



Woods into Management Forestry Innovation Fund

HOME GROWN CABIN - SUMMARY REPORT

May 2022



OVERVIEW

The HomeGrownCabin is the latest in the Grown in Britain Research and Development Programme funded by FC Innovation funding, with partners London Metropolitan University, Birling Estate, and Mule Studios. The principal aim is to explore innovations in using Sweet Chestnut Coppice and Ash to make construction components and structures that can be up-scaled.

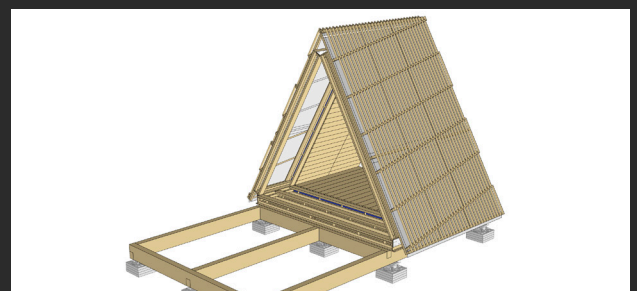
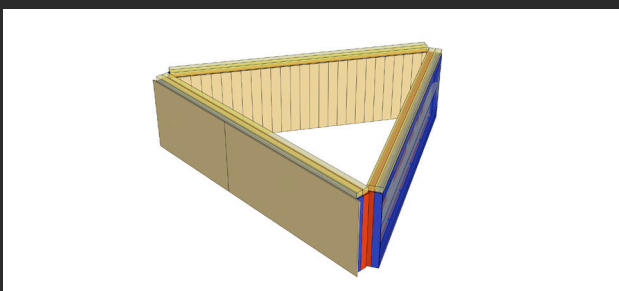
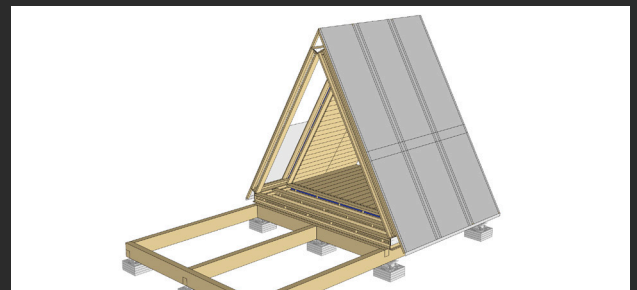
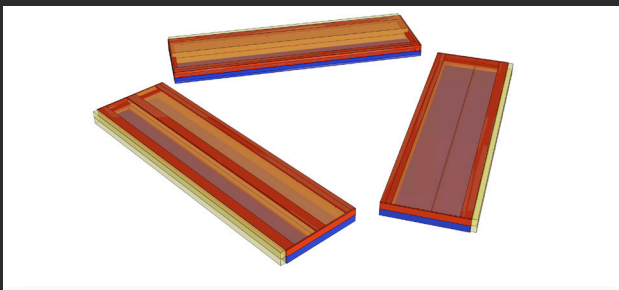
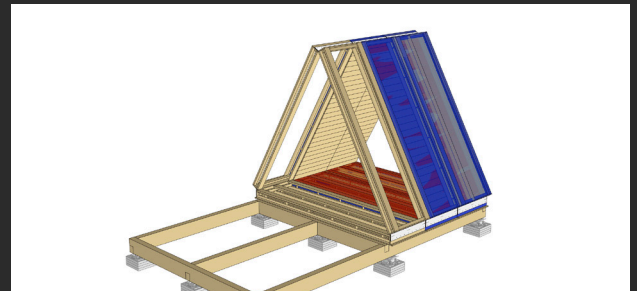
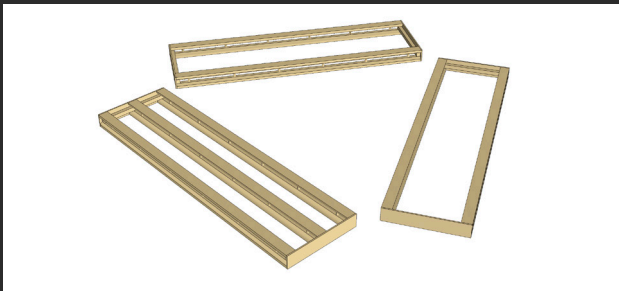
Sweet chestnut is under-utilized in construction and yet is widely available in the south east of England. Ash is available in abundance and this project has sought to divert this valuable timber from the firewood market and into a higher value usage in construction.

