Alberta WoodWORKS!

Alberta Biomaterial Development Centre

Feb 12, 2013

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Wood WORKS! is an industry led, federally and provincially supported project of the Canadian Wood Council, here to promote and educate the economic and environmental benefits of wood construction.

Canadian Program Impact

- Mature Program – 15 years experience
- 1.03 billion bf lumber
- 471 million sq. ft. (3/8”) panels
- $8.5 billion of commercial projects
- $558 million - wood sales
- 180,000 + continuing education hours delivered
- Catalyst to innovative solutions

Wood*WORKS!* Activities:

Lunch & Learns
Seminars
Workshops
Case Studies

WoodWORKS! Video:

http://www.redtheagency.com/video/

Benefits of Using Wood

- 18,000 Albertans work in the forest products industry
- The industry generates $4 billion for our economy
- Relative to other materials, wood is cost-effective
  - A 6-story mid-rise in BC cost 14% less than a similar building of other materials
- Environmentally friendly

*Challenges

- Building Codes
- Green Standards
- Perceptions

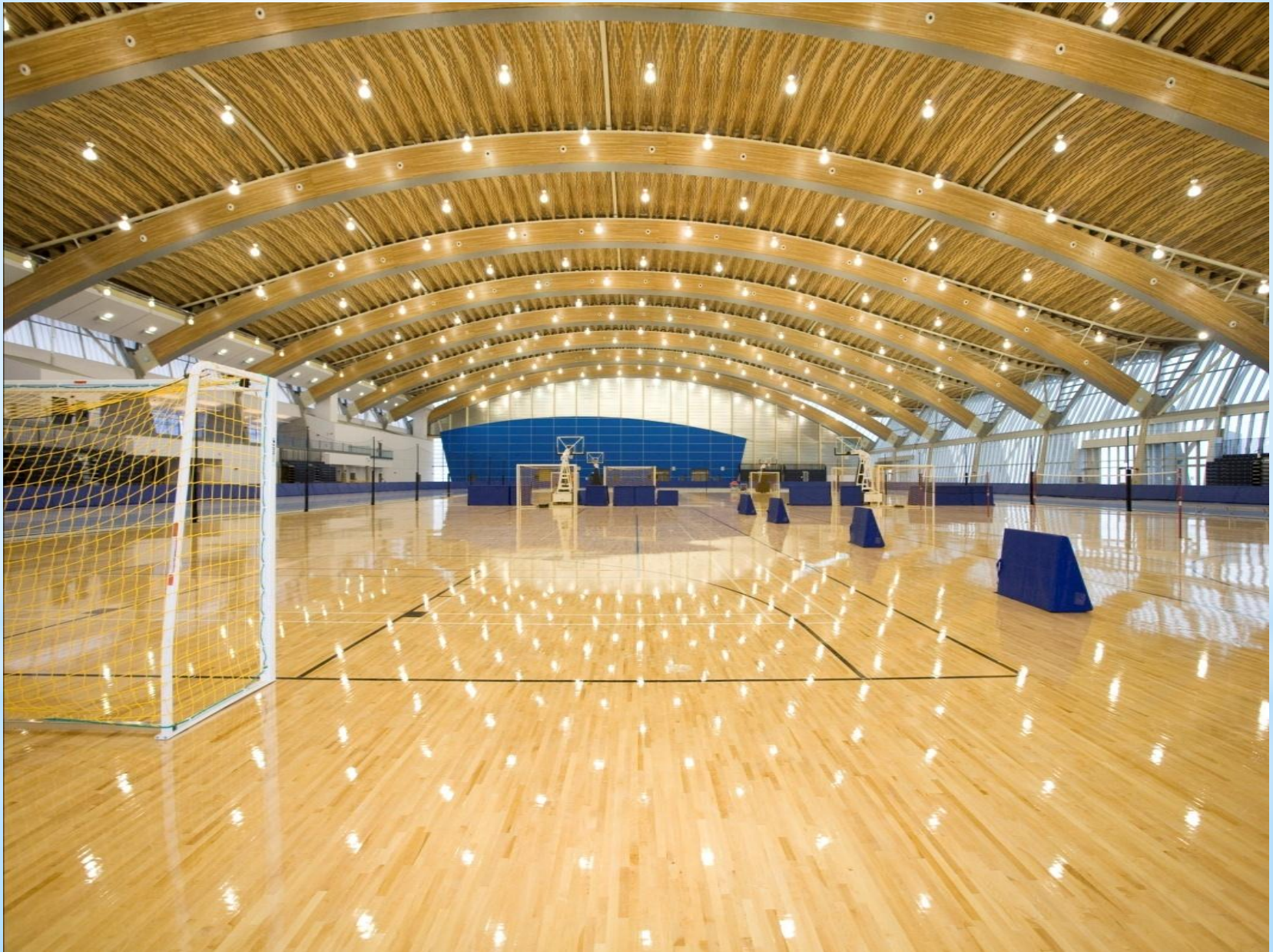
*We Have the Solutions

New products with enhanced properties

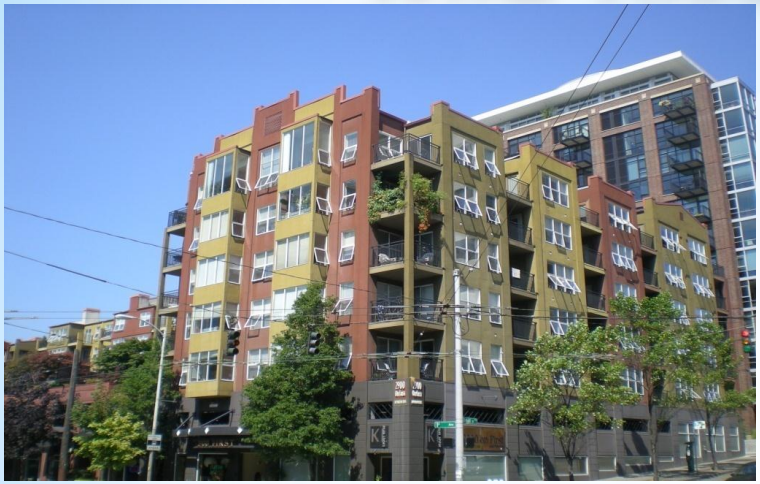
- Build quicker
- Meet and exceed structural and fire requirements
- Cost Competitive
- Taller Buildings (6-10 stories)

