

Construction Prefabrication in Canada

2025 Status Report

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Cover Image

Walker Home Construction, a 100% Indigenous-owned prefab and construction company, installing prefabricated roof segments in Whitehorse (credit: Sarah Walker, Vice President, Walker Home Construction/ Prefab Yukon).

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This analysis is based on research conducted between June and December 2024. It is not intended to provide professional advice. Readers are responsible for exercising professional knowledge and judgement in the application of the information presented.

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Executive Summary

The Genesis of This Study

This study is the first to identify companies who are actively engaged in prefabricating components for buildings in Canada. It examines what they make, where they are located, and their approximate revenues and employees. The objective is to estimate the size and characteristics of the sector as a whole – where the strengths are and where there are opportunities for further development. It is intended to assist those who are a part of the prefabrication community as well as policymakers and those in adjacent occupations.

Methodology

Data for this report was sourced from desktop research, phone interviews, an online survey, information provided by 10 partner organizations and membership lists from over a dozen industry associations and direct engagement with 102 companies.

Report Highlights

- There are 830 prefab companies operating out of 1,028 locations across Canada.
- 427 prefab facilities manufacture wall, roof or floor panels (41% of the total). 381 (37%) make beams, columns, trusses and structural assemblies, 334 (32%) produce volumetric modules and pods, and 226 (22%) produce building kits, ready-to-move houses, accessory dwelling units (ADUs) and other types of entire structures.
- 672 facilities primarily use wood (61%) compared to 323 which work with steel and other metal products. There are 138 precast concrete plants that serve the building industry. Many of these companies work with more than one material. The database includes 75 companies that work with many different materials (making complex products such as façade systems and modular HVAC systems).
- Companies involved in Canada's construction prefab sector employ 184,803 people and generate \$88.9 billion in revenues annually.
- Ontario is home to the largest number of prefab companies, followed by BC and Quebec. Most are located near major metropolitan areas, but there are several that are more remote.
- Residential projects are the main consumers of prefab products.

Offsite construction of the Exchange mass timber hybrid office building in Kelowna, British Columbia (credit: Bryce Byrnes, courtesy naturallywood.com).



Introduction

Prefabrication enhances construction quality and efficiency through controlled manufacturing environments.

The Canadian construction industry faces significant productivity challenges compounded by persistent labour shortages and difficulties in delivering projects on time, on budget, and within increasingly stringent environmental standards. These pressures, combined with unprecedented demand for housing and critical infrastructure, are driving construction activities away from traditional delivery methods toward factory-based prefabrication of components for rapid on-site installation¹.

The factory setting enables superior quality control, weather protection, and access to automation, reducing material waste and schedule delays while improving worker safety and comfort. These conditions additionally help attract workforce participants who might otherwise avoid traditional construction environments.

The prefabrication ecosystem in Canada encompasses diverse stakeholders including manufacturers, assembly plants, wholesalers, and fleet leasing companies. These organizations support projects ranging from houses to civil infrastructure. Traditional construction companies and contractors are increasingly establishing their own fabrication facilities. Specialized installation services, such as crane operators, continue to emerge.

While prefabrication has an established history in construction—particularly in steel and precast concrete applications for buildings and bridges—the sector is experiencing renewed growth. This expansion is partially driven by innovations in mass timber systems and wood component prefabrication. However, adoption remains variable across sectors, with residential construction notably showing only 30% integration of prefabrication techniques².

This pioneering study examines the size and characteristics of Canada's construction prefabrication industry to support the development of "prefab-friendly" building codes and standards. By documenting the number, location, activities, and markets of prefabrication companies, it provides a comprehensive overview of a sector poised for rapid growth.

The research establishes a baseline for ongoing monitoring of the industry's evolution through the Prefab Construction Navigator - an interactive web-based dashboard which offers a vital resource for policy-making and regulatory reform. At the launch of this database in March 2025, industry stakeholders were invited to submit information about prefab companies and their activities as the Canadian prefab space is developing quickly. The Prefab Construction Navigator database will be updated regularly as new information is validated for inclusion.

Visit Scius Advisory's Prefab Construction Navigator

<https://sciusadvisory.com/prefab-construction-nav>



Definitions and Types of Prefabrication

Prefabrication encompasses the production of building components—including walls, floors, and other elements—at locations separate from the final building site, whether in temporary facilities, local factories, or inter-provincial manufacturing plants. The scope ranges from basic assemblies of beams, columns, and trusses to sophisticated enclosed wall panels with integrated windows and mechanical systems, and complete modules ready for stacking.

Modular construction represents a specialized form of prefabrication, utilizing volumetric containers, pods, or relocatable buildings that function independently or combine to form larger structures. While traditionally associated with temporary facilities like construction site offices and classrooms, modular construction has evolved to address permanent housing needs, particularly in remote locations where it offers rapid deployment of quality, affordable solutions.

