StoraEnso

Partner of Stora Enso

Vojenské lesy/ Slovakia Military Forest Administration Malacky, Slovakia

In the heart of the Slovak countryside, surrounded by the very forests they manage, the Vojenské lesy/ Slovakia Military Forest Administration set out to create a new administrative complex that would reflect their deep connection to nature.

The project was awarded through a public tender, and the result is a striking office building that seamlessly integrates locally sourced wood into its structure and design. With 800 m³ of spruce logs and 100 m³ of larch logs used for the load-bearing elements and façade, the building not only showcases sustainable construction but also embodies the spirit of the surrounding landscape.

As a major supplier of roundwood to Stora Enso production units, the Military Forests helped bring the story full circle —connecting wood from Slovak forests with the realization of this office building, completing the journey from forest to final use giving special attention to employee well-being, with acoustic enhancements ensuring a calm and healthy working environment.

Architectural vision

Military Forests and Property of the Slovak Republic - wished to build an administrative complex located in the countryside, in direct contact with the managed forests. The complex embodies low-emission design. The goal was to achieve carbon-neutral construction using local resources from the Military Forests with a focus on the principles of the circular economy, renewable resources, and natural materials.

The aim was to create a simple architectural expression, with an emphasis on the use of natural materials and high-quality architectural details. The load-bearing structure made of wood is left exposed as much as possible in the interior.

Project overview

The complex addresses the need for administrative functions of the Military Forests. Set in the landscape, it includes administrative and technical buildings, enriched with social, conference, and educational functions including 14 offices, one meeting room, five warehouses and archives, a technical room, a server room, 2 kitchens for employees, social facilities, one wheelchair accessible WC and 37 parking spaces.

In addition to its administrative function, the complex is also intended to be used for social, conference and educational activities, especially for children.

Phase One: Initial construction

The first phase saw the construction of the main administrative building and a garage with a boiler room. This phase also included utility connections, access roads, parking, fencing, and water retention measures. The main administrative building is a two-storey wooden structure made of cross-laminated timber (CLT) with exposed prefabricated Sylva™ CLT Floors and Roofs.

Operational Energy efficiency

The area is nearly energy-autonomous, thanks to photovoltaic panels on the main building and parking carport. These panels also power the lighting. Water retention measures include infiltrating pavement that absorbs 40% of rainwater, with additional rainwater directed to retention tanks for garden irrigation. Green roofs on the main building and boiler room contribute to passive cooling and water retention.

The project includes charging stations for electric cars, mopeds, and bicycles. Biomass from the company's waste heats the buildings, with a boiler in the new boiler room distributing hot water. Passive cooling elements like external blinds, green roofs, and heavy wood fibre insulation are complemented by active cooling through recuperation. (Source).

Near zero waste construction

During construction, sustainability and zero waste principles were paramount. Construction waste was separated and reused, with sorted hard plastic used for terrace furniture. Lightweight concrete, incorporating 21 tonnes of plastic from a legal landfill, was used for fencing, pavement, and stairs. (Source).

Carbon footprint

The Sylva CLT elements only generated 5 tonnes of greenhouse gases (CO_2e) to manufacture and less than one tonne to transport (0.65 CO_2e). Compared to the 79 tonnes of carbon dioxide that the trees removed while growing and will store in the admin building for generations, this is amount a small fraction. Choosing Sylva CLT elements instead of non-renewables avoided 118 tonnes of greenhouse gases. (Source: Stora Enso Carbon Calculator based on third-party verified EPDs.

The office building embeds 271 tons of CO_2, using local wood for its load-bearing structures and facades—800 m^3 of spruce logs for the structure and 100 m^3 of larch logs for the façade—with the horizontal elements supplied by Stora Enso. (Source).

Safe and rapid construction

Mass timber construction is at least 30% faster than steel and concrete systems. (Source). However, this project also leveraged Stora Enso's Services to preinstall lifting devices. The lifting devices were installed for optimal load capacity and stability based on element weight and centre of mass automatically calculated from 3D manufacturing model. This provided a high degree of precision in tightly controlled factory conditions. As a result, when the CLT elements arrived on-site, they were ready for immediate installation. Reducing the time and construction budget wasted while local labourers install on-site.

The entire construction only took 18 months from 05/2022 - 11/2023.

Future developments
The second phase will add a congress building and a Forest Administration building. Aluminium windows with triple glazing enhance the building's thermal envelope.

General

Delivery year

2024

Building type

Office

Area (m²)

571

Storeys

2

Units

4

Photo credit: Milan Hutera

Products

Products and Services

Sylva™ CLT Floors and Roofs, Sylva™ CLT Walls, Preinserted lifting devices

Product quality

Non visible quality (NVI) and visible quality

Product volume (m³)

104

StoraEnso

Team

Partner of Stora Enso

CLT Slovakia

Developer

Military Forests and Property of the Slovak Republic /Vojenské lesy

Architect

prodesi/domesi

Structural Engineer

Domesi Slovensko s.r.o /Ing. Tomáš Sedláček and - PPO: Doc. Ing. Juraj Olbřímek, PhD.

Timber Engineer

Kristián Sogel

Others

Total construction development cost (€)

4,200,000

Total construction development duration (months)

18