Mid-Rise Buildings

Mid-Rise Buildings



Mid-Rise Buildings



Economical, Sustainable, Safe

Innovation in Wood

* Glulam
* Laminated Strand Lumber
* Cross Laminated Lumber

Innovation in Wood

* **Glulam**
* Laminated Strand Lumber
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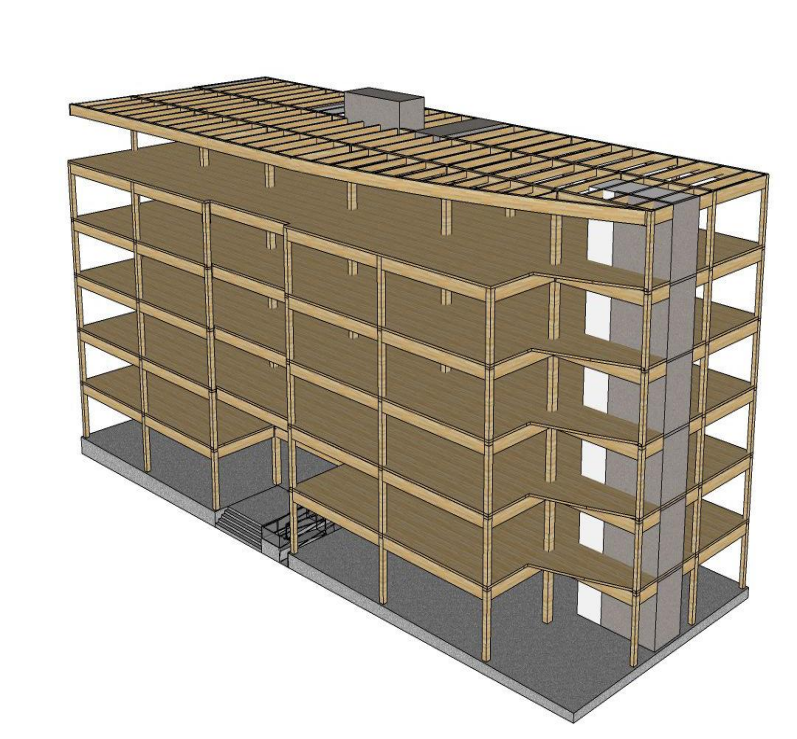
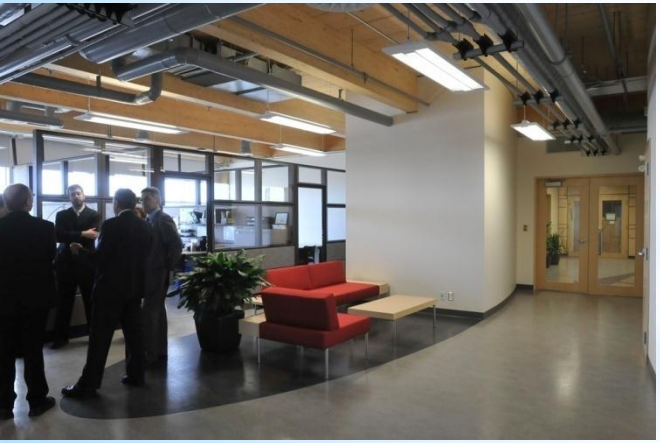
North America's first Six Storey Bldg goes to...? Quebec City!



6-storey glulam post-and-beam structure with reinforced concrete cores (CSN FondAction)

Credit: FP Innovations



Credit: Cecobois

Innovation in Wood

* Glulam
* **Laminated Strand Lumber**
* Cross Laminated Lumber

*Innovation in Wood

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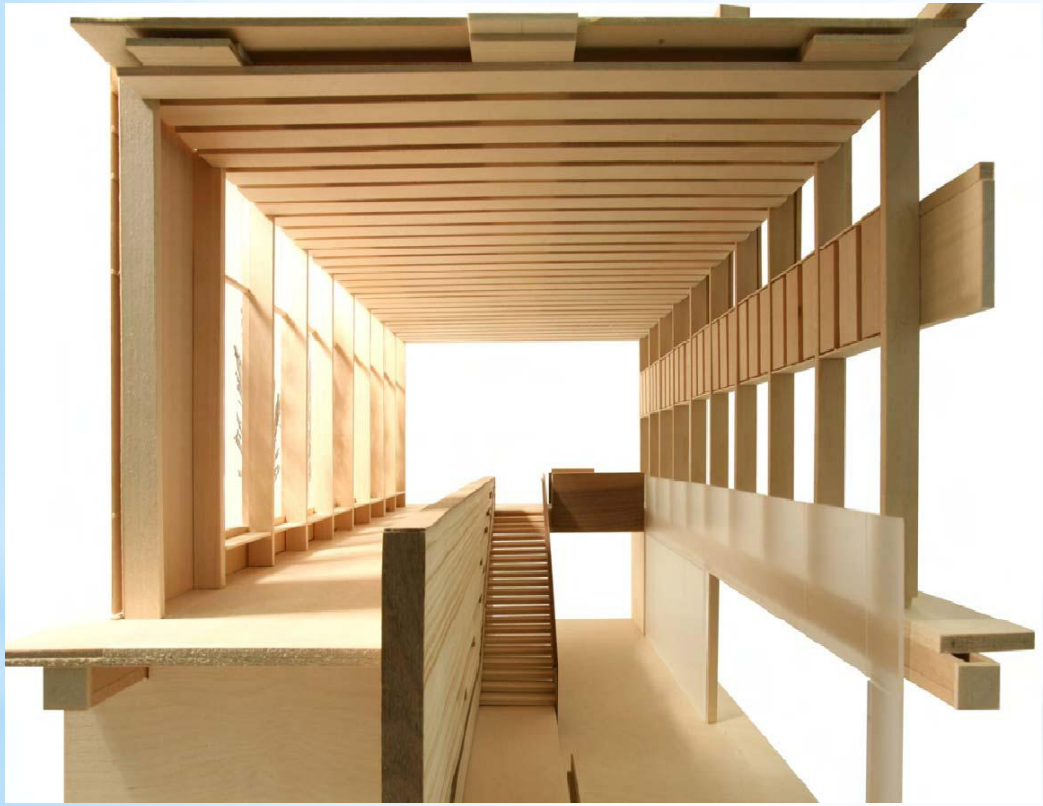