Innovation continues to expand prefabrication possibilities, introducing solutions such as premanufactured interior structures for office-to-residential conversions, "plug-and-play" HVAC systems, and "slide-on" balcony modules. These developments specifically target the growing demand for efficient, adaptable housing solutions through prefabrication technologies.

Categories and types of construction prefabrication

Requires the least amount of onsite work			
	Integrated prefabricated parts of buildings or whole buildings involving many different materials, components and assemblies.	Structures	Entire prebuilt structures such as ready-to-move homes, industrial buildings.
	Integrated prefabricated elements combining different materials and trades.	Modules	Complete multi-dimensional prefabricated units, such as rooms or building sections.
		Pods	Prefabricated, fully serviced units such as kitchens or bathrooms.
		Bridges	Prebuilt bridge systems.
		Kits	House-building packages and construction kits that comprise integrated premanufactured elements that are assembled onsite.
	Simple prefabricated elements involving one material or trade.	Balconies, canopies	Prebuilt units
		Mechanical and Electrical Equipment	Pre-engineered and modular mechanical systems, such as HVAC units, electrical closets, etc.
		Panels	Prefabricated wall systems, including structural or non-structural panels.
		Façades	Prefabricated external cladding systems or façade elements for buildings.
		Floors	Prefabricated floor panels or systems for installation.
		Roofs	Prefabricated roofing systems or panels.
		Stairs, decks, walkways	Pre-built staircases manufactured offsite and installed on-site.
	Transformation of a single type of raw material (wood, steel, concrete) into simple elements.	Frames	A primary structural or envelope framework, either timber, steel or precast concrete, manufactured offsite.
Requires the most amount of onsite work.			



ModularPods is a New Brunswick company that manufactures bathroom and kitchen pods for hotels, healthcare and residential applications (credit: ModularPods).

Methodology

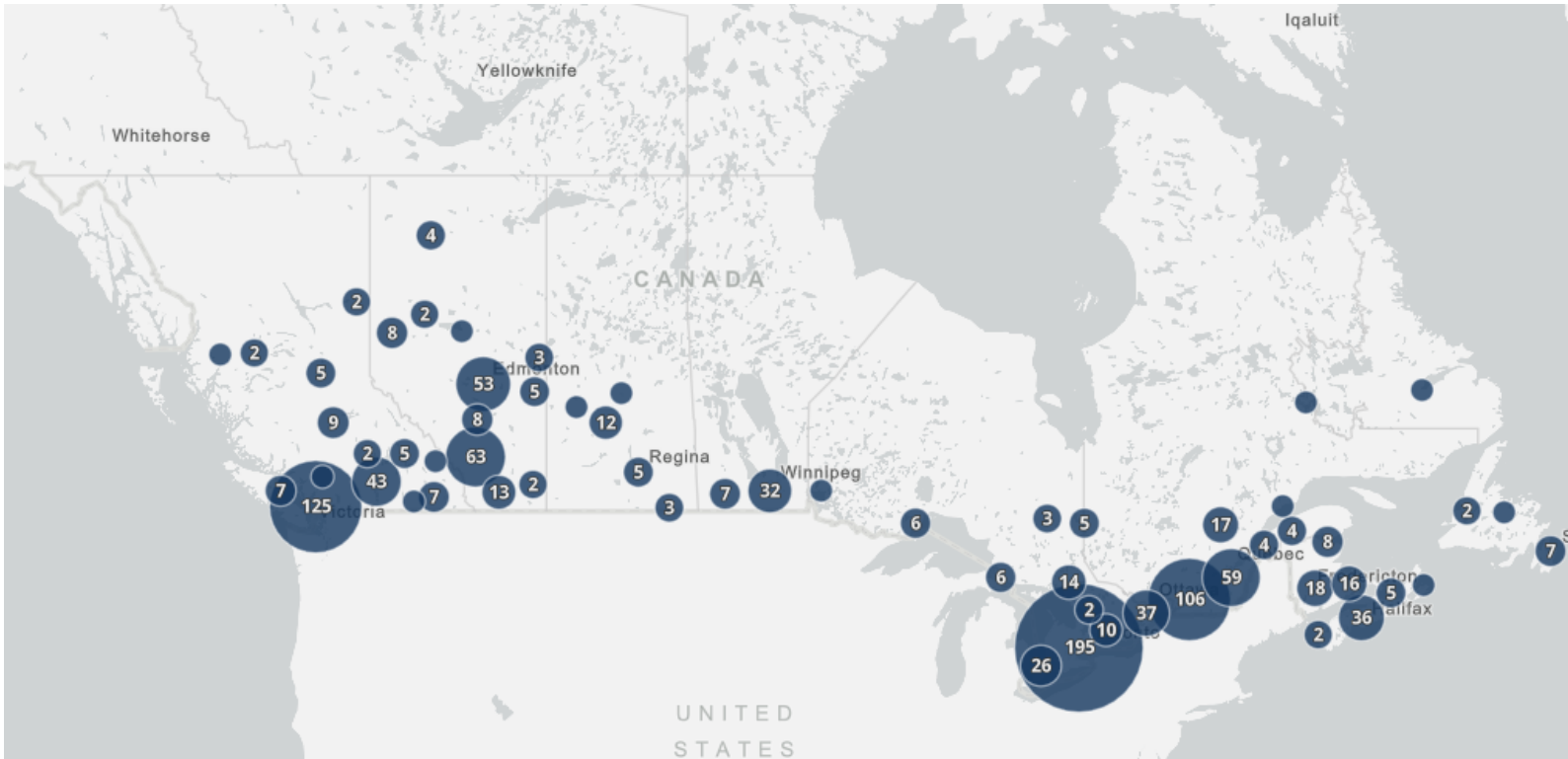
The analysis in this report combined the collection of secondary data from desktop research, membership lists from over a dozen industry organizations, and existing data from 10 partner academic and research institutions, with a primary research process that reached 102 companies through an online survey and one-on-one telephone calls.

