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Building for the Future

What We Heard at the *Forestry Solutions for Housing and Climate: Growing the BC Value Chain* Workshop

TECHNICAL REPORT

SEPTEMBER 2024

Executive Summary

How can we provide much-needed homes in BC and beyond, while addressing the global climate crisis? By building with wood, of course! Whole Building Life Cycle Assessments show that wood buildings have a much lower carbon footprint than their concrete or steel counterparts. While wood used to be limited to smaller homes, new building technologies like mass timber now enable us to use wood in larger buildings such as residential towers above six storeys. The forest industry in British Columbia is poised to play an important role in providing affordable, climate-friendly housing. The challenge is to realize this potential.

In order to explore the challenges and opportunities of growing the use of sustainably produced BC wood products in housing and buildings, the BC Council of Forest Industries (COFI) organized a day long workshop in Vancouver, BC on April 10, 2024. One hundred participants, representing primary and secondary forest products manufacturers, developers, the design community, First Nations organizations, municipal governments, and other decision makers and stakeholders met to discuss the BC supply chain for wood products, from the forest to the construction site.

Participants expressed enthusiasm for an increasing role for wood products in changing the carbon footprint of the built environment. Mass timber was seen as a game changer that, along with other engineered wood products and offsite construction methods, could open new pathways for sustainable buildings. Still at an early point in its growth trajectory, this fledgling sector faces a number of hurdles. These include production bottlenecks and the risk of a facility closure disrupting the supply chain. More industry growth is widely seen as the solution, provided it progresses at a sustainable pace.

Participants commented that the BC government's demand-driving policies, such as recent changes to the provincial building code to allow mass timber in buildings of up to 18 storeys, have been working but need more time to result in measurable impact. The pace of adoption would benefit from additional awareness and knowledge of mass timber's properties, particularly by municipal planning departments.

To remain competitive, BC's forest industry needs to diversify and grow, including in value-added products such as mass timber. To do so, it must attract investment. When making investment decisions, businesses weigh both risks and opportunities. Many companies perceive the current uncertainty in BC fibre supply as an acute risk. Linked to the overall fibre supply is the challenge many secondary manufacturers have in sourcing their specific raw material needs, such as lamstock for mass timber.

Participants were not shy in offering potential solutions. Partnerships throughout the supply chain, including with First Nations, were seen as a key first step to easing the policy and supply chain complexities that are currently barriers to growth in the BC wood products sector. First Nations are keen to participate in the sector; however, relationship building is vital, and takes time. Developing partnerships between different players in the supply chain, such as primary manufacturers, secondary manufacturers, and builders, can help create a vertical supply chain while letting each supply chain participant focus on their core strengths. Standardizing products and methods could also reduce complexity.

The report concludes with several recommendations.

- First, to keep BC's mass timber supply chain on a growth trajectory, creating a provincial knowledge "hub" could further develop familiarity among supply chain players. Expanding BC's market "pull" programs beyond our borders – possibly by partnering with similar programs in other jurisdictions, would help the industry reach efficiencies of scale faster.
- Next, stabilizing BC's timber supply and creating a predictable policy environment will attract the investment needed for growth of the wood products manufacturing sector in BC.
- Finally, building relationships throughout the supply chain can both help stabilize the fibre supply (i.e., through accelerating the land use planning process) and help connect different players within the forest products supply chain.

Photos: Mat Lo

About the Authors

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About COFI

The BC Council of Forest Industries (COFI) represents forest tenure holders and lumber, pulp and paper, bioenergy, and manufactured forest product producers across British Columbia. COFI members are proud to work in BC's forest industry – a sector that supports 100,000 good jobs for British Columbians – and are committed to sustainable forest practices. COFI members share a commitment to a future based on reconciliation, environmental stewardship, and innovative product development.

COFI would like to thank the BC Office of Mass Timber Implementation, Canadian Wood Council, and Natural Resources Canada for their support in developing the Forestry Solutions for Housing and Climate: Growing the BC Value Chain workshop.

Photo: Mat Lo

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1 The Challenge and Opportunity of Housing People with Wood

Anyone who has tried to buy a home recently in a Canadian city or town knows that Canada is facing a housing crisis. The Canadian Mortgage and Housing Corporation (CMHC) estimates the country will need 5.8 million new housing units by 2030 in order to meet growing demand and achieve affordability. At our current rate of construction, however, we'll only build 2.3 million units – so we need to more than double our output.

At the same time, anyone who struggled through 2021's record heat dome in western Canada or has experienced smoke from wildfires knows that our changing climate is already having increasingly serious effects on community well-being. Perhaps less known is the fact that buildings are a major contributor to climate change: the building sector is the third-largest source of emissions in Canada, releasing nearly 90 megatonnes (MT) of greenhouse gases (GHGs) annually (roughly 13% of the total).[1] According to recent statistics from the UN Environment Programme (UNEP),[2] the built environment accounts for at least 37% of global carbon emissions. That's why the building materials we use today matter.[3]

Forest products, harvested and manufactured sustainably in BC, can be part of the solution. Life-cycle assessment (LCA) research shows that the embodied carbon of wood-based construction materials is 72% lower than that of steel and 66% than that of cement per tonne of material produced.[4] Unlike steel or cement, which release large amounts of carbon dioxide in their manufacture, wood actually sequesters (absorbs) carbon as it grows. Wood is also a renewable resource.

Wood products have the potential to be used in even more construction applications than they are today. While dimension lumber has traditionally been restricted to use in single-family homes and mid-rise construction (i.e., buildings up to 4 storeys in height), new products and new applications for existing products are enabling wood to edge into building types that have historically been built from steel and concrete. For example, recent changes to the BC Building Code now allow for mass timber to be used in buildings of up to 18 storeys. (Since 2009, 6-storey wood frame buildings have been permitted.) As multi-family housing starts now greatly outnumber single-family starts in Canadian cities,[5] the ability to build taller buildings out of wood is becoming increasingly important.

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1 https://publications.gc.ca/collections/collection_2024/eccc/En81-4-1-2022-eng.pdf

2 https://www.unep.org/resources/report/building-materials-and-climate-constructing-new-future

3 https://natural-resources.canada.ca/energy-efficiency/green-buildings/green-building-principles/25301

4 https://www.fpac.ca/reports/solutions-to-canadas-housing-crisis-are-found-in-the-forest; https://www.sfu.ca/content/dam/sfu/renewable-cities/mass-timber/BuildingCapacity_MT-Guide_Apr2023.pdf

5 https://www.cmhc-schl.gc.ca/professionals/housing-markets-data-and-research/housing-data/data-tables/housing-market-data/monthly-housing-starts-construction-data-tables

The BC wood products sector has the opportunity to play a role in easing both the housing and the climate crises by providing low-carbon building materials generated using sustainable forest management practices. However, exposed to natural disturbances from fire and insects, the unpredictability of commodity markets, changing public policy, and trade barriers, the BC forest industry is also facing major headwinds contributing to a challenging operating environment.

