

Mass Timber in Practice: Seminar + Trinity University Dicke Hall Project Tour

March 5, 2026

Presented by: Mark Bartlett, PE - WoodWorks



Regional Directors: One-on-One Project Support



Solutions Team



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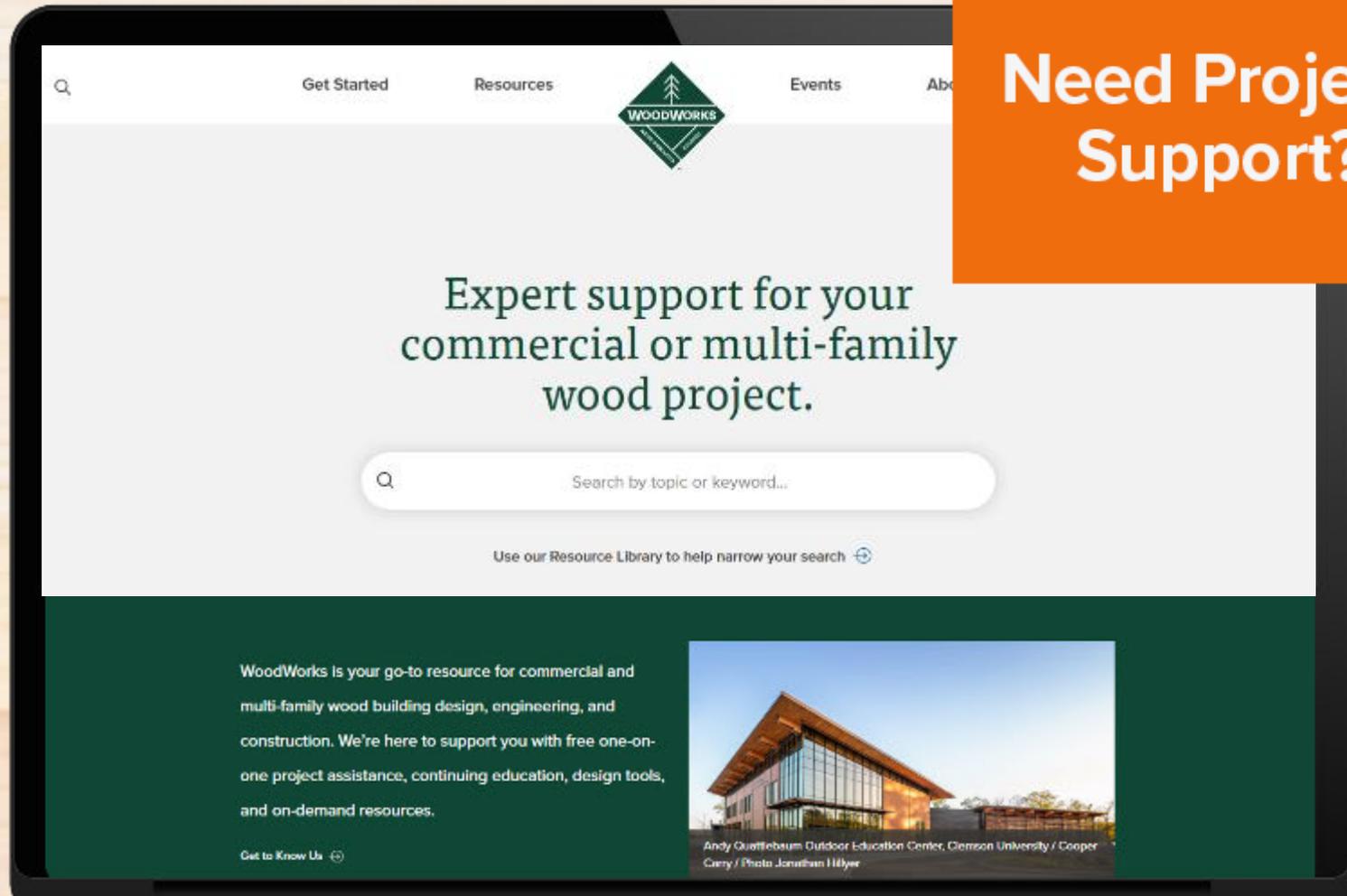
Taylor Landry, PE, MLSE



Bruce Lindsey



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Need Project Support?





Need Project Support?

BUILDING SYSTEMS



Mass Timber / CLT



Light-Frame



Hybrid



Off-Site / Panelized Construction

BUILDING TYPES



Multi-Family / Mixed Use



Education



Institutional / Healthcare



Civic / Recreational



Industrial



Office



Commercial Low-Rise

WHY WOOD?



Sustainability



Forests, Wildfire & Rural Communities



Evolving Codes



Cost Effectiveness

Get help penciling it out.

Free Project Support

Wo
mu
con



modular

Building Systems

- Light-Frame 8
- Hybrid 7
- Panelized Construction 4
- Mass Timber / CLT 2

Building Types

- Multi-Family / Mixed-Use 9
- Education 2
- Office 2
- Civic / Recreational 1
- Commercial Low-Rise 1
- Industrial 1
- Institutional / Healthcare 1

Project Roles

- Architect 8
- Structural Engineer 8
- Contractor/Installer 7
- Developer/Owner 7

Resource Types



Modular Mass Timber from Design to Delivery

October 8, 2025 - National Online Seminar. This course will explore the use of mass timber modular construction in multi-family and mixed-use building types and showcase the recently completed Knight Building in Big Sky, MT—the first large-scale modular mass timber building in the U.S.

Online Events



The Modular Enclosure: Protect Your Investment During Every Phase

How traditional building enclosure design considerations translate to modular projects

Expert Tips



The Modular Design Process – Design of the Units

Considerations for the design of modular, multi-family projects, including pre-design essentials, construction type, elements of unit design, and modular vs. traditional layouts

Expert Tips



Assessing the Financial Feasibility of Modular Construction

Considerations for developers and building designers evaluating the potential cost benefits of modular for a multi-family project

Expert Tips



Roles and Responsibilities: Structural Design of Modular Projects

An overview of structural engineering roles for modular



Regulating Off-Site Construction: Ensuring Code Compliance in a Factory-Built Environment

Understanding the process of building code compliance for



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INNOVATION
NETWORK.ORG**

The screenshot shows the Woodworks Innovation Network Member Directory website. The browser address bar displays "woodworksinnovationnetwork.org/". The navigation bar includes the WIN logo, a search icon, and links for "Project Map", "Manufacturers & Suppliers", and "People & Companies". There are also options for "EN" (English), "Sign in", and "Add A Project".

WIN Member Directory

Find experienced companies and people

Individuals 242 Companies 150 Manufacturers & Suppliers 29

Contact Manufacturers & Suppliers

Filter By

- Architect 97
- Contractor / Installer 90
- Developer 7
- Engineer 150
- Insurance Broker 2
- Manufacturer / Fabricator 39
- Other 29

Additional Services / Specialities

- Acoustical Engineering 1
- Architecture 19
- Building Envelope Design 1
- Code Consulting 1
- Design Assist 3
- Design Build 6
- Fire Protection Engineering 1
- General Contracting 4
- Mass Timber Installation 8
- Project Management 3
- Real Estate Development/Building Ownership 6

Search...

Individuals X Companies X Manufacturers Suppliers X

Sort By ▾

- Simpson Strong-Tie** • Manufacturer / Fabricator
Innovative Mass Timber Solutions Built for North America
WoodWorks Partner 110
- Western Archrib** • Manufacturer / Fabricator
75 years experience in Glulam and GLT manufacturing
WoodWorks Partner 107
- Rothoblaas** • Manufacturer / Fabricator
Fastener and connectors, building envelope and acoustics
WoodWorks Partner 106
- Sansin** • Manufacturer / Fabricator
Manufactures industrial and factory finishes and coatings.
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- Kalesnikoff Mass Timber** • Manufacturer / Fabricator
From Seedlings to Solutions Our Mass Timber Inspires
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INTERNATIONAL
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CONFERENCE



Portland, OR | Oregon Convention Center
MARCH 31 – APRIL 2, 2026

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Agenda

Mass Timber in Practice: Seminar + Trinity University Dicke Hall Project Tour

AIA Course	2:30 – 3:30 pm	Welcome + Presentation
	3:30 – 4:30 pm	Project Tour – Dicke Hall
NON-Credit	4:30 – 5:30 pm	Networking Happy Hour

WoodWorks | The Wood Products Council

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



Course Description

This educational event will provide an in-depth look at Dicke Hall at Trinity University, a three-story, 40,000-square-foot academic building constructed using cross-laminated timber (CLT) panels and glue-laminated timber (glulam) framing to create a sustainable and biophilic space for the university's staff and students. Attendees will tour the site with members of the project team, who will share strategies used to design and construct a code-compliant mass timber structure, including considerations related to design development, detailing, and construction techniques. The tour format encourages questions and discussion, and attendees can expect to leave with insights into the project's execution and factors that influenced material and detailing decisions.

Learning Objectives

1. Discuss typical construction practices for mass timber projects, including safety best practices, installation efficiency, and coordination with follow-on trades.
2. Highlight a variety of structural and architectural uses of mass timber (CLT and glulam) through an in-person tour of an under-construction project, highlighting the biophilic and sustainability benefits of exposed mass timber and wood framing for occupants and visitors.
3. Demonstrate connection detailing techniques used in code-compliant mass timber buildings to ensure appropriate structural capacity, fire resistance, and consideration of the project construction type.
4. Explain the diverse methods of project development and approaches used by the design team, including owners, contractors, architects, and engineers, to achieve a su

PRESENTATION OUTLINE

MASS TIMBER DESIGN

Products

Structural Solution & Connections

Projects and Code Considerations

MASS TIMBER CONSTRUCTION

Planning for Construction

Performing Construction

OVERVIEW | TIMBER METHODOLOGIES



Light Wood-Frame
Photo: WoodWorks



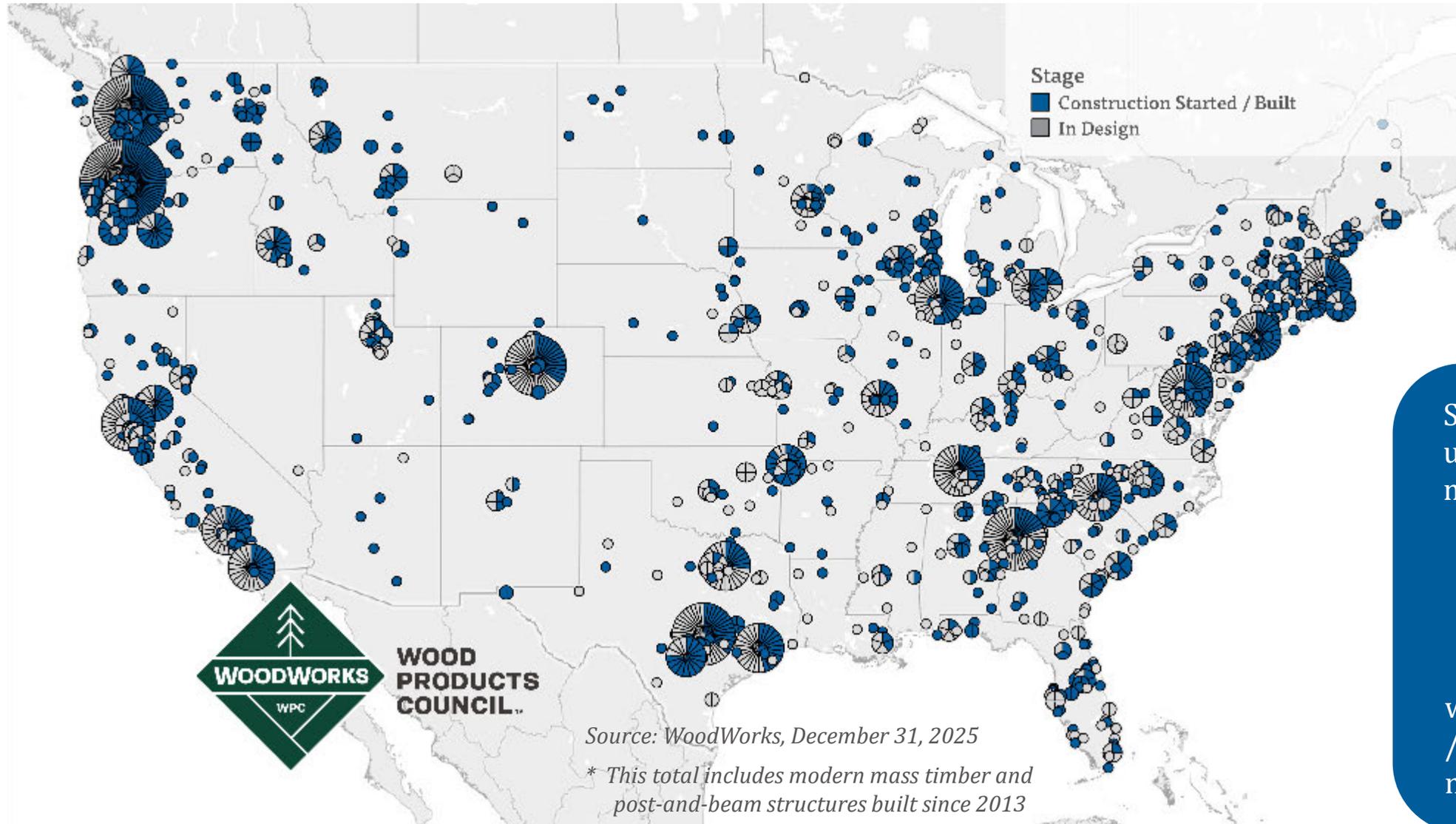
Heavy Timber
Photo: Benjamin Benschneider



