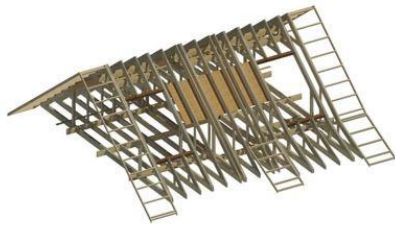




## Innovative Design for the Future – Use and Reuse of Wood (Building) Components

Achievements in the InFutURe Wood project! During our last project meeting that took place online 25 and 26 of October 2021, three of the industrial partners have shared with the entire project team what knowledge they have gained throughout working with “Design of timber structures for the future” a work package led by Ylva Sandin, researcher at RISE, Sweden. Here are their stories:

“At **Robertson Timber Engineering**, Scotland, as a large-scale offsite timber manufacturing



*3D model of Everett Grand  
©Robertsson Timber Engineering*

help us reach those targets.”

business, the InFuture Wood project has taught us the greater value of what we build today and how it can be circulated in future. We are reminded that timber is a renewable material, but not an endless resource. We must manufacture buildings that are adaptable and allow for deconstruction and reuse; existing buildings are material banks.

Through the InFuture Wood project we analysed a Robertson Homes house type and worked out how it could be deconstructed in 50 years’ time, and then rebuilt in a new location. 95% of the timber in this home could be reused as high value components. A model deconstruction plan was written for use as a template in future projects. By looking at the deconstruction process, we found the panelised timber framed components that go into Robertson homes could be further standardised to aid deconstruction. Standardisation will also help us now in manufacturing to reduce stock levels and optimise production processes.

As whole life carbon and a circular economy are becoming increasingly important to deliver a Net Zero Emissions future, we expect to use information developed from this project to

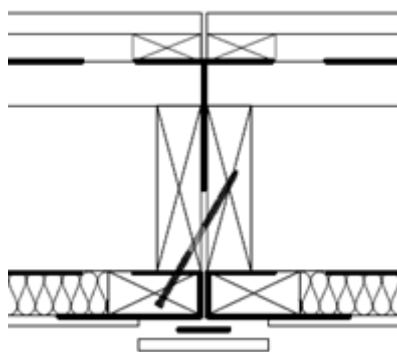


*Everett Grand Villa  
©Robertsson Timber Engineering*



*Nicola Jackson – Technical Manager at  
Robertsson Timber Engineering and Chair  
of Offsite Solutions Scotland*

”For **Derome**, Sweden, the analysis of our technical platform for prefabricated plan elements has been useful. Through this work we have identified what is possible to reuse and assessed the degree



*New design of vertical joint wall-  
wall for disassembly , © Derome*

of work and materials required to repair any damage that might occur. From this work on how to improve connections I want to highlight the vertical wall joint (wall meeting wall) solution: the right and left edges of the wall block are now identical, which is beneficial from a production point of view. Nevertheless, the greatest benefit of this joint shows up on the construction site: a faster assembly, which also enables a future disassembly, where the included material remains intact, so the possibility of reuse increases considerably. We are now working to ensure that this new joint can be used in our production at the end of 2022.

We can nowadays notice more interest from society on disassembly and recycling of building parts, such as the requirements in municipal initiatives, e.g. LFM30 - Local Sustainable Goals in Malmö by 2030. To meet this requirement a disassembly plan will be drawn up in 2021-2022 ahead of Derome’s building projects there in 2022. We expect that building procurements will include even more specific requirements and awards criteria for disassembly documentation within 5-8 years.”



*Anneberg Villa, AHus, © Derome*



*Anders Carlsson, R&D Manager,  
Derome, Sweden*

“From our perspective at **IsoTimber**, Sweden, the Case Study Method was an easy, and therefore useful way to analyse the deconstruction process. We gathered our team in a digital meeting together with researchers in the InFutUReWood project. While looking at drawings, assembly instructions and technical details, we imagined a theoretical deconstruction process, from top down and step by step. The major conclusion was that the IsoTimber prefabricated wall panels with connectors are already designed for reuse and no obvious need of change in design was identified. The analysis raised our awareness of important aspects to consider though. As a direct consequence we used this knowledge to establish an IsoTimber Guide for Deconstruction. The guide will be of practical value to customers at the time of deconstruction, but also serve as valuable marketing information to attract new customers. The overall purpose of the guide is to encourage reuse of the wall elements, in line with the company’s vision of enforcing a circular economy.”



*Assembly of external wall panels (IsoTimber + CLT) with floor panels (CLT)  
© Gustab AB*



*Case study object: Villa Forshälla Sund. © Erik Persson*



*Janina Östling, sustainability manager, Isotimber*

Interviewer: Carmen Cristescu, researcher at RISE, Sweden