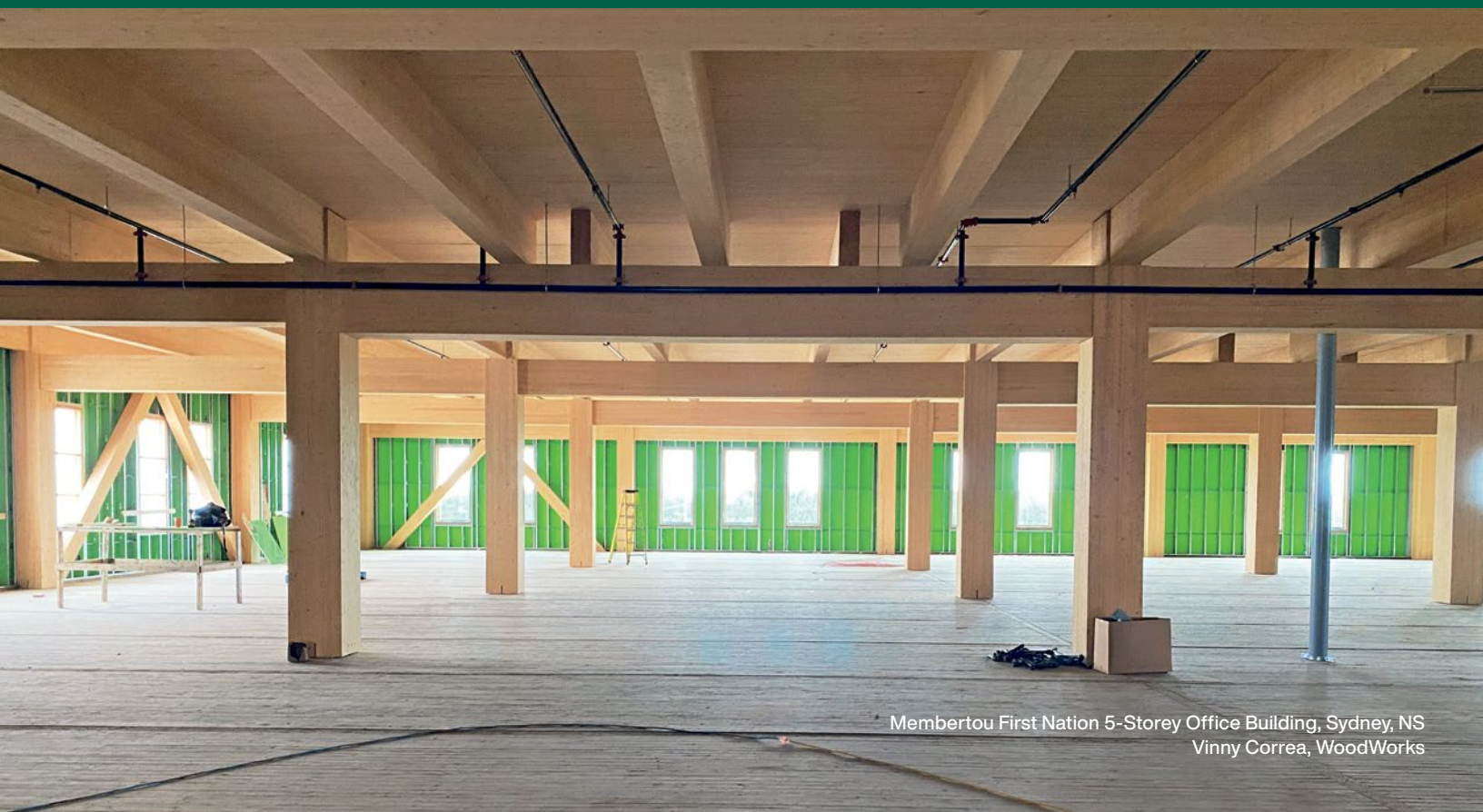
Successful Delivery Methods for Procuring Mass Timber Buildings in Canada

There are multiple pathways to success when delivering a mass timber project. This document outlines several of the most common and effective approaches. The procurement method sets the structure for how owners, contractors, and consultants share responsibility, decision-making, and risk. It also impacts how the members of the project team communicate with each other. One of the key strategies with mass timber construction is anticipating the need for flexibility within the project delivery framework.