The forest industry in BC has a long list of questions to ask right now about its future. What products and services will customers need in the future? The demand for low-carbon and renewable products is increasing, but what are the products and services where BC has a competitive advantage? Can the wood products sector in BC grow the value of its output, while reducing the volume of wood that moves through its supply chain? Are there steps that could be taken to smooth the transition currently underway as harvest levels adjust to new forest conditions? What can be done to reduce the risk inherent to investing in new products and technologies? How can better understanding and coordination be achieved across the forest managers, producers, and end users that are integral to building the wood products value chain in BC?

Photo: courtesy of naturallywood.com

2 Exploring the Opportunity

In order to answer these and other questions, COFI organized a day long, workshop in Vancouver, BC on April 10, 2024.

The day was divided into two parts. Each part started with a panel discussion on a topic, followed by a moderated break-out session within mixed-background groups of 6-8 people. A note-taker was assigned to each table.

The morning session examined current economic and policy drivers in the forest products and housing industries. It featured presentations on the forest sector economic outlook, BC's mass timber implementation strategy, and the role of First Nations in the supply chain as part of the implementation in BC of the *Declaration on the Rights of Indigenous Peoples Act* (DRIPA).[6] In the afternoon, speakers discussed the tough realities of growing the value chain for wood products, with presentations on opportunities for First Nations forestry partnerships, the difference in business models between commodity lumber manufacturing and pre-fabricated housing, the growth opportunity in mass timber, and the downstream use of mass timber in construction.

During the breakout sessions, participants were asked to discuss a range of topics related to opportunities in the wood products and construction value chain, such as:

COFI VP and Chief Economist, Kurt Niquidet presents at the workshop | Photo: Mat Lo

- How does your organization view the potential business opportunity of mass timber?
- How can the forest industry support reconciliation with First Nations and drive new partnerships in the value chain?
- What is needed to attract and retain investment in the wood construction value chain?
- What partnership models would support a robust value chain?
- How can manufacturers better align with others in the building materials and construction supply chain?
- What is the number one opportunity (or barrier) you see to increasing the competitiveness of the BC forest products value chain?

[6] BC's Declaration on the Rights of Indigenous People's Act (DRIPA), passed in November 2019, establishes the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) as the Province's framework for reconciliation.

3 Who We Heard From

Attending were 100 representatives from across the wood products and buildings value chain (Figure 1).

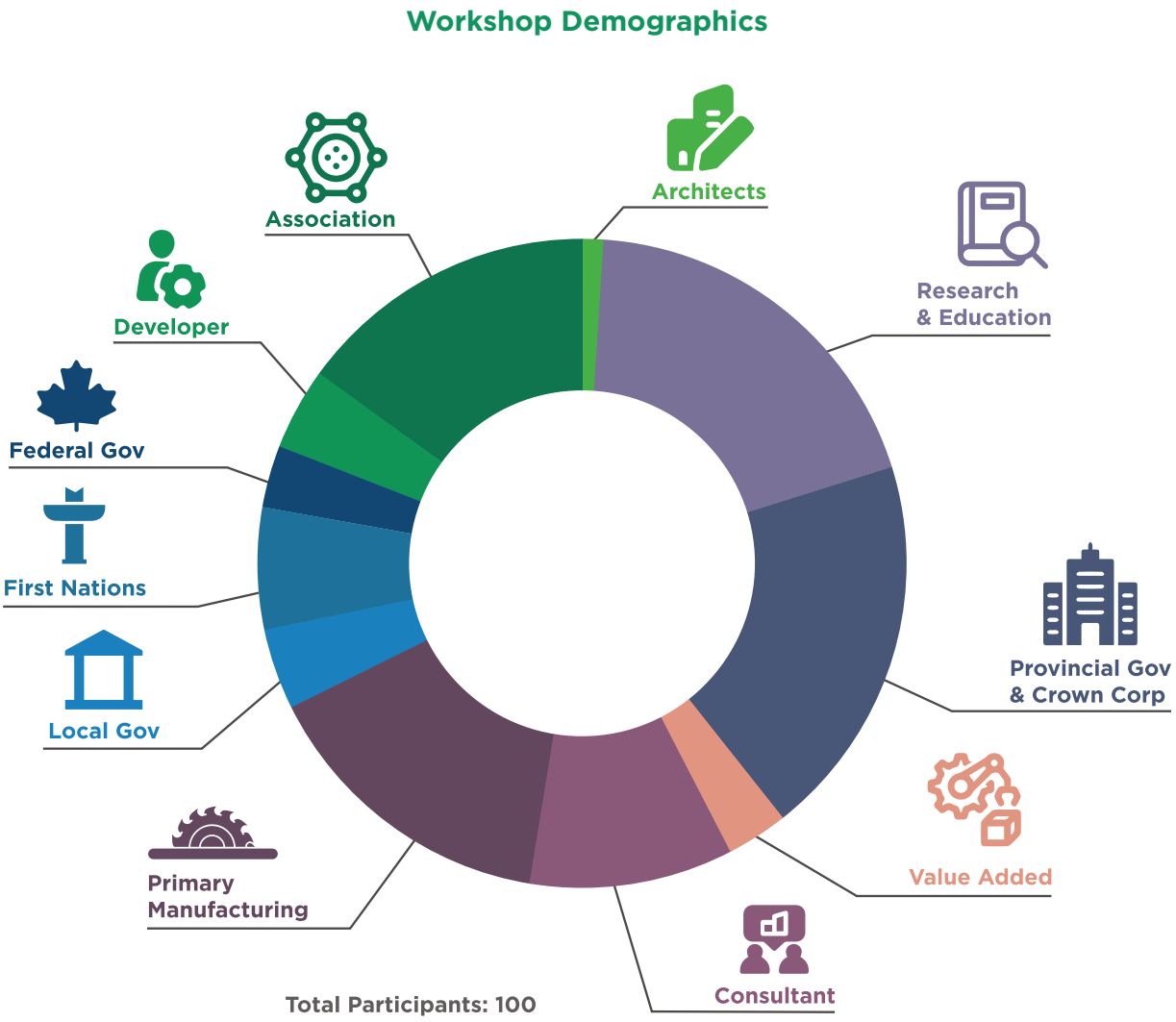


Figure 1. Workshop demographic survey

4 What We Heard

4.1. MASS TIMBER HAS A LONG WAY TO GROW

When discussing new opportunities to house people with wood, one new construction method came up again and again: mass timber. Participants agreed, however, that notwithstanding all the industry "buzz" about it, mass timber is still in the early stages of its growth trajectory. Awareness and knowledge will be critical to market growth.

4.1.1. Enthusiasm is Growing for Mass Timber

Participants shared an enthusiasm for value-added wood products and factory-based construction methods including mass timber. Not only do these new products and methods have the potential to build plentiful, carbon-friendly homes, but they can also solve some of the construction industry's biggest challenges.

Participants commented that:

- The shortage of skilled tradespeople will grow as the workforce ages; this trend is by far the biggest driver of offsite construction (including offsite construction using mass timber components). Offsite construction enables buildings to go up faster with less onsite labour.
- Mass timber is faster to build than concrete and "time is money." A faster build reduces carrying costs for developers.
- Mass timber and other prefabricated construction types reduce on-site waste.
- Offsite construction has the potential to create efficiencies with standardized, repeatable floorplans.
- Offsite construction can help us reach the "top tiers" of BC's tight energy codes.