Additional desktop research was conducted to identify other reports discussing the prefabrication and modular construction industry, the issues it faces and trends that have been identified. Data was collected between June and December 2024. A company was considered to be operational if the website was active and/or Google.com listed them as being open.

Data collected included:

- Company name and locations (headquarters & branches)
- Website
- Materials used for fabrication (wood, concrete, steel, multi-materials, etc.)
- Markets served (residential, commercial, institutional, low rise, high rise, etc.)
- Geographic regions served
- Products manufactured (trusses, building systems, panels, modules, kits)
- Revenues
- Number of employees

Information about facility size, production capacity and level of automation was also sought, but insufficient data was available. Further details about the methodology and limitations to the data are available in the Appendix.



Sector Size and Composition

There are 830 companies involved in construction prefabrication in Canada. Numerous companies operate out of multiple locations for a total of 1,028 production facilities, offices and service centres.

Construction prefab companies are concentrated around major metropolitan areas and can be found in all provinces and territories. These companies not only manufacture prefab products, but they also offer a range of services including sales and leasing, specialist engineering design, installation and construction services.

This research also revealed that companies involved in prefab construction in Canada employ an estimated 184,803 workers. They turn over about \$88.9 billion annually. The majority are small businesses. 535 (64%) have 25 employees or less and only 38 (5%) have more than 500.

There are thirteen large firms that generate in excess of a billion dollars annually*. These include major general contracting firms that operate a prefab division, manufacturing conglomerates for which the construction sector is only one market, and materials suppliers that only prefab a portion of their products. They do not report revenues from prefabrication separately from their other activities and some are highly diversified. Together, these thirteen companies account for 42% of the workforce and 68% of the revenues.

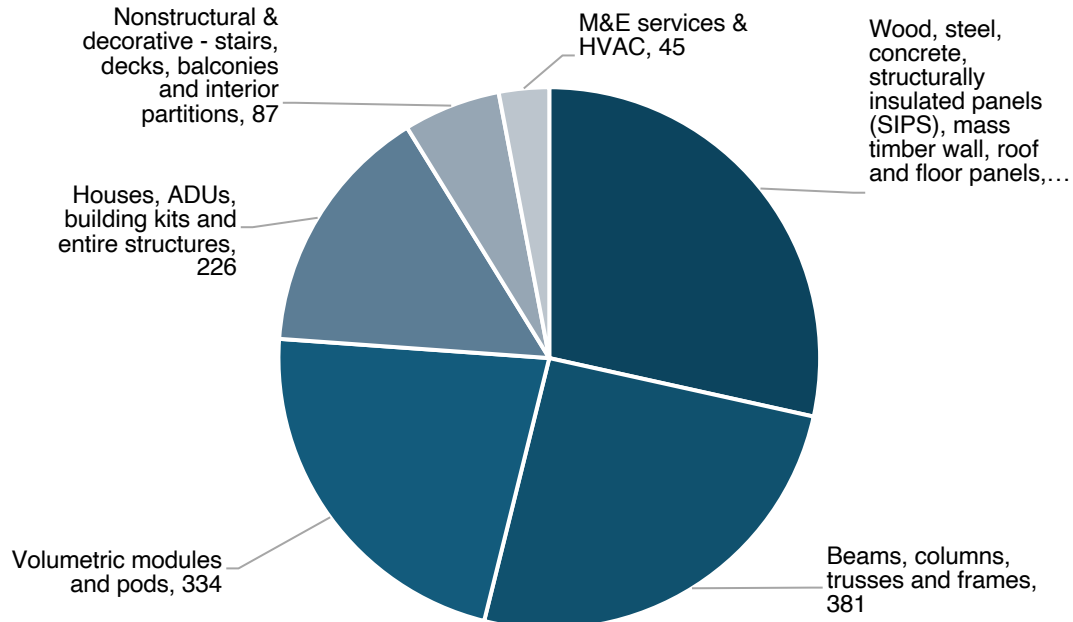
There are several international firms that are entering the Canadian marketplace. Unless there was evidence of significant activity in Canada and data on the number of Canadian employees, these firms were excluded from the database. However, their progress will be monitored for potential inclusion at a later date.

