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**Ontario Construction Secretariat**

# **The Future of Building Tall Timber Construction**

# Long spans and Construction sequencing





# 2004-2008 Art Gallery of Ontario





# 2004-2008 Art Gallery of Ontario



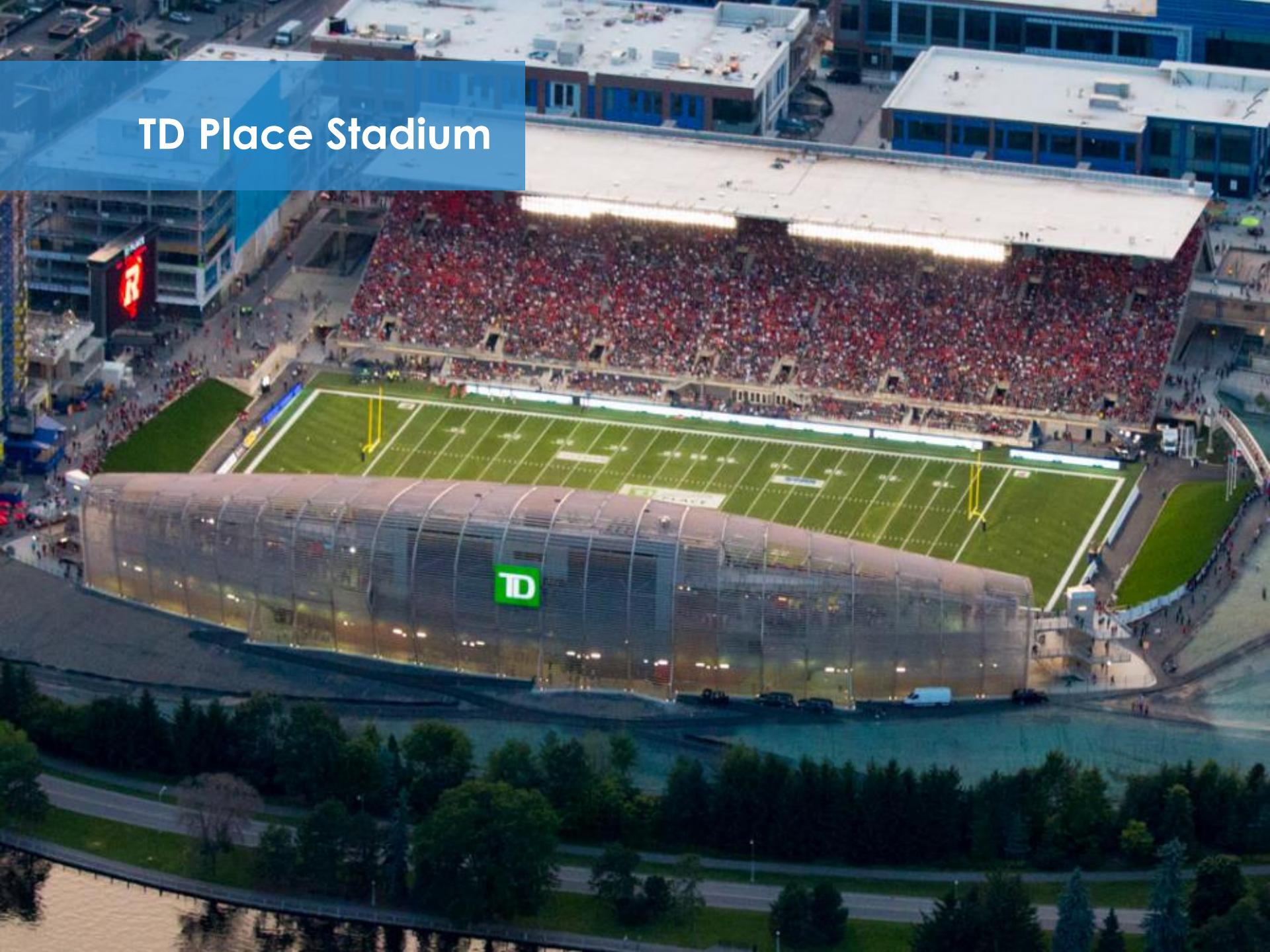


## 2009 Wavedecks, Toronto





# TD Place Stadium





# TD Place Stadium



Construction: Spring Valley Custom Classic



## 2009 MEC Burlington, Ontario



# 2012 Wayne Gretzky Sports Centre Brantford, ON – 1<sup>st</sup> CLT in Ontario





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# 2012 Playvalue Toys, Ottawa, ON

## 1<sup>st</sup> CLT Retail





# What about Condos?





# Sequester = Absorb

2 cubic metres of wood

=

**1 ton**

=