4.1.2. Mass Timber is Still at an Early Point on its Growth Curve

BC's mass timber market has grown quickly, but from a very small base. As Nick Milestone of Mercer Mass Timber shared in his presentation, mass timber only represents about 1% of North America's construction materials market. Until 2020, the majority of mass timber projects were public sector buildings, and many of the current private sector projects are "demonstration" projects receiving a government top-up to cover the extra cost of using mass timber. Indeed, mass timber is still 4-6% more expensive than conventional construction methods. However, costs are gradually coming down.

Photo: Brudder Productions, courtesy of naturallywood.com

Photo: Wade Comer photography, courtesy of naturallywood.com

Spotlight: Mass Timber

Mass timber is a value-added engineered wood product. Examples of mass timber include glue laminated (glulam) columns and beams, cross laminated timber (CLT) panels, and dowel laminated (DLT) panels. They are typically solid, structural load-bearing components engineered for strength. Mass timber products are uniquely well suited for pre-fabricated housing projects, reducing construction timelines, noise, disruptions, and emissions.

Due to the small size of the market, there may be times when supply and demand are out of sync and developers have trouble accessing mass timber. However, both mass timber producers and mass timber customers (i.e., developers) indicated there is technically more than enough supply (and production capacity) to meet current mass timber demand.

4.1.3. The Challenges of Operating in Small Supply Chains

While there is adequate mass timber capacity to meet current North American demand,[7] the small size of the supply chain can cause challenges for participating companies. Some participants expressed concerns that industry "growing pains" could result in the industry failing to meet the growing demand, resulting in developers opting instead to stick with steel and concrete construction or having to source mass timber products from outside BC.

Having only a small number of suppliers creates risk for developers. First, there can be production bottlenecks. More importantly, a business interruption at a mass timber facility could leave builders scrambling to find alternative suppliers. Having fewer suppliers also means there is less competition, which can lead to higher costs.

Mass timber customers are therefore eager to see more market entrants.

4.1.4. The Mass Timber Market Is Growing Organically

Many different views exist as to how best to grow the supply chain for offsite construction. While some municipal leaders suggested the provincial government could help de-risk the market by co-investing in offsite construction (i.e., by subsidizing projects or even entire manufacturing facilities), private sector participants preferred to let the market grow organically, at its own pace.

Developers indicated they were watching for more non-government projects in the marketplace, as this was a sign that the market itself was maturing and becoming less risky. One developer stated:

"Until you see some of the big guys moving forward without government involvement, that's when you'll see the industry uptake."

Among the forest products manufacturers represented at the workshop, the general sentiment was that some companies are indeed interested and are watching the market carefully. Market entry is risky: it can take several years to plan and build or expand a mill. A lot can change during that period. For example, housing markets can crash, other competitors can enter, or government policies can change.

"Until you see some of the big guys moving forward without government involvement, that's when you'll see the industry uptake."

(Developer)

[7] According to the 2024 white paper *The Mass Timber Roadmap: An Integrated Forest-to-Buildings Value Chain*, (https://transitionaccelerator.ca/wp-content/uploads/2024/06/MT_Roadmap_Digital_vf.pdf), estimates of Canadian mass timber production and capacity vary greatly; but most indicate that Canadian mass timber production levels are roughly half of Canadian manufacturing capacity. This 50% demand/capacity ratio is relatively low compared to the 75%-90% levels more common in the softwood lumber sector. However, the white paper also commented that demand in some market sectors is relatively strong, with producers in these sectors running closer to their effective capacity levels.

While the slow growth of the industry is sometimes frustrating for developers, overly aggressive growth could have an even worse outcome. Workshop participants pointed out that business failures can undermine the broader construction industry's confidence in mass timber. They stressed a need to slowly mature the sector and increase demand. One consultant attending the workshop put it this way:

"We tend to try and force mass timber manufacturing (force feeding). If you have a supply of lumber and you have demand, the mass timber will naturally come."

It was noted that more European forestry companies have branched into mass timber than their North American counterparts. Participants felt that European markets are 5-10 years ahead of the curve, so a potential indicator of things to come.

4.1.5. Demand-Driving Initiatives Are Working

Attendees wholeheartedly agreed that BC's "market pull" strategy is the right way to go. Building mass timber demand is fundamental to attracting investment.

Brock Commons, University of British Columbia | Photo: KK Law, courtesy of naturallywood.com

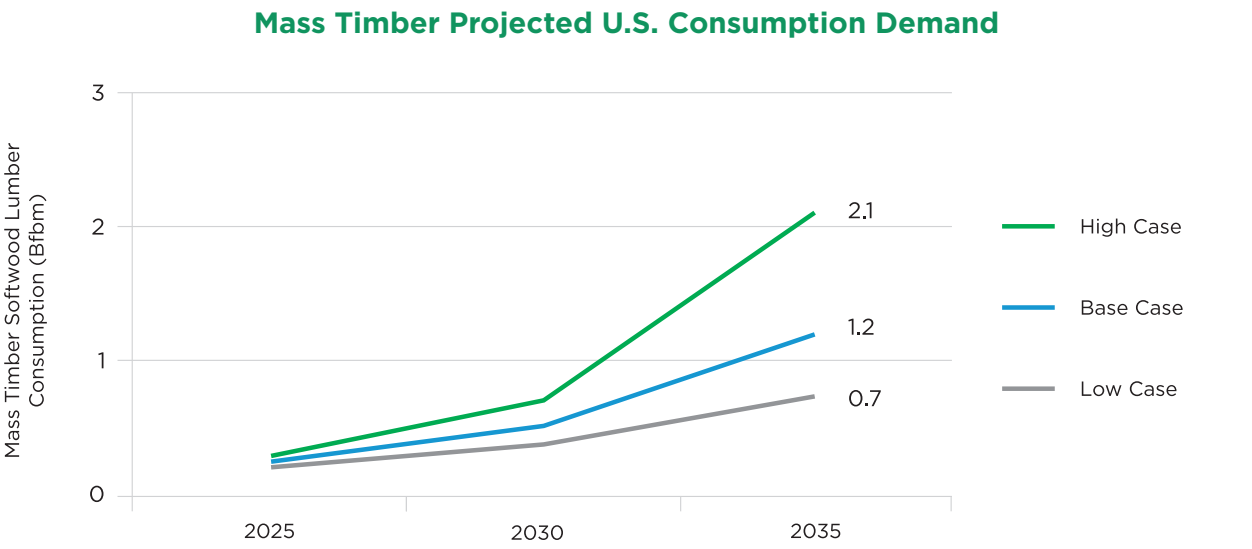
Building codes are a "base requirement;" these have helped create demand and will create more demand now that they have been updated. According to one developer, the April 2024 announcement updating BC building codes[8] has been "super important" in that regard. Increasing the maximum number of storeys allowed in mass timber buildings from 12 to 18 will help scale up demand for mass timber.

Municipal incentives also help create demand. In Vancouver, for example, if developers build with mass timber (rather than steel or concrete), they can apply to add more storeys than would otherwise be allowed in that zoning area. This enables a better return on the project.

Timber-First policies have been used in Canada to incentivize wood in public buildings. In places such as Paris, France and New Zealand, such policies have also been used effectively to incentivize wood use in the private sector.

