

MASS TIMBER USE AROUND THE WORLD

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Published on November 17, 2022



Kautokeino School, Norway

With the [#climatecrisis](#) and numerous agendas dedicated to global improvements of crucial sustainability goals, mass timber construction was widely accepted as a solution that might create new values – architectural, design, aesthetic, structural, develop current industries, and generate new working places and solutions. [#masstimber](#) structures are today used in almost all project types, including residential, hospitality buildings, renovation or extension projects, high-rise buildings, schools and universities, office and public buildings.

It became our great support and tool to improve the carbon footprint and improve numerous performances combatting the consequences of the climate crisis. Therefore, mass timber construction:

- Costs less than concrete
- Decreases carbon emission
- Shortens construction time
- Is used in almost all climate zones

- Supports innovation during construction design process with creation of elements rigid, stable and aesthetically appealing
- Is suitable for combining with concrete creating hybrid structures.

As the new challenge for architects, as well as for structural engineers, great number of mass-timber projects are currently being designed and built throughout the world. Among the largest projects currently being built, we have noted several that will create new values in different building types:



Volvo experience centre by Henning Larsen Architects, Gothenburg, Sweden

Planned to be opened in 2024, the new Volvo experience centre will embody the strong Scandinavian connection with nature. Large exhibition space will be connected with its natural surroundings by a glass façade, allowing the visual interference of the natural surroundings with the interior. Three trunk-shaped spaces are encircled with structure in GL beams resembling trees, while CLP panels form partitions between other areas.

UN office building on Lake Geneva by SOM & Burckhardt + Partner

The UN campus in Geneva will be extended with several new blocks built in hybrid structure – concrete columns and beams with timber floor slabs. Open plan offices will be visually opened to the nearby Alps and Lake Geneva, and all spaces inside the building will have access to courtyards, roof terraces and small plazas.

Ascent building in Milwaukee

With its height of 86,6m, this residential tower is currently the tallest mass-timber building in the world. Main structural parts like foundation and elevator shafts were made of concrete, while the rest of the structure is composed of CLP and GL elements. Beside breathtaking panoramic views, luxurious apartments offer direct exposure of timber elements and warmth it brings to domestic ambience.

Atlassian HQ in Sydney

When completed, this office building will be the tallest (180m high) hybrid-timber building after completion expected in 2025. It is designed as a timber structure enveloped in a façade made of steel and glass. Use of timber elements inside the building decreases CO2 emission by 50%.



Residential Project, Netherlands

Projects by Acetra

We are proud to have participated as structural designers in several projects of various types, contributing to energy savings and decrease of CO2 emission.

[Kautokeino School, Andenes, Norway](#)

The new school is 5000m² large and was designed with CLT panels (up to 7m long) as walls and roof panels, and GL beams 1,1m high, covering a 16,5m span in the sports hall. Due to the significant expected impact on carbon footprint in production, the project was released in phases.



Kaurokeino School, Norway

[Bispevika project, Oslo, Norway](#)

Residential buildings in Oslo waterfront offer a gross area of 35000m², with 300 units. Buildings were built in cement and steel structure, while our task was to design timber custom-made façade covering. The challenge was both technical and aesthetical, and we came up with a ventilated façade system that consists of several layers: timber studs with thermal insulation layer, horizontal battens that bear gypsum boards and aluminium frames, and final layer – slate boards. Ventilation is provided between aluminium frames and slate boards.

Timber custom-designed façades might be one of the perfect solutions in energy renovation projects, expected to cover the improvements of the existing building stock in Europe. With solar energy solutions and green roofs, the overall effect of the climate crisis might be significantly decreased.

[University of engineering extension, Belgrade, Serbia](#)



Render by Zabriskie Architectural Studio

Competition project in collaboration with Belgrade studio Zabriskie considered hybrid structure type and improvements regarding CO₂ emission. The floor structure was developed as a combination of concrete supporting elements in slabs, with CLT bearing wall panels and stairs' slabs. Beams are designed as GL elements. In total, calculated emitted CO₂ of the structure is lower than absorbed. Green roof and solar panels were included too, to support the energy savings and provide better thermal comfort inside the building.