

MINI  
SYMPOSIUM  
on

## WOOD TECTONICS

Program

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10.00

**Welcome and Introduction**

Isak Worre Foged

10.15

**Novel Wood Structures**

Dario Parigi, Associate Professor  
Dep. Civil Engineering, Aalborg University

10.45

**Robotic Wood Fabrication**

Mads Brath Jensen, PhD Candidate  
Dep. Architecture, Aalborg University

11.15

**Wood, Boat, Architecture**

Isak Worre Foged, Associate Professor  
Dep. Architecture, Aalborg University

11.45

**Integrated material practice in free-form timber structures**

Tom Svilans, PhD Candidate  
Royal Academy of Fine Arts School of Architecture

12.30

Lunch break

13.30

**Engineering Wood Constructions in Practice**

Jacob Nielsen, Specialist  
COWI Consulting Engineers

14.00

**Engaging with wood and wood properties**

Anders Kruse Aagaard, Assistant Professor  
Aarhus School of Architecture

14.45

Coffee break

15.15

Panel Discussion

16.00

**Selected Works**

Reiulf Ramstad  
Director and Architect Reiulf Ramstad Architects

17.00

**Final remarks**



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on

## WOOD TECTONICS

**Utzon(x)  
Aalborg University**

**10:00 - 17.00 / 4 Februar 2019  
Utzon Center / Obel Auditorium**

Wood has a central role in architecture. In the past, and in the future. How we understand, work with and apply wood is a tectonic concern, which aim to increase quality of life and environmentally concerned building practices. Through lectures from practice and research projects, theory and build work, we invite you to the Utzon Center for a day of Wood Tectonics.

You are all invited.

**Reiulf Ramstad**

Director and Architect, Reiulf Ramstad Architects

**Anders Kruse Aagaard**

Assistant Professor, Aarhus School of Architecture

**Tom Svilans**

PhD Candidate, CITA / KADK

**Dario Parigi**

Associate Professor, Civil Engineering  
Aalborg University

**Jacob Nielsen**

Specialist  
COWI Consulting Engineers

**Mads Brath Jensen**

PhD Candidate, Architecture  
Aalborg University

**Isak Worre Foged**

Associate Professor, Architecture  
Aalborg University



**Utzon Center**

*Photo credit Ivar Kvaal*

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***Novel Wood Structures***

Dario Parigi, Associate Professor, Dep. Engineering, Aalborg University

The path of forces and the specific properties of the material fundamentally determine the formal appearance of timber constructions and their details. The potential for material and technology-driven changes in timber structure is investigated through the latest advances in material design and fabrication

***Robotic Wood Fabrication***

Mads Brath Jensen, PhD Candidate, Dep. Architecture, Aalborg University

For centuries, wood has been one of the main materials used in the construction of architectural buildings. During the last decade implementation of new computational tools and advanced CAD/CAM software has enabled architects and the building industry to explore highly complex wood structures. In parallel with this development the field of CNC machinery and Industrial robotic arm has also gone through a major technological development which opens for new ways of fabricating complex wooden structures. This presentation will introduce the fabrications methods used in a range architectural projects that all push the boundaries of wood structures and point towards future developments from the field of architectural research.

***Wood, Boat, Architecture***

Isak Worre Foged, Associate Professor, Dep. Architecture, Aalborg University

Wood has been a material source used for building construction and boat construction for centuries. Material use, tools developed and structural principles have similar and distinct properties. The lecture will focus on wooden boat making through two examples, and attempt to identify and extract thinking and making properties that can point to architectural design and making with wood.

***Integrated material practice in free-form timber structures***

Tom Svilans, Royal Danish Academy of Fine Arts School of Architecture

Wood is one of the fundamental building materials of our civilization. An engagement with its unpredictable behaviours and complex idiosyncrasies has led to long building and crafting traditions based around tacit knowledge of its performance and use. The rise of computation, sensing, and simulation in architecture has afforded us dramatically new ways with which to observe, calculate, and anticipate the world around us. How can these new technologies tease out the latent character of timber? How can they help us design and fabricate more effectively, intelligently, and more in tune with its strengths and weaknesses? How can we – as designers, as makers – interface with the complex value chain and production processes that culminate in the physical realization of timber buildings?

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***Engineering Wood Constructions in Practice***

Jacob Nielsen, Specialist, COWI Consulting Engineers

Wood for construction is significantly different to other primary building materials, such as concrete, steel and glass. With its anisotropic properties, its specificity from different wood species and its dynamic character provides architects and engineers with special possibilities and challenges in buildings. The lecture will focus on wood constructions from the perspective of engineering in practice by showcasing built projects.

***Engaging with wood and wood properties***

Anders Kruse Aagaard, Assistant Professor, Aarhus School of Architecture.

ficiencies, but also as individual pieces or parts. Each piece of natural wood is distinctive, but often our handling of wood is limited to the general properties of the material. Moreover, sometimes the materials specificities seem to be forgotten or even oppressed in today's architecture, building and component industry. Recent advances in digital fabrication technology have greatly expanded the field of architectural expression, permitting the realisation of architectural structures with a high degree of geometric freedom and visual complexity. Nonetheless, there is still a significant dependency on industry standards as the starting point for component customisation. However, the use of digital tools can open up a new approach to materials in an architectural context. The knowledge and intention of the digital tools can become specialised through the understanding of the fabrication processes and their interface with the materials and their properties. A digital drawing, model or algorithm can embed not only form, but capacities into the materials through the fabrication.

***Selected Works***

Reiulf Ramstad, Director and architect Reiulf Ramstad Architects

Historically building without wood is practically unimaginable. Wood has virtually been used in all cultures to build architecture. For that matter there are traditions and skills how to apply this organic material in numerous construction methods. For me wood is associated with informal, tactile, environmental friendly, poetic, light and organic qualities. In the first years of our practice we started to experiment with wood, because it was an inexpensive and environmental friendly material. We wanted to use raw wood without applying chemicals of any kind. This work lead to various projects using different types of wood, scales, details, elements, ways of cutting, drying, planing and sawing. In the Nordic building culture wood has also obtained a renaissance due to innovative processing technology and requirements to develop sustainable architecture. We do think we contribute to diffuse knowledge and passion about wooden architecture through our projects.

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