Photo credit: KK Law, courtesy naturallywood.com

Innovation in Infill - A spotlight on a high performance office building

DATE: Wednesday, May 25, 2022 – LIVE in-person event with livestream (virtual) option!
TIME: 8:00am – 4:00pm Pacific Time
LOCATION: Fairmont Waterfront Hotel, 900 Canada Place, Vancouver
REGISTRATION: $109 early bird till May 4th $129 regular www.wood-works.ca/bc

ATTEND IN PERSON FOR NETWORKING AND MEALS; ATTEND VIRTUALLY FOR IMMEDIATE ACCESS TO THE SESSION RECORDING!

Named for its location near the intersection of Ontario Street and East Fifth Avenue in Vancouver, oN5 is a four-storey office building built on a narrow, difficult-to-access, mid-block site with only a 7.54m (24.7ft) wide street frontage. The commercial project overcomes many challenges using prefabricated cross laminated timber (CLT) components that form the floors, walls, and roof and elevator shafts. In this workshop, the project team will share detailed technical information about the design and construction of this project.

The topics and lessons learned will include the design strategies, building code requirements and solutions, high-performance building envelope details and the integrated project delivery process used. The permitting process including plan reviews and ultimate approval, and other interactions with the authority having jurisdiction (AHJ) will also be discussed.

Who Should Attend?

This workshop is designed for developers, designers, contractors and building officials.

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AGENDA

MORNING AGENDA – 8:00AM – 12:00PM

8:00am Registration & Breakfast for in-person

8:30am Welcome – Lynn Embury-Williams
8:35am Speaker Introductions – Jennifer Yu

8:40am – 9:30am Presentation #1: Navigating Code Requirements for Mass Timber in Commercial Buildings
Geoff Triggs, Principal, Evolution Building Science Ltd.

9:30am – 9:40am Q&A

9:40am – 10:30am Presentation #2: Architectural Design of a Mass Timber, High Performance Building
John Hemsworth, Principal, Hemsworth Architecture

10:30am – 10:40am Q&A

10:40am-10:55am 15 minute coffee break

10:55am – 11:45am Presentation # 3: Engineering of a Mass Timber Office Building on a Tight City Lot
Robert Malczyk, Principal, Timber Engineering Inc.
Hercend Mpidi Bita, Senior Structural Engineer, Timber Engineering Inc.

11:45am – 11:55am Q&A

12:00pm – 1:00pm LUNCH BREAK: lunch is included for in-person attendees

AFTERNOON AGENDA – 1:00PM – 4:00PM

1:00pm Session Resumes – Jennifer Yu

1:05pm – 1:50pm Presentation #4: Revolutionary Seismic Solutions for the Future
Pierre Quenneville, CEO, TECTONUS, AUCKLAND

1:50pm – 2:00pm Q&A

2:00pm – 2:50pm Presentation #5: Prefabrication, Integrated Design and Virtual Design and Construction
Brant Forrester, Senior Project Manager, Naikoon Contracting Ltd.

2:50pm – 3:00pm Q&A

3:00pm-3:15pm 15 minute coffee break

3:15pm – 3:45pm Presentation #6: Developing an Office Mass Timber Building in Vancouver- Owner's Perspective.
Robert Malczyk, Principal, Timber Engineering Inc., and Owner of oN5

3:45pm – 4:00pm Q&A

4:00pm Closing Remarks – Jennifer Yu

NATIONAL FUNDER

Natural Resources Canada / Ressources naturelles Canada

NATIONAL PARTNERS

CertainTeed, StructureCraft, STRUCTURLAM, Western Archrib, Weyerhaeuser, LP, KALESNIKOFF

PROVINCIAL FUNDER

Forestry Innovation Investment

INDUSTRY FUNDERS

BC Council of Forest Industries, Interior Lumber Manufacturers' Association, CMSA

PROVINCIAL PARTNERS

Boise Cascade Engineered Wood Products, rothoblaas

VISIT WOOD-WORKS.CA/BC TO REGISTER NOW!

https://www.eventbrite.ca/e/innovation-in-infill-a-spotlight-on-a-high-performance-office-building-tickets-304726002677

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PRESENTATION DESCRIPTIONS and SPEAKER BIOS

1) Navigating Code Requirements for Mass Timber in Commercial Buildings

The ON5 project represents a low-rise in-fill mass timber project application that "fits" into the VBBL framework under the prescriptive "combustible construction" category, since not greater than 4-storeys in height. What makes the ON5 project unique is the use of vertical CLT wall panels on the 0-lot side-yard elevations, which created a unique "alternative solution" opportunity to demonstrate the effective fire-resistant properties of mass timber. Geoff Triggs of Evolution Building Science Ltd. will speak about building code applications for this innovative in-fill development in the City of Vancouver.

