

# XAMK SAVONLINNA

TESTING, DEVELOPMENT AND RESEARCH LABORATORY FOR WOOD AND HYBRID CONSTRUCTION:

## LABORATORY SERVICES

- Research and development
- Product testing
- Chemical and material testing
- Prototyping and testing
- Technology and material demonstrations
- Workshops and seminars
- For more information: [www.xamk.fi/puura-2023](http://www.xamk.fi/puura-2023)



We are looking for partners to develop wood and hybrid intermediate floors!



Photo: A view of the wood and hybrid construction laboratory in Savonlinna, Finland



# WE ARE LOOKING FOR PARTNERS TO DEVELOP WOOD AND HYBRID INTERMEDIATE FLOORS:

**We are looking for partners not only from manufacturers of intermediate floors, but also from designers and other experts in the field!**

## Project schedule:

The first preliminary workshop for the project has been held on 26-27 September 2022. During autumn 2022, the partners and the exact content of the project will be identified. The project will start on 1.9.2023. The duration is approximately 3 years and the budget is approximately €1.5 million.

## The project involves:

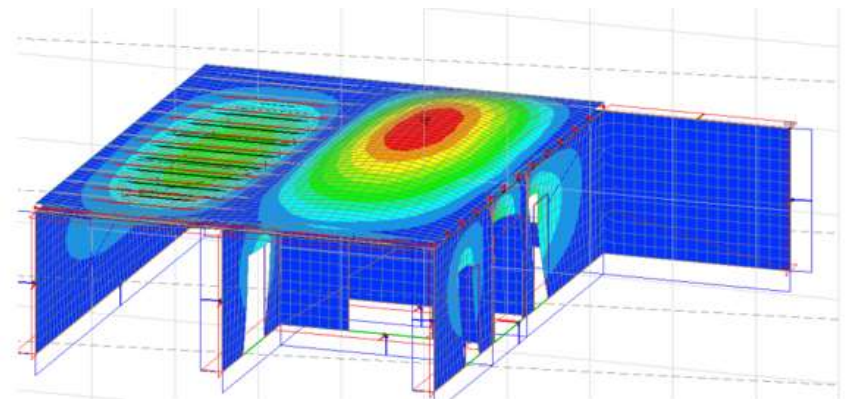
South-Eastern Finland University of Applied Sciences (XAMK), Tampere University (TAU), Karelia University of Applied Sciences, Turku University of Applied Sciences, Natural Resources Institute Finland (LUKE).

## Project objectives:

- To develop the design of timber and hybrid intermediate floors
- To provide information and solutions for the reform of design methods
- Implement field measurements and interviews of about 100 apartments (20 wooden houses) in sites less than 10 years old and under construction
- Implement real-life tests and measurements in a laboratory with different types of structural solutions
- Compile data from intermediate floors by studying on the vibration and acoustic characteristics of the measurements to provide information for more accurate sizing of intermediate floors
- Develop new optimized materials and low-carbon structural solutions
- Develop measurement techniques and long-term monitoring
- Promote the circular economy and the use of different recycled materials
- Identify, through modelling, all the causes of the differences between the designed and the actual vibration characteristics
- Produce a performance and carbon footprint comparison of tested structural solutions

## Background to the project:

- Existing wood floor solutions do not achieve as long spans as concrete and steel structures
- Current national vibration criteria for wood floors (9 Hz or 0.5 mm\*) combined with current simplified sizing methods in reality leads to oversized floors (cost!).
- In Europe, the criteria are different and with the EC5 renewal, national criteria will be revised (e.g. design criteria and quality level criteria for low frequency floors).
- Finland has the strictest sound requirements in Europe, especially at low frequencies
- Field measurements of completed sites have achieved significantly better vibration values compared to calculated values!
- Current design methods do not take into account, for example, the effect of joint stiffness, surrounding structures, mass placement, connector structures or surface structures, which are estimated to have a significant effect on the difference between the field measurements and the calculated value.



9. Fundamental frequency of room C with non-load bearing structures and surface plate of floor structure  
Lähde: Ideastruttura Oy

**By joining us, you will get the best expertise to support your product development work!**

## More information on becoming a partner:

Project Manager Juha-Pekka Luukkainen [juha-pekka.luukkainen@xamk.fi](mailto:juha-pekka.luukkainen@xamk.fi) +358 50 560 4836

Research Engineer Miika Juuti [miika.juuti@xamk.fi](mailto:miika.juuti@xamk.fi) +358 50 479 6954

Project employee Eetu Pitkonen [eetu.pitkonen@xamk.fi](mailto:eetu.pitkonen@xamk.fi) +358 50 479 6917