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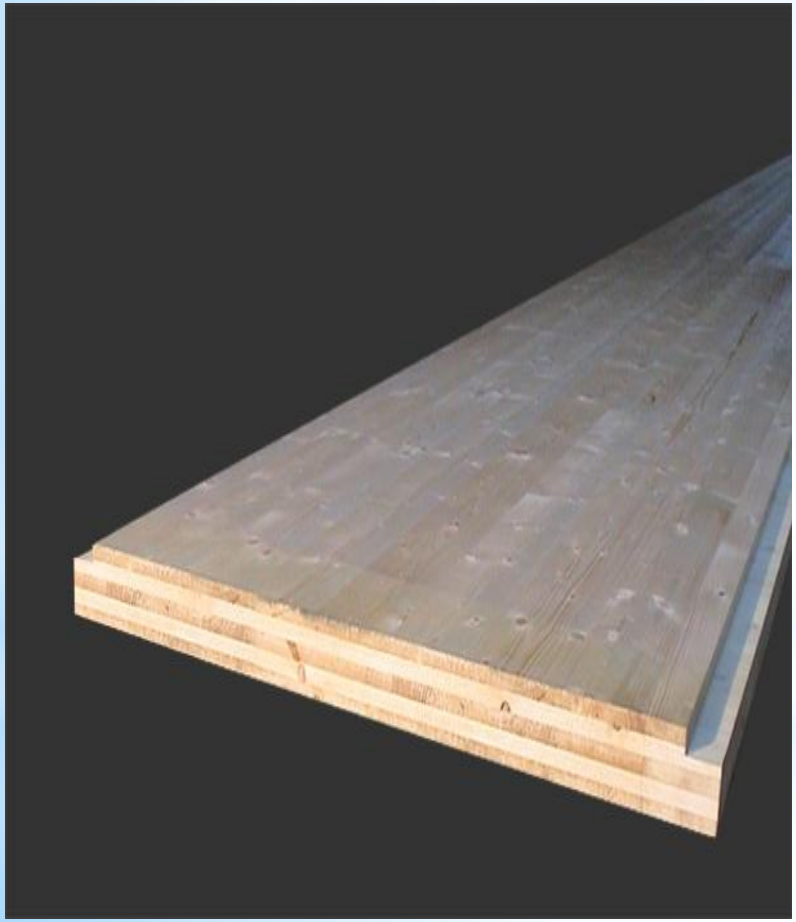
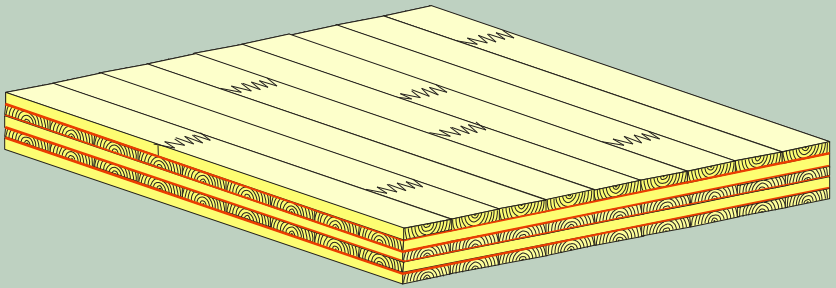