[8] https://www2.gov.bc.ca/gov/content/industry/construction-industry/mass-timber#BC-Codes

There is also an opportunity to export mass timber beyond BC's borders. BC can also benefit from similar "pull-based" programs in other regions, such as the United States (Figure 2). BC alone is a relatively small housing market; indeed, roughly 90% of BC lumber is exported.



Between 2025 and 2035 mass timber is forecast to drive ~0.7 - 2.1 Bfbm of lumber consumption demand in the U.S.

Figure 2. Data source: FEA, West Fraser analysis, retrieved from WFG - Q4 2023 Earnings Presentation_FINAL (westfraser.com)

4.1.6. Mass Timber Industry Knowledge Is Still Evolving

The mass timber construction ecosystem involves a lot of different people: architects and engineers, builders and developers, municipal officials, manufacturers, and many others. Each of these groups is at a different point on the learning curve about working with the product.

Because builders and developers are still learning what makes mass timber different from other construction methods, not everyone is familiar enough to take the financial risk of working with it. Gaps in knowledge have the potential to create costly mistakes. For example, developers can run into problems if they don't understand some of the key differences between working with mass timber and working with steel and concrete:

- The material variability of wood is greater than that of concrete and steel
- Mass timber lead times are longer than for concrete and steel, largely due to the fact that mass timber components must be manufactured according to the design specifications (rather than just ordered in bulk when needed)
- 6, 12, and 18-storey mass timber buildings have quite different design requirements

Builders and developers commented that there is a limited understanding of mass timber construction at many municipal planning departments. City planners and builders would often benefit from more training. Also, application deadlines can be unrealistic for mass timber projects (which require more upfront planning).

Workshop participants agreed that there already is an excellent mass timber knowledge base in the BC architecture, engineering, and construction (AEC) community. Early engagement (by developers) with designers and manufacturers can save costs.

One participant from the consulting community suggested BC would benefit from a multisectoral body that includes municipalities, NGOs, designers, and architects, etc. Such a group could function to share knowledge between the different members of the offsite construction supply chain.

Photo: Jason Harding, courtesy of naturallywood.com

4.1.7. More Public Education Is Still Needed

Mass timber and other offsite construction methods are also unfamiliar to much of the general public. Questions such as "will my mass timber apartment burn down?" are still common. One developer commented that, "90% of our job is education – we have handouts that explain topics such as fire, using examples from day-to-day life, like "think about the char on a campfire log."[9]

Information about mass timber exists online, for example, on wood-specific websites such as naturallywood.com, but how does the public know to go there to find it? More "consumable" content, needs to be made available to everyone.

It was noted that public discussions and understanding about wooden housing could also be a means to educate the public about sustainable forestry in general.

[9] The char acts as an insulating layer, slowing the fire's progress.

4.2. BC'S FOREST INDUSTRY FACES BARRIERS TO ITS COMPETITIVENESS

BC has long been a global forestry powerhouse. However, while the province supplies the world with a range of forest products, BC is not the only region doing so. Participants spoke of how emerging issues – and in particular, access to economic fibre supply – are eroding BC's competitiveness on the world stage.

4.2.1. Weighing the Perceived Risk of Wood Supply Constraints

When companies decide whether to invest in a new product or facility, they first consider the business case. Broad factors to consider include demand, fibre availability, manufacturing cost, and transportation.

Starting a new business is risky (Figure 3). Whether examined from the perspective of a lumber manufacturer branching into mass timber, or a builder branching into offsite construction, building or expanding a production facility has high upfront capital costs. Companies (and their financiers) have a limited amount of money to invest, and a variety of possible places to invest it. For newer forms of construction, developers will seek a higher rate of return, to accommodate higher levels of risk.

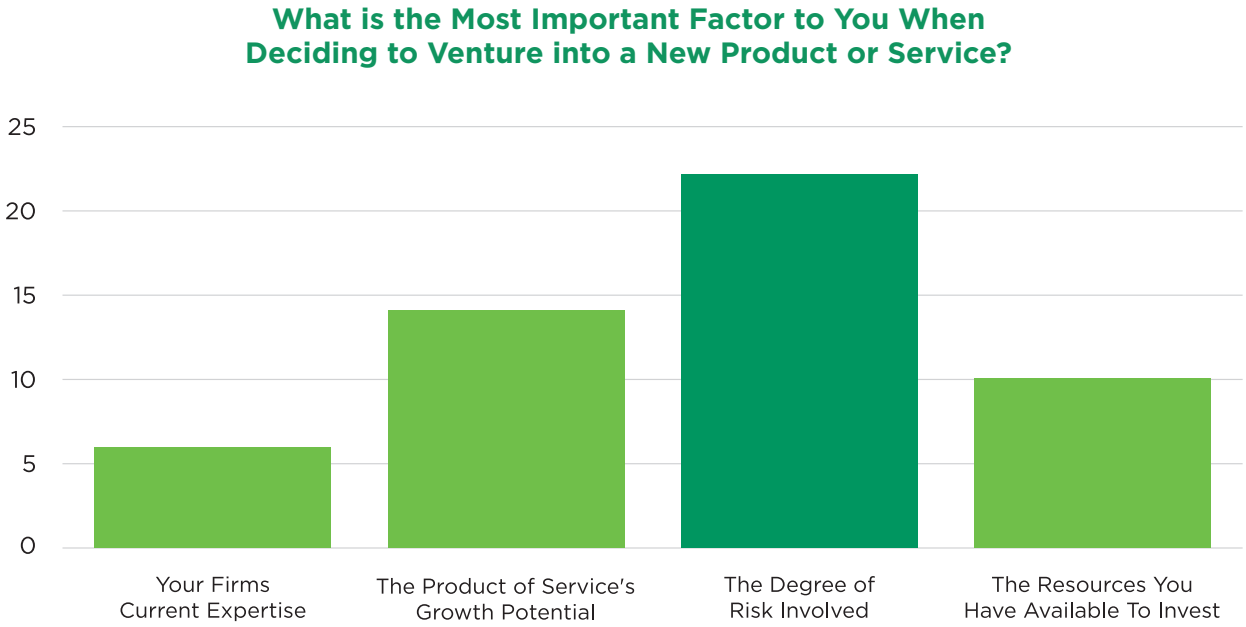


Figure 3. Workshop survey

By far, the most commonly cited risk among session participants was the uncertainty now surrounding fibre supply in BC (Figure 4). As one participant explained:

"The government has a done a good job on the demand side, created the interest and built the platform, but the elephant in the room is supply – historically the growth of the BC forest products sector – people come to BC to grow a company based on supply. If you're an outside player you will look across the globe at fibre opportunities and you will look at BC and there are a host of reasons why you wouldn't move forward in BC."