Geoff W. Triggs has actively worked as a professional building code and fire protection consultant in the design/construction industry for over 30 years, during which he has accumulated an extensive array of experience on all building types. Of course, his favorite building types are of the mass-timber variety, and after coauthoring the "Case for Tall Wood Buildings" over 10 years ago, Geoff has researched and consulted on mass timber applications throughout Canada, and he is happy to be here today speaking about a smaller, but no less important mass timber building, for which he has been the Building Code Consultant of record since early design.

2) Architectural Design of a Mass Timber, High Performance Building

A discussion of the design process for a four storey hybrid mass timber building at Ontario and 5th with a focus on the challenges and benefits of mass timber and prefabricated construction. This presentation will also discuss the advantages of passive house construction.

John Hemsworth has over 20 years of architectural experience and his work has been recognized with numerous provincial and national awards including the Governor General's Medal for Architecture in 2016. He has extensive experience with both mass timbre and energy efficient design including both LEED Platinum and Passive house projects.

3) Engineering of a Mass Timber Office Building on a Tight City Lot

This session will present key aspects of structural analysis, design and detailing of the building on a zero-lot line site. Focus will be on structural particularities of the building, including structural system, the lateral load-resisting system with CLT shearwalls and Tectonus hold-downs, CLT floor with the innovative CLT adhesive system, connections for gravity and lateral load transfers, and structural robustness. The presentation will also touch on the importance of structural design and coordination with other disciples which enabled prefabrication of components for fast erection. Finally, the session will highlight the main lessons learnt during the design and construction.

Robert Malczyk is the principal at Timber Engineering. He co-founded Equilibrium Consulting Inc. who is responsible for designing many award-winning buildings in a portfolio exceeding 600 projects. Robert is a world-renown expert in structural timber engineering and is experienced in developing new business ventures. He has a natural eye for simplicity in structure and is passionate about novel structural systems in wood and other materials.

Hercend Mpidi Bita is a senior structural engineer at Timber Engineering. He completed his PhD at UBC before joining Katerra where he worked on the development of novel building components and systems. Hercend has numerous publications on international journals, book chapters, and structural reports. His expertise in mass timber engineering includes structural detailing, seismic design, and disproportionate collapse prevention.

PRESENTATION DESCRIPTIONS and SPEAKER BIOS….continued…

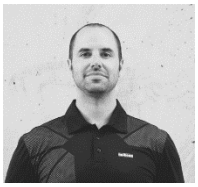
4) Revolutionary Seismic Solutions for the Future

Timber structures are becoming bigger and higher with the availability of economical mass timber products on the market. Timber is very attractive to designers in seismic-prone regions because of its strength-to-weight ratio. However, resilience is an issue as traditional ductility strategies are not low-damage and result in loss of stiffness following a seismic event. Tectonus resilient seismic dampers provide a solution to this issue. They are self-centering friction devices that do not get damaged within their ultimate capacity. This presentation will describe the technology and applications behind these dampers and how they were used in the ON5 project.

Pierre Quenneville is a structural engineer by education, specialising in timber connections and addressing the issues associated with brittle failures. After 20-years of professional practice in Canada, he moved to the University of Auckland in New Zealand and experienced the requirements for timber connections' ductility in seismic events. This lead to the research and development of resilient seismic solutions for timber structures.

5) Prefabrication, Integrated Design and Virtual Design and Construction

Located near the intersection of Ontario and E. 5th Avenue in Vancouver, oN5 is a four-storey CLT office building Built on a narrow mid-block site. Like so many sites in urban locations, access is severely limited. The oN5 CLT structure uses offsite prefabrication and sophisticated BIM and VDC work prior to the actually on-site assembly. This session will cover the unique details in design and the integrated design and construction methods used in this project.



Brant Forrester followed the footsteps of his father and grandfather to become the third generation to pursue a career in architecture and construction. He has over 19 years of professional architectural and construction experience across Canada and his passion for construction is complemented by his extensive knowledge of, technical design solutions, energy efficiency, virtual construction and mass timber.

6) Developing an Office Mass Timber Building in Vancouver- Owner's Perspective

This presentation will focus on the owner's perspective on constructing an innovative, mass timber building in the City of Vancouver. Issues like DP, BP permitting issues will be discussed in detail with a special emphasis on code analysis and timing. Preconstruction contracts with the GC and early engagement of critical trades and its impact on budget and schedule will be contrasted with a traditional bid award model. The real achieved value of CAD modelling and its impact on speed of erection will be evaluated against the industry trends and marketing claims of these services providers. The owner will finish with the recommendations for the next project and lessons learned.

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