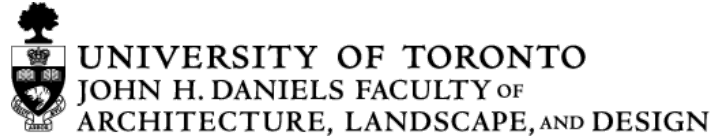


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News from MTI

Hello Mass Timber Colleagues!

Feature: Interview with Mecanoo and Trinity College on the Lawson Centre for Sustainability

At Trinity College at the University of Toronto, construction on the Lawson Centre for Sustainability is underway. Scheduled to open in 2025, the four storey, mixed-use building will include student residences and educational facilities with classrooms. This month, MTI Research Coordinator Shan Shukla sat down with Sara Navrady, Associate Architect at Mecanoo in the Netherlands, and Jonathan Steels, Assistant Provost at Trinity College to gain a better understanding of the design process and motivation of the new mass timber addition to the U of T campus.



2024/07/11. Trinity College Lawson Centre For Sustainability - View of Construction Site. Image Credit: Trinity College and Mecanoo

Shan Shukla (SS): What were the design goals of the Lawson Centre for Sustainability?

Jonathan Steels (JS): The goals were to fit within the campus but also within the programmatic needs. This included providing quality student housing and community space, while working within budget and operating through the lens of sustainability. The brief was created in an aspirational way. Occupant health and wellness were also at the forefront, as was overall student engagement and experience, and accessibility.

Sara Navrady (SN): Building on the sense of community and building something that reflects the way that students are working and living was a goal. Also, finding a balance between a modern design and design that complemented the existing architecture with the campus.



Trinity College Lawson Centre For Sustainability - George and Martha Butterfield Rooftop Farm and Surrounding Landscape Rendering. Image Credit: Mecanoo



Trinity College Lawson Centre For Sustainability - Academic Courtyard Rendering. Image Credit: Mecanoo

SS: Were there any inspiring precedents?

JS: On our end, there were a few: the CIRS building at UBC, and timber buildings in Toronto such as the Shoppers Drug Mart mass timber flagship downtown store and 80 Atlantic.

SN: Mecanoo has extensive experience with institutional buildings. Prior work in Rotterdam and the University of Cambridge provided insight. There was urban farming inspiration from TMU as well as inspiration from Hotel Jakarta in the

Netherlands. The team had to find the right balance with respect to the current building code in Canada.

SS: What sort of sustainability features are present in the design?

SN: We looked at what made sense for the project in terms of siting, aspirations and program, rather than checking off of a list. In addition to high tech components such as the geothermal heat pump and PV panels, low tech elements included finding balance between natural daylight through glazing and a high performing (solid) envelope, and rainwater collection. User wellbeing is also an important factor, allowing views to nature and leveraging exposed timber as part of the biophilic design.

JS: What makes the Lawson Centre for Sustainability truly unique and sets this LEED Platinum facility at the forefront is that it features all the major sustainability components – for example, geothermal exchange, timber structure, rooftop farm, rooftop photovoltaic array, advanced thermal envelope, and underground cistern for rainwater collection and reuse. Wherever possible, building materials were locally sourced, including compressed bricks (Cambridge, Ontario) and limestone (Elora, Ontario) by Arriscraft, and Ontario timber by Element5.

SS: The building is targeting Canada's Zero Carbon Building Standard. What does this mean? What was the driver for certification?

SN: The overarching goal of certification is to drive advancement of sustainable design. Zero carbon is a framework evaluating operational carbon, embodied carbon, and avoided emissions in terms of initial design and future operation. Part of the qualification is energy modelling and the evaluation of embodied carbon. The cladding, initially aluminum, was switched to local masonry which is compressed rather than baked. At the onset, selecting a team with these sustainability values in mind was crucial. This led to collaboration with Footprint, the sustainability consultants as well as the broader consultant team including RDH Architects and RDH Building Science.

JS: All major systems, including a massive industrial kitchen, are entirely electric. The team crosschecked various sustainability rating programs and worked with the university to update their own programs.

SS: What species of tree are the mass timber components made from? Where is it sourced from?

JS: White Spruce, and a mix of Spruce-Pine-Fir sustainably harvested in Ontario, from Element5 in St. Thomas.



