

# PUUKUOKKA HOUSING BLOCK

**location** Jyväskylä, Finland

**client** Lakea Oy

**commission** direct commission

**year** 2011 (commission) - 2014 (first apartments ready) - 2015 (completion block 1) - 2016 (2nd and 3rd phase)

**size** 18,650 m<sup>2</sup> (floor area, whole construction): 14,000 m<sup>2</sup> (apartments); 4,650 m<sup>2</sup> (shared facilities)

**architect in charge** Anssi Lassila

**project architects** Juha Pakkala (construction stage), Iida Hedberg (design process stage), Jussi-Pekka Vesala (master plan stage)

**other team members** Mia Salonen, Teemu Hirvilampi, Hanna-Kaarina Heikkilä, Santtu Hyvärinen

Completed in 2014 (first apartments ready) / 2015 (final completion), Puukuokka One is the first eight-story high wooden apartment building in Finland. It explores the potential of modular prefabricated CLT construction to meet the goal of providing high quality, environmentally responsible and affordable housing. Commissioned and built by Lakea, it is an energy-efficient and ecological trio of multi-story wood-framed apartment buildings in the Jyväskylä suburb of Kuokkala, neighbouring the Kuokkala Church also designed by OOEPA.

The Puukuokka apartment complex is comprised of three 6-8-storey buildings. The first building in the Puukuokka complex is now complete and the other two buildings will be built over the next two years. The complex offers 150 flats with a combined floor area of approximately 10,000 m<sup>2</sup>. Phase 1 includes 58 apartments that range in size from 54m<sup>2</sup> one-bedroom units to 76m<sup>2</sup> three-bedroom units.

In Puukuokka, the goal was to find a solution that makes the best possible use of the technical and aesthetic qualities of CLT and to create a wooden building in large scale with a distinct architectonic expression of its own. The goal was to create a building that combines the sense of warmth and privacy of a single-family dwelling with the semi-public character of the shared spaces of an apartment building. The vision is to provide the residents with a functional space rich in experiential qualities.

Puukuokka served as a pilot case to develop and test a CLT based system of volumetric modules. Working with CLT enabled several important aspects in the project: The use of CLT made it possible to create a spacious hallway and atrium space with a lot of light realized in an energy efficient manner as a semi-warm space. Thanks to the insulating qualities of massive wood, the use of CLT allows for controlling the temperature of the individual apartments independently from that of the shared hallway space. In addition, the use of prefabricated volumetric CLT modules made it possible to integrate the piping for heat, water, electricity and ventilation in the wall structure in the hallway making it easily accessible for maintenance and repair. This arrangement also allows for an efficient organization of the plan and making it possible to maximize the space allotted for each apartment.

The entire load bearing structure and frame is made of massive wood and composed of prefabricated volumetric CLT modules. The prefabricated modules are made of spruce. Each apartment is composed of two modules, one housing the living room, the balcony and the bedroom, the other housing the bathroom, the kitchen and the foyer area. The use of prefabricated modules made it possible to cut the construction time on site down to six months and to reduce the exposure to weather conditions. That made it possible to achieve a higher quality in the end result. Working with CLT also made it possible to create a building with a primary load bearing structure and frame fully made of wood. The CLT modules are prefabricated in a local factory in Hartola less than two hours away from the site of Puukuokka.

Also the facade elements that are prepared separately and brought to site ready for assembly are entirely of wood. Spruce has been used in the facades facing the street, and untreated larch had been used in the interior courtyard side. The spruce has been treated with a coat of dark paint and the larch in the interior courtyard will turn silvery grey over time.



In the interior spaces, the wooden CLT structure has been left exposed in the ceilings and in the floors and staircases of the hallways. However, the walls have been covered with gypsum board partly to avoid an appearance of too much wood in the interiors as well as to fulfil the regulations mandated by law for fire safety. The apartments have parquet flooring. The flooring of the hallway areas is made of bridge-like CLT elements.

The town plan created in collaboration with the City of Jyväskylä has been tailored to meet the needs of the building complex. That has made it possible to count only part of the shared spaces as part of the permitted building volume. In order to preserve the naturally hilly landscape of the site, as much of the bedrock has been left untouched as possible. The building follows the contours of the site in order to minimize disturbance to the underlying bedrock and existing vegetation. The building complex is built on a concrete foundation with indoor parking spaces offered on the basement level.

Puukuokka pilots an innovative lease-to-own financing strategy that aims to support social sustainability by promoting stable communities. A 7% down payment on the purchase price of an apartment allows the purchaser to secure a state guaranteed loan, and, through rental payments over a period of 20 years, the purchaser gradually acquires full ownership of the unit. The sales price is negotiated and agreed upon when the lease is signed. Puukuokka has been awarded the Finlandia Prize for Architecture in 2015 and the Wood Award in 2015 as well as the Canadian Wood Design and Architecture Award 2015-2016, and the Resident Act of the Year Award in 2015. It has also been selected as one of the three highlighted projects in the Biannual Review of Finnish Architecture in 2016.