

Nordic Waste Wood for Good
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by
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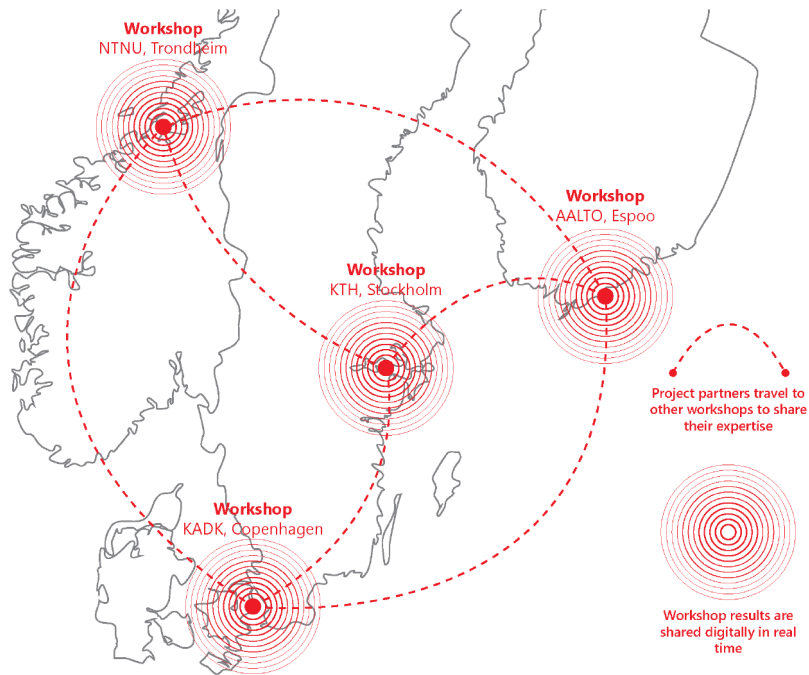


Figure 1. Project participants

Keywords: Wood waste, Cultural value, re-use, circular economy

Summary

What: *Nordic Waste Wood for Good* seeks to develop a new cultural exchange where specialists and students from a range of disciplines and backgrounds collaborate on a truly Nordic project related to architectural opportunities from waste wood. Over 8 months 260 participants through workshop participation are scheduled to take part in developing new approaches to waste wood specific to the Nordic context, with a focus on architecture and cultural values.

Where: The project takes place in four of the Nordic countries (Denmark, Norway, Sweden and Finland) within each of the partner institutions. The results are not limited to physical existence, as all material is shared via a book publication and a real-time online platform to take the discussion to the wider global community.

Why: Wood is an indigenous building material in the Nordic region with a rich cultural heritage, as well as playing an important role in working towards a carbon free future. Waste wood is

currently underutilised in the Nordic region and the timber specialists in this project see its cultural value as being under explored and an important factor for architectural formgiving.

How: The project runs as a series of workshops and exhibitions over an 8 month period. At each of the workshops, participants create 1200x1200mm panels using locally sourced waste wood. The process and results are documented extensively using photography and film.

Content

Nordic Waste Wood for Good is a project links the architectural values of Nordic timber building culture with our contemporary timber material understanding, concentrating specifically on how we perceive material values beyond the commonly measured attributes. The main aim is to investigate how novel approaches rooted in the Nordic wood building culture can inform new strategies and create opportunities for building with waste wood. In this context waste wood should be understood as all non-utilized wood with potential value, for instance off-cuts from industry and recovered wood from construction and demolition processes. These are often regarded as waste due to being too short, the wrong shape, are in limited quantity or contain contaminants such as nails or screws.

The project explores the understanding of perceived value of waste wood from a cultural perspective. This is an important aspect as the world moves towards more resource efficient and circular futures. The cultural, aesthetic and societal aspects are underdeveloped in the current waste wood discourse, which is a direct result of a focus on purely technical assessments of the material, as seen when we look at most of the scientific material available today. By utilising waste wood in more creative and resource optimised ways, *Nordic Waste Wood for Good* contributes to a more holistic understanding of resource use in relation to societal values.

This study presents how a more holistic approach to the re-use of building materials might provide pathways of extending carbon storage in wood materials. Not because of their technical capacity but because of the value given by society through ingenuity, introducing a mindset where exploration, experimentation and an overarching will to re-use resources is cultivated. This is seemingly in opposition to the pre-defined and controlled pathways currently discussed in legislation, focusing on documentation, risk management and technical aspects of re-use - possibly preventing rather than promoting future innovation in an effort to control present challenges.

