MASS TIMBER INSTITUTE

UNIVERSITY OF TORONTO
JOHN H. DANIELS FACULTY OF
ARCHITECTURE, LANDSCAPE, AND DESIGN

News From MTI

Hello Mass Timber Colleagues!

Robotic fabrication of mass timber meeting pods

Text Credit: Brady Peters, Ted Kesik, Nicholas Hoban, John Nguyen

The Mass Timber Institute is pleased to announce it is funding a project for the robotic fabrication of mass timber meeting pods. The research will be undertaken by Brady Peters, Ted Kesik, and Nicholas Hoban, professors at U of T's Daniels Faculty, as well as John Nguyen, a Daniels alumnus and computational design researcher.

Across the world, open-plan offices have been a common building type; however, it is recognized that there are acoustic problems with working in open-plan environments (1). As a response to acoustic problems architects and interior designers often propose the installation of furniture-scale room dividers, acoustic absorbing furniture, or small semi-enclosed pods for collaborative activities. This project will investigate the acoustic and architectural design parameters involved in the design of this new type of “micro-architecture” through the design and construction meeting pods.

Mass timber offers the potential for a sustainable approach to constructing pre-fabricated and mass customized building components (2), and digital design and robotic techniques enable precision and repeatability in the design and fabrication process (3, 4).

This project will investigate: optimizing the acoustics of the interior collaboration space while minimizing sound leakage to the surrounding work environment; the treatment and placement of the pods to improve the acoustics of the open-plan (according to ISO standards); the design of efficient joining methods for

the mass timber panels; and, the structural design of the aggregate shell structure of the meeting pod structures. It aims to digitally model, simulate, and prototype three different iterations of the pod.

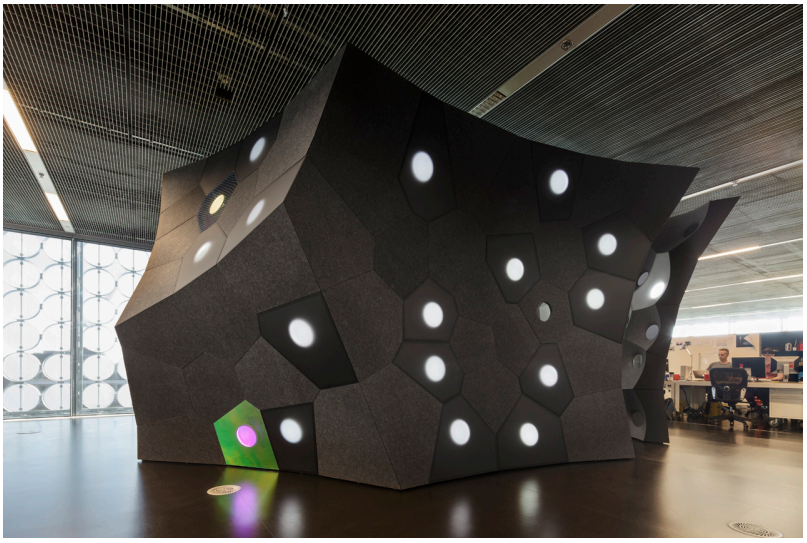

Figure 1. "FabPod" by Jane Burry, Mark Burry, Daniel Davis, Nicholas Williams, Brady Peters; RMIT, Melbourne, Australia, 2013. Photographs by John Gollings.

This project builds on previous experience of the researchers with the design and simulation of meeting pods for acoustic performance (5, 6) see Figure 1, and the acoustic performance of mass timber panels (7, 8) see Figure 2. This project will be undertaken from 2022-2023.

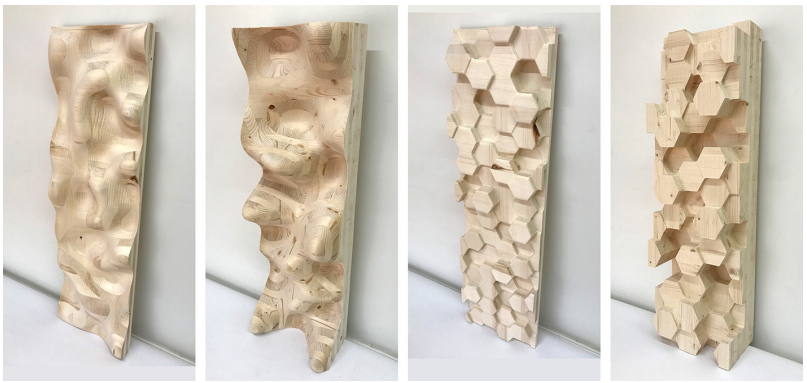

Figure 2. "Mass timber sound scattering surfaces" by Brady Peters. 2020.

References

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5. Peters, B. "Integrating acoustic simulation in architectural design workflows: The FabPod meeting room prototype," in SIMULATION: Transactions of The Society for Modeling and Simulation International. Vol 91, No 9, pp 787-808.

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Carbon is the Universal Language **- Podcast episode**

Patrick Crabbe
Image Credit: TFCI Podcast

Patrick Crabbe, Director of Mass Timber at Bird Construction, joined Craig Applegath's podcast, *The Twentyfirst Century Imperative* to discuss mass timber and carbon. Titled *Carbon is the Universal Language*, the episode features Crabbe's insights on mass timber from the perspective of his various roles in the industry over the course of his career. Conversation topics include forest products in post-secondary education, material choice in the design process, the future of mass timber market, and the general goal of mitigating climate change. Hear the podcast or read the discussion here.

Facades+ Toronto, July 21st 2022

The Architect's Newspaper

The Architect's Newspaper will be bringing Facades+ back to Toronto this July 21st. This year's program includes three sessions covering issues unique to the region, including: innovative building skins, high-performance facades, and the future face of Toronto. These well-rounded, expert dialogues will inform and inspire. https://facadesplus.com/toronto/

Other Updates

- Watch a discussion hosted by MoMA about the sustainability of mass timber in Material Worlds: Mass Timber
- A tall mass timber development is being proposed to integrate with existing heritage buildings located south of the University of Toronto campus

You can reach us by phone at:
416-978-0561