Mass Timber
Photo: John Stamets

Current State of Mass Timber Projects

As of Q4 2025, in the US, **2,664** multi-family, commercial, or institutional projects have been constructed with, or are in design with, mass timber.



Scan this code or use the url to find the map and more details online.



www.woodworks.org/resources/mapping-mass-timber/

MASS TIMBER PRODUCTS



Glue Laminated Timber (Glulam)
Beams & columns



Cross-Laminated Timber (CLT)
Solid sawn laminations



Cross-Laminated Timber (CLT)
SCL laminations



Photo: Freres Lumber



Photo: StructureCraft



Photo: LendLease



Photo: LEVER Architecture

Dowel-Laminated Timber (DLT)



Photo: StructureCraft

Nail-Laminated Timber (NLT)



Photo: Think Wood

Glue-Laminated Timber (GLT)
Plank orientation



Photo: StructureCraft



Photo: StructureCraft



Photo: Ema Peter



Photo: Manasc Isaac
Architects/Fast + Epp



Photo: Ema Peter

STRUCTURAL SOLUTIONS | POST, BEAM + PLATE



Photo: Seagate Structures

STRUCTURAL SOLUTIONS | POST + PLATE



Photo: Lendlease



Photo: John Klein

STRUCTURAL SOLUTIONS | HYBRID LIGHT-FRAME + MASS TIMBER



Photo: TimberLab

STRUCTURAL SOLUTIONS | HYBRID STEEL + MASS TIMBER



LEVER Architecture, photo Jeremy Bittermann

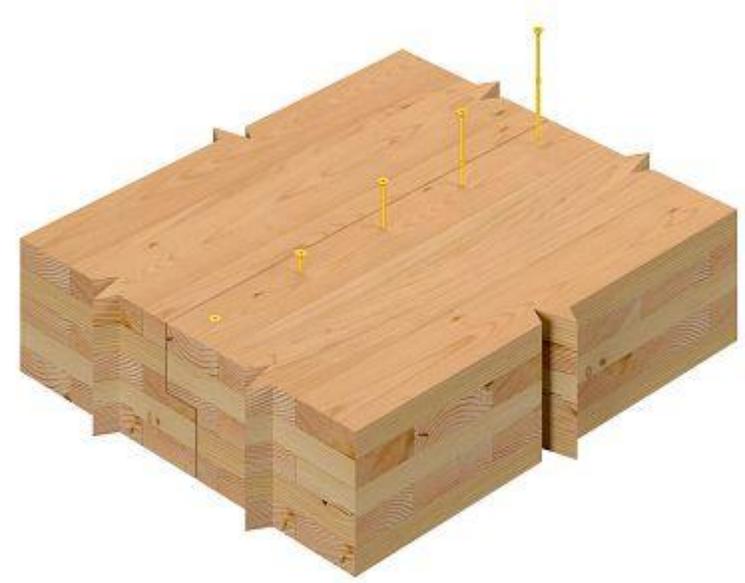
STRUCTURAL SOLUTIONS | HYBRID CONCRETE + MASS TIMBER

OVERVIEW | CONNECTIONS



Concealed Connectors

Photo Marcus Kauffman



Self Tapping Screws

Photo Simpson Strong Tie

OVERVIEW | CONNECTIONS



Beam to Column

Photo: StructureCraft



Photo: Structurlam



Column to Foundation

Photo: Alex Schreyer

OVERVIEW | CONNECTIONS



Panel to Panel & Supports

Photo: Charles Judd



Photo: Marcus Kauffman

Greenhill School

Addison, TX



Architect: Bohlin Cywinski Jackson

MEP Engineer: DBR Engineering Consultants, Inc.

Photo: WoodWorks

Greenhill School

Addison, TX

- » First K-12 Mass Timber project in Texas
- » Mass Timber helped meet sustainable design goals



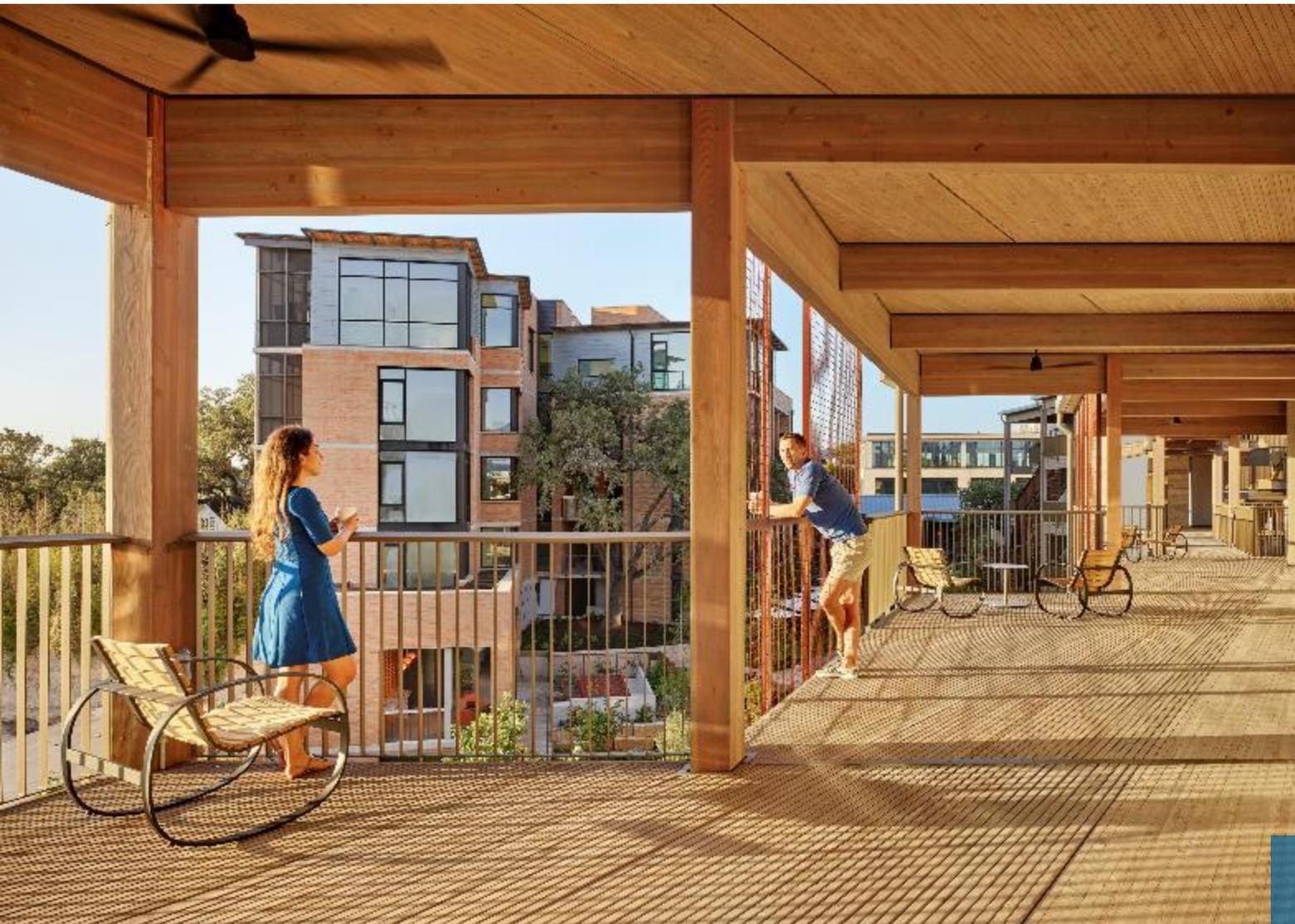
Photos: WoodWorks

Architect: Bohlin Cywinski Jackson
MEP Engineer: DBR Engineering
Consultants, Inc.