The project has made significant and exciting progress in a number of key areas:

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“ This is really something original, sustainable, handcrafted, British and beautiful. ”
- David Leviatin, oak framer

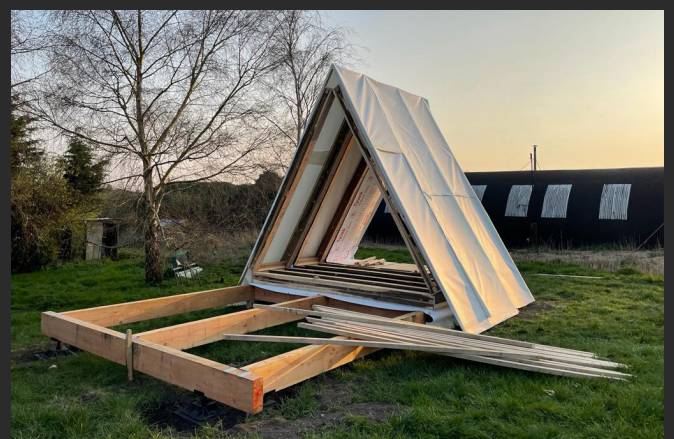




SUPPLY CHAIN

Despite the ongoing pressures on timber supply chains at present, GiB certified sawmills and estates have delivered an exceptional service for the more standard construction timbers as well as non-standard coppice timber. This has ranged from graded C24 Douglas Fir from East Brothers Timber for the substructure, to large section 4m long sweet chestnut poles from Birling Estate for the cabin walls and floor.

The demand for sweet chestnut for fencing continues to be high due to its natural durability and it is great to see this project driving that demand still further, with the higher specs required leading to wider, longer term horizons being considered for its use in construction. This supports bringing more woods into management with enhanced biodiversity and habitat restoration.





DESIGN

Sweet chestnut SIP panels have been produced with an innovative yet beautifully simple design. Fully insulated, structural, modular and demountable, these panels can be prefabricated and moved to site with ease.

The scalability of the triangular design is exciting and replicable and could lead the project naturally to test multilevel applications.

Mule Studio have virtually tested the panels for structural strength and wind resistance and now they will be tested in the real world at Birling Estate.

One of the objectives of the project was to explore and disseminate the findings of the research and to bring new knowledge to technicians, architects, design engineers and builders; this is what David Leviatin, a traditional oak framer who came to work on the project, had to say:

“This is really something original, sustainable, handcrafted, British and beautiful.”





HOMEGROWN v IMPORTS

With a good supply of sweet chestnut in the southeast and the growing focus on timber miles and local supply chains, the HomeGrownCabin demonstrates what can be achieved using a readily available native timber and local expertise. The dissemination of the skills and ideas tested in this project will open up new opportunities for traditionally oak-focused businesses in this area and beyond.

The natural durability of sweet chestnut can readily replace imported timbers both for internal structural elements and also for external cladding.

The use of Ash boards to complete the Sweet Chestnut frames in the panels gives an added value market to this species which is currently in plentiful supply.





SUMMARY

The HomeGrownCabin project so far has been exciting, challenging and inspirational. The overarching aims of the project to bring woods into management, improve biodiversity and habitat restoration, increase supply chain demand for under-utilised species, find sustainable alternatives to steel and concrete and provide an alternative to unnecessary timber imports are all being delivered through an innovative, scalable design.

A transparent and cohesive supply chain for ash and sweet chestnut has been demonstrated from the forest floor to the construction site and the first sweet chestnut SIP panels have been built and are being made into a stunning, demountable cabin.

The low carbon components and the necessary skills involved in making the panels are readily transferrable and scalable. The concept is ready to demonstrate an ultra low carbon method of construction to others and to take to the next level with greater scale and functionality.

For too long Sweet Chestnut, especially from coppice silvicultural systems, has been neglected as a source of construction material. This project has shown the way to change this by using the inherent strengths of the timber, appropriate sawing and cleaving and using the tension and compression of the wood to add stiffness and strength.

There is another level of R and D still required to take the timber system developed in this current phase of the Home Grown House programme, into a scaled up supply chain. However, the way forward is now much clearer and technically possible. A bright future that has been made entirely possible through the construction components developed in this FiF funded project.



THANKS

This summary report was produced by Grown in Britain with thanks to project partners London Metropolitan University, Birling Estate, Mule Studios and Nick Meech.



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mule

Thanks are also given to suppliers East Brothers Timber, English Woodlands Timber, Birling Estate, Jackpads, Tyvek, and Thermafleece for all their support on this project.