*Typical Panels

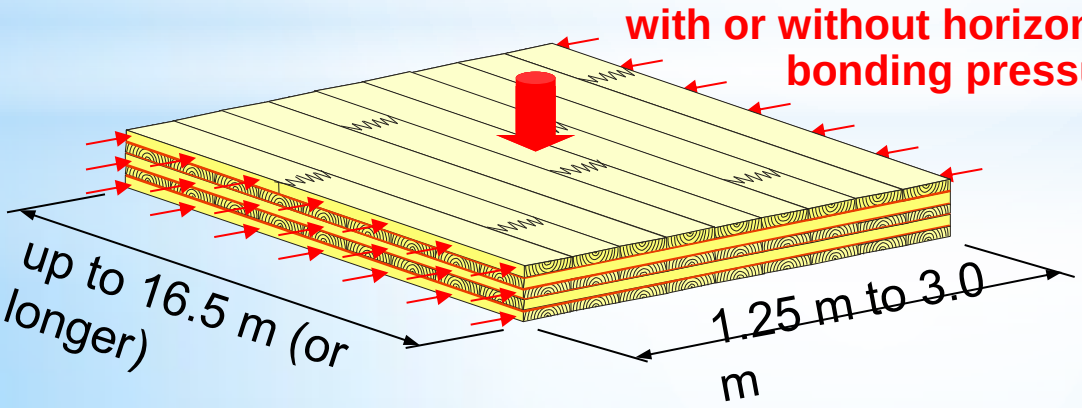
CLT – technology (Europe only)

production process of Cross Laminated Timber (CLT) elements

step	intermediate product | intermediate production process
STEP IV: Cross Laminated Timber (CLT)	 face gluing

bonding pressure vertical:

- approx. **0.6 N/mm²** with **hydraulic equipment**
- < **0.1 N/mm²** with **vacuum**
- approx. **0.1 N/mm²** with **clip connection**



Cross-Laminated Timber Mid-rise Buildings

Limnologen Project: 2006 start

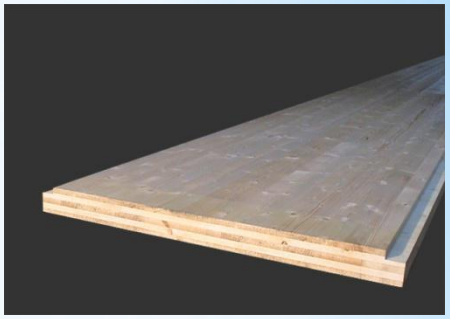
Construction of four-8 Storey buildings

First storey concrete and 7 storeys wood

Växjö, Sweden

Source: Växjö University

Limnologen Project:



•The connection between the composite panels was achieved by a plywood strip screwed to the wooden panels.

•The number of screws was optimized following the calculation of shear stress all along the panel.

Limnologen Project:

•To connect walls together, SFS screws were used.