* PCL Construction, Weyerhaeuser, Boise Cascade, West Fraser Timber Co. Ltd., EllisDon, Graham Construction & Engineering Inc., ATCO Ltd., Ledcor, Lafarge, Resolute Forest Products, Black and MacDonald, Wajax - Tundra Process Solutions, Flynn

Products and Market Served

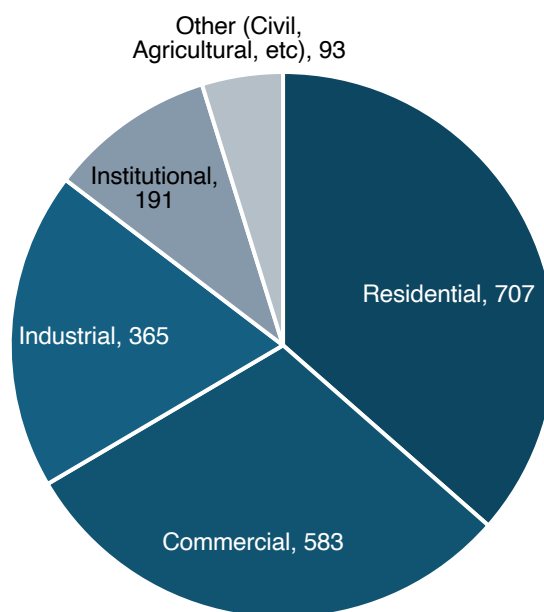
The largest category of construction products manufactured in Canada includes all the various types of panels used for walls, roofs and floors (Figure 1).

Figure 1: Types of products manufactured in Canada by number of companies



Canadian prefab companies provide products to civil, commercial, industrial, institutional and residential projects ranging from complex high-rise structures to simple cabins and sheds (Figure 2).

Figure 2: Markets served by Canadian prefab companies.





Prefab glulam and mass timber installation in North Vancouver, British Columbia (credit: Naikoon Contracting Ltd.)

The majority of companies serve the residential and commercial sectors. Common commercial building types include hotels, offices and retail. Most companies serving these markets focus on low rise (56%) projects. By comparison, only a few serve high rise markets (17% for commercial and 14% for residential). Most prefab companies focus on domestic markets. 233 stated that they shipped their products to all parts of Canada (but do not specify which are their largest markets). 101 export to the USA. 26 companies have markets in other international locations (13 are in Asia, nine are in Europe and four are in “other” which includes Africa, the Caribbean and the middle East). A further twelve companies state that they sell internationally but do not say where.

Demand for prefab construction products has the potential to increase alongside the construction industry as a whole. In 2023, a total of \$118 billion was invested in new building construction in Canada, of which 70% was in residential projects³ and investment continues to grow⁴. 2024 data on the overall market size and dynamics of relevance to prefabrication in Canada includes:

- Sales of prefabricated homes using any material is a \$3.8 billion industry. This includes
 - manufactured mobile homes (\$1.5 billion),
 - prefabricated residential wood buildings (\$893.3 million) and
 - prefabricated non-residential wood buildings (\$477.2 million)⁵.
- The global market for mass timber products is expected to grow at a compound annual growth rate (CAGR) of 6% from 2022-2031⁶.
- Revenue for structural metal products is in the order of \$15.8 billion⁷.
- Revenues from Canadian precast concrete companies are projected to reach \$3.2 billion in 2024⁸.

Types of Facilities

Construction prefabrication in Canada encompasses the full spectrum of industrial sophistication. Facilities can be as basic as a covered temporary lay-down yard that operates for the duration of a project or comprise a technologically sophisticated permanent climate-controlled plant. In most cases, there tends to be a mix of automated, semi-automated, and manual processes. Overall, few companies described their manufacturing processes on their websites, so it is difficult to quantify or benchmark the level of automation in construction prefabrication in Canada at this time.

Integration of digital tools has yet to be embedded throughout the building design, construction, and delivery processes and, as a result, few factories have fully embraced automation. However, the situation is changing quickly with new highly sophisticated facilities scaling up across the country.

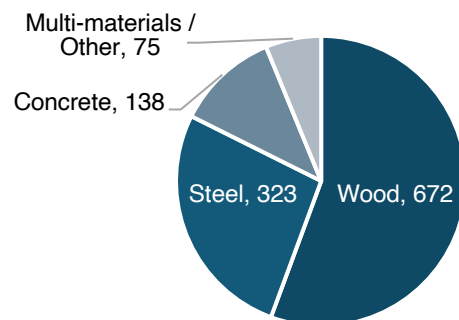


Automated mass timber panel fabrication at Intelligent City, Vancouver (image credit: Intelligent City).