1 tonne CO<sub>2</sub> removed from  
atmosphere



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# Cross-Laminated Timber (CLT) Global Production

2010 – 2015 (5 years)

Doubled

2015 – 2018 (3 years)

Doubled

2019-2020

New plants in US and Canada will double North American production



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2017

# Ontario's Tall Wood Building Reference

A Technical Resource for Developing Alternative  
Solutions under Ontario's Building Code

October, 2017



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# Ontario Government

- Ministry of Natural Resources and Forestry
- Ministry of the Environment
- Ministry of Municipal Affairs and Housing
- Economic Development
- Northern Development



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# TIMMINS THE DAILY PRESS

## Tour of forestry operations in Timmins

Group of architects, engineers and builders from Southern Ontario take in harvesting operations and tour Timmins sawmill.



Ron Grech

[More from Ron Grech](https://www.timminspress.com/author/rgrech) (<https://www.timminspress.com/author/rgrech>)

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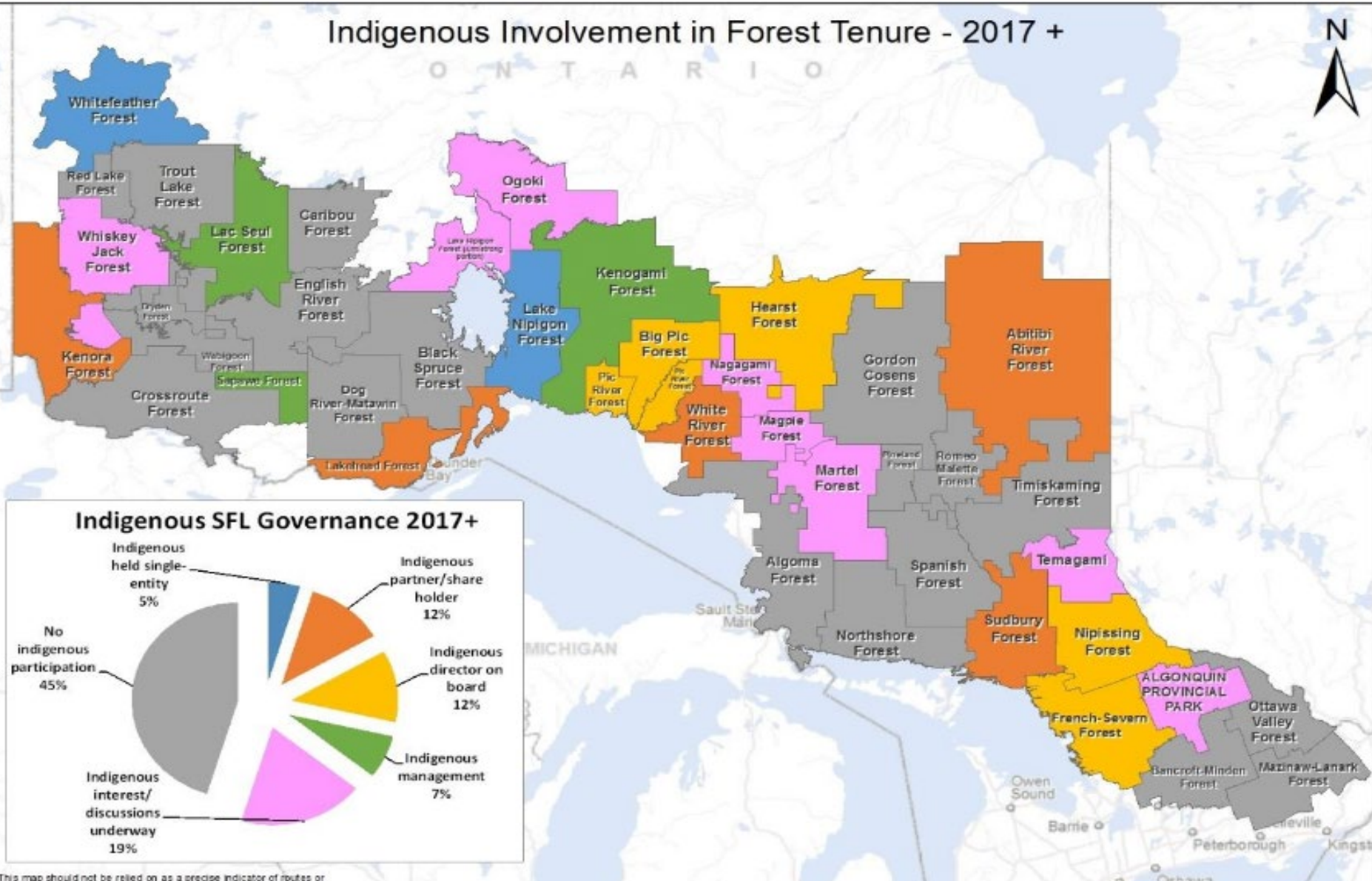
Joël Cantin, interim manager of the Timmins EACOM sawmill, led a tour of architects, engineers, and union leaders through the mill Thursday. Also seen addressing the group here before heading into the mill is Christine Leduc, director of public affairs for EACOM Timber Corporation. RON GRECH/THE DAILY PRESS *JPG, TD*