The methods described here have been selected and organized to guide owners, engineers, architects, general contractors, and developers through the larger challenges of procurement so project teams can leverage the full benefits of mass timber while avoiding common pitfalls that can occur during the supply, detailing, approvals, and delivery phases of a project. By adopting these approaches, stakeholders can maximize value, minimize risk, and contribute meaningfully to Canada's transition to more efficient, low-carbon construction.



Membertou First Nation 5-Storey Office Building, Sydney, NS
Vinny Correa, WoodWorks

Overview of Procurement Delivery Methods

1. Design-Build (DB) or Progressive Design-Build (PDB)

Description

In this method, design and construction are merged under one contract, providing a single point of contact for the owner.

With design-build, the single contractual relationship streamlines design and construction processes and maintains communication within the team throughout the process. For large projects, clients may hire a third party to develop an indicative design scope for DB proponents to base their proposals on. This allows the owner to work with the third party on the project intent, enabling the DB team to develop the most efficient solution for the scope developed.

In a PDB process, the owner has increased involvement with the Design-Build Proponent to develop the project scope collaboratively. This approach enables the owner to continue refining the indicative design with the DB proponent after the team is selected.

Progressive Design-Build methods have become popular with mass timber construction because increased interaction between the Owner and the project team often leads to better outcomes.

Figure 1. Squamish Adventure Centre, Squamish, BC
KK Law, courtesy naturallywood.com

This photo is for illustration purposes and does not represent any specific procurement delivery method.

Benefits of this Method

Turnkey Project Solution: When an owner is looking for a mass timber solution but lacks the industry knowledge to develop one, the Design-Build method allows them to hire a team of experts who can ensure delivery of a high-quality mass timber project. The owner may also use the indicative design team to review progress and ensure adherence to project goals.

Improved Cost and Schedule Certainty: The Design-Builder is responsible for both consultants and contractors. In mass timber construction, there is value in aligning the supplier constraints with the design work to avoid change orders. The Design-Build method can allow early engagement with a supplier to confirm costs and schedules.

Streamlined Process: When the project team is established at the outset, the process avoids the typical tender period where RFIs and design-driven change requests can introduce delays or cost escalation. This early coordination phase is essential, and the DB/PDB method enables it to happen from the very start.

Challenges

Skill and Experience: With the general contractor typically leading the project team, it is critical that they have experience delivering mass timber projects. Because modern mass timber construction is still emerging, an experienced contractor is better equipped to manage evolving constraints. Similarly, consultant expertise is also critical to ensure the project is designed and executed efficiently.

Team Cohesion: Mass timber delivery requires coordination between designers, suppliers, and contractors, and repetition helps build efficiencies in the process. Under a “one-team” strategy, organizations often assemble teams with established working relationships, which can decrease internal tensions and improve coordination across the project. Owners should look for teams that have worked together in the past to successfully deliver similar projects.

2. Construction Management at Risk (CMAR)

Description

In this procurement method, the construction manager (CM) is engaged early in the design phase as an advisor during design development and then continues through the construction phase. Appropriate for complex mass timber projects, CMAR allows input in the preconstruction phase that can help mitigate unique supply and constructability risks.

CMAR combines preconstruction consulting with involvement during construction, giving owners cost predictability while leveraging the CM's procurement and technical expertise. Sometimes the construction contract is converted to a lump sum contract. For mass timber projects, the CM can engage with a supplier either on a Design-Assist basis or with an early tender for mass timber scope to advise on timber pricing, fabrication options, and optimal sequencing. By involving the CM and supplier early, project teams can ensure supplier constraints and constructability issues are included in the design assumptions. The phased procurement capability inherent in CMAR means mass timber packages on the project critical path can be contracted ahead of less sensitive scopes, de-risking supply chain disruptions.

Benefits of this Method

Allows Project Complexity: This methodology retains a lot of flexibility, allowing the owner and project team to pursue different options, or retain specialized consultants or contractors through the process. This flexibility can allow more complex timber solutions that may be more challenging to realize within a rigid procurement method.

Early Construction Input: Having the CM on the team will identify and mitigate constructability issues, support supplier research, and enable phased tenders to allow early supplier contracts. Contracting mass timber supply scope within the design phase can dramatically increase the level of coordination between the design team and supplier for that scope, reducing changes during construction, with cost and schedule implications.

