

Villa Anneberg, Sweden

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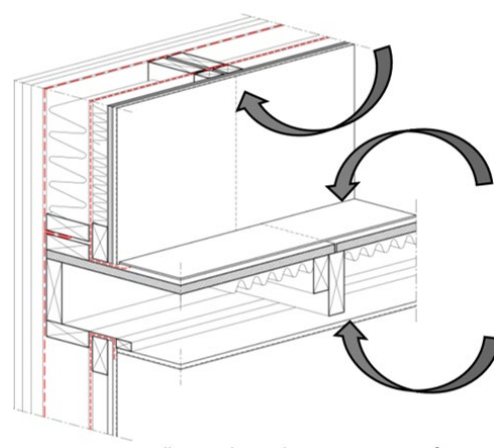
Apart from analysis and modification of design within WP 2 and 3, LCA and LCC analyses are carried out for this object by Raphaëla Ivanica & Michael Risse, TUM, Germany within WP 6.



Image: Derome

Existing Baseline Design

Stick frame building. Roof trusses, external load bearing wall elements and floor cassettes are produced off-site as planar elements. External walls have vapour barriers consisting of plastic foil. They are finished on site with gypsum plaster boards. Non-loadbearing walls are built on site.



Advantages to DfD/R

- Industrially produced system with few and large elements allow for fast and rational deconstruction.
- Knowledge, techniques and logistics in place for efficient transport and assembly.
- Screw connections.
- Few and common tools needed for deconstruction.

Obstacles to DfD/R

- Connections between elements will be damaged by deconstruction and cause waste and need for repair in workshop. This applies to junctions between wall elements (1A & 2A), where vapour barriers and gypsum boards will be damaged. It also applies to glued and screwed connections between floor cassettes (3A).
- Not prescribed connectors (nails) might occur.

Design Modified to DfD/R

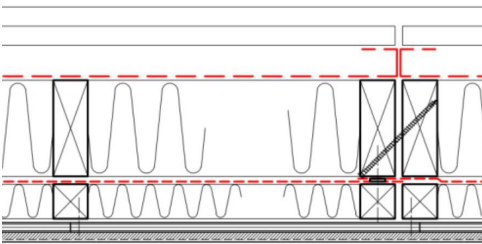
Disassembly scenario: After 50 years of use, the building is assumed to be deconstructed into its original planar elements, transported to another site in the same area (with the same wind and snow loads) and reassembled to an identical building. The design is modified to be improved for this scenario, thus be better adapted to Design for Deconstruction and Reuse (DfD/R).



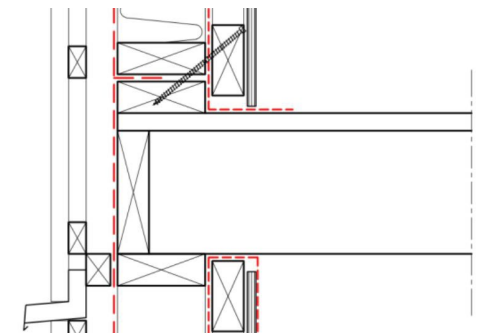
Image: Derome

Improvements to DfD/R

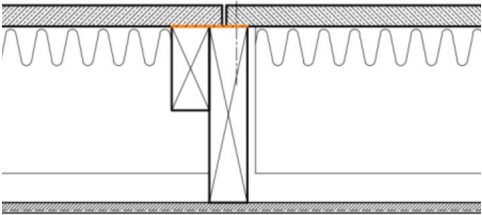
- New connection wall to wall (1B) can be deconstructed without severely harming the vapour barrier.
- New connection wall to floor(2B) makes it unnecessary to destroy gypsum plaster board in order to reach screws.
- New connection between floor cassettes (3B) can be deconstructed without causing damage to cassettes.
- Roof can be designed with roof cassettes.



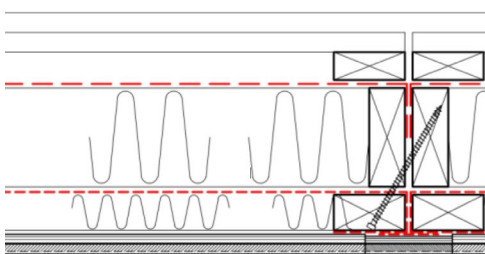
1A



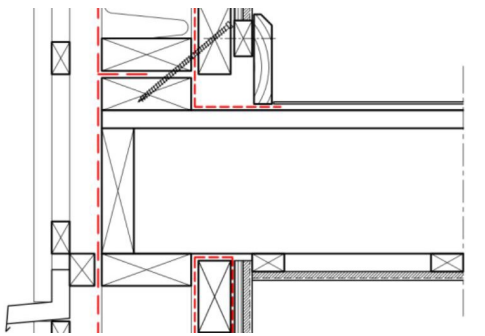
2A



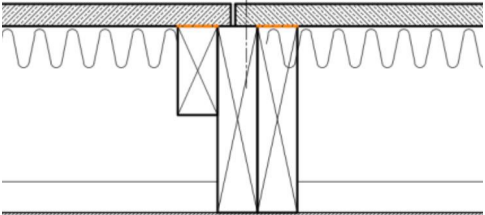
3A



1B



2B



3B

All details: Caitríona Uí Chúláin

82,7 % of Wood Recoverable for Reuse

86,4 % of Wood Recoverable for Reuse



Project InFutUReWood is supported under the umbrella of ERA-NET Cofund ForestValue by Vinnova – Sweden’s Innovation Agency, Formas – Swedish Research Council for Sustainable Development, Swedish Energy Agency, the Forestry Commissioners for the UK, the Department of Agriculture, Food and the Marine for Ireland, the Ministry of the Environment for Finland, the Federal Ministry of Food and Agriculture through the Agency for Renewable Resources for Germany, the Ministry of Science, Innovation and Universities for Spain, the Ministry of Education, Science and Sport for Slovenia. ForestValue has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement N° 773324.