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36% of Ontario's forests have indigenous partners, stakeholders, management and growing

### Indigenous Involvement in Forest Tenure - 2017 +





## ESTIMATED ENVIRONMENTAL IMPACT OF WOOD USE



Volume of wood products used:  
2,233 cubic meters of CLT and Glulam



U.S. and Canadian forests grow this much wood in:  
6 minutes



Carbon stored in the wood:  
1,753 metric tons of CO<sub>2</sub>



Avoided greenhouse gas emissions:  
679 metric tons of CO<sub>2</sub>



Total potential carbon benefit:  
2,432 metric tons of CO<sub>2</sub>

### THE ABOVE GHG EMISSIONS ARE EQUIVALENT TO:



511 cars off the road for a year



Energy to operate a home for 222 years

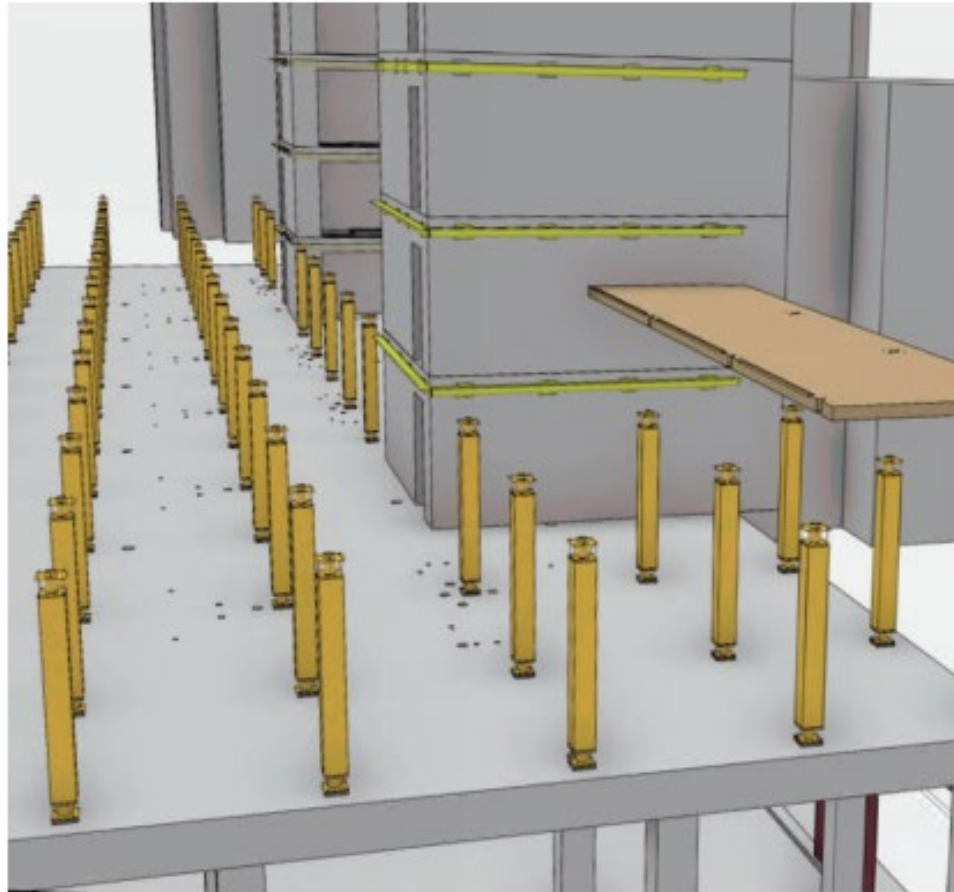
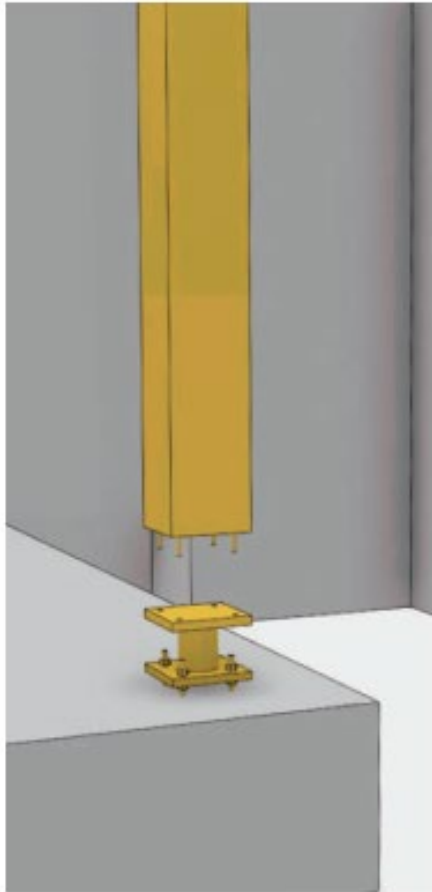
*\*Estimated by the Wood Carbon Calculator for Buildings, based on research by Sathre, R. and J. O'Connor, 2010, A Synthesis of Research on Wood Products and Greenhouse Gas Impacts, FPIInnovations (this relates to carbon stored and avoided GHG).*