Figure 2. Upper Skeena Recreation Centre, Hazelton, BC
Ema Peter Photography, courtesy Hemsworth Architecture
This photo is for illustration purposes and does not represent any specific procurement delivery method.

Increased Transparency: Engaging the CM with the design team during trade contractor selection helps ensure contractors have relevant experience and can work well with the design team.

Flexibility of Tender Process: Mass timber projects benefit from early engagement of the supplier and design team. Under this method, a CM can tender the mass timber scope earlier in the design, maintaining a competitive process while still allowing early collaboration. Alternatively, a Design-Assist method can be used to engage the supplier without committing to their full scope so early in the schedule.

Increased Clarity of Actual Costs: With a cost-plus contract, the owner can review specific trade contract values and provide more detailed comments on scope. However, this requires the owner to have a sophisticated understanding of the project and typical costs for each contract scope.

Challenges

Lack of Experience: This method increases both responsibility and risk for the CM. Owners should ensure that selected CMs (firm as well as specific project staff) have experience with mass timber construction, which requires specific knowledge to ensure the scope is competitive, either through multiple suppliers or through an optimization process with a selected supplier.

Lack of Engagement: The value of preconstruction services depends on the level of experience and engagement of the CM. Owners should provide clear expectations of preconstruction engagement to ensure the value of this method.

Clarity of Contractual Relationships: In the event of a dispute between the trade contractors and the owner or design team, the resolution may be best managed by the CM. However, because the CM may not have the same contractual relationship as a general contractor, responsibility can be less clear, and the resolution process may be more complicated than under other delivery methods.

3. Integrated Project Delivery (IPD)

IPD brings together designers, builders, and suppliers under a shared contract with joint incentives. This collaborative environment aligns stakeholders towards optimizing outcomes – a good fit for mass timber, with its high pre-fabrication and sequencing demands. This methodology has many similarities to Alliance Contracting, which is often used for larger projects with more robust divisions of risk allocation.

In these collaborative methods, all primary partners – including owner, designers, builders, and key suppliers like mass timber fabricators – enter into a single multiparty agreement. This method is shaped by transparency and shared risk-reward incentives, fostering trust and a commitment to collective project success. For mass timber, where changes late in the process can cascade through schedules and budgets, such integration supports rapid resolution of design or supply challenges through real-time dialogue. IPD projects are able to leverage digital tools, co-located teams, and collaborative workshops to accelerate decision-making and problem-solving, yielding both innovation and speed.

Figure 3. Confederation Centre of the Arts, Charlottetown, PE
This photo is for illustration purposes and does not represent any specific procurement delivery method.

Benefits of this Method

Shared Risk/Reward Structure: Under this method, primary partners operate as a unified entity, meaning project success benefits all parties, with cost savings distributed among the team. Likewise, cost overruns are also shared and directly affect team profitability. Often, financial exposure is capped at the project team's base fee, allowing cost recovery, but eliminating profit potential.

Value of Innovation: With this shared team approach, innovation that benefits the project can be pursued, with all parties aligned to manage the decisions necessary to make innovation possible. Project teams familiar with mass timber often propose innovative solutions due to the industry-leading nature of mass timber design and construction. These strategies can be pursued with the risk mitigated by the shared contract.

Relationship-Based Problem Solving: Project challenges, whether internal to the team or related to external deliverables, can be resolved collaboratively within the team context, reducing conflict and the likelihood of litigation. This approach enables those team members with the most relevant expertise to contribute solutions that serve all parties.

Qualifications-Based Selection: There is no competitive tender process used in the IPD method; proponents are selected based on their experience and qualifications. This ensures that the most competent consultants and contractors for the specific project scope are included on the project team. In mass timber design and construction, this often results in teams that have previous experience together, which improves efficiency in problem solving and coordination.

Challenges

Lack of Experience: This method requires experienced parties in all the key roles, preferably with experience together with other team members, to find solutions quickly with minimal conflict. For projects using mass timber in newer sectors, this may leave proponents without crossover skillsets; they may have experience in mass timber but not in the specific project type, or vice versa.