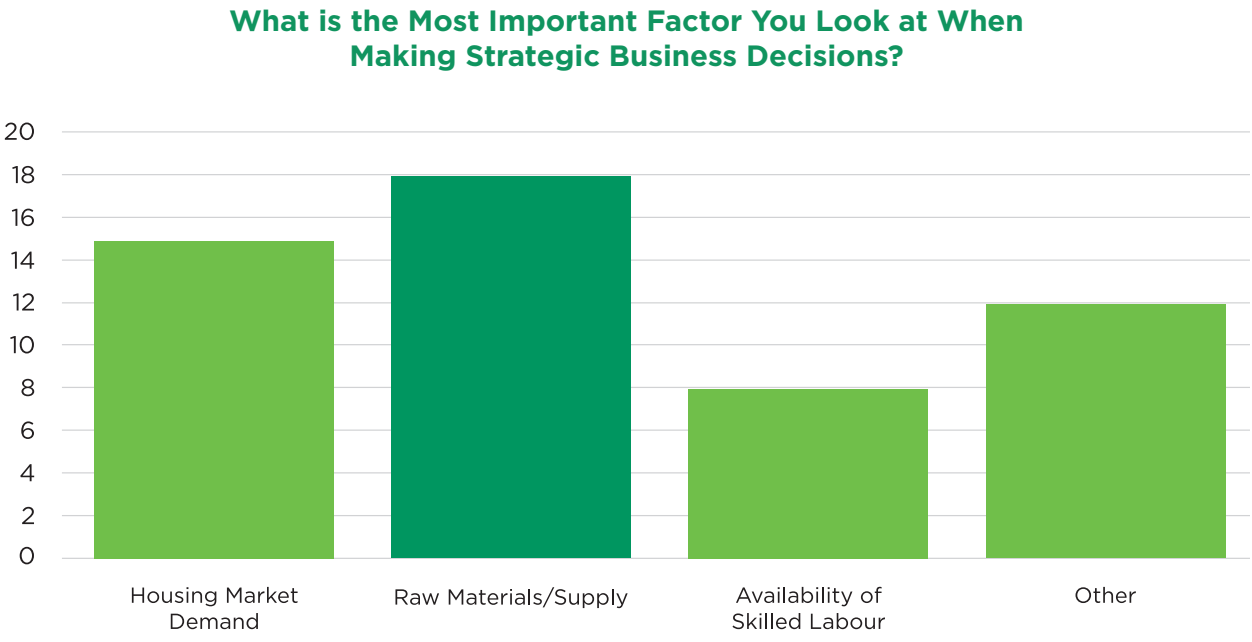


Figure 4. Workshop survey

BC's uncertain fibre supply and high log costs were cited as reasons why businesses may choose to invest in other jurisdictions besides BC. One Alberta-based participant commented that that province has policy certainty and much lower log costs. As BC's costs tend to be higher than other competing regions, when markets decline, BC sawmills are among the first to go down. This threatens the supply of raw materials for secondary manufacturers.

One participant mentioned that the ongoing process of transferring forest tenures to First Nations is also causing uncertainty. Mills are uncertain as to whether the new tenure holders will continue to sell logs on the open market.

One mass timber manufacturer commented that their facility has never had an issue with sourcing fibre; however, they source not only from BC, but also nearby operations in the US. New entrants in other parts of the province may not have this option.

Photo courtesy of naturallywood.com

4.2.2. Forest Policies Must Support a Stable Timber Supply

Workshop participants emphatically stressed the need for forest policy that supports a more predictable and stable timber supply.

Participants expressed their frustration about recent difficulties obtaining cutting permits amidst the introduction of so many new and overlapping policies. The net result being it can sometimes take up to 2-3 years to develop a permit application.

The decline in harvesting is not just affecting companies; workshop participants from rural municipalities and First Nations organizations commented that it has been impacting local communities as well. As one participant noted,

"Changes to policy have made impacts to the town... The policies are making it difficult for small towns to survive... [It feels like] all this is done without consultation with towns or people."

New First Nations consultation and landscape level planning processes should reduce some of the current uncertainty but will likely take several years to do so. More formal timelines for these processes would help businesses with planning and investment decisions.

4.2.3. Long Transport Distances Mean Higher Costs

BC's immense geography presents a transportation challenge. As stated by one participant, "after fibre costs, the next biggest cost is transportation." Both the cost of transporting logs to the mills and the cost of transporting finished products to the customer are increasing.

Regarding log transport, participants commented that "the good fibre is getting farther and farther away from mills." Logging roads are built progressively deeper into the forest over time; additionally, mill closures have meant logs must be transported to the next available mill.

Participants also spoke at length about the challenges of transporting finished goods to their customers. Rail transportation was a hot-button topic. In BC, much of the northern interior is served by CN Rail operating on BC Rail lines. Two challenges have emerged:

1. Rail lines require upgrades to carry more weight. This would be a provincial government responsibility, as it still owns BC Rail.

2. Reduced shipping volumes (due to mill closures in recent years) have resulted in reduced rail service. One participant commented,

   "Back in the day when [the Tackama Plywood Mill in Fort Nelson was still operating] we had done 2 trains a week; now [we have] 1 train every 2 weeks."

Photo: courtesy of naturallywood.com

Reduced rail service increases costs for producers and makes it more difficult to meet their customers' shipping needs.

BC's high transportation costs add to the province's other competitiveness challenges. According to workshop participants, European producers in particular have a distinct advantage over BC, with lower log and finished product transport costs. For example, one participant commented that,

"facilities [in Europe] are small and distributed, transportation costs are lower between plantation to factory. Delivered log costs are probably very low."

Another pointed out that,

"Europe has a freight advantage, given the number of containers available. The cost of transport within BC is astronomical compared to where Europeans can ship globally."

European producers' cost advantage enables them to sell competitively in BC, even though the product must be shipped all the way from Europe. Having better road and rail infrastructure networks would help BC-based operators lower their costs and be more internationally competitive. It could also help lower their carbon emissions.

Photo: Bryce Byrnes, courtesy of naturallywood.com

Photo: Jason Harding, courtesy of naturallywood.com

4.2.4. Mass Timber Has Specific Raw Material and Supply Chain Needs

Participants commented that a transition to manufacturing more mass timber will require more sophistication in the supply chain: first, there can be shortages of the specific grades of logs and lumber required as raw materials for mass timber; second, there is a limited market for the residual materials from the mass timber manufacturing process. This puts BC at a competitive disadvantage to Europe, where the wood supply is more consistent, and the mass timber supply chain is more mature.

Mass timber is produced by attaching smaller pieces of wood together (see Spotlight: Mass Timber on page 9). "Lamstock," the grade of wood used to make mass timber, has very specific strength, moisture, and dimension requirements. These requirements differ from those of regular "2-by-4s" used in house framing. For example, while standard dimension lumber is dried to 19% moisture or less, lamstock must be dried to about 12%. Sawmills must therefore make special production runs to ensure the lamstock meets mass timber manufacturers' needs.

The natural variability of wood creates challenges in producing lamstock with the consistency needed for mass timber. Depending on how trees are grown, their wood may have different density and strength properties.

One participant commented that BC's mass timber industry is struggling to find wood with the right strength ratios. Although the majority of cross-laminated timber (CLT) panels are made primarily from lumber of equivalent strength to "No. 2 and better" grade (which is commonly available), panels used in high strength applications can require machine stress rated (MSR)[10] lumber. This is a specialty product and can be hard to source.

Some participants expressed concerns that the strength of BC wood fibre may decline as fewer large diameter trees are available. Participants suggested that managed forests would allow BC to ensure high strength trees could be consistently harvested.