Materials

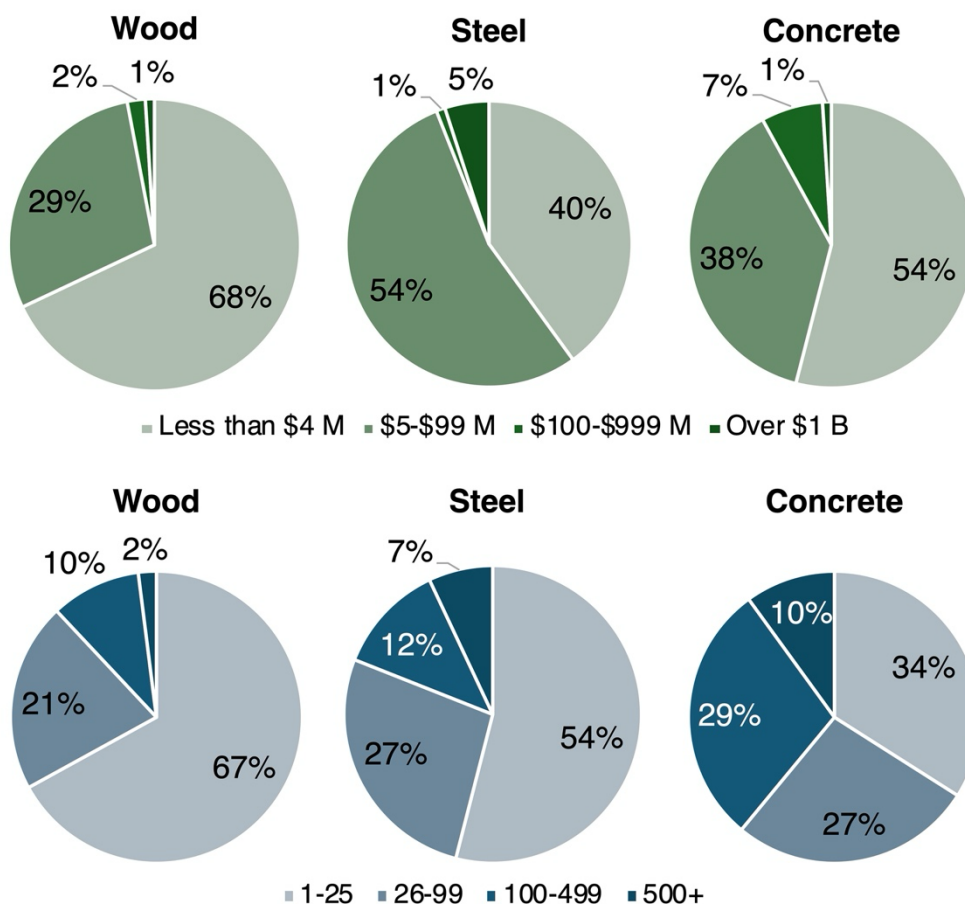
Most prefab firms are involved in producing structural and envelope products. 667 Canadian prefab companies use wood as their primary material. There are 196 companies using steel and 92 producing precast concrete products. 41 firms that make modular products for building services applications (HVAC, plumbing, etc.) have also been included. There are 112 companies that produce other forms of prefabricated products (decks, balconies, stairs, etc.) (Figure 3).

Figure 3: Types of products manufactured in Canada by number of companies.



While there is a large number of wood-based prefab companies, they tend to be small businesses. By comparison, there are fewer steel and precast concrete companies, but these tend to be larger in terms of the size of their workforce and revenues (Figure 4).

Figure 4. Number of companies with employee ranges (top) and revenues (bottom) for each material.





Vienna House National Housing demonstration project in Vancouver showcases the use of prefab light wood frame wall panels and mass timber floors (credit: Kelly Walsh, Sciuss).

Wood

Wood is often chosen for construction because it is lightweight and easy to use, is a renewable resource, provides flexibility that can be important for seismic regions, is a naturally insulating material, has biophilic and aesthetic appeal, and can be cost effective.

