Building with Mass Timber: Insights on Preconstruction, Costing and Collaborative Design

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

Course Description

How do contractors answer the increasing demand for mass timber buildings from architects and ownership groups? Growing this budding industry requires an understanding from both designers and seasoned construction professionals of how to construct efficiently, navigate jurisdictions new to mass timber, and manage the procurement risks to deliver the dream of a new and optimized building system. This session will consider why some mass timber projects never pass the concept stage, what can mitigate risk and improve financial feasibility, and how the development, architectural, engineering, and construction community can achieve success with mass timber projects of various scales and typologies. Particular emphasis will be given to preconstruction coordination, design input from all parties involved, project delivery methods, and how to achieve the highest level of cost efficiency.

Learning Objectives

1. Understand the preconstruction manager's role in material procurement and MEP coordination of code-compliant mass timber projects.

2. Highlight effective methods of early design-phase cost estimation that keeps mass timber options on the table.

3. Discuss potential construction schedule savings realized through the use of prefabricated mass timber elements.

4. Explore best practices for interaction between manufacturer, design team and preconstruction manager that can lead to cost efficiency and safety on site.

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Integrated Decision-making: Mass Timber and Preconstruction

Woodworks
NW Wood Design Symposium
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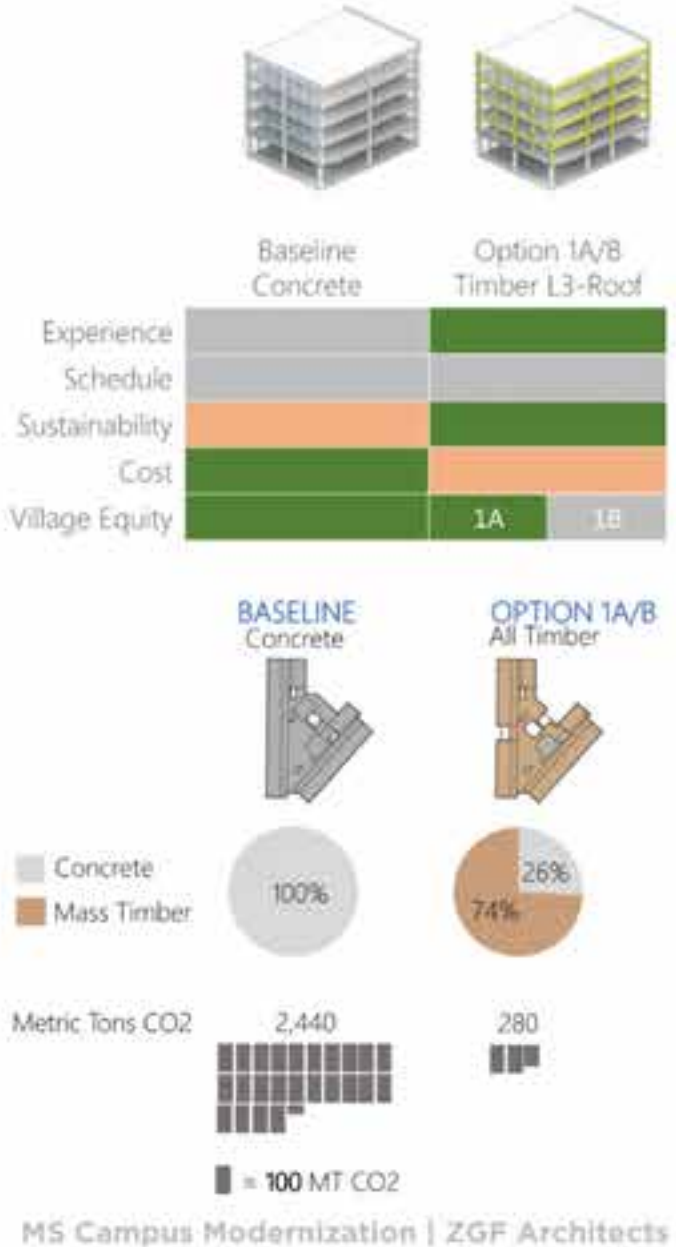
Project Drivers