The combination of specific dimension and strength requirements also causes challenges. If wood sawn to lamstock dimensions fails to meet the other mass timber requirements (such as strength or moisture), it must be used in something else. However, because lamstock dimensions may be different from those of standard dimension lumber, wood cut to these dimensions cannot simply be sold as 2-by-4s.

What this all means is that to supply mass timber producers, primary manufacturers have to not only make different size and quality pieces, but also find new buyers for the wood cut and dried to lamstock dimensions/specifications that doesn't "make the grade" for mass timber. True vertical integration needs to have more diversity in the marketplace that the lower grades and residuals could go into. Or in the words of one participant,

"If creating lamstock for mass timber, we need to create a whole new 'market ecosystem' for it and the pieces that don't go into mass timber."

Photo: courtesy of naturallywood.com

[10] Machine stress rated (MSR) lumber is lumber that has been passed through a machine that tests its stiffness when bent. The stiffer the lumber, the higher the grade.

4.3. COMPLEXITY ACROSS THE VALUE CHAIN

How can BC's wood products industry meet its potential, both now and into the future? Right now, with changing policies, changing technologies, and changing relationships between decision makers and stakeholders, the BC forest-to-construction supply chain can seem a very complex place. However, participants offered insights into how they were addressing this complexity. Partnerships throughout the supply chain, including with First Nations, were the starting point.

4.3.1. Building Strong Partnerships with First Nations

Indigenous and non-Indigenous participants alike commented that the relationships between forestry companies and First Nations are changing. Not only is there more opportunity to work together, but there is also a greater need. In the words of one First Nations participant, this provides the opportunity to "take actions to make a difference on the ground."

Workshop participants representing First Nations and other Indigenous organizations expressed enthusiasm for changes in policy direction, including the incorporation of Indigenous knowledge. However, as one participant noted,

"...We are still early in this change and it's all new to all of us. DRIPA (the Declaration of the Rights of Indigenous Peoples Act) was established and there was no plan behind it. There are no details in the action plan... It's going to come at a cost to make that work. We are still facing hesitancy to engage."

The forest landscape planning process is one example of the opportunities presented by increased engagement with First Nations. With more joint decision-making occurring in forest management decisions, both Indigenous and non-Indigenous participants expressed optimism that certainty on the Allowable Annual Cut (AAC) will improve, and the gap between the AAC and actual harvest will decrease.[11]

Landscape planning processes have gone more smoothly in some regions than others. Forest companies with area-based tenures and fewer local First Nations have found the process more straightforward than ones with volume-based tenures and several overlapping First Nations claims.

Tiffany Butler-Hernandez, Policy Program Manager for the BC First Nations Forestry Council presents at the workshop | Photo: Mat Lo

[11] The actual harvest in 2023 was 42 per cent below the Allowable Annual Cut.

Partnership models

How should industry and First Nations partner with each other? Joint decision-making and revenue sharing are two components that are being explored. Co-development of BC's New Fiscal Framework will ultimately allow for more revenue sharing.

First Nations' business ownership is also a growing option, including mill ownership and/or joint ventures. Participants highlighted examples of how this can work in practice:

- Forestry company Deadwood Innovations' First Nations partner is a 51% owner of the project, and they have the fibre supply.
- Four member First Nations of the Nanwakolas Council have a 34% interest in La-kwa sa muqw Forestry, a Limited Partnership with Western Forest Products.
- Iskum Investments[12] is a recently launched consortium of more than 20 First Nations across Vancouver Island and the BC Coast, formed to create the scale needed to investigate investment opportunities such as those in forestry and forest products manufacturing.
- Several nations have access to timber but not manufacturing facilities. The new equity loan guarantee programs (soon to be available at both federal and provincial levels) can help interested First Nations get a stake in companies.

Some participants suggested forestry companies and First Nations start with smaller projects to mentor and grow capacity over time. The BC First Nations Forestry Council (BCFNFC) plays a role in understanding and advocating for the interests of First Nations across the Province and can aid in capacity development (see Spotlight: OpportunityConnect).

Relationship building is key to effective partnerships. For a partnership to be successful, the company, First Nation, government, and union(s) need to be on same page. As the leadership of both companies and First Nations changes over time, it can take several years to develop trust and broad support from the entire community.

Signing of the La-kwa sa muqw Forestry Limited Partnership | Photo: Western Forest Products

Spotlight: OpportunityConnect

The BC First Nations Forestry Council's new **OpportunityConnect** platform serves to connect entrepreneurs with potential funding partners. More than just a list of potential partners, the Opportunity Connect platform provides entrepreneurs with a tool for thinking through and prioritizing their business ideas, enabling them to better showcase their strengths.

[12] https://www.iskum.ca/large-coastal-first-nations-consortium-launches-iskum-investments/

4.3.2. Achieve Supply Chain Integration Through Partnerships

As the mass timber market grows, which types of companies will be next to enter? As mass timber is a different business model from both commodity lumber manufacturing and building construction, new entrants have a steep learning curve.

Most BC forest products manufacturers produce commodity products such as lumber, wood panels, or pulp and paper. To be competitive in a commodity marketplace, companies must produce standardized products using standardized methods, in order to get costs as low as possible. In contrast, mass timber is a custom-designed, specialty product. Each project is different. Therefore, succeeding in mass timber requires a different company skillset.

Even companies with experience in multiple business models often choose to specialize. Developer Adera is a case in point. A company representative at the workshop explained how the company expanded into CLT in 2011, becoming the first company in BC to do so. As a developer looking to become a "lightning rod" and differentiate themselves by being mass timber specialists, they built a CLT mill because there was no other regional supplier. However, they did not intend to stay in the business in the long term. In 2018, Adera sold the mass timber mill in order to focus on "what we do well" – developing homes.

"The challenge of completely vertical integration is that you need a lot of knowledge... [the complexity of vertical integration] also makes it hard to pivot if something changes [in the business environment]. Mass timber is still a very new product in North America, so there is a good risk of this happening."

(Developer)

Vertical integration, the strategy of one company taking ownership of two or more key stages of the supply chain, adds complexity to an organization. Such complexity increases risk. As one participant explained,

"The challenge of completely vertical integration is that you need a lot of knowledge... [the complexity of vertical integration] also makes it hard to pivot if something changes [in the business environment]. Mass timber is still a very new product in North America, so there is a good risk of this happening."

In the current BC forest business environment, focusing on just one business model (or supply chain stage) is perceived as a complex undertaking. As voiced by one participant:

"There are so many companies under so much financial pressure – every day is just trying to keep the wheels on – policy changes – union negotiations – banks – so complex that day to day stops big picture thinking."

Workshop participants stressed that an integrated supply chain is still possible, but that it may be more viable to build it through inter-firm partnerships rather than complete vertical integration within one company (Figure 5).

