StoraEnso

Partner of Stora Enso

ZMP HOLZBAU SYSTEME

Ringhofer & Partner GmbH (RIPA) Pinggau, Austria

Sustainable wood products were extensively used to renovate and expand an existing office building. The renovation was done carefully, respecting the existing structure and soil without using more space on the site. Three new floors were added, keeping the original exterior walls and pile foundation intact.

The new structure was built entirely with wood, except for the staircase, which was made of precast concrete elements for structural reasons.

Materials

Prefabricated cross-laminated timber elements (Sylva™ CLT Walls, Floors and Roofs by Stora Enso) were predominantly used, supplemented by glue-laminated timber (GLT/glulam), sawn timber made from spruce and larch as well as softwood fibre insulation materials.

A total of 768 m³ of wood products were processed, including:

- 540 m³ Sylva™ CLT Walls, Floors and Roofs

- 21 m³ GLT/glulam

- 58 m³ sawn timber (spruce/larch)

- 149 m³ softwood fibre insulation

The decision to use Sylva™ CLT elements as the central building material was a conscious one - out of conviction for its excellent structural properties, building biology qualities and ecological balance.

The rear-ventilated façade made of local larch underlines the clear architectural design language and supports the regional value chain.

Windows made of wood and natural insulation with wood fibres provide a low carbon emission material building envelope system.

Parts of the roof surfaces were extensively greened, creating an additional ecological functionality. For rainwater and wastewater, only the existing sewage system was used as another resource-saving measure.

Carbon footprint

The Sylva CLT elements only generated 28 tonnes of greenhouse gases (CO_2e) to manufacture and 3 tonnes of CO_2e to transport. Compared to the 411 tonnes of carbon dioxide that the trees removed while they were growing and will store in the office building, this amount is a small fraction. Choosing Sylva CLT elements instead of non-renewables avoided 617 tonnes of greenhouse gases. Source: Stora Enso Carbon Calculator based on third-party verified EPDs .

Operational energy

The building's energy supply consists of:

-A photovoltaic system with 82 modules and a capacity of 36.9 kilowatt peak produces electricity on the roof.

-Two inverters and 12 electric charging stations ensure that the company's steadily growing electric fleet can be efficiently supplied.

For heating, district heating from biomass is used - distributed via underfloor heating with approximately 14,200 running metres of installed piping.

Cooling is provided by a heat pump with a cooling function. While modern fan coils ensure a comfortable indoor climate on the ground floor, over 55 cooling sails with a total area of 228 m² are used in the upper floors.

Overall this project impresses with its intelligent planning, extensive use of wood is a future-proof example of low carbon footprint construction in Styria.

General

Delivery year

2024

Building type

Office

Area (m²)

2,100

Storeys

3

Units

1

Photo credit: Ringhofer & Partner

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Products

Products and Services

Sylva™ CLT Floors and Roofs, Sylva™ CLT Walls

Product quality

VI, NVI

Product volume (m³)

540

Team

Partner of Stora Enso

ZMP Holzbausysteme

Developer

RIPA Mehrwertplus GmbH

Architect

Ringhofer & Partner GmbH

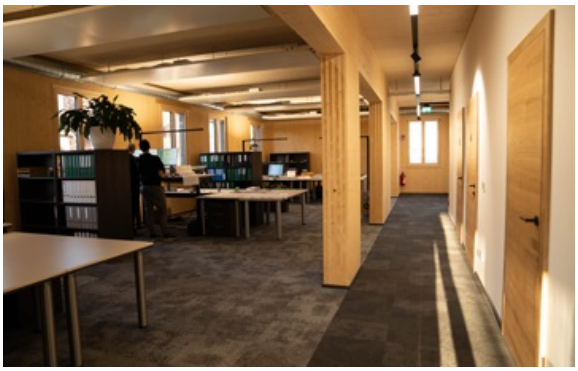
Structural Engineer

ZMP GmbH

Specialist Timber Subcontractor

Zimmerei Christian Gruber

Photo credit: Ringhofer & Partner



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