Factors shaping design, layout, mass timber solutions and cost

- Conducive Zoning
- Program and Efficiency of Repetition
- Changes in Structural Plane from inside to exterior balcony
- Lateral Systems: Still Impact Tall Construction
- Workplace Module, Ability to Optimize Structural Module
- Window Concept and Type of Fenestration
- Soil Conditions / Structural Weight
- Acoustics
- Aesthetic Value / Parity of Visual Experience
- Embodied Carbon
- Tenant / Interior Design and Construction Timing
- Timber Sourcing: Geographic Region or Certified Wood



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Holistic System Considerations

How do other building systems interface with mass timber?

- Structural Comparisons: Evaluate mass timber along with concrete and steel from the beginning. Consider complete structural systems.
- What's the mechanical system? How is air delivered? Can there be beam-free "duct highways" for main distribution
- If Underfloor Air Distribution Opportunities:
  Electrical fed from plenum. Additional perceived height.
- How does mass timber connect to the core / lateral system?
- Floor assembly considerations: diaphragm connections and exposed floors, acoustics
- Exterior Skin Interface: Perimeter Condition impacting type of fenestration, edge beam or not, bearing condition

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Detailing and Finish

Defining appearance expectations

- Connection Style: Concealed or Expressed
- Finish Grade of Mass Timber
- Fire Protection of Connection / AHJ Coordination
- Routing of Electrical Conduit / Ceiling Design Concept
- Predrilling and Routering Opportunities
- Integration of Steel and Concrete Elements / Stain Protection
- End Grain Protection
- Wash or Stain / Seal

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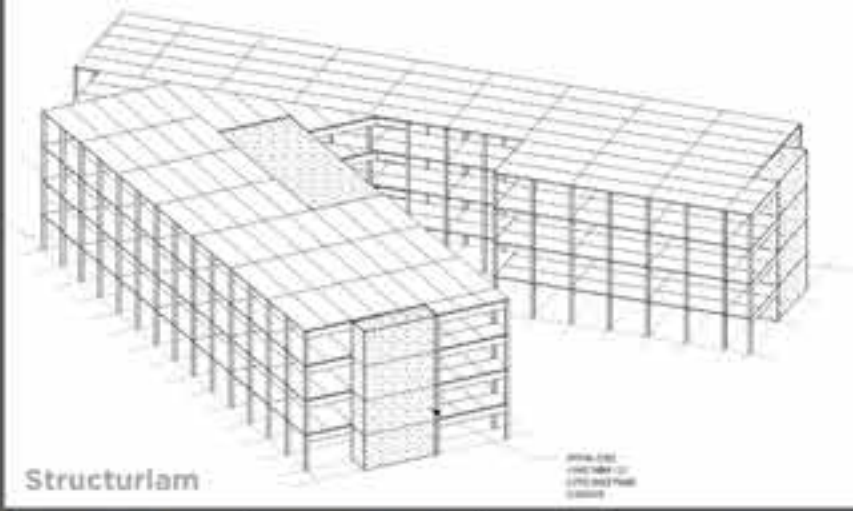
Preconstruction and Installation

Due-diligence issues for a successful procurement and construction

- Early on-boarding of Mass Timber Manufacturer
- Press Size / Piece Count / Hoisting Durations
- Fabrication Capacity / Phased Construction
- Extent of Preconstruction Services
- Design to CNC Fabrication
- Factory finish / Factory Wrap
- Phased Delivery / Phased Sequencing
- Type of On-site Protection of Product
- Self-performed / subcontracted erection
- Final finish
- Post-warrantee Maintenance Program

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Advantageous Alignments

What conditions increase feasibility and reduce cost?

* = sourcing, harvest and manufacturing specifics will determine the degree of impact

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Thanks

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QUESTIONS?

This concludes The American Institute of Architects Continuing Education Systems Course

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