Nordic Waste Wood for Good's way of achieving the project aims is through creative hands-on workshops to explore a new aesthetic language of opportunities, rooted in the Nordic wood culture. The workshops link traditional crafting methods with the most up-to-date digital tools for design and wood fabrication, seeking to bridge culture and technique. The workshop explorations are envisaged to be context specific to the Nordic participants and to the site-specific waste wood availability- each partner institution hosting the workshops. To create a continuum across four different contexts each with different disciplines, the output for each workshop is a series of 1200x1200mm panels made from contextually available waste wood.



Figure 2. Wood panel constructed at Royal Danish Academy in Copenhagen

This new aesthetic language will link the architectural values of Nordic timber building culture with our contemporary timber material understanding. The project seeks to promote a current day architecture that is respectful of both the material and the building culture, celebrating sensory qualities, creating forms and details that are contemporary whilst preserving the memory of the material and context. The work will be discussed through the theoretical frameworks of New Materialism and Phenomenology. The former is an emerging ontology that “opens up the possibility to explore how each (material) affects the other, and how things other than humans (for instance, a tool, a technology or a building) can be social ‘agents’. This is a return to focusing on the significance of matter, a theme well explored within Phenomenology

in architecture, the relation between architectural qualities and the senses. A major inspiration with his contribution to this field is the Finnish architect Juhani Pallasmaa.