Hotel Magdalena

Austin, TX

Lake | Flato Architects
StructureCraft
Photo: Casey Dunn



Hotel Magdalena

Austin, TX

100,000 sf

3 buildings: 5, 4, and 3 stories

Type V-A for MT structures

Hotel

Completed 2020



Lake | Flato Architecta
StructureCraft
Photo: Casey Dunn

Offices at Southstone

Yards

Frisco, TX



Duda | Paine Architects
Thornton Tomasetti
Photo: WoodWorks



Offices at Southstone Yards

Frisco, TX

242,000 sf, 7 stories

Type III-A

Office

Completed 2023

Duda | Paine Architects
Thornton Tomasetti
Photo: WoodWorks

MASS TIMBER PROJECT CONSIDERATIONS



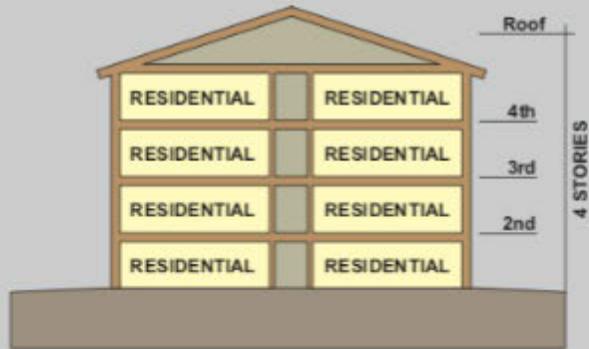
Photo: Hacker Architects

MASS TIMBER IN THE CODE

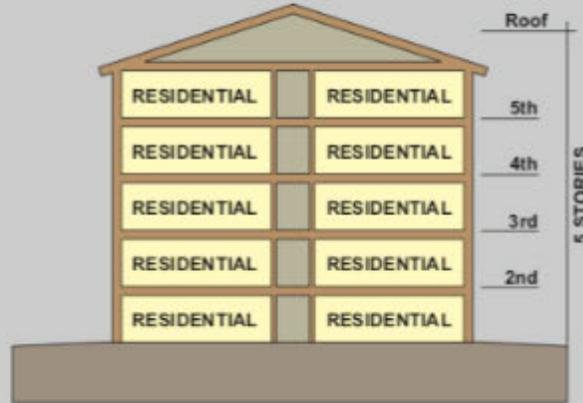


Mass Timber in Low- to Mid-Rise: 1-6 Stories in Construction Types III, IV or V

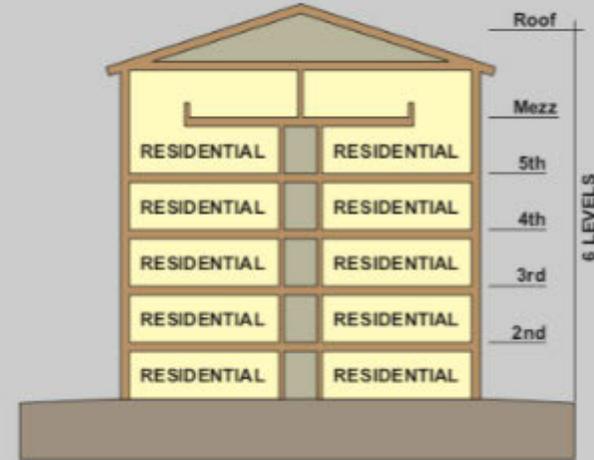
IBC Table 503: Base Height



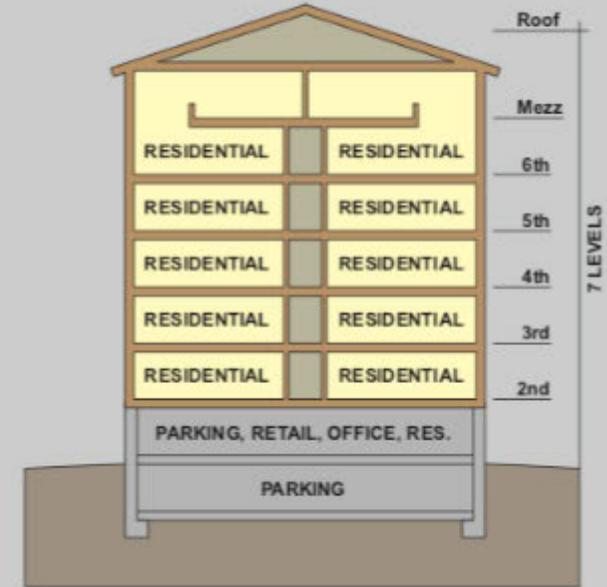
IBC Section 504: NFPA 13-Compliant Sprinkler System



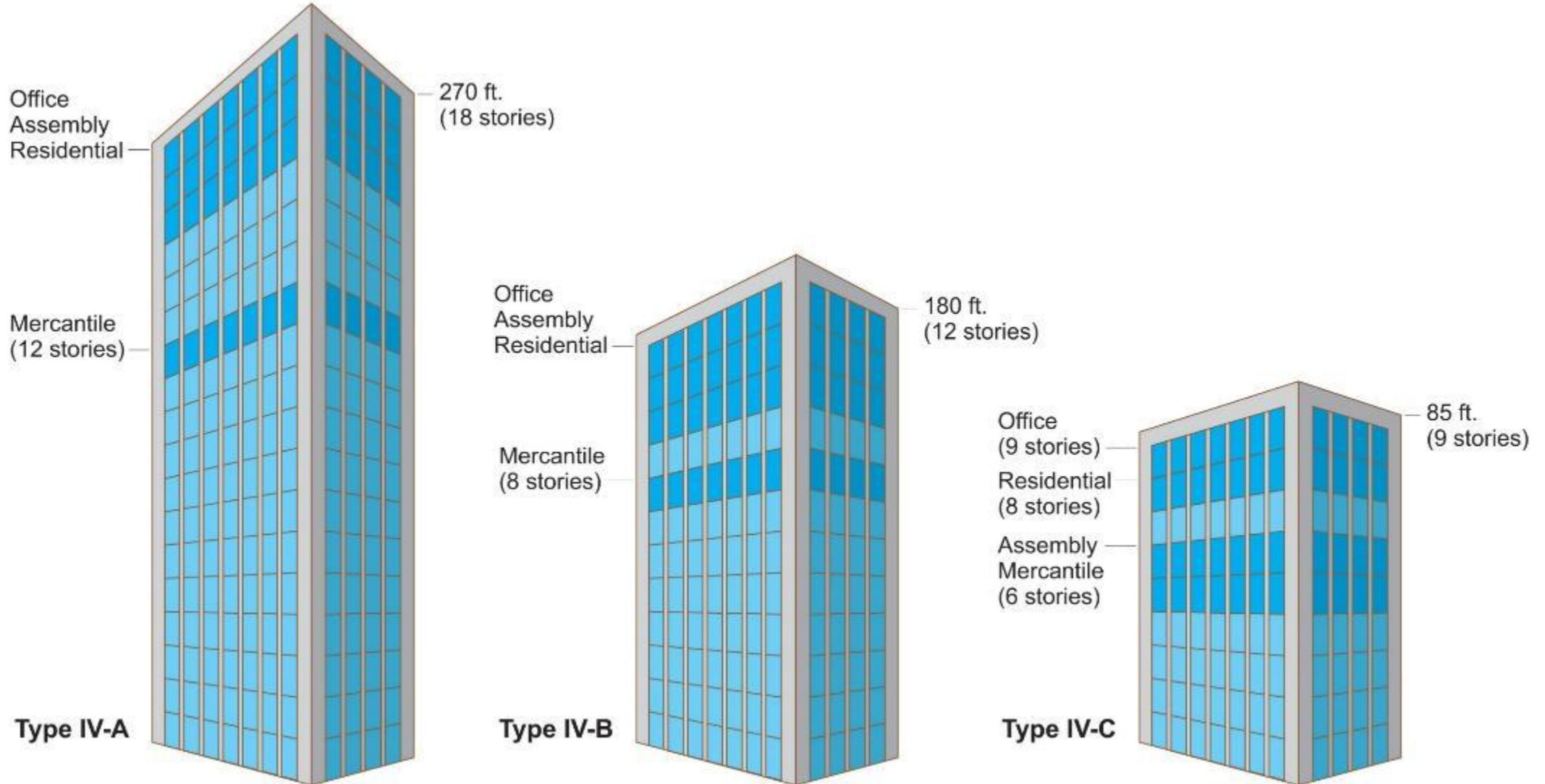
IBC Section 505: Mezzanine



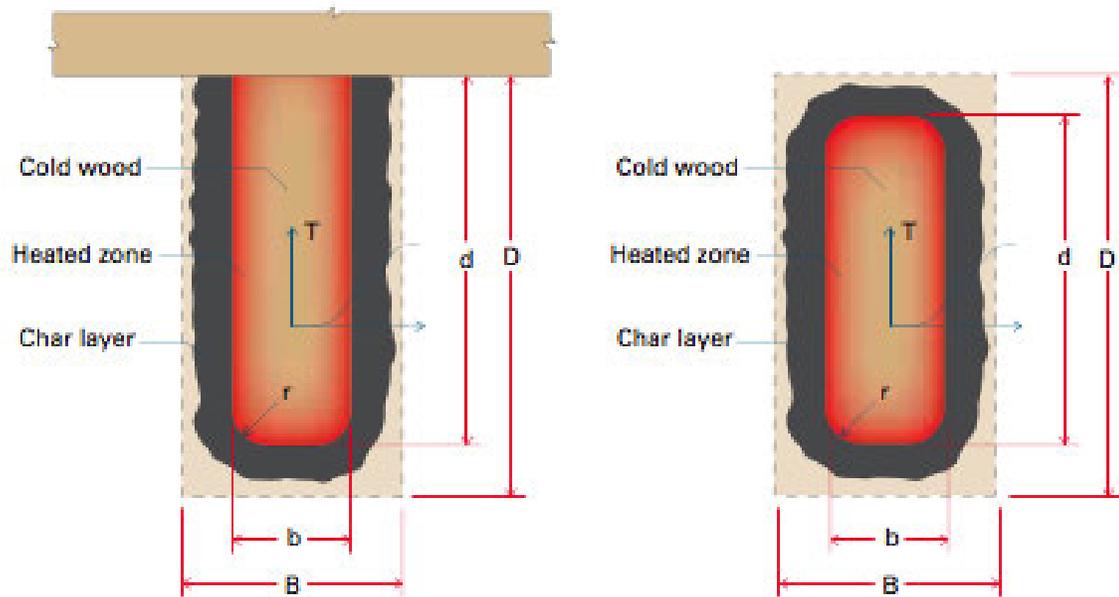
IBC Section 510.2: Podium



Tall Mass Timber: Up to 18 Stories in Construction Types IV-A, IV-B or IV-C



Mass Timber's Fire-Resistive Performance is Well-Tested, Documented and Recognized via Code Acceptance



Source: AWC's TR 10

Table 16.2.1A Char Depth and Effective Char Depth (for $\beta_n = 1.5$ in./hr.)

Required Fire Resistance (hr.)	Char Depth, a_{char} (in.)	Effective Char Depth, a_{eff} (in.)
1-Hour	1.5	1.8
1½-Hour	2.1	2.5
2-Hour	2.6	3.2

Source: AWC's NDS



Credit: David Barber, ARUP

Cost: Construction Type

TABLE 601
Fire Resistance Rating Requirements for Building Elements (Hours)

Building Element	I-A	I-B	III-A	III-B	IV-A	IV-B	IV-C	IV-HT	V-A	V-B
Primary Structural Frame	3*	2*	1	0	3*	2	2	HT	1	0
Ext. Bearing Walls	3*	2*	2	2	3*	2	2	2	1	0
Int. Bearing Walls	3*	2*	1	0	3*	2	2	1/HT	1	0
Floor Construction	2	2*	1	0	2	2	2	HT	1	0
Roof Construction	1.5*	1*	1	0	1.5	1	1	HT	1	0

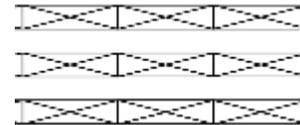
Exposed Mass Timber Elements

None 20-40% Most All

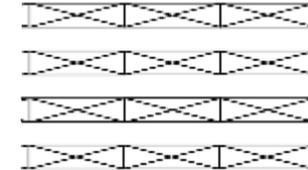
Baseline
0hr & HT



+\$10/SF
1hr & maybe 2hr



+\$12-15/SF
2hr FRR



Cost Source: Swinerton

*These values can be reduced based on certain conditions in IBC 403.2.1, which do not apply to Type IV buildings.

