InFutURe Wood

Design for deconstruction and reuse (DfDR) of timber structures: Looking forward

Summary

There has been considerable research in the last 25 years identifying key principles and specific strategies to facilitate the reuse of construction products from demolition. This design philosophy, Design for Deconstruction or Design for Disassembly, is abbreviated as DfD, or Design for Deconstruction and Reuse (DfDR) on the InFutUReWood project. Despite this research, a considerable portion of timber from demolition across Europe is not salvaged for reuse due to demolition practices, market drivers, and a lack of uptake of DfDR principles in the professional design community. Our analysis indicates that very few architectural practices design with this objective in mind, suggesting that, to operationalise this body of research, DfDR design tools must be developed if it is to become part of the everyday architectural design practice.

Methodology, Findings and Future Directions

InFutUReWood has studied demolition practices and developed inventories of wood encapsulated in current buildings across its partner countries, as well as reviewing the DfDR literature and the prevalence of its use in design practice. There is considerable timber encapsulated in current European building stock but as demolition practice is driven by economics, without a market for salvaged timber it finds its way to the most lucrative end point, typically being chipped for energy use.

Development of a market is dependent on having guidelines for grading salvaged timber, to be addressed in the InFutUReWood project. Equally critical is ensuring buildings are designed in a manner that they can be readily disassembled without damaging timber elements - the basis for research in the field of DfDR. InFuTUreWood WP 2 have compiled a state-of-the-art report focusing on DfDR and contemporary building techniques of timber that give guidance, but a more directed decision-making tool is required.

Project Title: Design for deconstruction and reuse (DfDR) of timber structures

InFutUReWood is developing a DfDR decision-making tool for architects and engineers. This strategic matrix will provide guidance based on relating principles, strategies and specific tactics to design work stages, to aid design decision making that promote DfDR, specific to timber construction. This decision matrix will be coupled to an indicator system, to verify the projected design as part of a building rating system, in an effort to transfer the considerable DfDR research into practice.

Authors: Elizabeth Shotton and St John Walsh