <p>Timber Frame mft</p> <p>Builder and carpenter</p> <p>Builder and mft</p> <p>Powys Business Group</p> <p>Insulation</p> <p>/building contractor</p> <p>Sawmill</p> <p>Architects</p> <p>Fencing &amp; wood pellet mft</p> <p>Energy efficient timber buildings</p> <p>Timber frame and training</p> <p>Timber engineer</p> <p>Renovation/building contractor</p> <p>Building contractor</p> <p>Building contractor</p> <p>Timber frame mft and developer</p> <p>Timber frame mft and developer</p> <p>Sawmill</p> <p>Sawmill</p> <p>Timber frame mft &amp; erector</p> <p>Developer</p> <p>Lime &amp; natural insulation</p> <p>LA developer</p>	<p>Yes</p>
<p><b>Stakeholder Engagement</b></p> <p>Stakeholders are those with a vested interest or potential vested interest in the project.</p> <p><b>Target 20</b></p>	<ol style="list-style-type: none"> <li>1. PCC Housing</li> <li>2. Wales and West</li> <li>3. Newydd Housing</li> <li>4. Mid Wales Housing</li> <li>5. Pennaf Housing</li> <li>6. Grwp Cynefin</li> <li>7. Melin</li> <li>8. Pobl</li> <li>9. NRW</li> <li>10. CHC</li> <li>11. Coed Cymru</li> <li>12. MWMG</li> <li>13. NPT college</li> <li>14. Value Wales – WG</li> <li>15. Cllr R Harris</li> <li>16. Powys CC Architectural Dep</li> </ol>	<p>Local Authority</p> <p>Housing Association</p> <p>Housing Association</p> <p>Housing Association</p> <p>Housing Association</p> <p>Housing Association</p> <p>Housing Association</p> <p>Housing Association</p> <p>Welsh government forests</p> <p>Housing Association body</p> <p>Woodlands on farms</p> <p>Business group</p> <p>Training college with links to TTF</p> <p>Community benefits</p> <p>Portfolio holder for housing</p> <p>LA in house architects</p>	<p>Yes</p>

	<p>17. Powys CC Estates                  18. WLGA                  19. Powys CC Regeneration                  20. Powys Stronger Communities                  21. MWMAC                  22. Powys CC adult social care                  23. Confor                  24. Llais y Coedwig                  25. Bronafon Housing                  26. Caerphilly CBC (LA)                  27. United Welsh                  28. Specific (Swansea Uni)                  29. Centre for Alternative Technology                  30. Powys CC Procurement                  31. Powys CC Highways</p>	<p>LA farms and woodlands                  Group representing LA's                  LA in house regeneration                  LA and business group                   Forestry training &amp; skills                  LA housing for social needs                  Forestry body                  Community Woodlands                  Housing Association                  LA housing department                  Housing Association                  Homes as power stations                  Education/training natural building                   LA procurement                  LA highways for building sites</p>	
<p><b>Project Participants</b>                   Awareness raising for potential participants across the whole supply-chain – so people who could benefit from the further development of the RDP project (e.g. residents looking for employment, students looking for careers, farmers or estates looking to plant more trees )  <b>Target 30</b></p>	<p>Awareness raised at</p> <ul style="list-style-type: none"> <li>• CHC housing workshop October 2016 15+</li> <li>• WKW cladding event November 2016 40+</li> <li>• CHC rural housing workshop 26 January 50+</li> <li>• WKW cladding event February 50+</li> <li>• Powys Stronger Communities Together February 2017 - 20+</li> <li>• Anglesey Strategic Housing March 20+</li> <li>• WLGA Housing Strategy Network March 20+</li> <li>• CiH – TAI17 April 100+</li> <li>• Built Environment Workshop May – 19+</li> <li>• Products &amp; MFT Workshop June – 15+</li> <li>• Woodbuild Wales 2017 June – 100+</li> <li>• Forestry &amp; Timber Workshop July – 21+</li> </ul>		<p>Yes</p>