*\*CO<sub>2</sub> in this case study refers to CO<sub>2</sub> equivalent*

Table 1. Brock Commons, Vancouver. Source:  
rethinkWood.com



# 4D Time Simulations



Brock Commons

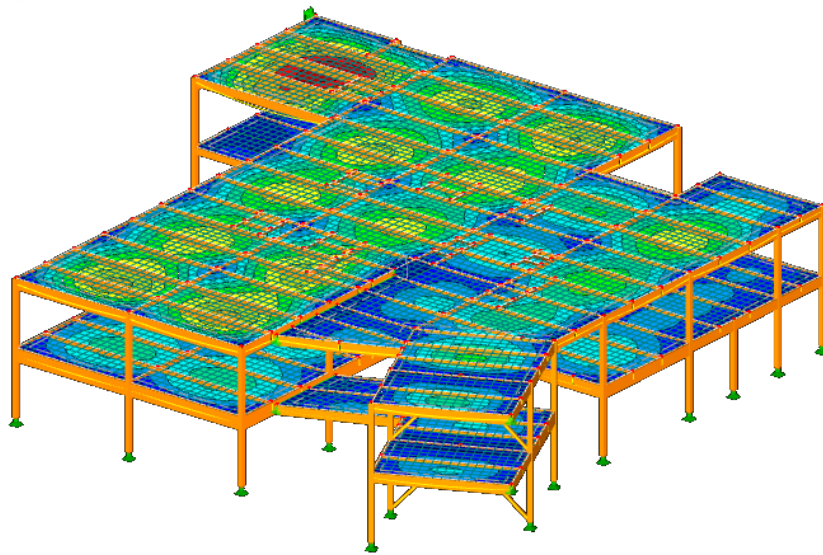
Source: CIRS report, CADMakers



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# 3D Modelling / Analysis



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# 2015 14-storeys Norway





# University of Toronto

Architect: MJMA & Patkau Architects



# The Arbour, George Brown College, Toronto

Architect: Moriyama and Teshima





# 77 Wade Avenue, Toronto

Architect: Bogdan Newman Caranci





# 80 Atlantic, Toronto

Architect: Quadrangle





# T3 Bayside, Toronto

Architects: 3XN & WZMH



# Education & Training



- Engineers, Architects
- Carpenters
- Developers
- Building Owners
- Government (politicians, civil servants, planners, building officials)



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# STUDENTS CATCH TIMBERFEVER

## Cross-disciplinary competition promotes collaboration

LINDA WHITE  
SPECIAL TO POSTMEDIA NETWORK

In a competition worthy of reality TV, eight teams of architectural science and civil engineering students from Ryerson University were handed a design brief outlining the type of structure they had to design and build — all with a limited supply of lumber and within the next 36 hours.

The task of the second annual TimberFever Design-Build Competition ([www.TimberFever.com](http://www.TimberFever.com)): to build accessible structures that would provide urban refuge and would be tested for structural integrity and architectural merit by a team of professional engineers

includes the Art Gallery of Ontario addition.

"In the real world, you need to collaborate with all sorts of different professionals. It's one of the things new graduates are lacking and through this event we gave them some exposure to that," Moses says. "Giving students hands-on work experience is another important element of the competition. A lot of recent graduates have never picked up a tool and don't understand how to physically build things."

### HANDS-ON EXPERIENCE

Third-year architectural science student and event co-chair Abhishek Wagle embraced the challenge.

As part of the second annual TimberFever Design-Build Competition at Ryerson University, held Sept. 24-25, architectural sciences and civil engineering students designed and built accessible structures in keeping with the contest's "urban refuge" theme. PHOTOS: RYERSON ENGINEERING STUDENT AND PHOTOGRAPHER MS. SHANUJA NAGARATHNAM.



advising them on best building practices and ensuring they used power tools safely.

industry for the rest of their careers so it's a good step to building that relationship



## TIMBERFEVER DESIGN-BUILD COMPETITION

Presented by Moses Structural Engineers

huge," says professor Vin- engineer-ld talk to an dent: "That's a; let me fig- make it hap- ure student engineering

student about whether their concept was possible. And better yet, the carpenters' union also offered advice," he says. "That kind of collaboration is very fruitful ... This event is about accomplishing something you can't accomplish in a library or a classroom. That's enriching."



# Training





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[www.mosesstructures.com](http://www.mosesstructures.com)

