



StoraEnso

Finnish Pavilion at Astana Expo 2017

Astana, Kazakhstan

The Finnish Pavilion at the Astana Expo 2017, designed by the renowned Ateljé Sotamaa, reflected to the world Finland's commitment to sustainable building and innovative design.

The pavilion was part of the larger EXPO 2017, which hosted 115 countries and 22 international organizations. Over the course of the exhibition, more than 3.8 million visitors explored the site, which spanned 174 hectares on the Left Bank of the Ishim River in Astana, Kazakhstan.

Reusable Pavilion Design

The Pavilion consisted of five [cross-laminated timber \(CLT\)](#) exhibition pods, each with distinct interior atmospheres and themes: Clean Energy, Smart City, Pure Water, and Excellent Education.

The space between the buildings aimed to recreate the experience of Finland. The design balanced natural formations and mathematical geometries, reflecting a country that is both technologically advanced and close to nature. The space was designed to be free and democratic, with no specific instructions for use, encouraging spontaneous interaction.

The impact of unique and unexpected spaces

Industrial mass manufacturing often leads to large quantities of identical building components. This pavilion also based on digital processes, offered an alternative approach.

Each architectural idea was customised to individual needs, resulting in a community of unique spaces where each unit was a variation on a theme. This flexible design strategy allowed the pavilion to create a rich, multi-layered experience. The resulting collection of nuanced differences, rather than monotonous repetition, fostered a healthy, integrated psychological experience for the visitors.

Design for Manufacture and Assembly (DfMA)

Digital fabrication of wood elements provides freedom for design and architectural expression, offering possibilities for alternative modes of construction. In contemporary digital design, a dataset evolves continuously from software to software, from sketching to modelling, analysis, manufacturing, and construction.

The Finnish Pavilion was digitally designed to optimise both, structural and architectural geometries. Then a 3D model was sent as IFC file to Stora Enso where it was post-processed with a CAD/CAM software to get all the needed data for administration and production.

Construction and collaboration

When paired with digital design and manufacturing techniques, wood becomes an exciting material to work with. The possibilities for collaboration across disciplines with designers and engineers are endless. The simplicity for Stora Enso to manufacture the materials precisely enhanced the architectural process. [Preinstalled lifting devices](#) in the CLT elements helped to ensure safe manoeuvrability on-site.

Sustainability



StoraEnso

The elements were prefabricated into 292 unique elements at the Stora Enso's mill with CNC precision, then nested for optimised load planning and transported to Astana in four deliveries. The [CLT elements](#) generated 8 tonnes of greenhouse gases (CO₂e) to manufacture and 21 tonnes to transport. This is a mere fraction of the 122 tonnes of CO₂ that the trees removed while growing and will store in the building. Choosing Sylva CLT elements over non-renewables avoided 183 tonnes of greenhouse gases. (Source: [Carbon Calculator](#)).

Post-Expo Usage

After the Astana World Expo 2017, the pavilions were developed into a microdistrict with its own infrastructure, including recreation and park areas, residential buildings, a hotel, a congress centre, and a multifunctional shopping mall. Many of the pavilions continue to be utilised and maintained by various organisations and institutions, including the Astana International Financial Centre, the Astana Hub international IT startup technopark, and the Astana IT University.

Research and development

The Finnish pavilion structure was used for research and development of digitally designed and fabricated, sustainable wood construction. Stora Enso always makes sure that their forests are regenerated after harvesting. The pavilion showcased Finland's expertise in timberconstruction and served as an example for future demountable/ reusable pavilions, such as the [Slovenian Pavilion at EXPO 2021 Dubai](#), the [Swedish Pavilion at EXPO 2021 Dubai](#), and the upcoming [World Expo 2025 Pavilion, Czech Republic](#)

About the architect: Ateljé Sotamaa

Ateljé Sotamaa, is an international design and architecture studio based in Helsinki, was founded by siblings Tuuli and Kivi Sotamaa. The firm is known for creating transformative buildings, spaces, and objects that challenge conventional thinking. Their work spans multiple countries, including Finland, Sweden, England, Italy, the USA, Japan, China, and Kazakhstan, and is characterised by a blend of experiential design, criticality, and responsibility.

Award-Winning Design

The Finnish Pavilion, titled "Sharing Pure Energy," was awarded the gold medal for theme development among pavilions less than 400m² by The Bureau of International Expositions.

Publications

[Ateljé Sotamaa Exhibition Architecture - Designing Human Experiences by Ateljé Sotamaa - Issuu](#)

[Finland devotes energy to Astana Expo 2017 - this is FINLAND](#)

[EXPO 2017 Legacy: What is Venue's Future? | ArchDaily](#)

Would you like to learn about more demountable / reusable pavilions?

[Swedish Pavilion in Dubai EXPO 2021](#)

[Slovenia Pavilion EXPO Milano 2015](#)

[World Expo 2025 Pavilion, Czech Republic](#)

[Nordic World Ski Championship's Pavilion 2023](#)

[Aika Event Stage, SuomiAreena](#)

[BMW Artville](#)

[Eco Pavilion, Nordic World Ski Championships](#)

[Athletes' Village Ski Flying World Championships](#)

The renewable materials company



StoraEnso

Subscribe to our newsletter to stay informed about more exciting projects opening in your region.



Gold Medal Pavilion under 400m² (Bureau of International Expositions)



Photo credit: ©Finpro / Expo 2017

General

Delivery year

2017

Building type

Others

Area (m²)

400

Storeys

1

Units

5

Products

Products and Services

CLT, Preinserted lifting devices

Product quality

PEFC non-visual industrial surface grade

Product volume (m³)

160



StoraEnso

Team

Developer

Embassy of Finland in Astana
Employment and Ministry of
Foreign Affairs of Finland

Architect

Ateljé Sotamaa

Timber Engineer

Vahanen Group