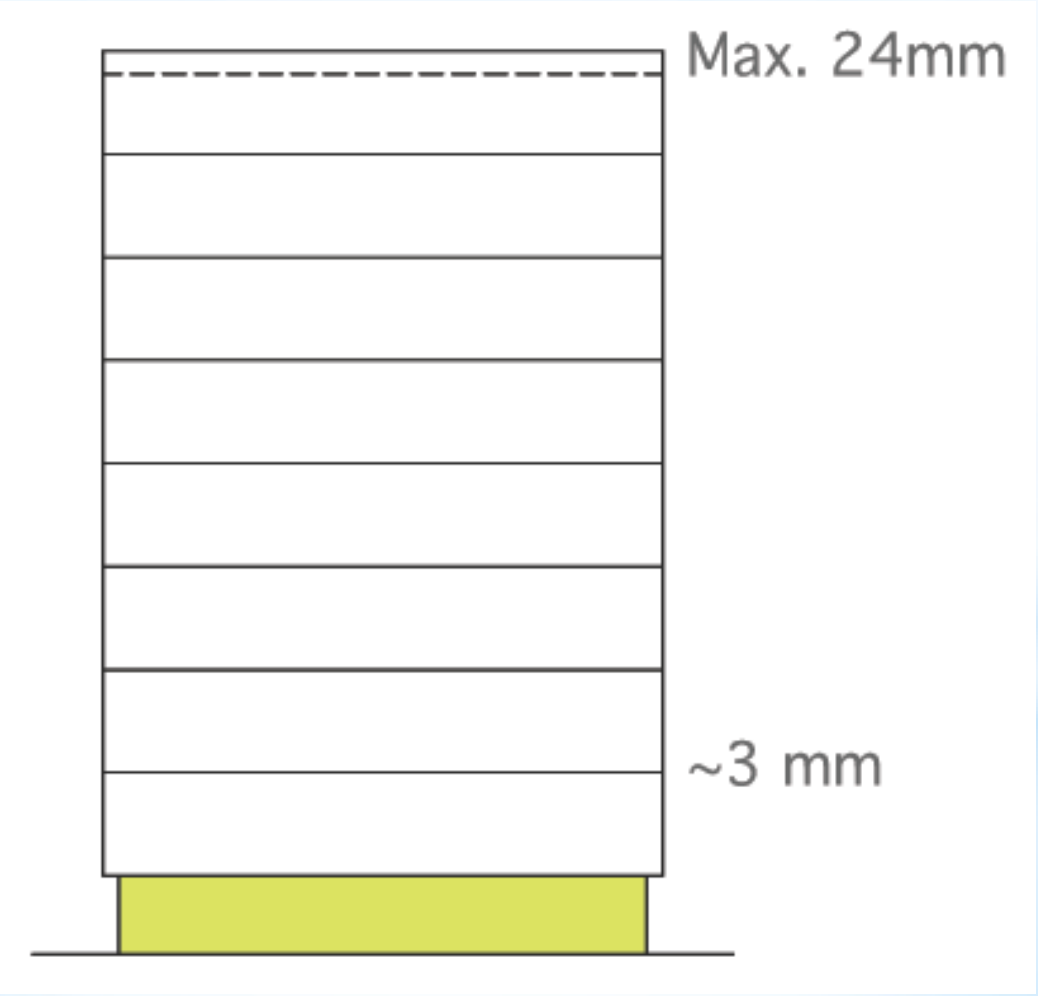
Viken Skog Office Bldg, Norway

- 4 storey office bldg
- CLT floor slab supported on GLB beams
- CLT walls, interior and exterior

* Murray Grove, London, England
Waugh Thistleton Architects

- 9 Storey Wood Building
- 29 apartments
- Cross Laminated Wall and Floor Panels
- Prefabricated with cutouts for doors and windows

