ForestValue 2, Anniversary Conference 2024, Berlin, Germany

Promoting safe and extended use of wood products in health buildings through development of antimicrobial surfaces, hygiene concepts, and guidelines – WOOD for HEALTH

https://www.woodforhealth.eu/about/

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Wood for Health

Funded by the European Union

Introduction

- Wood as a building material greatly aids the indoor environment quality (IEQ) and can be utilized to reduce energy use for heating and/or ventilation.
- However, wood has the reputation of being prone to contamination and difficult to clean, which has limited its use in applications with high demands towards surface hygiene.

- WOOD for HEALTH promotes safe and increased use of wood products through the development of antimicrobial surfaces, hygiene concepts and by providing the first extensive guideline for use of wood in healthcare buildings.
- It brings together expertise in architecture, wood chemistry & technology, polymer chemistry, microbiology and coating development.

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Project partners

1. University of Oulu, Finland
2. White Arkitekter, Sweden
3. Fraunhofer Institute for Wood Research Wilhelm-Klauditz-Institut WKI, Germany
4. NTI, Norwegian Institute of Wood Technology
5. Latvian State Institute of Wood Chemistry
6. Auro Pflanzenchemie AG, Germany
7. Iecavnieks&Co, Latvia

Project runs 36 months
from 1.2.2022 to spring 2025
Budget 1 318 076 €

Expected Main Results

1. Guidebook
2. New coatings
3. Impactful dissemination activities

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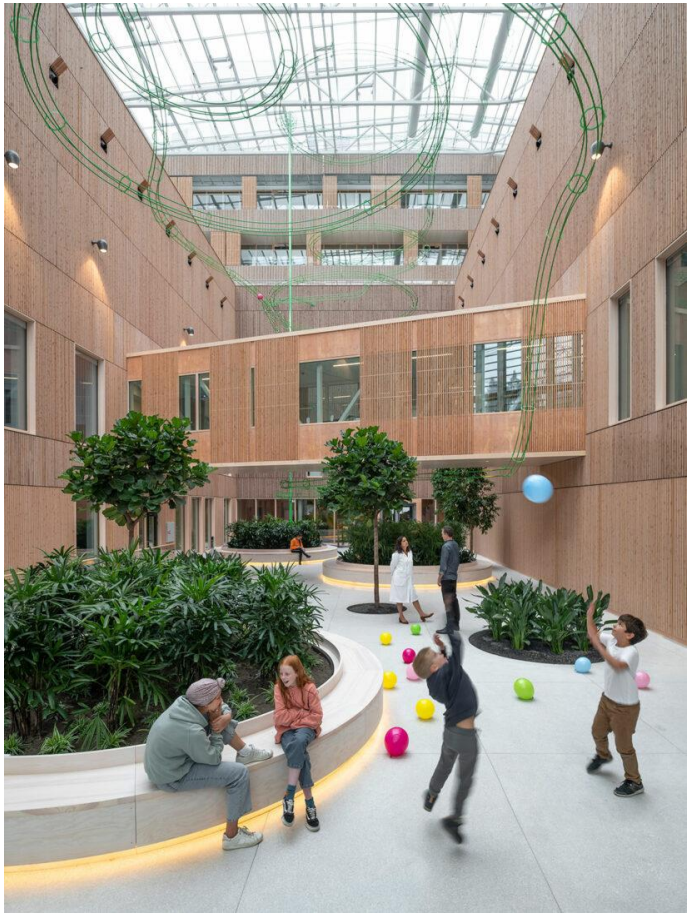
Guide