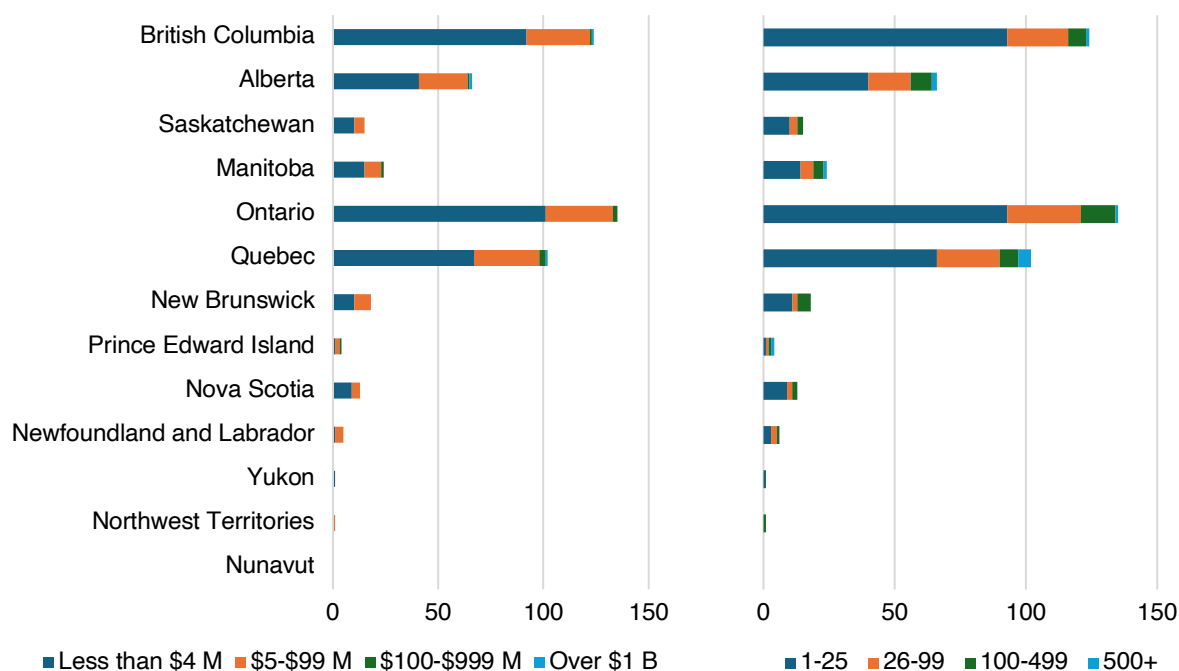
Prefabricated wood buildings continue to grow in popularity spurred in part by the adoption of building codes allowing taller wood structures. The National Building Code of Canada currently allows wood construction with encapsulated mass timber up to 12 storeys⁹, with a proposal in progress to extend that to 18 storeys, similar to the British Columbia¹⁰ and Ontario¹¹ Building Codes.

Wood prefab products vary in their complexity from trusses and simple framing to volumetric modules that incorporate services or windows. Offsite assembly of these also varies from framers who are located offsite to fully computerized and robotic systems.

Wood is commonly used in residential and low to mid-rise buildings as light wood frame panels and floors and mass timber solutions are available for taller and more complex projects.

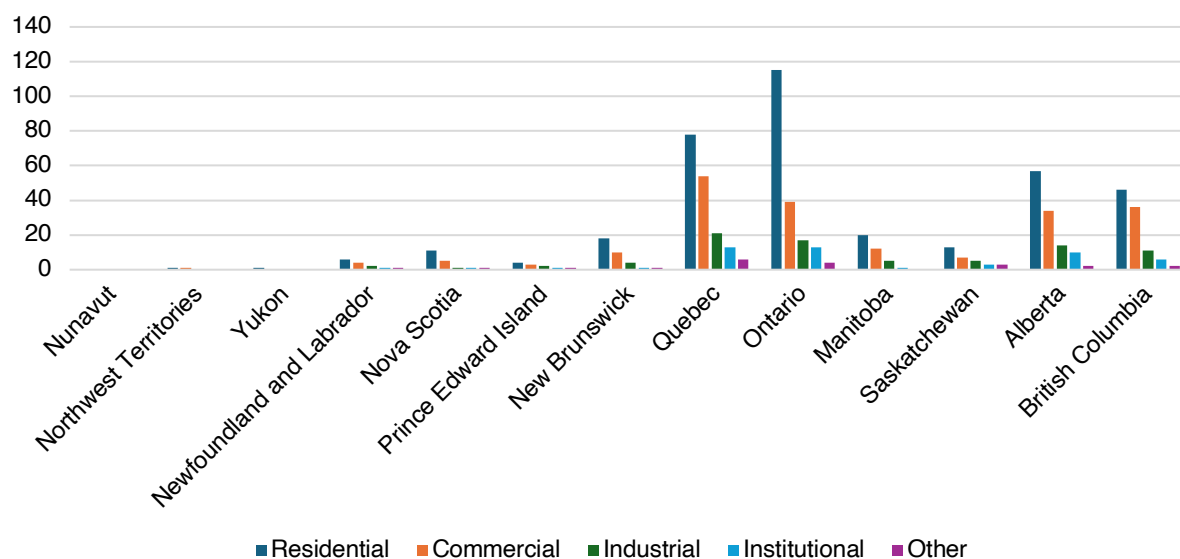
The 667 wood prefab manufacturers and suppliers in Canada are spread across the country and there is at least one firm with a point of service in most territories. Most are in Ontario, followed by BC and Quebec. The majority are small businesses with 68% generating less than \$4 million annually (Figure 5).

Figure 5. Number of prefabricated wood company locations by revenues (left) and employees (right)



Prefabricated wood construction is strongest in the residential sector in all provinces, with some activity in the commercial sector, but markedly less in industrial sectors (Figure 6). Most companies serve more than one market. For example, companies producing panels for multifamily housing also sell to hotels, student dormitories, etc.

