



## 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

1. Hedge, A. (1982) “The open-plan office: A systematic investigation of employee reactions to their work environment.” *Environment and Behaviour*, 14 (1982), pp 519-542.
2. Jones, S. (2019) “Mass timber: Design and research.” ORO Editions.
3. Jeska, S. and Pascha, K.S. “Emergent Timber Technologies.” Birkhauser, 2015.
4. Menges, A. et al. “Advancing Wood Architecture: A computational approach.” Routledge, 2017.

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.
6. Williams, N., et al. "FabPod: Designing with temporal flexibility & relationships to mass-customisation", in Automation in Construction. Vol 51, March 2015, pp 124–131.
7. Peters, B., Hoban, N., Yu, J.\*, Xian, Z.\* "Improving Meeting Room Acoustic Performance through Customized Sound Scattering Surfaces," in International Symposium on Room Acoustics (ISRA) 2019 Conference Proceedings.
8. Peters, B., Hoban, N., Kramer, K.\*. "Sustainable Sonic Environments: The Robotic Fabrication of Mass Timber Acoustic Surfaces", in Proceedings of the 25th CAADRIA Conference, Bangkok, Thailand, 5-6 August 2020, pp. 453-462.

## ***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 21<sup>st</sup> 2022**

The poster features a grayscale image of the Toronto skyline with the CN Tower. A large purple 'F' graphic is on the left, with the 'facades+' logo inside its top-left arm. The word 'Toronto' is written in large purple letters across the center. A circular seal in the top right corner says 'Celebrating 10 Years of Facades+'. A purple banner in the bottom right corner displays 'July 21 2022', '8:00 AM - 4:45 PM', and 'Earn up to 6 CEUs'.

**facades+**

# Toronto

**July 21  
2022**  
8:00 AM - 4:45 PM  
Earn up to 6 CEUs

In its 10th year, Facades+ continues to bring together the world's most talented building professionals. We return to Toronto for the first time since 2019 to discuss the latest advances, issues, and technologies driving the AEC community.

Be inspired by presentations and discussions by world-class architects and engineers at the Facades+ Conference.

An icon of a person standing next to a presentation screen.

**Morning**  
Symposium (3 CEUs)  
Methods+Materials Gallery

An icon of a person standing next to a presentation screen.

**Afternoon**  
Workshops  
Earn up to 3 CEUs

An icon of a location pin with a map outline.

**Location**  
Hyatt Regency Toronto  
370 King St W  
Toronto, ON, M5V 1J9,  
Canada

The Architect's Newspaper will be bringing Facades+ back to Toronto this July 21<sup>st</sup>. 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



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