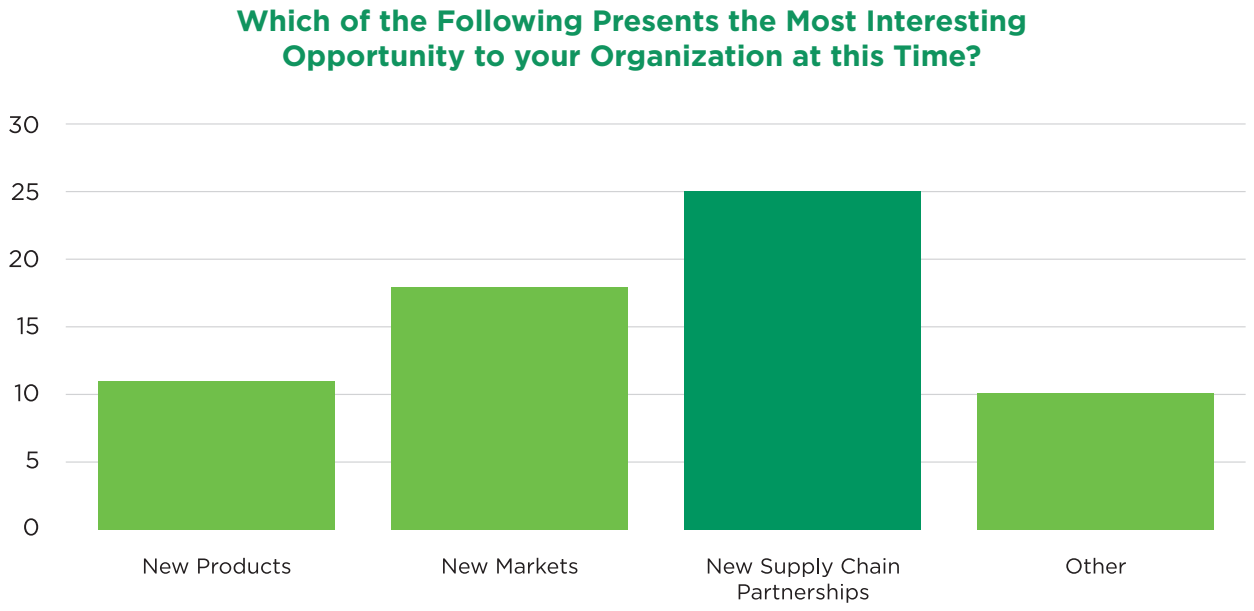


Figure 5. Workshop survey

Workshop presenter Greg Stewart of Sinclar Group Forest Products demonstrated how the business model for sawmilling is very different from that making prefabricated homes (Figure 6). One solution his company employs is to collaborate with other members of the value chain.

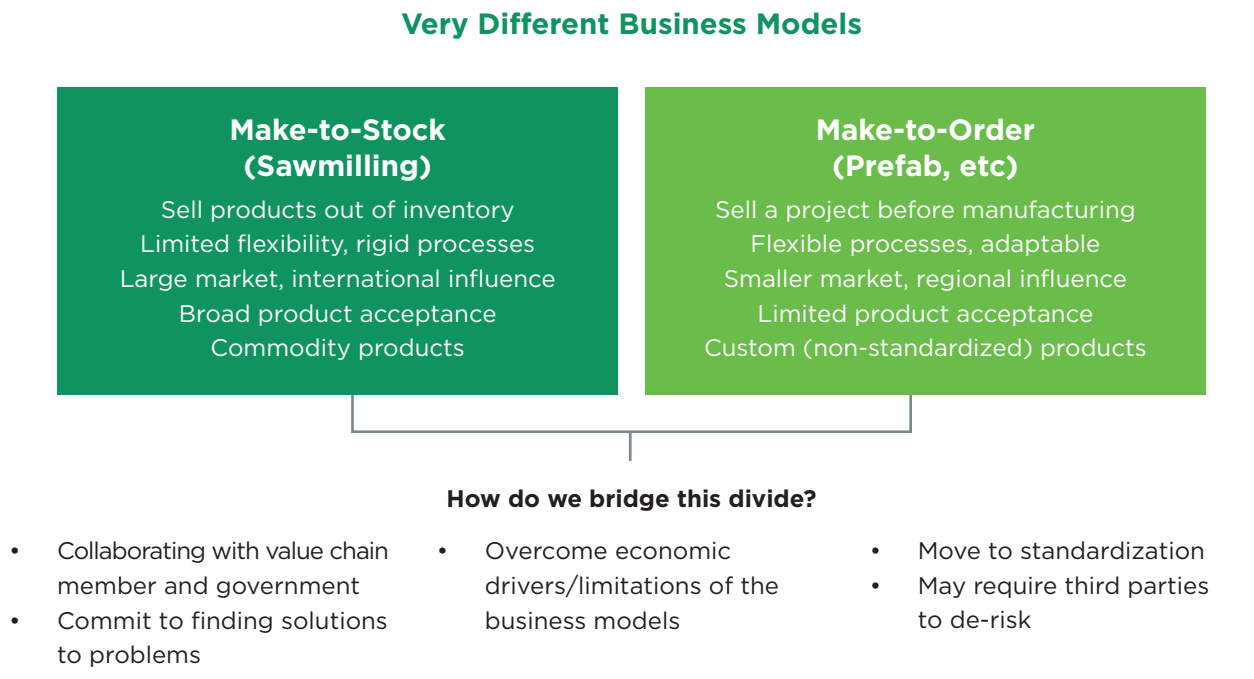


Figure 6. from Workshop presentation by Greg Stewart, President, Sinclar Group Forest Products.

As BC forestry executives are busy managing complex day-to-day operations, they often don't have a lot of extra time to spend developing relationships with representatives from other related sectors. Therefore, it may be useful to have organizations that can act as intermediaries (or "matchmakers"). The BC First Nations Forestry Council's OpportunityConnect platform, for example, enables entrepreneurs to share their ideas with potential funding partners.

> ***"There are so many companies under so much financial pressure – every day is just trying to keep the wheels on – policy changes – union negotiations – banks – so complex that day to day stops big picture thinking."***
>
> *(Forest industry participant)*

4.3.3. Standardization Could Help Reduce Complexity

Standardization was a popular workshop topic. Intriguingly, participants from different backgrounds had quite different viewpoints on what should be standardized. The replication of similar building designs could bring down design costs, as could the standardization of building codes between communities. Also, building components such as mass timber panels could be manufactured to standard sizes and grades, simplifying the business model for manufacturers.

Several community representatives (including First Nations communities) viewed standardized buildings as an opportunity to ramp up sustainable housing, especially given the shortage of skilled tradespeople. For example, one First Nations representative stated:

"The federal government [CMHC] has pre-approved buildings, [mass timber could help us] ramp up to the next level. We're in an affordability crisis. We're still thinking about 2,500 square foot homes which is not sustainable. We need to think about 10 storey single suite per floor, 1,100 square feet on a standard lot on a transportation corridor and pre-approve them. Build a hundred of these for exactly the same price."

Another participant commented that, "every single BC Housing project is a unique design – this is not efficient." Instead, mass timber, with standardized, repeatable floorplans, could be the "Vancouver special" of the future.

Developers commented that buildings cannot be completely standardized, because building sites are all different. However, the standardization of building codes (between communities) and permitting processes would reduce the amount of customization required to meet different municipal requirements.

Forest industry representatives commented on the opportunity to standardize mass timber and other manufactured wood products, for example, by creating standard grades and dimensions. This would make the mass timber business model more similar to the lumber business model, and thus more familiar to forest products companies. It could also enable multiple smaller companies to contribute panels or other components to larger projects.