Figure 6. Number of company locations producing prefabricated wood by market segment





Maple Avenue Tower, a 17-storey Condo (with a 4-storey precast concrete parking garage and composite transfer slabs at the 5th floor) and Mixed Retail (Total Precast Concrete Building) in Barrie, Ontario (credit: Stubbe's Precast).

Precast concrete is a versatile material that can be used in a variety of ways, including foundations, stairs, floors, walls, beams and balconies.

Precast Concrete

Building construction makes up 17% of the precast concrete market in Canada.

Primary markets include infrastructure and civil applications (dams, bridges, pipes, etc.), walls for soundproofing, landscaping, and architectural panels for building façades. Precast concrete walls and insulated panels are valued for their durability, fire resistance, weather resistance, pest resistance, strength in high-wind areas, low maintenance, and acoustic performance.

The diverse applications of precast concrete allow smaller companies to specialize in niche market segments. However, concrete production is energy-intensive and subject to energy price volatility. Regional variations in energy sources across Canada contribute to uneven cost fluctuations.

The precast concrete industry has grown at an estimated CAGR of 3.0%, reaching \$3.2 billion by 2024, with increasing profitability¹². Growth in residential and non-residential construction is expected to drive further expansion.

Precast concrete maintains a strong market presence due to its maturity, durability, structural capacity, and fire resistance. Manufactured offsite using molds of wood or steel and reinforced with wire mesh or rebar, precast concrete differs from tilt-up panels, which are poured onsite. Although tilt-up panels save transportation costs and suit large forms, they are prone to weather-related inefficiencies at job sites.

Precast components are manufactured in controlled factory environments with optimum conditions, ensuring a consistent, high-quality output. Precast concrete combines cement, aggregates and water in mixtures determined by how and where the components will be used.

Precast concrete products are manufactured for buildings in 138 locations throughout Canada. Most are in Ontario (31%), followed by Alberta (25%). 25% of these companies operate with 25 or fewer employees and 40% report revenues of less than \$5 million (Figure 7 and Figure 8).

Figure 7: Number of precast concrete company locations by revenues (left) and employees (right)

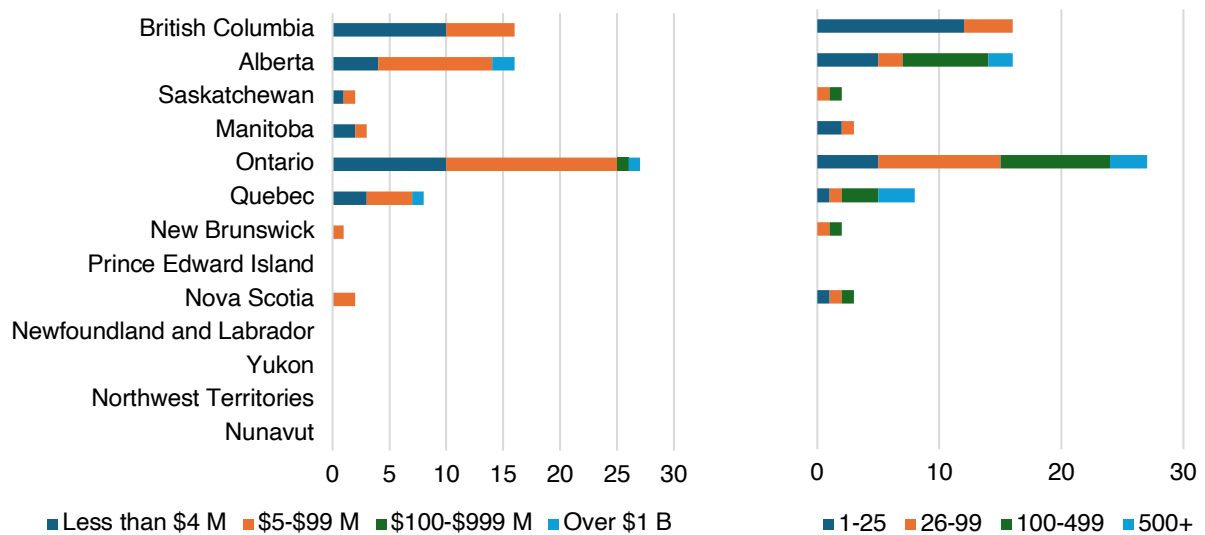
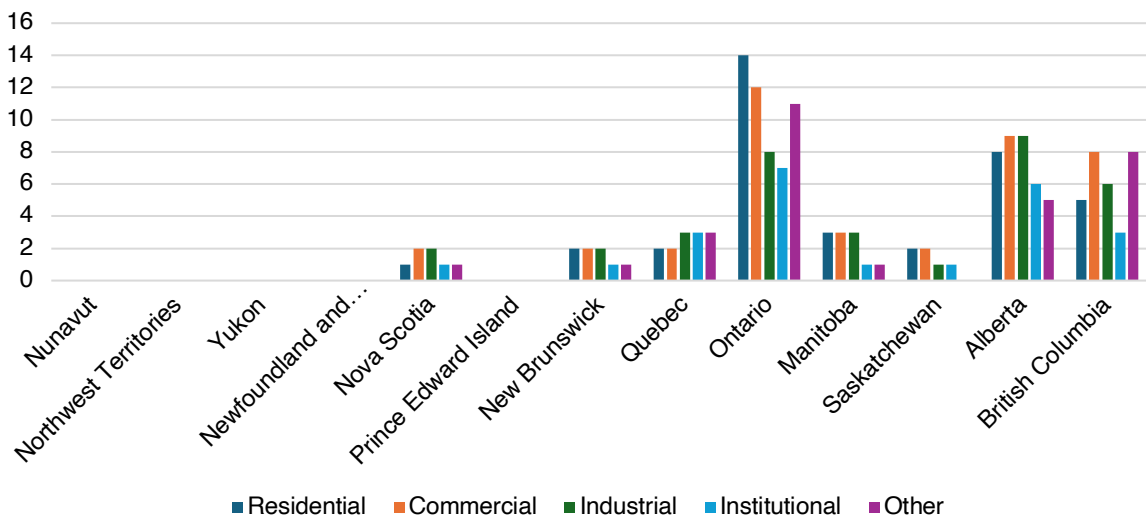


