



Modern Log City

– Novel log architecture, mass customization and life-cycle economics

The goal of the project was to find ways to increase the market share of log construction. Expanding high-quality log construction into small and large-scale buildings in urban environments is possible, but the demand is lacking. The project increased awareness of log building and provided new approaches to the development of the industry and practical ideas for creating new market space. The architectural plans created in the project demonstrate that log is a suitable construction material in urban environments.



A beautiful and modern urban environment can be shaped from log architecture

The Oulu Region is the leading region of the wood and log construction industry. Log has traditionally been used as a building material mostly for small-scale buildings such as detached houses and holiday homes, but lately has been also used in larger scale projects such as public buildings.

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Project code: A71547

The University of Oulu,
The City of Pudasjärvi

1.1.2016–30.6.2019

Budget: 871 712 €

ERDF funding from the Council of Oulu
Region: 610 198 €

Log is an ecological, highly energy-efficient, locally producible and renewable material. Based on these qualities, log construction is a climate-friendly and sustainable approach to construction. The profitability of log construction is also boosted by the high-quality indoor climate and acoustic environment of log buildings, as well as their structural simplicity.

The Modern Log City project aims to advance the achieving of low-carbon targets by finding solutions for increasing the market share and prevalence of log construction. The project's actions also work towards the goals of the Oulu Region business sector by advancing an industry with a strong regional presence. As such, the project has contributed to an increase in the emphasis on log construction in the local educational institutions.

Mass customization combines efficiency and individuality

Increasing the share of log construction is not a simple task. One of the biggest challenges is posed by the idea of log buildings as something only suitable for rural areas and as such unsuitable for urban environments. Log construction in large projects remains in very early stages.



One of the goals of the project was to develop tools for tackling these preconceptions among planners and building officials. The project produces a comprehensive selection of concrete architectural plans and a wide range of knowledge about ways and opportunities to increase the market share of log construction. The new knowledge provides easier paths towards introducing the use of log into different building types.

Lack of knowledge is not the only challenge log construction is facing, however, but also the current low level of profitability of the industry. The project proposes solutions for this challenge as well, for example using mass customization to alleviate the problems of the production processes and productization of log buildings.

“In the project, mass customization meant providing individuality at the price of mass production. Mass customization is used to create an experience of individual design for the customer by combining various pre-determined solutions into an end product that satisfied the customer's desire. The advantages of mass customization are price competitiveness, efficiency of design and production, quality and an experience of individuality that cannot be achieved through normal mass production,” describes Project Manager Janne Pihlajaniemi.

A recipe of growth for log construction

A good, functioning connection was created between the Oulu School of Architecture and the log enterprises of the Oulu Region during the project. The knowledge produced in the project indicates the paths that the log construction industry should focus on to accelerate growth.

“The log construction industry is facing various challenges, which requires a multitude of solutions for advancing growth. What is needed are new business strategies for production processes and delivery solutions, marketing, investment in export activities, technical product development and the creation of new market space, for example in large-scale apartment buildings. High-quality architectural planning also has an undeniable effect on the desirability and demand of log buildings,” summarises Pihlajaniemi.



Objectives

- Researching the challenges of increasing the market share of log construction.
- Finding new operating models and production processes for architectural planning to support the growth solutions.
- Investigating new architectural designs for log buildings suitable for urban environments.
- Utilising mass customization.
- Developing architectural planning expertise in the area.

Results

- A comprehensive selection of concrete architectural plans on high-quality, modern log architecture suitable for urban environments.
- A wide range of knowledge about ways to increase the market share of log construction.
- Notable increases and improvements in the teaching and research of log construction in the Oulu School of Architecture.
- Publications: the project's preliminary investigation report, the final report and an Architect's Guidebook to Log Construction.

Oulu Regional Council allocates funding for regional development from the ERDF

Oulu Regional Council is a Managing Authority for the Sustainable growth and jobs 2014–2020 – Finland's Structural Funds Programme in Northern Ostrobothnia.

European Regional Development Fund's (ERDF) main objectives are to improve the competitiveness of SMEs and produce and use the latest information and knowledge.

'Sustainable growth and jobs 2014–2020 – Finland's structural funds programme' has two priority axes and seven specific objectives for ERDF. Each project must deliver at least one of these specific objectives.

ERDF priority axes and specific objectives:

1. Competitiveness of SMEs
 - Generating new business
 - Improving transport and logistic connections that are important to SMEs (Eastern and Northern Finland)
 - Promoting growth and internationalisation of enterprises
 - Promoting energy efficiency in SMEs
2. Producing and using the latest information and knowledge
 - Development of the centres of research, expertise and innovation on the basis of regional strengths
 - Strengthening innovation in enterprises
 - Developing solutions based on renewable energy and energy-efficient solutions

More information on Structural Funds in Finland from the dedicated website www.rakennerahastot.fi



Leverage from
the EU
2014–2020

POHJOIS-POHJANMAA
Council of Oulu Region