Cost Impacts of Construction Type

Construction Type Early Decision Example



4-story building on college campus

- Mostly Group B occupancy, some assembly (events) space
- NFPA 13 sprinklers throughout
- Floor plate = 7,700 SF
- Total Building Area = 23,100 SF

Impact of Assembly Occupancy Placement:

Owner originally desires events space on top (4th) floor

- Requires Construction **Type IIIA**

If owner permits moving events space to 1st, 2nd or 3rd floor

- Could use **Type IIIB**

Cost Impacts of Construction Type

Construction Type Early Decision Example

4-story building on college campus

Cost Impact of Assembly Occupancy Placement:

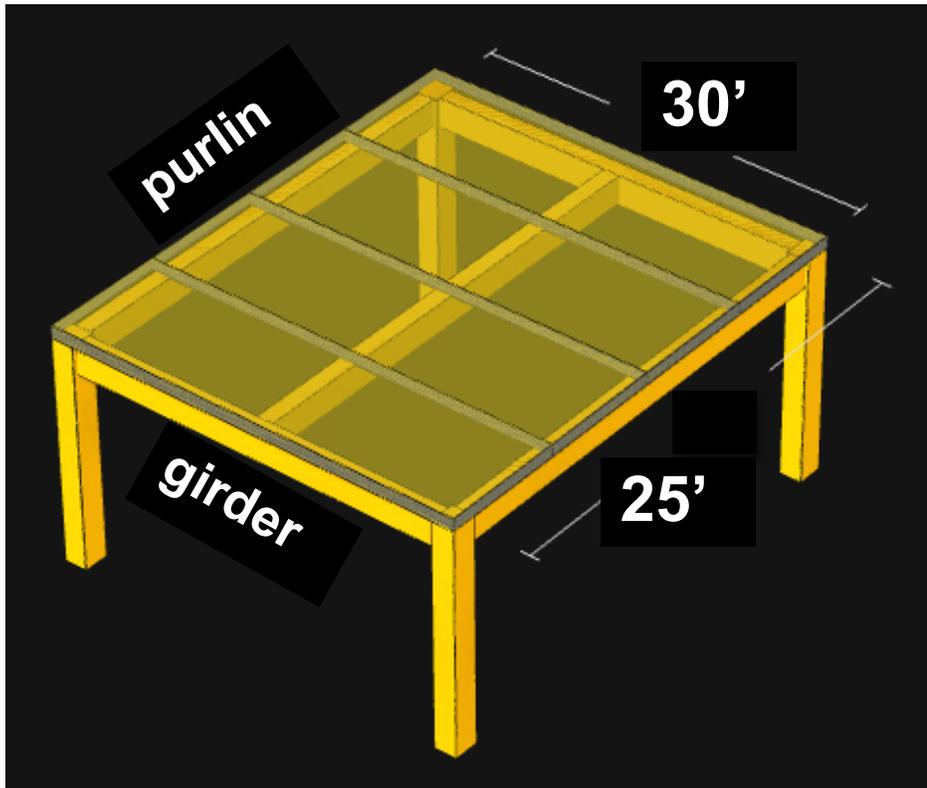


Location of Event Space	4th Floor	1 st Floor
Construction Type	III-A	III-B
Assembly Group	A-3	A-3
Fire Resistive Rating	1-Hr	0-Hr
Connections	Concealed	Exposed
CLT Panel Thickness	5-Ply	3-Ply
<u>Superstructure Cost/SF</u>	<u>\$65/SF</u>	<u>\$53/SF</u>



Cost Implication of Design Choices

Panel volume usually 65-80% of MT package volume



Type IIIA option 1

1-hr FRR

Purlin: 5.5"x28.5"

Girder: 8.75"x33"

Column: 10.5"x10.75"

Floor panel: 5-ply

Glulam volume = 118 CF (22% of MT)

CLT volume = 430 CF (78% of MT)

Total volume = 0.73 CF / SF

Source: Fast + Epp, Timber Bay Design Tool

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Expert Tips

Key Design Considerations for Mass Timber Projects

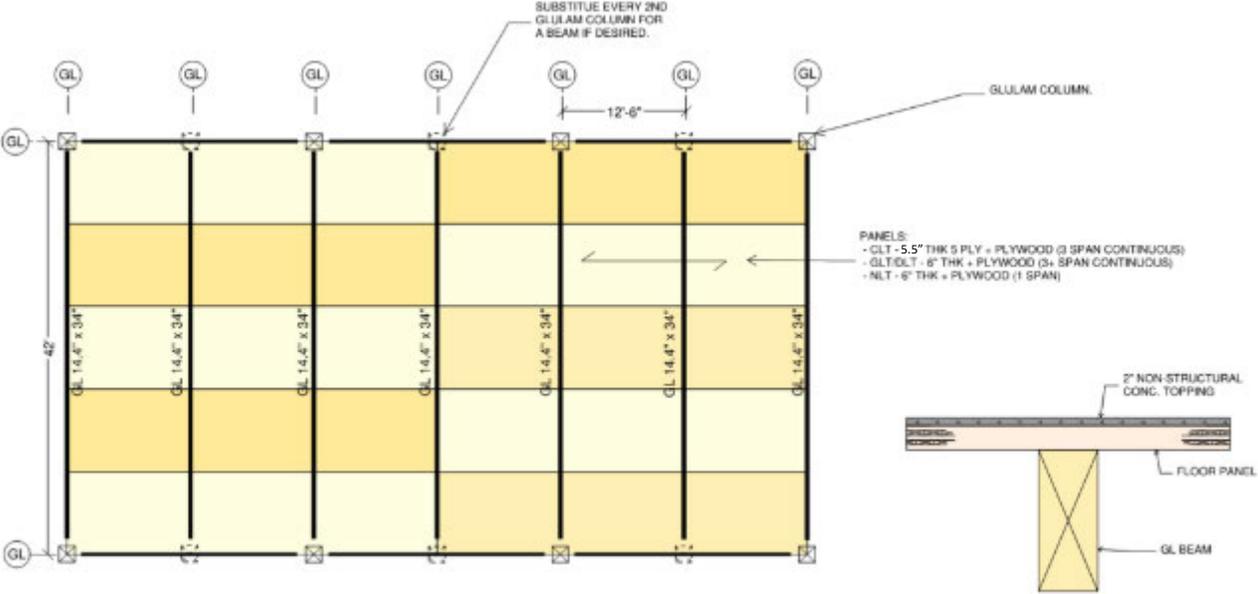
Important considerations related to construction type, fire ratings, panel thickness, member size and occupancy.

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Selecting a Construction Type

For mass timber projects, selection of construction type is one of the more significant design decisions. While it's common to choose construction type based on structural material—i.e., to assume that steel and concrete structures should be Type II, light-frame wood should be Type V, and exposed heavy/mass timber should be Type IV—this approach can lead to additional costs. While Type IV construction can be used for exposed

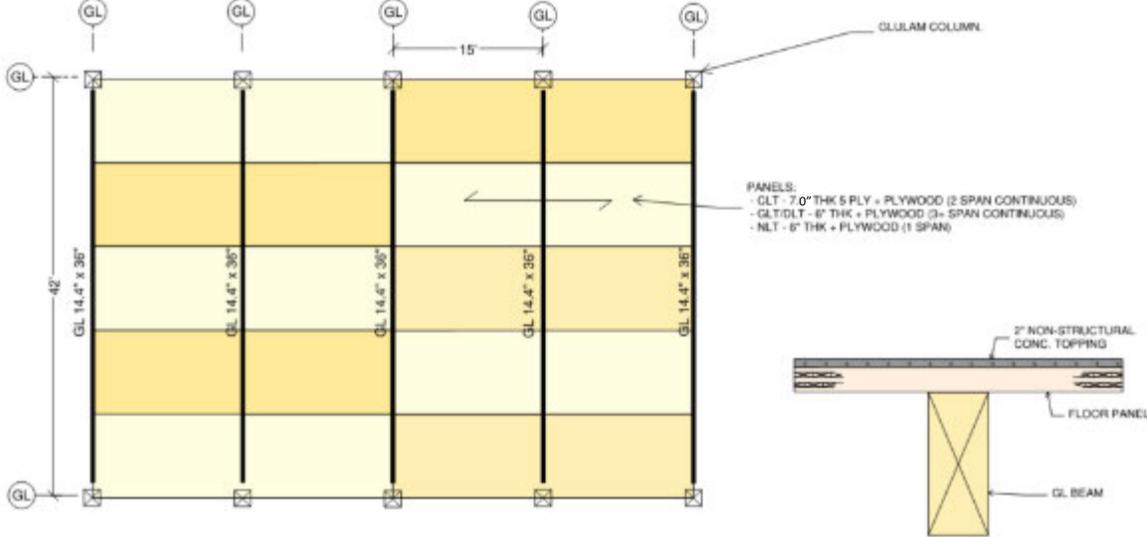
Cost: Structural System & Grid



Baseline

12'-6" Glulam Spacing

5.5" CLT



\$ +5%

15' Glulam Spacing

7" CLT

Source: Seattle Mass Timber Tower Book

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Expert Tips

Creating Efficient Structural Grids in Mass Timber Buildings

Although a mass timber solution may work economically on grids created for other materials, a few modifications can increase efficiencies related to member sizing and manufacturer capabilities.

Share 

Mass timber products such as cross-laminated timber (CLT), nail-laminated timber (NLT) and glue-laminated timber (glulam) are at the core of a revolution that is shifting how designers think about construction. At no time has materials selection been such an integral aspect of the building designer's daily responsibilities. In addition to its sustainability and light carbon footprint, mass timber has benefits that include enhanced aesthetics, speed of construction and light weight, all of which can positively impact costs. However, to convince building owners and developers that a mass timber solution is viable, the structural design must also be cost competitive. This requires a full understanding of both material properties and

Value Analysis

$$\text{Value} = \frac{\uparrow \text{Function} + \uparrow \text{Aesthetics}}{\downarrow \text{Cost}}$$



Photo: RMW Architecture & Interiors

Value Analysis

$$\text{Value Engineering} = \frac{\downarrow \text{Function} + \downarrow \text{Aesthetics}}{\downarrow \text{Cost}}$$



Cost Impacts of Finish/ Appearance Grade

Appearance vs. Industrial Grades

Aesthetic Expectations

- Appearance grade more \$
- Industrial grade can save \$
- Specification of appearance grade varies by product
- CLT, DLT, NLT: aesthetic expectations are agreed upon by building designer and manufacturer/ fabricator (ask for samples & outline in specs)
- Glulam: grades are standardized



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Expert Tips

Specifying Appearance Grades for CLT, NLT and Glulam

Information for designers seeking to specify appearance grade for cross-laminated timber (CLT), nail-laminated timber (NLT), or glue-laminated timber (glulam).

Share

For mass timber, specification of appearance grade varies by product. Aesthetic expectations for cross-laminated timber (CLT) and nail-laminated timber (NLT) are agreed upon between the building designer and manufacturer/fabricator and described in the product specifications, whereas grades for glued-laminated timber (glulam) are standardized.

CLT Appearance Grades

Starting with the 2015 version of the International Building Code (IBC), CLT has been prescriptively



Insurance Perspective on Mass Timber

- Lack of historic loss data = Unknowns
- Unknowns = Risk
- Risk = Higher Premiums
- Some take a 'wood is wood' approach
- Important to understand the significant differences in how mass timber performs in the event of a fire, etc. when compared to light wood-frame and all other building materials



Photo Credit: StructureCraft



Photo Credit: GLI Partners



11 E Lenox / Monte French Design Studio / H+O Structural Engineering
Photo H+O Structural Engineering

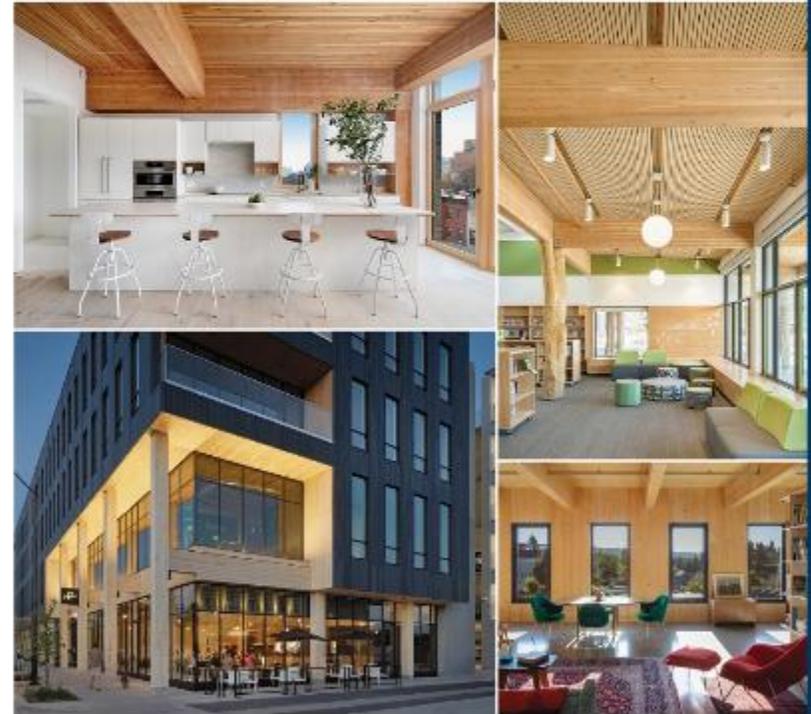
The Mass Timber Insurance Playbook

U.S. Edition



A guide to insuring mass timber buildings

Co-authored by Philip Calow and Jim Goodling
Adapted for the United States by Mike Hastings in collaboration with WoodWorks – Wood Products Council
U.S. Edition published by WoodWorks