5 Recommendations

BC urgently needs more housing, as does the rest of the world. Building this housing out of wood would reduce its climate impact. In Canada, well over half of housing starts are now in multi-family buildings. Therefore, construction systems that enable building larger and taller structures out of wood – such as mass timber – will become increasingly important.

What the workshop made clear is that the wood products value chain is stronger when working together. The sector needs to continue to build links and deepen understanding and relationships to reduce barriers and leverage the opportunities in front of us. By working together, the different players in the sector can enhance their competitiveness from forest floor, to factory floor, to living room floor.

Growing the value chain, with a specific eye on value-added wood products and factory-built construction methods such as mass timber, will require accelerated efforts on both the demand and supply sides of the equation.

Photo: Matt Bolt, courtesy of naturallywood.com

5.1. BC'S STRATEGY OF CREATING MARKET "PULL" IS WORKING; KEEP IT GOING

BC builders would like to use more mass timber, but their supply is limited. BC mass timber manufacturers would like to expand but are wary of over-extending themselves in an uncertain marketplace. Continued steady growth will eventually solve both of these challenges. To help the growth trajectory continue, the wood products sector must continue generating knowledge and awareness of new construction methods and materials.

- Collaborate with other jurisdictions to expand market "pull" initiatives beyond BC's borders. BC has developed a formidable expertise in mass timber, but our local market is tiny compared to the rest of North America. Other jurisdictions in Canada and the US are also developing policies (such as updated building codes) to encourage the growth of wood construction, including mass timber. BC has the opportunity to share its experience with them (and vice versa).

- Create a BC-based community of practice (or "knowledge hub") to share information between members of the offsite construction supply chain and beyond. For example:
    - Share knowledge about mass timber with municipal planning departments to increase their familiarity and comfort with the building method.
    - Expand public education about mass timber (and wood construction in general), making information readily available on different platforms.
    - Develop strategies to advance standardization and address barriers to adoption.
- Continue to champion trades education, including skills that will be needed in the growing offsite construction market and elsewhere throughout the supply chain.
- Explore ways to better utilize residual fibre throughout the supply chain. Support market development for mass timber residuals, such as lamstock "off-cuts."
- Explore innovative transportation solutions such as truck convoys and low-carbon fuels to reduce costs and help get wood products to market.

Photo: Arkitek Creative, courtesy of naturallywood.com

5.2. CREATE A PREDICTABLE POLICY ENVIRONMENT TO REDUCE RISK AND ENCOURAGE INVESTMENT

To grow its value-added sector and remain competitive on the world stage, BC's forest industry will need to invest in its manufacturing facilities, technologies, and marketing efforts. However, many forestry companies and investors currently perceive BC as a risky jurisdiction in which to operate, largely due to its uncertain fibre supply. Through this workshop and other initiatives, such as the Provincial Forestry Forum and Value-Added Accelerator,[13] COFI has been working with the provincial government, First Nations Forestry Council, and stakeholders across the forest sector and across the province to identify tangible solutions to get fibre moving to mills. These include:

- Expediting the establishment of regional tables for forest landscape planning. The landscape planning process will identify and prioritize different values and activities across a given land area, creating clarity as to where and under what conditions logging is to be allowed.
- Addressing delays in developing and issuing harvesting permits.
- Building a two-year inventory of ready-to-harvest timber.
- Reviewing the current business model for BC Timber Sales to ensure it is evolving to meet changing conditions and priorities.
- Adopting innovative forest management practices, such as intensive silviculture (i.e., thinning), cultural and prescribed burning, and salvage harvesting. These activities can increase fibre supply while also enhancing conservation and cultural values, and reducing the chance of catastrophic wildfire.
- Advancing the development of a long-term economic strategy[14] for the BC forest sector linked to environmental and social objectives. Having a strong, consistent and aligned message that BC has a vision and a plan for the future of its forest sector will create a platform to attract investment and support the sector's competitiveness.

Photo: courtesy of naturallywood.com

While forest landscape planning will help increase operating certainty and reduce perceived risk, workshop participants stressed that the hurried pace of forest policy change was having the opposite affect: creating uncertainty. Slowing the pace of policy change would provide time for companies, communities, workers, and First Nations to adapt.

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[13] https://www2.gov.bc.ca/gov/content/industry/forestry/competitive-forest-industry/value-added-accelerators

[14] The BC Old Growth Action Plan, released after the Workshop, includes developing "a roadmap to the future forest-based economy and a strategy toward realizing that vision." https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/stewardship/old-growth-forests/from_review_to_action.pdf

5.3. BUILD RELATIONSHIPS TO HELP NAVIGATE SUPPLY CHAIN COMPLEXITY

Workshop participants described sometimes being overwhelmed with complexity, including new policies and increasingly complicated supply chains. Section 5.2 highlighted how policy reform can simplify the complexity of forest management. To manage complex supply chains, one solution is to break complicated projects into more manageable components. While supply chain integration is one avenue to improve the industry's competitiveness, this integration does not need to occur entirely within a single company. To achieve greater integration between companies across the supply chain, the forest-to-construction supply chain will need to form new relationships, including relationships with First Nations.

- Advance co-development of the First Nations Revenue Sharing Framework and secure agreements with individual First Nations that advance progress on critical issues. Many First Nations have made it clear they want a greater role in forest stewardship and management, as well as in manufacturing and forestry operations.
- Build on BC's Value-Added Accelerators initiative to support business-to-business (B2B) relationship-building. Support vertical integration through contracts, equity partnerships, and other mechanisms between parties in the value chain.
- Explore standardization throughout the mass timber supply chain
    - Develop standard building layouts for use in social housing.
    - Work with manufacturers, builders, and researchers to identify which dimensions and strength properties would work best for standard CLT "blanks" (i.e., off-the-shelf CLT panels that could then be further manufactured to the building designers' exact specifications).
    - Identify potential supply chain partners who would be willing to work together, either creating the blanks or using them.

Photos: Mat Lo

5.4. CONCLUDING THOUGHTS

Throughout their discussions, workshop participants learned that there is interest in growing the value chain for BC wood products. Doing so will require addressing challenges in the current value chain. Mass timber facilities need a consistent, local, cost-effective supply of raw materials; the local mills who supply these raw materials need to stay open – and for that, they in turn need a consistent raw material (log) supply, plus a competitive operating environment. In other words, a strong primary industry is needed to ensure a strong secondary industry, and both support local jobs and communities.

As well as thinking about local conditions, the wood products value chain in BC also has the opportunity to think globally: both in terms of potential markets and in terms of competition. Just as BC-based operators must be conscious of European CLT competing with local home-grown product, the sector also needs to see neighboring regions in North America as potential customers. The reality is that creating the economies of scale needed to reduce the current supply chain "growing pains" in BC will require selling beyond our borders.

COFI is grateful to all workshop participants for sharing their time, insights, ideas, solutions, and enthusiasm. This report would not have been possible without you.

Photo: Gord Wylie, courtesy of Structurlam and naturallywood.com

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Front cover photo: Matthew Bolt Photography, courtesy of naturallywood.com

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