2024/06/04. Trinity College Lawson Centre For Sustainability - Exposed glulam beams and CLT panels. Image Credit: Trinity College and Mecanoo

SS: How did the mass timber structure impact the designing the form of the building and relate to design goals?

SN: The geometric shape of the building lends itself to a timber structure. Further design adjustments were made to the north south part of the building to fit the length of the CLT panel and reduce the number of picks for panels. The CLIPS panels from E5 also help to speed up the envelope enclosure which is important for protecting the timber. Spatial qualities were informed by working with some structural spans to operate within timber performance criteria.

SS: Now that construction has begun, have you encountered any surprises or challenges not anticipated in the design?

SN: Yes and no. Meeting the fire code requirements of the city was a focus. This is a mixed-use building which adds challenges because 350 students will be living in the building. There was careful detailing for fire separation to address the mixed-use areas of the building. There are other things like assembly and sequencing which informs decisions around details such as welding versus standard bolt assembly.

The most unexpected aspect was COVID, impacting supply chain and other considerations such as obtaining permits with the city during the pandemic. Since mass timber is fairly new to the industry, there is a bit of navigation through the regulations which are frequently being updated.



2024/06/19. Trinity College Lawson Centre For Sustainability - Whiteside House mass timber structure fully erected looking north. Image Credit: Trinity College and Mekanoo

SS: What type of procurement method is being used for the Lawson Centre? Why was it selected?

JS: We used a 5b Construction Manager at Risk contract. With the pandemic to consider, we didn't want to go all out Integrated Project Delivery, but the builder was engaged early on as with an IPD (Integrated Project Delivery) process. They brought

in early MEP (Mechanical, Electrical, Plumbing) and timber design assist partners for the process who worked with the consultant team.

SS: What lessons/ strategies were brought in from your previous projects?

SN: For similar international projects, Mecanoo always works with a local architect and consultant team who have a good grasp on local construction regulations and techniques. That informed working with Blackwell Structural Engineers for the experience with mass timber design. Another aspect is having the timber supplier on board early ensuring coordination ahead of fabrication.

SS: Anything you would like to add?

JS: Because of the sustainability aspect, this is much more than a building. It ensures everyone passing through Trinity is inspired and empowered to be changemakers. Our new flagship facility renews the College's values and commitment to sustainability and serves as the home-base for the College's innovative Integrated Sustainability Initiative, which will embed sustainability in everything we do.

The architect team for Trinity College's Lawson Centre for Sustainability are Mecanoo Architecten from the Netherlands in partnership with Toronto firm RDH Architects Inc.

Mass Timber Today Podcast Episode 14



Episode 14



Tune in to a new episode of the Mass Timber Today Podcast! In this episode, Craig Applegath speaks with Jack Keays, an expert fire safety engineer and building code consultant. He discusses his journey into the mass timber industry and the integral role of mass timber in his practice. He highlights the sustainability and aesthetic appeal of mass timber, as well as the importance of exposing the structure in design. Keays also addresses the misconceptions around fire safety in mass timber buildings and the need for better education and understanding in the insurance industry. He emphasizes the potential of mass timber in affordable housing and the challenges and opportunities in the future of mass timber design and construction.

Highlights from this episode:

"I love our social projects. I really do like the social aspect of what these can deliver. The final product being such a beautiful product and not just all gray, its setting the tone for not-the-most-pleasing-place-to-live kind of construction."

“The degree of encapsulation to meet the requirements in terms of fire objectives, the acoustic objectives, the vibration objectives, there's still work happening there on how those are balanced out.”

“Locally sourcing is an opportunity - having enough supply, having enough suppliers in a local market, and not relying on overseas CLT to fill the gaps, which is what's currently happening”

[Listen to Episode 14 | Jack Keays: Insights in Mass Timber Building Codes](#)

Other Updates

- Element5 announces [plans for it's expansion](#) in St. Thomas, Ontario.
- Queens University economics students prepared a [report on the feasibility of constructing and operating a new mass timber facility](#) for the Ontario East Wood Center. The report was created for the Technology, Engineering, and Management (TEAM) course, engaging multidisciplinary groups of students.

Mass Timber Institute Website



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