Planning

- Anatomy of a Mass Timber Package
- Procurement, Supply Chain, Schedule Drivers

Environmental Exposure

- Site Planning
- Moisture Planning and Mitigation
- UV Planning and Mitigation

Workforce Training

- Strategic Partnerships
- Training/Education
- Resources

Holistic Costing

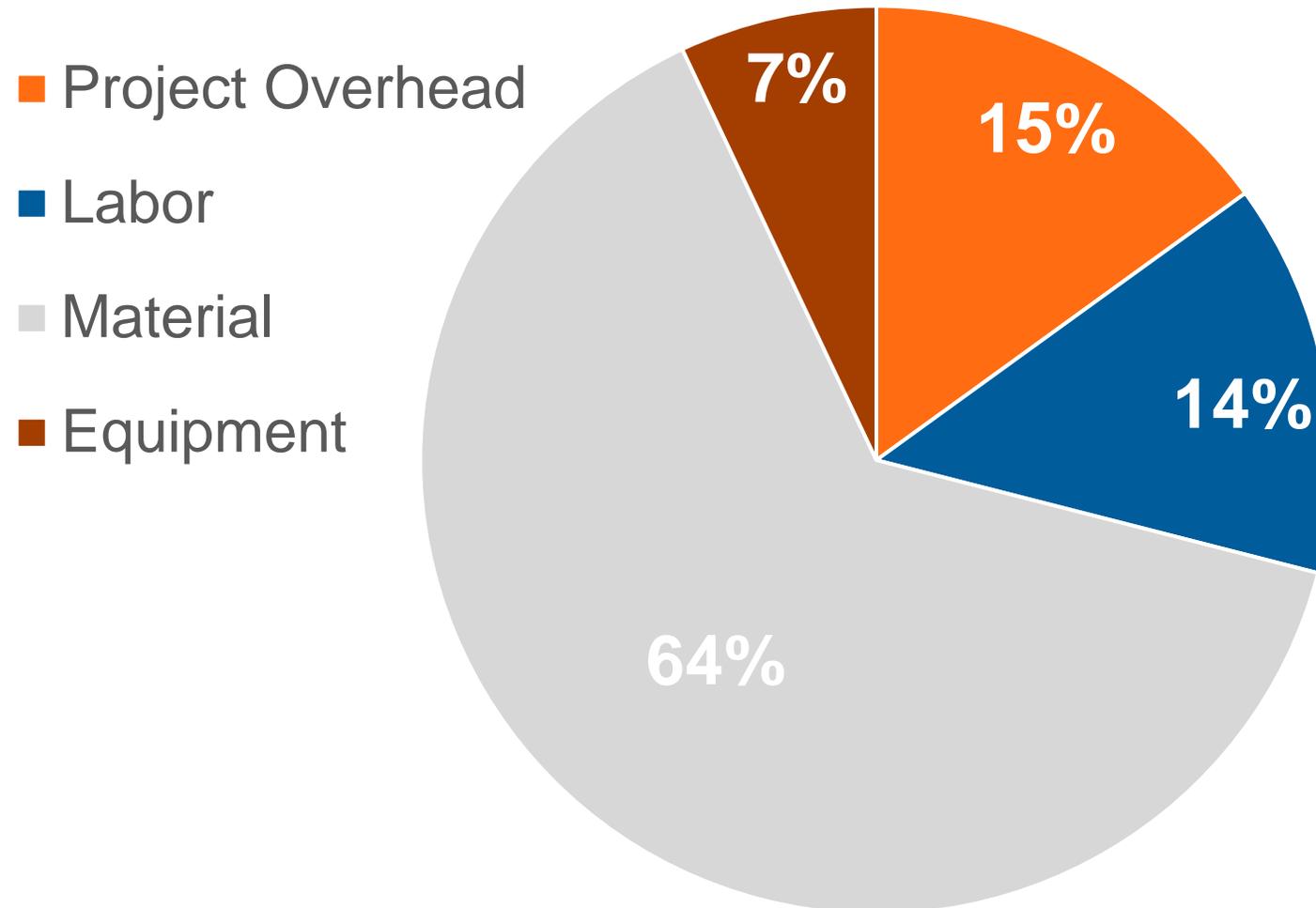


\$/SF

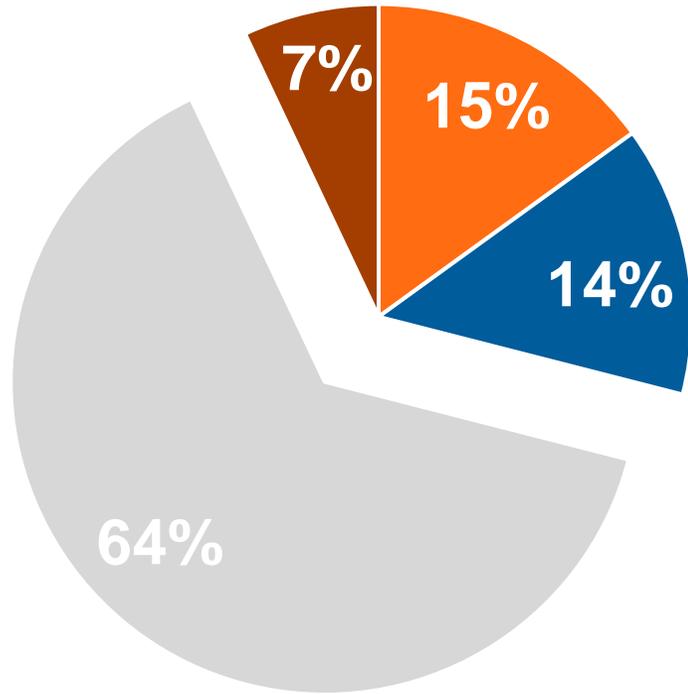


\$/SF

Anatomy of a Turnkey Mass Timber Package



Material (Direct Cost)



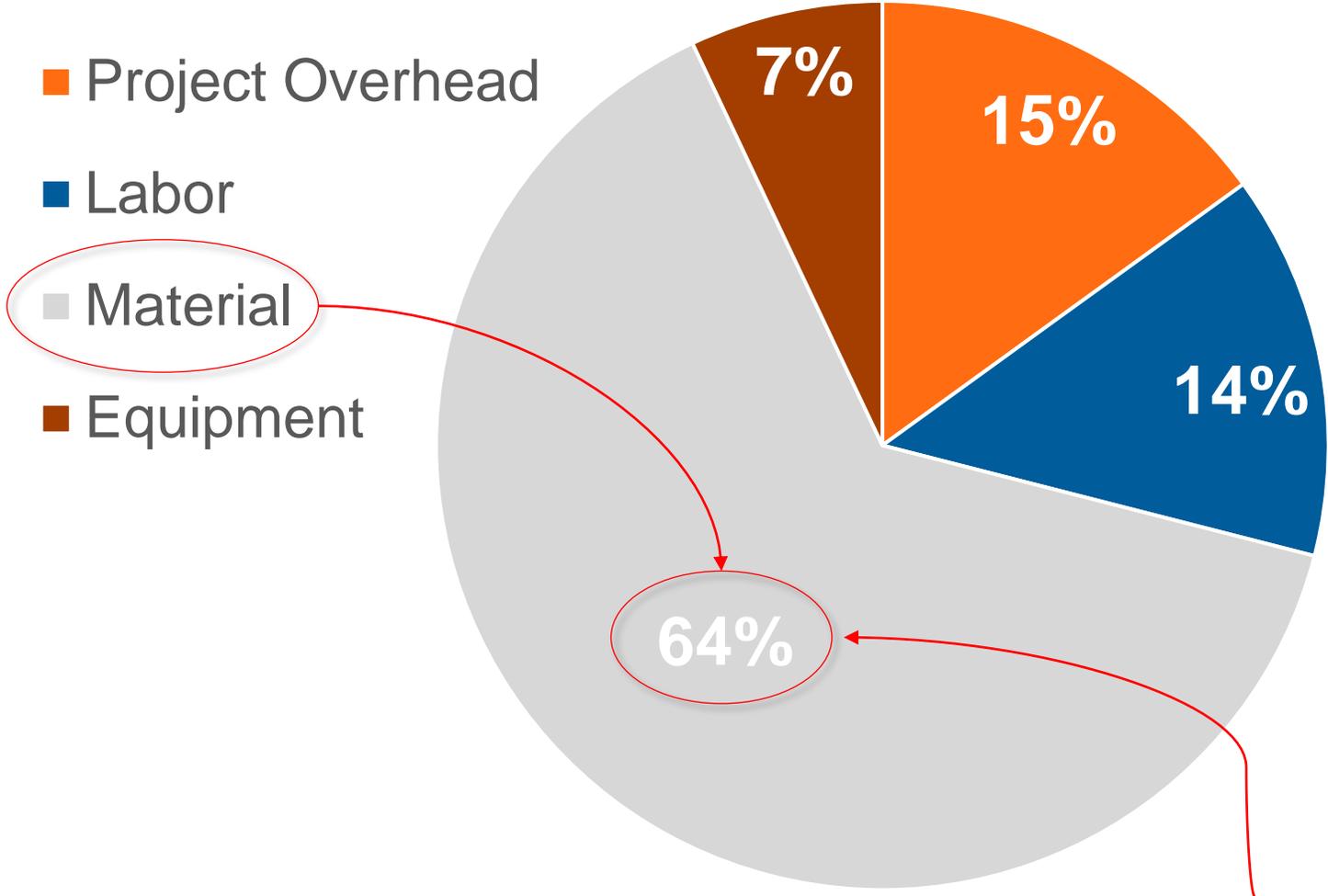
Turnkey Mass Timber Package



or

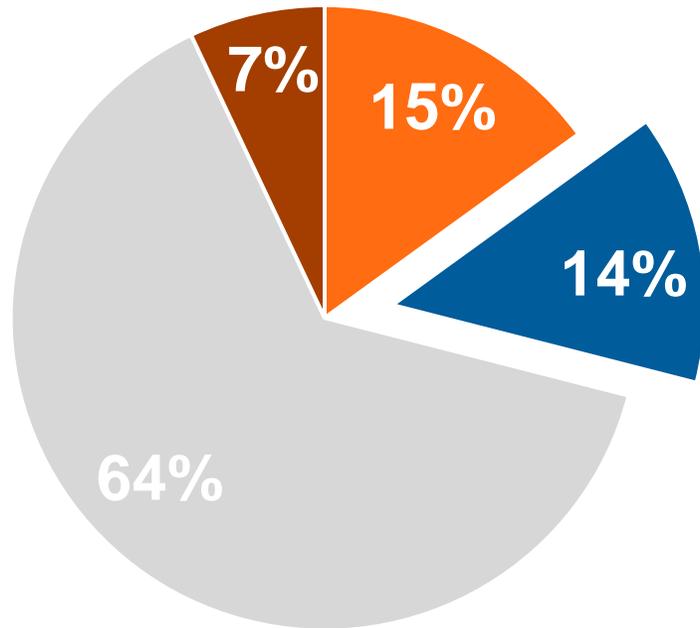


Mass Timber Package Costs



Panels are the biggest part of the biggest piece of the cost pie

Labor (Direct Cost)

