

Dismantling concepts in timber construction

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SUS TAINA BILITY



Sustainable building begins at the planning stage, so we consider the life cycle of a building long before we build it. Why dismantling and value retention concepts are important. Why more and more buildings are being dismantled. And what you need to look out for. We have the answers.

This is why more and more buildings are being dismantled rather than demolished.

Raw materials are becoming scarcer and more expensive. Our built environment is the raw materials warehouse of the future. When buildings are demolished, they should be dismantled as carefully as possible and as many materials as possible should be reused, preferably without downcycling. Office buildings are used for an average of 15 years and then remodelled. The best case would be not to demolish buildings in the first place, but to use them for as long as possible or to find a new use for them. As this is not always possible, future dismantling and possible conversion concepts must be developed as early as the preliminary design planning stage. Buildings that can be repurposed and adapted with little effort – through flexible floor plans, building technology, room heights, and building depths – have a longer life.

These aspects are important for dismantling concepts.

The use of repurposed components and recycled materials, leasing products, the reduction of materials, the use of a small number of different of materials, structures that can be dismantled, low-pollutant building products, low-maintenance and durable components, take-back systems for building materials, prefabricated components, and good documentation of all materials used in the material passport.

These legal regulations relate to the circular economy.

The draft of OIB (Österreichisches Institut für Bautechnik) Guideline 7 takes the issue of recyclability into account and is expected to be introduced under building law from 2027. The City of Vienna is also currently working on an assessment system for recyclable construction, which is expected to be introduced as standard for new builds and refurbishments in 2030.

This is how the circular economy is addressed in the EU Taxonomy Regulation.

The sustainable planning and construction of buildings supports the circular economy. Evaluation systems are used to demonstrate that resource efficiency, adaptability, flexibility, and the ability to be dismantled are increased and that reuse and recycling are facilitated. In addition, more than 70% of construction and demolition waste, excluding AVV 17 05 04, must be reused, recycled, or backfilled. This widely demanded and promoted focus on the circular economy also has an impact on large-volume and multi-storey timber construction.



(c) Martina Berger

This is what to pay attention to with buildings made of wood.

The ability to be dismantled, meaning that the planned timber products and components are used in such a way that they can be easily repurposed, adapted, and, ultimately, easily dismantled and reused. We have developed special dismantling and value retention concepts as well as dismantling catalogues for current projects. Unlike mineral-based solid construction methods, classic timber construction is characterised by the use of mechanical

fasteners such as screws, nails, bolts, and dowels, which are comparatively easier to dismantle. These connections, for example comprising screwed cross-laminated timber elements or individual layers of multi-component parts, can be undone and separated more easily. In simple timber construction, the following hierarchy of requirements applies: plugged – screwed – nailed – glued. In large-volume hybrid timber construction, the structural, fire protection technology, and building physics demands on components are very tough. They require ingenious and detailed solutions developed in advance in order to avoid rigidly connected, glued, or cast connections. This ensures the non-destructive dismantling of the components to the maximum extent.

This is why dismantling and new builds are setting new standards.

Five office buildings and a multi-storey car park were dismantled on the LeopoldQuartier site. The dismantling was certified by us; it is one of the first in German-speaking countries and the first in Austria to be awarded DGNB Gold certification. We took the following points into account for the new build, among others:

- Use of low-emission building materials: they can be used again in other construction projects with a clear conscience.
- Avoiding superfluous materials: the ceilings are exposed cross-laminated timber. When dismantling and reusing the ceilings, there are no layers to be separated from each other.
- Use of prefabricated components
- Simple construction methods