Complication of Contract Execution: IPD and Alliance Contracting require upfront conditions and tracking systems to be established to ensure the project team understands what constitutes successful execution of the project scope. This requires the administration and tracking of these success markers and is an additional effort not required in all methods.

Cost Certainty: Without a competitive cost-based process for selecting proponents, owners will need to ensure that overall budget expectations are clearly maintained. Although these methods use an "open book" finances approach, any cost increases beyond the pain-and-gain profit-sharing method framework ultimately remain the responsibility of the owner.

4. Design-Bid-Build (DBB)

This traditional approach separates design and construction: the design phase is completed first, and then construction contracts are awarded to the lowest bidder. While familiar, this may fragment responsibilities and slow down decision-making, especially in the nuanced context of mass timber, where coordination between design and fabrication is crucial.

In DBB, the clear linear progression – design, then tender, then build – can offer transparency and competitive pricing. This linear process, however, can limit opportunities to optimize prefabricated components and may need to be adjusted to allow for mass timber. Two options can be used to ensure success with mass timber. The first is to ensure the design specification can be met by enough suppliers to ensure competition. This may be difficult with some designs and will need careful review by the project team. The second option is to allow for a Design-Assist process during the design phase. This enables suppliers or specialists to provide input earlier, helping optimize prefabricated components and support design decisions before the project is tendered.

Figure 4. Toronto and Region Conservation Authority, Toronto, ON
Michael Moran, courtesy Wood Design & Building Awards

This photo is for illustration purposes and does not represent any specific procurement delivery method.

Benefits of this Method

Competitive Sub-Contracts: The biggest benefit of the DBB method is the ability to have competition for every sub-contract, ideally finding the most cost-effective solution for the project. This competitive environment is predicated on a specification that can allow for multiple suppliers. In mass timber projects, certain structural layouts are more conducive to multiple product applications.

Cost and Schedule Certainty: With a general contractor providing cost certainty at the time of tender, the risks associated with cost increases within the project scope move from the owner to the general contractor. Similarly, confirming the schedule at this stage gives the owner a clear understanding of project timelines and creates a defined process for addressing subsequent changes in budget or schedule.

Challenges

Delayed Supplier Engagement: Suppliers typically become involved only after a contract is awarded. Since the design is already complete, suppliers whose manufacturing parameters do not align with the established design must weigh the cost of delays caused by design changes against the potential savings of optimizing the design for manufacturing and assembly. Providing critical feedback on aspects like member sizing, connection types, fire and acoustic detailing, or fabrication sequences, increases the risk of late design changes and associated cost or schedule impacts.

Lead Time Challenges: Bidders cannot confirm production slots or evaluate manufacturing bottlenecks during design. If shop drawings or other fabrication requirements are extensive or if suppliers are at capacity, the construction schedule can face significant delays.

Procurement Competitiveness: True price competitiveness can be undermined if specifications inadvertently exclude some mass timber suppliers due to proprietary requirements, lack of flexible panel sizes, or unfamiliarity with market options. This may result in extra work for the design team to provide alternatives to achieve a more competitive tender process. If alternate solutions are proposed by contractors in the tender process, this may require review and redesign post-tender, potentially causing delays and resulting in further changes as coordination is completed.

Conclusion

No single procurement method guarantees a successful mass timber project, nor does any method inherently limit its potential. Each approach – whether Design-Build, Construction Management, IPD, or Design-Bid-Build – can support effective outcomes when aligned with project goals, team capacities, and the specific characteristics of the mass timber solution being pursued. The key is understanding how each method accommodates early decision-making, coordination among partners, and timely engagement with suppliers.

Mass timber introduces unique considerations related to prefabrication strategy, supplier constraints, and design specifications. When these elements are proactively addressed within the chosen procurement structure, teams are better positioned to reduce risk, maintain cost and schedule clarity, and enhance project performance. Success is not determined by the method itself, but by how effectively that method is implemented and tailored to mass timber's requirements.

Procurement is one piece of a broader strategy. Clear communication, early coordination, and alignment between design vision and fabrication capabilities remain central regardless of the pathway selected. By structuring teams and decision processes thoughtfully, owners and project partners can unlock the full value of mass timber and confidently deliver projects that meet functional, financial, and performance objectives.

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