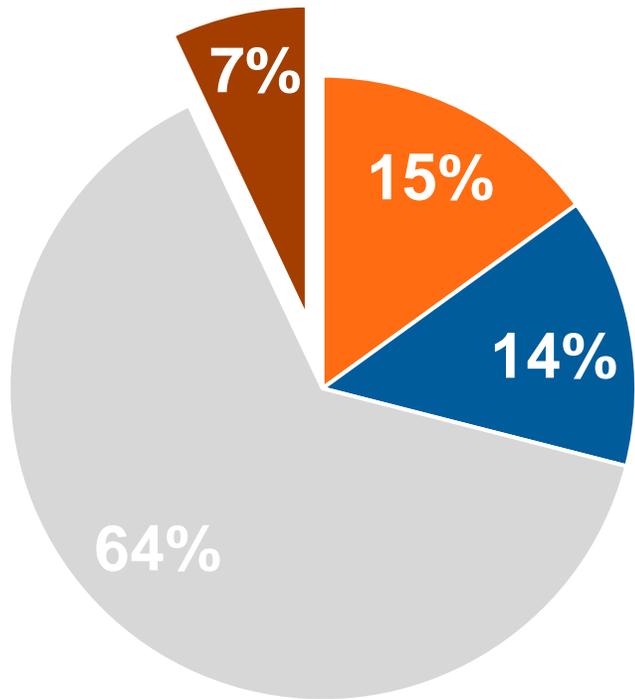


Turnkey Mass Timber Package



Photo: Swinerton

Equipment (Direct Cost)



Turnkey Mass Timber Package

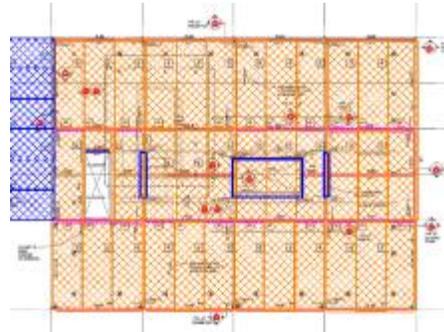
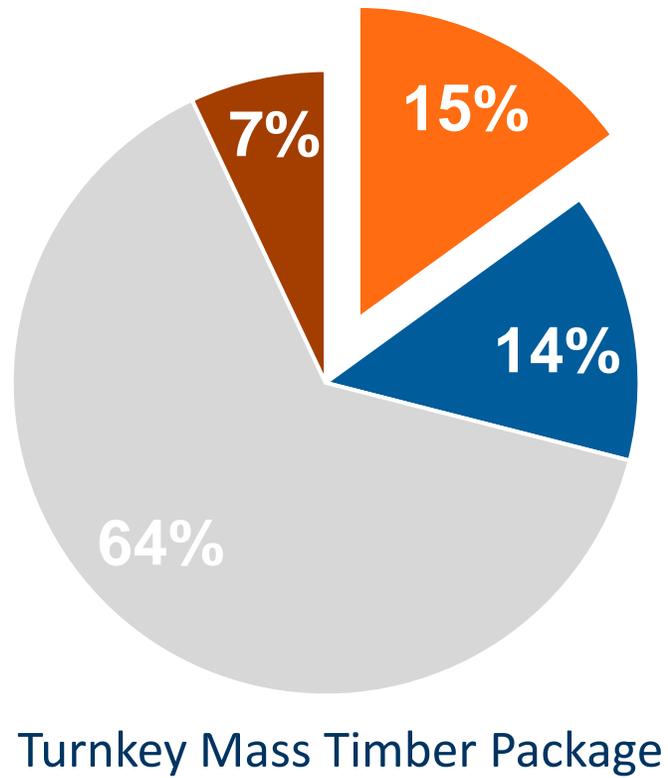


Photo: Swinerton

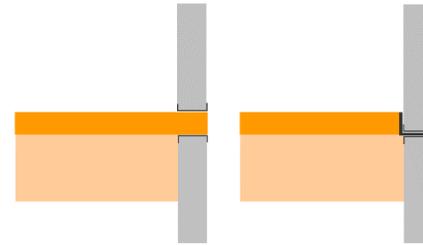


Photo: Alex Schreyer

Project Overhead



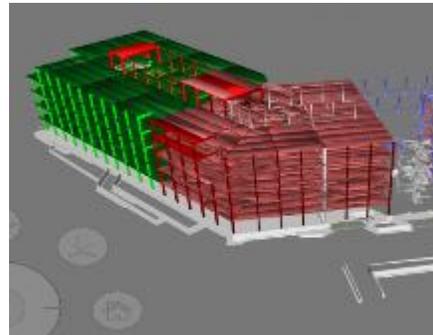
Cost Analysis



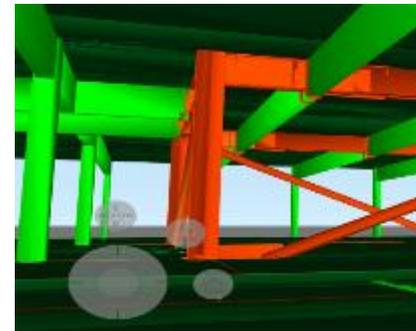
Design Refinement



System Integration



VD&C



Detail Optimization



Logistics Planning

Photos: Swinerton

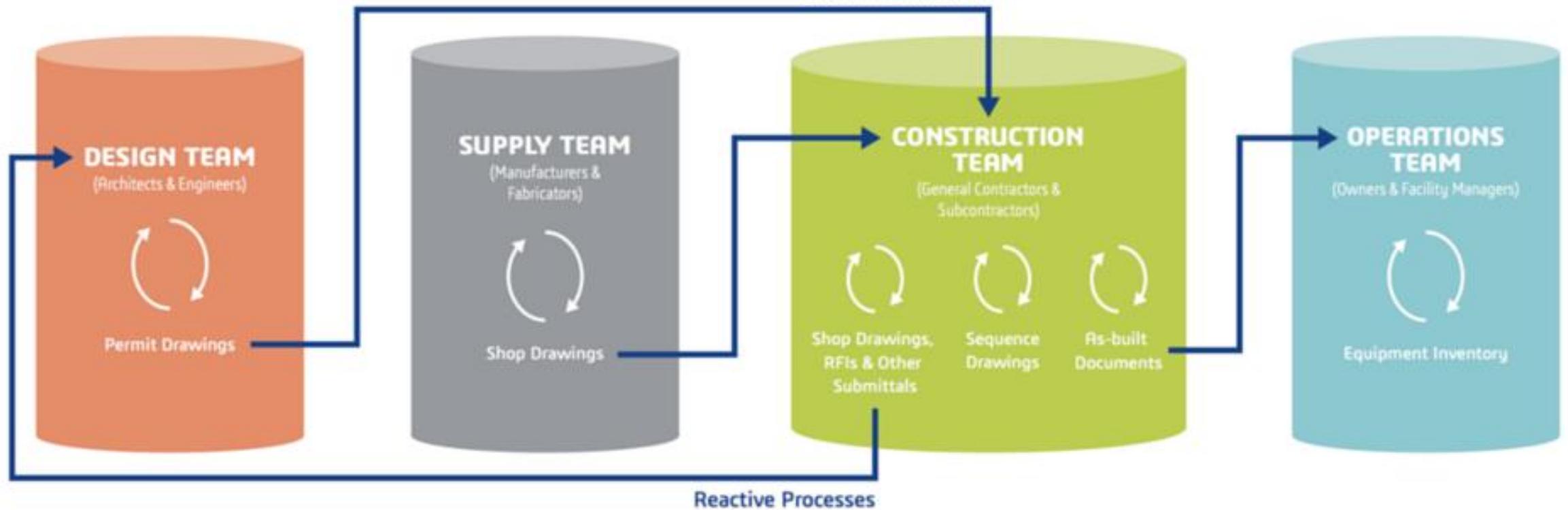
Total Project Cost Analysis

CONSIDERATIONS:

- Ceiling Treatment
- Floor Topping
- HVAC System & Route
- Foundation Size
- Material Savings
- Perimeter glazing
- Value of Time
- Completion Bonds/Insurance



