TIMBER ARCHITECTURE, DESIGNED FOR DISASSEMBLY

with LIGNOLOC® wooden nails

BECK

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Project: Office building HasleTre
Location: Hasle, Oslo, Norway
Architect: Oslotre
Year of completion: 2022
Interior:
3-layer panels fastened with LIGNOLOC® wooden nails
Facade: Pine wood panels fastened with LIGNOLOC® wooden nails with head (ETA-23/0330)
Project-specific requirements:
Disassembly, reusability, reduced use of steel
Award | **Nomination:** Nominated for the City of Oslo Architecture Award 2023 (Oslo bys arkitekturpris)*
Photos: Sindre Ellingsen

Source: Jury statement by the City of Oslo (Oslo kommune)

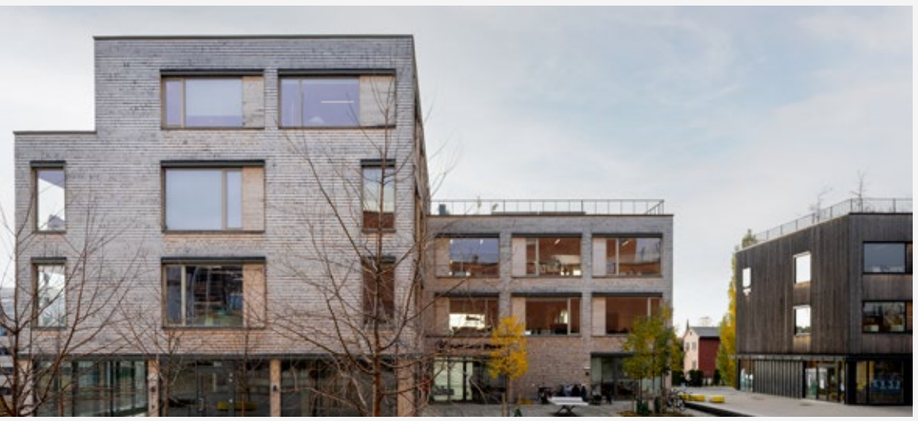


PROJECT

Office Building HasleTre

HasleTre is a timber-built office building in the Hasle district of Oslo. It was designed so that the building can later be dismantled and its components reused. The use of concrete and metal was reduced in construction. The project partners were looking for a fastening solution that works without metal fasteners, makes it easier to reuse the components, and supports the calm, wood-dominated appearance.





More about LIGNOLOC®

Benefits

Disassembly without metal fasteners

metal-free timber connection

up to 66% less CO_2e in manufacturing**

fast installation without pre-drilling

timber surface without visible metal

Challenge

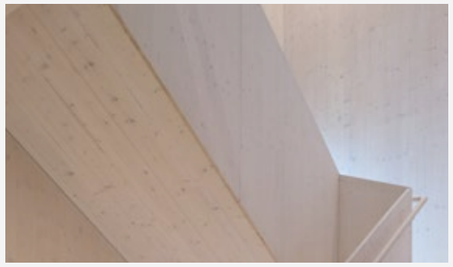
The building owner wanted to plan HasleTre as a material bank whose components can be reused as fully as possible after use. That is difficult with conventional fasteners:

+ Metal fasteners have to be laboriously sorted out during disassembly and can damage tools when cutting or planing.
+ Adhesive bonds between components create composite structures that can usually only be disposed of as mixed waste or thermally recovered.

What was needed, therefore, was a metal-free fastening system that enables designs for disassembly, allows entire elements to be dismantled, reduces the share of steel, makes it easier to reuse the components, and at the same time ensures high-quality, metal-free timber surfaces. LIGNOLOC® wooden nails were used for this.

Solution & Implementation

For the interior, the innovative LIGNOLOC® wooden nails were used in combination with wood panels; on the exterior, they replaced screws in the pine wood panels. As a result, the visible walls could be fastened without metal fasteners. Nailed timber components are suited to constructions planned for disassembly – as here. The wooden nails become part of the wood and remain in it. In the HasleTre project, steel consumption was around 80% lower than in a comparable construction, according to the planners. LIGNOLOC® wooden nails contributed to this because they replaced metal fasteners there.



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** Source: nova-Institut, LIGNOLOC® Life Cycle Assessment (LCA), May 2018. Scope: manufacturing phase; reference product: steel nail made from wire produced in Asia. The value refers to the nail, not to the building.