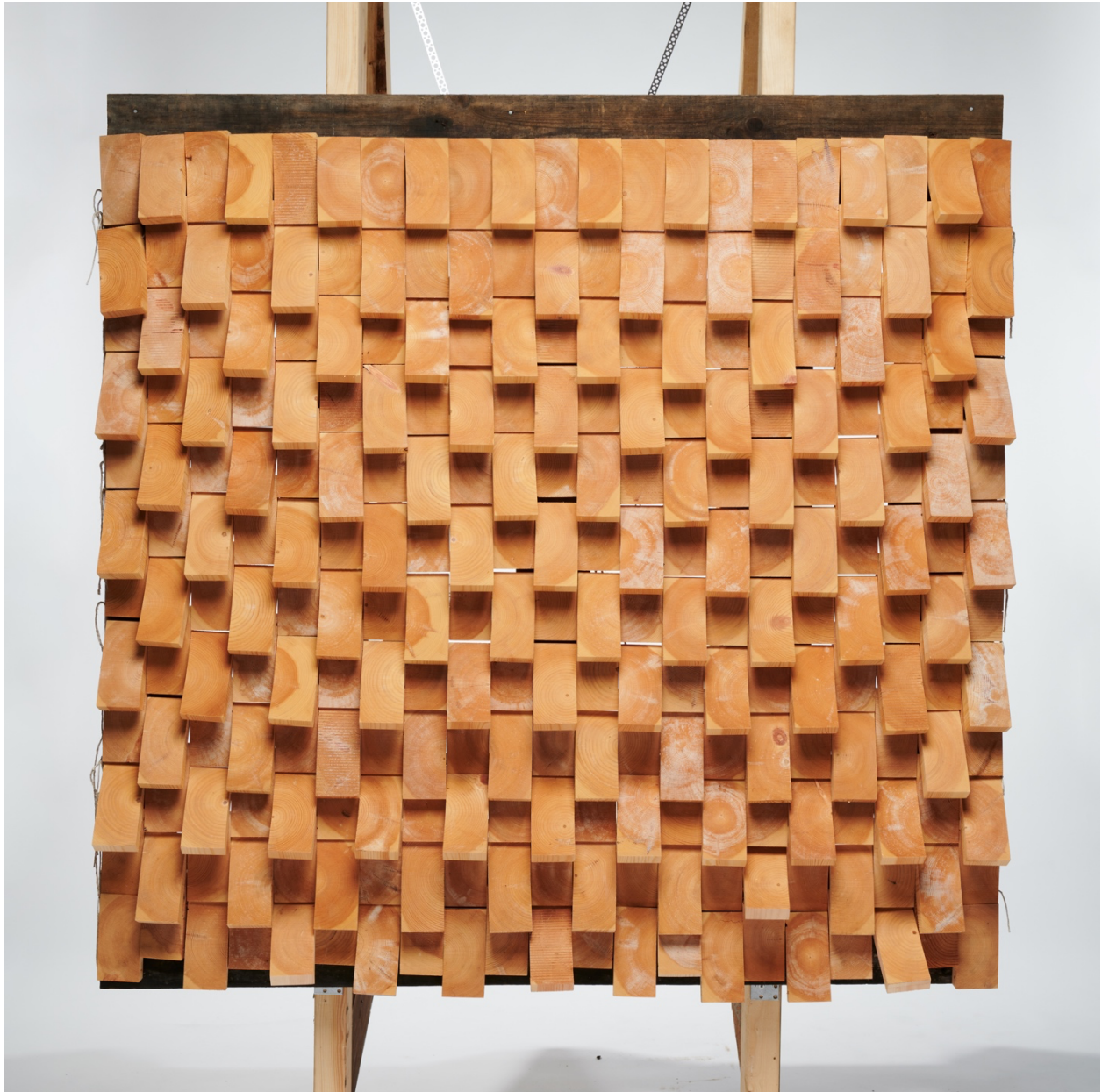


Figure 3: Small wood off-cuts with a tectonic expression

Purpose

Wood is a unique building material that continues to be an important resource in the Nordic Region, and with careful attention, will play an important role in working towards a carbon free future. Usage is set to increase due to a surge of interest from politicians, policy makers, designers and the general public who reference its aesthetic and sensory characteristics as well as carbon storage, renewability and local availability. It is important to remember that timber originates from forests- home to 80% of the world's terrestrial biodiversity- as well as playing a significant role in regulating our climate. This project responds by investigating smarter ways of

utilising all the wood we have, including leftovers, industrial waste and second-hand wood. In this we explore waste wood as a multi-generational material in the physical sense, increasing the longevity of a piece of wood, thus giving a good material a second life. This is a global opportunity for the Nordic Region to lead the way with the exploration of innovative resource approaches.



Figure 4: Combining small and long timber elements, close-up

We build on the existing cultural and technical knowledge, whilst addressing aspects that are lacking. Typically, waste wood projects have focused on specific technical challenges, whilst those covering social/cultural aspects have neglected the former- the two areas are generally explored in separation. This project investigates with a more holistic approach, where the two channels are explored simultaneously –bridging culture and technique. This is achieved by exploring design opportunities through both traditionally used crafting methods and combining them with current day digital tools, as well as investigating the cultural values of the material within the same project. We believe that this approach is essential as it combines aspects in ways that are more meaningful, where the results are integrated within an environmental/technical and cultural context with an aim of creating a greater impact.



Figure 5. Tectonic composition with Waste Wood

Wood is celebrated for its endurance as well as its diverse sensory qualities. As a material it carries a memory of what it has been before, how it grew in nature to how it has been altered by its environment- these being reflected by its aesthetic and other sensory qualities, becoming a part of the building element, furniture or object. Waste wood is often irregular with unusual dimensions, rather than shredding this diversity, this project explores approaches and solutions that embrace these qualities. This is made possible by utilising present day design and fabrication tools including CNC machines, robotics and digital design. This enables re-interpreting crafting methods to be cost-effective and faster offering at the same time high precision for both design and fabrication.

This approach to waste feeds into contemporary approaches to circularity in design where materials, in this case waste wood, are given an extended life by exploring the potential cultural value. This contributes to a more resource responsible approach to building design and architecture.

In this context, the main purpose of the project is to create a more holistic understanding of the value of waste wood through exploring architectural, aesthetic and cultural aspects, while keeping in mind the technical aspects, which is a requirement when working with wood. It serves as a starting point for future collaborations towards a more complete understanding of resource use in society. This includes accomplishing the following goals I-V:

- I. Establish a robust starting point for Nordic collaboration within the project scope.
- II. Combine architectural education, research and practice in exploring a catalogue of opportunities.
- III. Understand and utilise the Nordicism in wood culture.
- IV. Create a real-time public forum for waste wood value discourse, both between participants, related professions and general public.
- V. Collect, analyse and understand the cultural significance and potential value of waste wood in architecture.

Project Partners

Royal Danish Academy: Architecture Design and Conservation, Copenhagen

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