Potential Cost Impacts: Design-Bid-Build Procurement



Alternate Procurement Option: Trade Partner/Master Builder Approach



Procurement Strategy is Key to Success



5% Savings

Neutrality

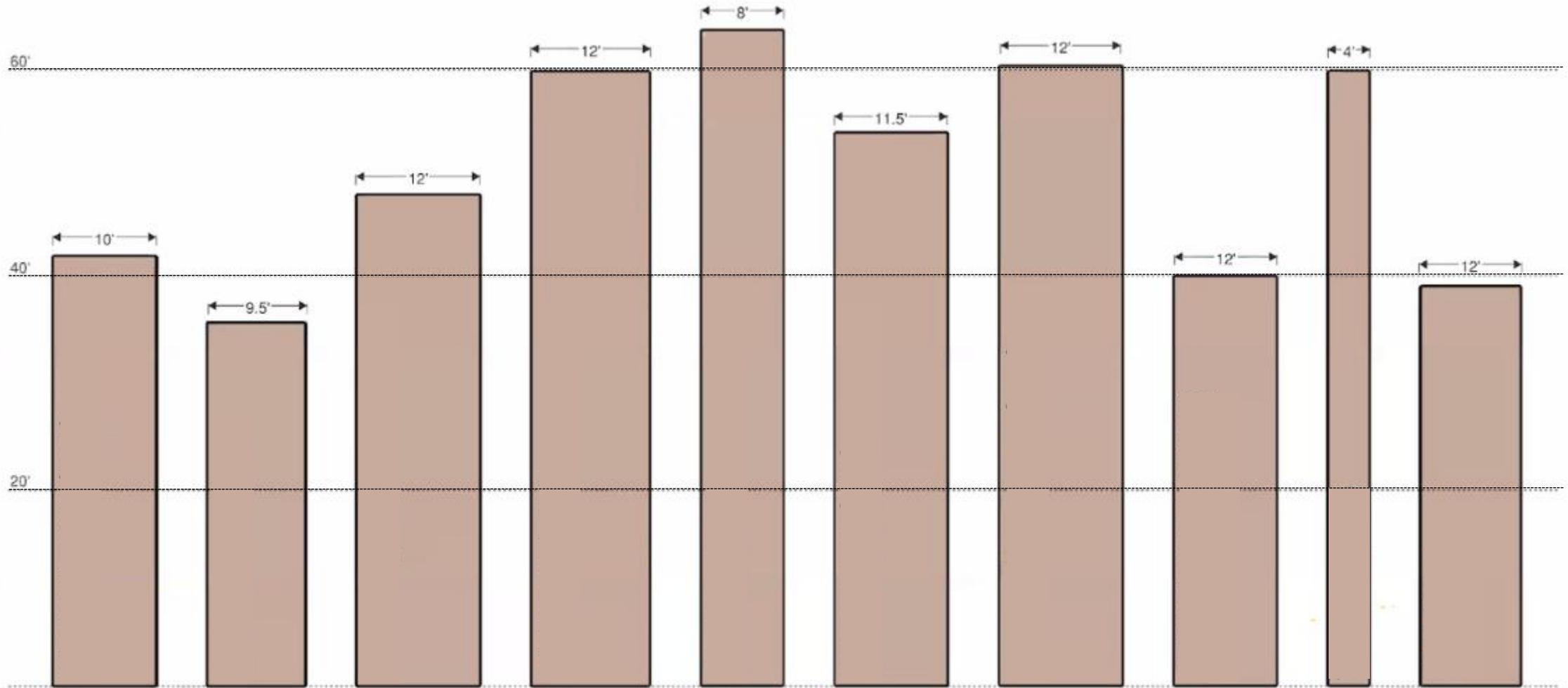
10% Premium

Understand the Supply Chain

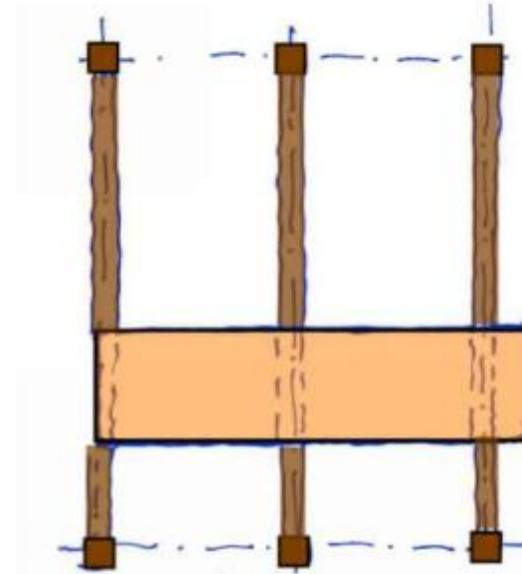
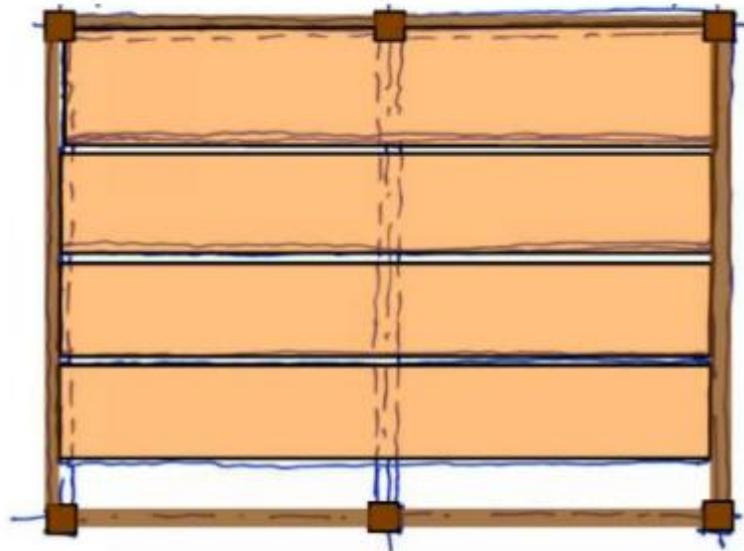
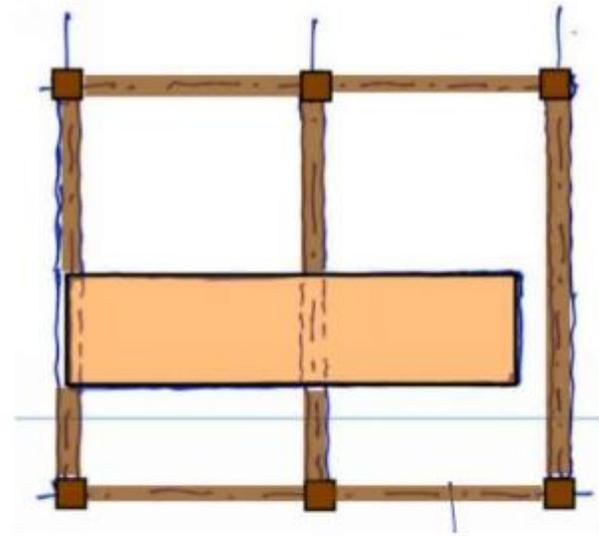
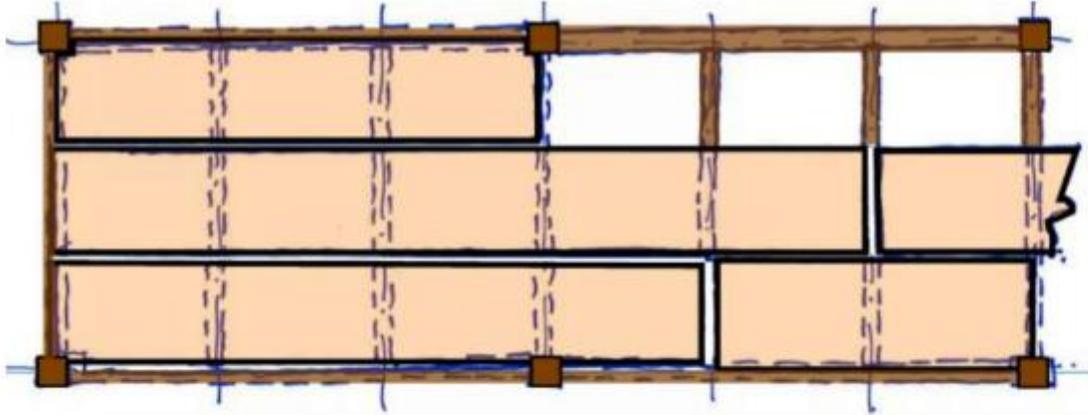


Photo: Swinerton

Understand Manufacturer's Capabilities



Credit: TimberLab



Credit: Tanya Luthi, Entuitive

Understand Manufacturer's Capabilities



Embrace the
Prefab Advantage

Schedule Drivers



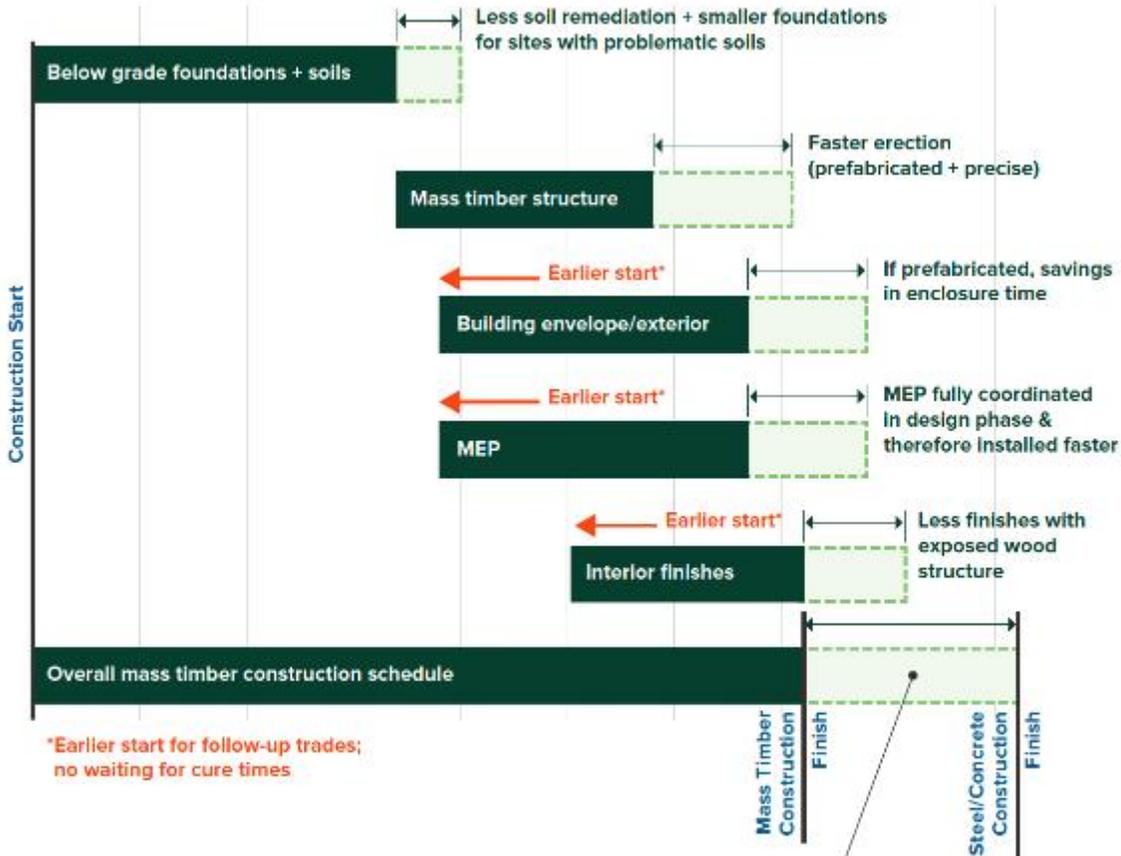
Procurement Approach Determines Schedule



Procurement Approach Determines Schedule

Compressing the Typical Construction Schedule with Mass Timber ^{13, 15, 16}

Look for these potential schedule savings in comparison to steel and concrete



*Earlier start for follow-up trades; no waiting for cure times

Up to 25% schedule savings
= Less carrying costs
+ Less GC overhead
+ Ability to lease/occupy sooner

Procurement Approach Determines Schedule

Example 6 Story Type IIIA Project



2019

2020

2021

2021

Source: Swinerton

Design-Bid-Build Procurement

Procurement Approach Determines Schedule

Example 6 Story Type IIIA Project



2019

2020

2021

2021

Source: Swinerton

Design-Build/Design-Assist Procurement

Schedule Comparison

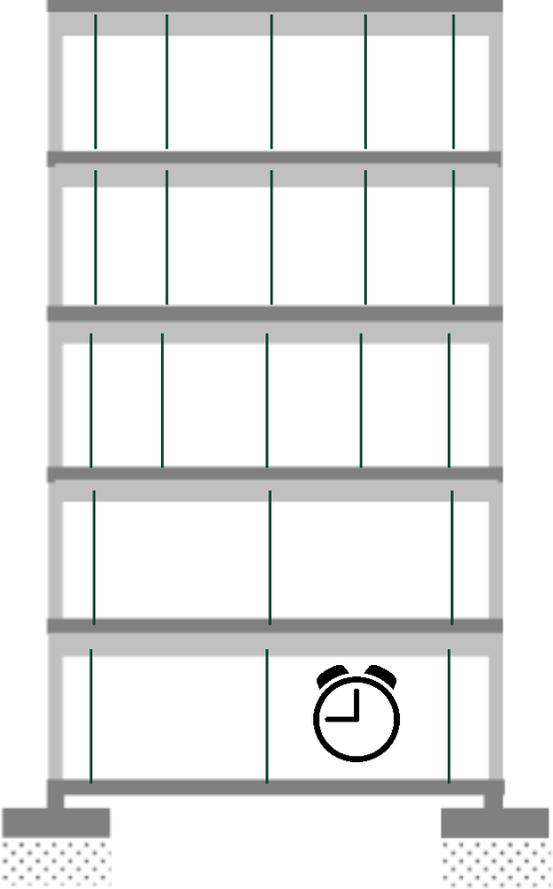
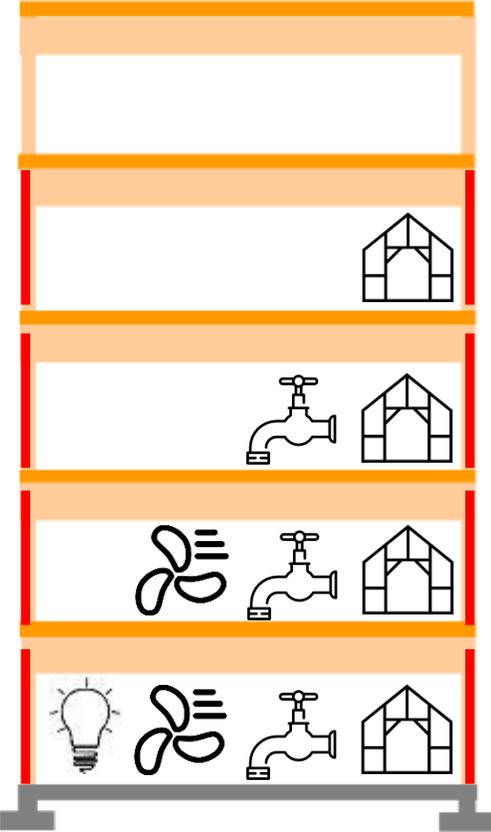