* Murray Grove, London, England
Shrinkage



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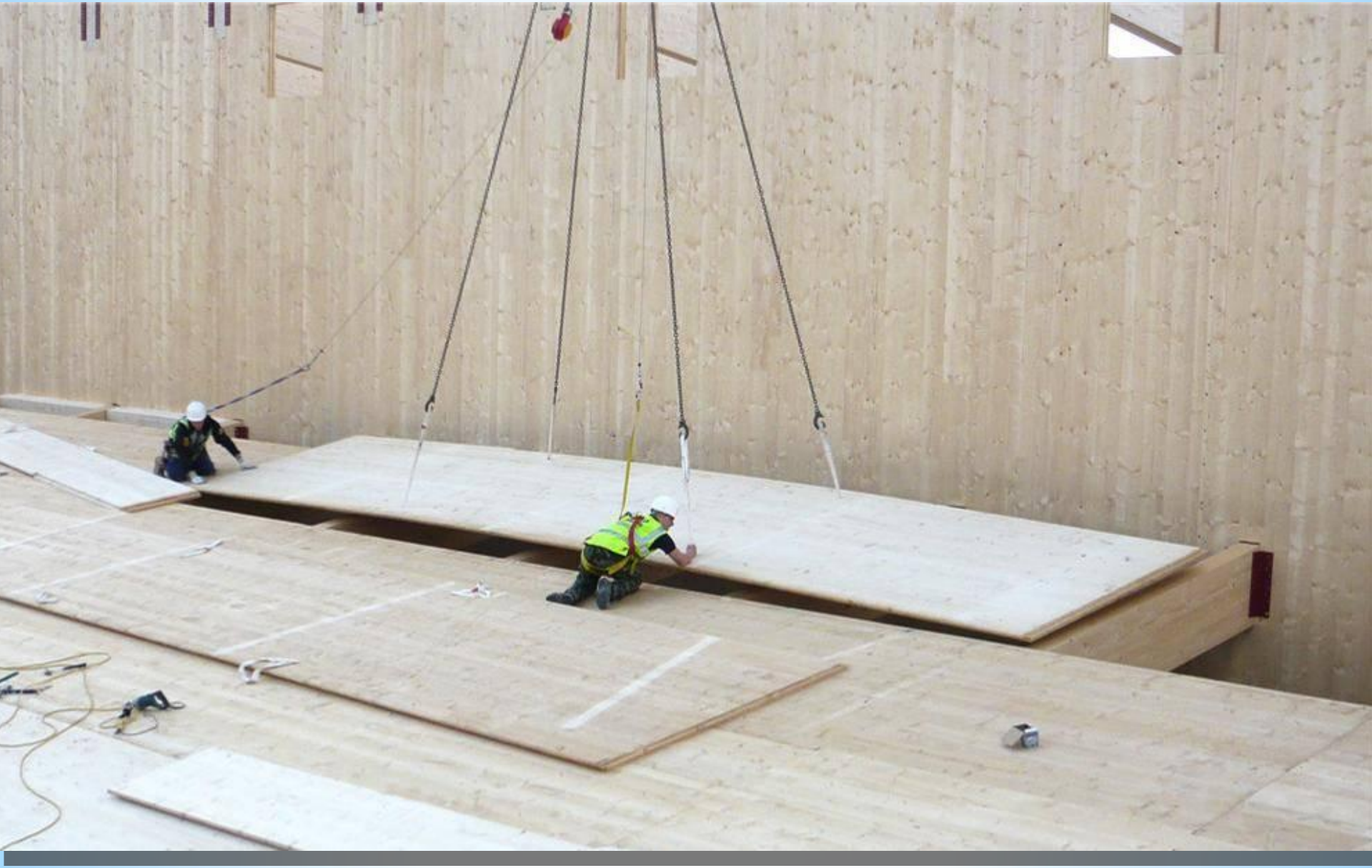
Panel height
13’3”


9” deep CLT-25’ span
13’-3”
27”
8’-
2””



Proposed Tall Wood Structures and Systems

Fort McMurray Airport

Largest CLT in North America

170,000 square foot Prefabricated Roof System

Glulam + CLT Roof Panels

Benefits

- *Can be used to form roof, wall and floor elements*
- *Can complement light frame construction bldg – shear walls or lower 1st / 2nd floor of a midrise bldg?*
- Taller than 6 storey residential buildings – potential (up to 10 storeys)
- *Shallow floor construction- a solution for an over height bldg?*
- *Provide a "wood" alternate solution to precast concrete construction, masonry and steel structures (Non Res bldgs)*
- building accuracy, system predictability, carbon sequestering and emission reduction benefits

QUESTIONS?

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