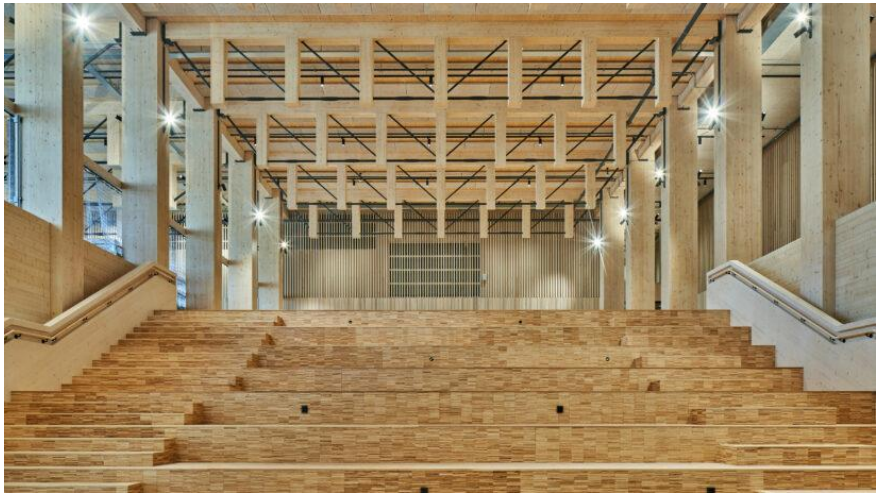
- Good practices of using wood in health care buildings are collected in all partner countries.
- National regulation for building health care facilities are compared; how they affect on use of wood.
- An English guidebook will be written, at this moment content has been decided and the manuscript draft has been written.
- At least Norway and Finland will later publish also national guide.



Queen Silvia's Children Hospital, Gothenburg, Sweden

Coatings (1/2)

- Firstly, three different established binder systems were employed in combination with antimicrobial compounds: oil-based coatings and acrylate and polyurethane dispersions.
- The second approach is synthesis of new binder systems.
- When it comes to antimicrobials, also natural polymers with antimicrobial effects are tested.
- Uncoated and coated surfaces are characterized for their antimicrobial activity, incl. anti-viral activity.
- The same surfaces are tested also for mechanical and chemical resistance, photo-stability, flammability and water vapor damp diffusibility.



Sara Cultural Centre, Skellefteå, Sweden

Coatings (2/2)

In Latvia:

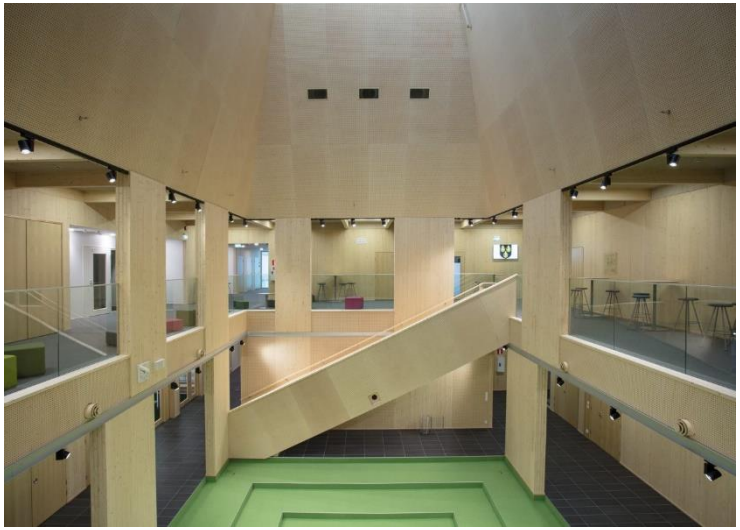
- A solvent-free linseed oil-based formulation wood coating developed.
- Properties adjusted so that it is easy to apply and dries quickly
- The optimum process for the heat pre-treatment of linseed oil was selected considering antimicrobial properties, drying performance, as well as economic aspects
- Work continues on improving the formulation by incorporating additives to ensure coating for hygienic cleanable wood surfaces

In Germany:

- Formulation of an established acrylate-based binder system with several antimicrobial plant oils.
- Efforts have been made to integrate antimicrobial bio-polymers into polyurethane-based wood coatings.
- Completely new binder systems have been synthesized with inherent antimicrobial and antiviral effects by incorporating fitting compounds directly into their chemical structure.

Other research tasks done

- Microbiomes on various hospital surfaces sequenced
- Master thesis comparing national regulation for health care buildings
- Simulation of indoor air conditions in a wardroom at Queen Silvia's Children's using the water vapour permeability values measured for new coatings.
- LCA's of new and established coatings



Tuupala primary school, Kuhmo, Finland

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Impact & dissemination

- The highest potential in immediate future in wood construction is in public building
- For health care building, wood would have natural benefits
- Currently, use of wood in health care building s is in much lower level than e.g. in schools and kindergartens
- Guidebook.
- A wide range of other dissemination activities
  - Annual newsletter
  - Scientific publications
  - Popularized publications
  - Talks

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Thank You !

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