Photo: WoodWorks

Image: Swinerton

Schedule Impacts: Hybrid Structures



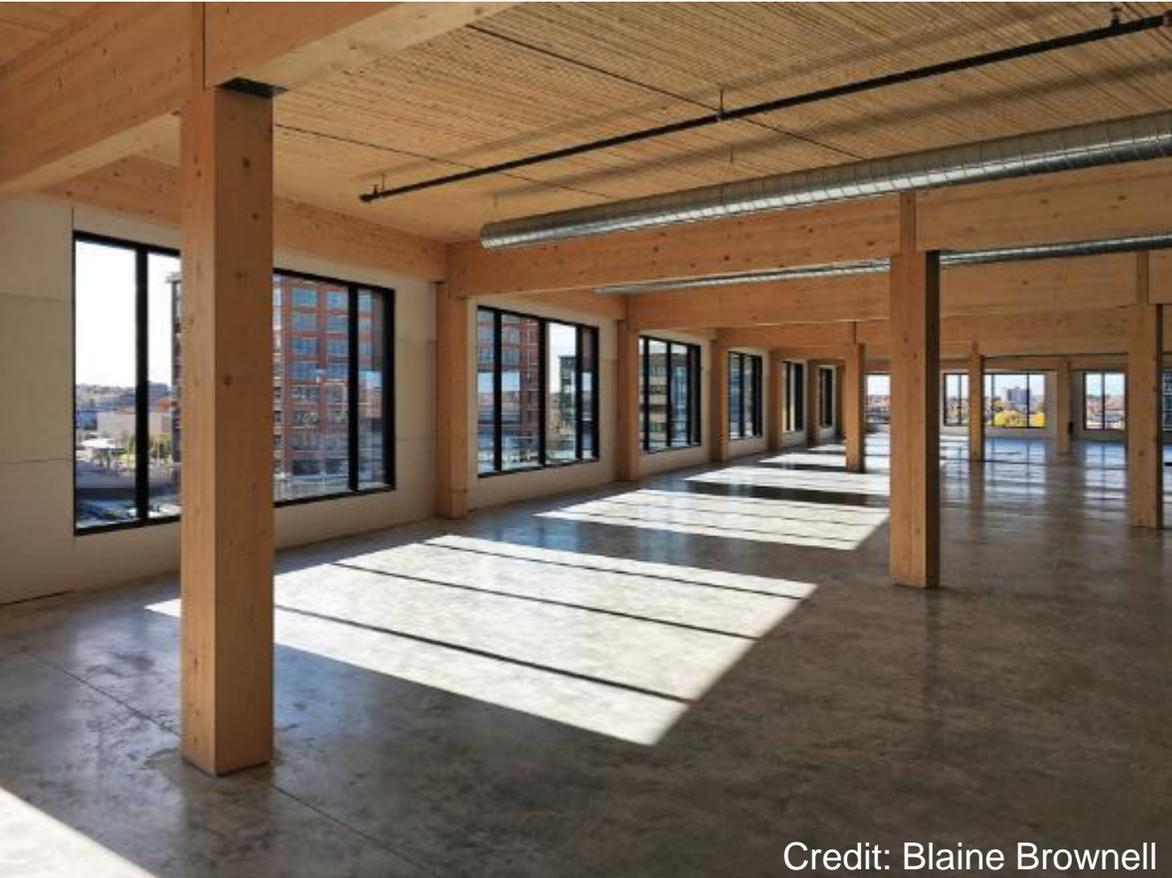
MEP Layout & Integration



MEP Layout & Integration

Smaller grid bays at central core (more head height)

- Main MEP trunk lines around core, smaller branches in exterior bays



Credit: Blaine Brownell



Credit: WoodWorks

MEP Layout & Integration

Dropped below MT framing

- Can simplify coordination (fewer penetrations)
- Bigger impact on head height



Credit: Alex Schreyer

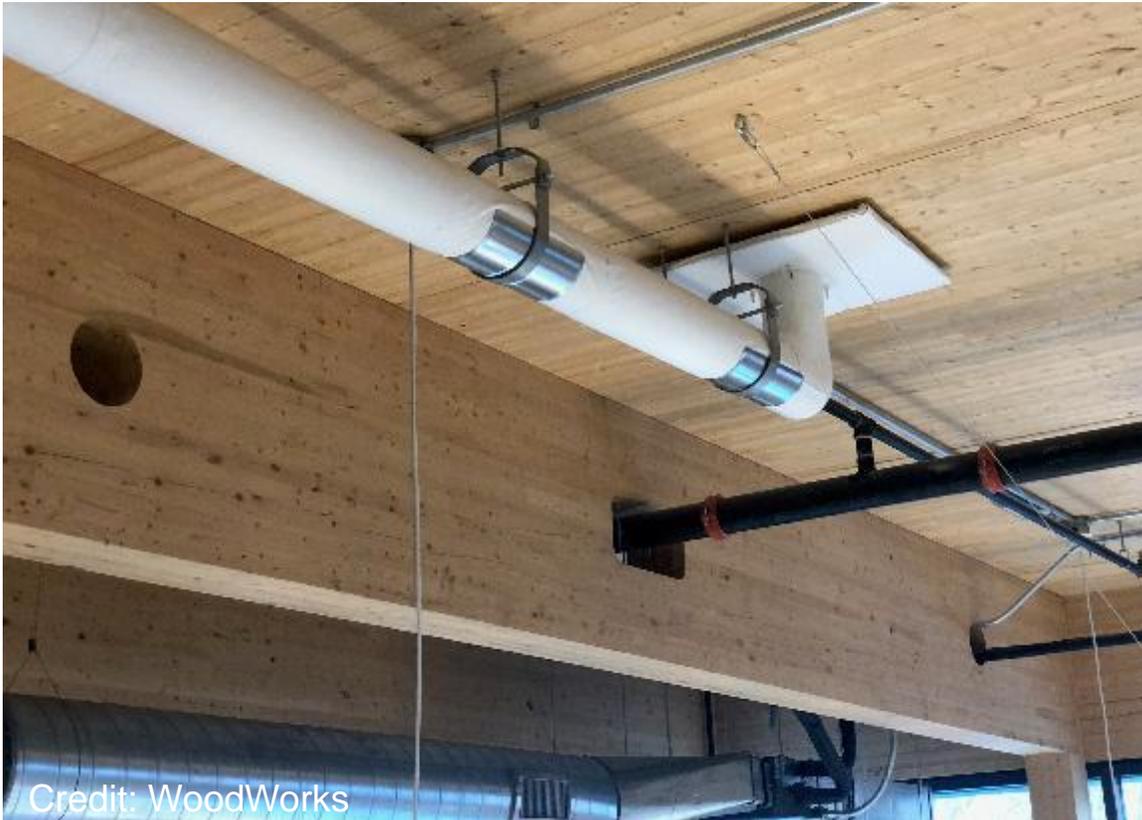


Credit: WoodWorks

MEP Layout & Integration

In penetrations through MT framing

- Requires more coordination (penetrations)
- Bigger impact on structural capacity of penetrated members
- Minimal impact on head height



MEP Layout & Integration

In chases above beams and below panels

- Fewer penetrations
- Bigger impact on head height (overall structure depth is greater)
- FRR impacts: top of beam exposure



Credit: JC Buck



Credit: KL&A Engineers & Builders

MEP Layout & Integration

In raised access floor (RAF) above MT

- Impact on head height
- Concealed space code provisions



SITE PLANNING



SITE INSPECTIONS



Tall Mass Timber Special Inspections

**TABLE 1705.5.3
REQUIRED SPECIAL INSPECTIONS OF MASS TIMBER CONSTRUCTION**

<u>Type</u>	<u>Continuous Special Inspection</u>	<u>Periodic Special Inspection</u>
<u>1. Inspection of anchorage and connections of mass timber construction to timber deep foundation systems.</u>		X
<u>2. Inspect erection of mass timber construction</u>		X
<u>3. Inspection of connections where installation methods are required to meet design loads</u>		
<u>3.1. Threaded fasteners</u>		
<u>3.1.1. Verify use of proper installation equipment.</u>		X
<u>3.1.2. Verify use of pre-drilled holes where required.</u>		X
<u>3.1.3. Inspect screws, including diameter, length, head type, spacing, installation angle, and depth.</u>		X
<u>3.2. Adhesive anchors installed in horizontal or upwardly inclined orientation to resist sustained tension loads</u>	X	
<u>3.3. Adhesive anchors not defined in 3.2.</u>		X
<u>3.4. Bolted connections</u>		X
<u>3.5. Concealed connections</u>		X



- Plan Early
- Risk Evaluation
- Develop Construction Phase Plan
- Execute the Design and Moisture Management Plan
- Monitor

RDH Moisture
Management Guide 1st Ed



Photo: Swinerton



Material Environmental Exposure and Moisture Management

- Enroute
- Onsite
- Post-Install
- Other Material

Photo: Alex Schreyer

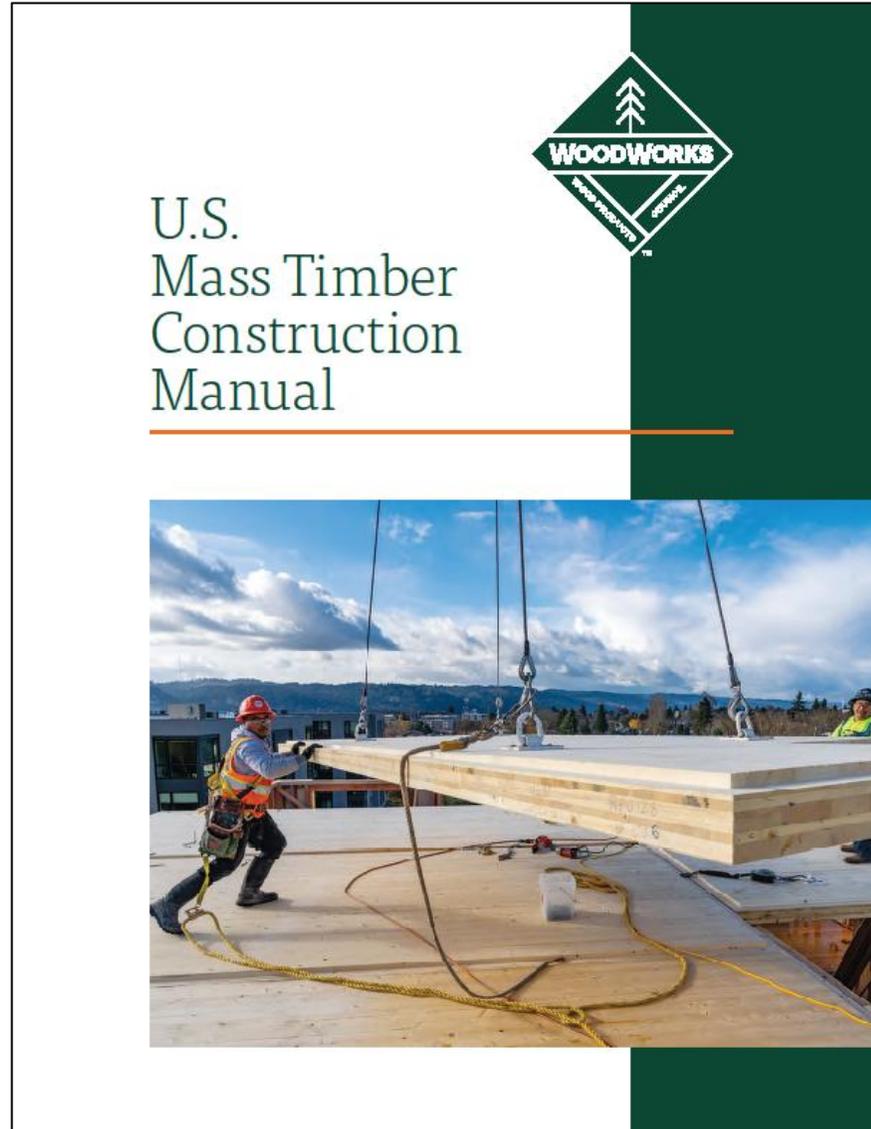


On Site Considerations





<https://www.woodworks.org/mass-timber-construction-management-program/>



Questions? Ask us anything.



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Please take our survey!