Figure 8: Number of company locations producing precast concrete by market segment





Steel and Other Metals

There is a very wide array of prefabrication using metal for building construction ranging from architectural metalwork through to entire structures.

Prefabricated metal buildings comprise 20% of the structural metal product market in Canada. Overall, structural metal product manufacturing industry revenues have been expanding at a CAGR of 2.6% over the past five years and is expected to total \$14.8 billion in 2025¹³. The construction market represents over 50% of total market demand.

Structural steel is a well-established construction component for buildings of all types and sizes across Canada. Its strength makes it an ideal material for use in infrastructure, recreational facilities, hospitals, schools, hotels, industrial, agricultural, commercial and residential buildings.

Steel and other metals are also manufactured for wall and floor framing, trusses, stairs, balconies, and more. Aluminum is used in façade systems, architectural metal work and other applications. A variety of metals are used in roof systems, building services and infrastructure.

As with other premanufactured products, an expected increase in residential construction will benefit sales and aid manufacturers to expand their capacity. Demand from the construction market is vital for growth of companies producing premanufactured metal buildings. Increased demand for metal structures in the utility and transportation industries will also benefit these manufacturers.

There are 323 locations that manufacture products that use steel or other metals, with the highest concentration near metropolitan areas. Products range from structural frames and building kits (commonly for industrial or agricultural use) to panels, façades and non-structural systems, such as interior partitions, stairs and walkways. The use of structural steel is most prevalent in the commercial and industrial sectors. 55% of these companies operate with 25 or fewer employees and 54% report revenues of less than \$5 million (Figure 9 and Figure 10).

Figure 9: Number of steel prefabrication company locations by revenues (left) and employees (right)

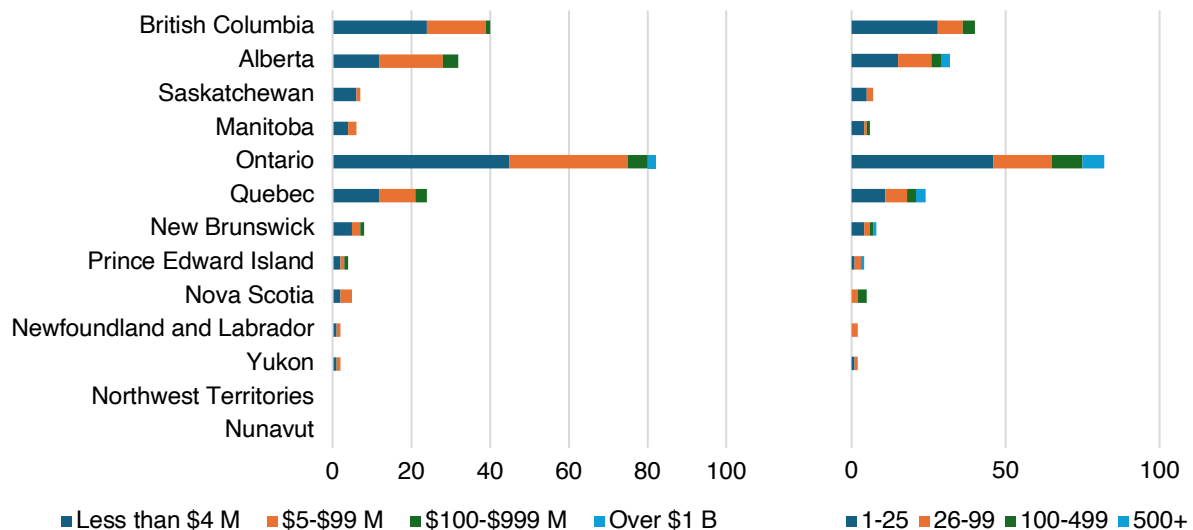
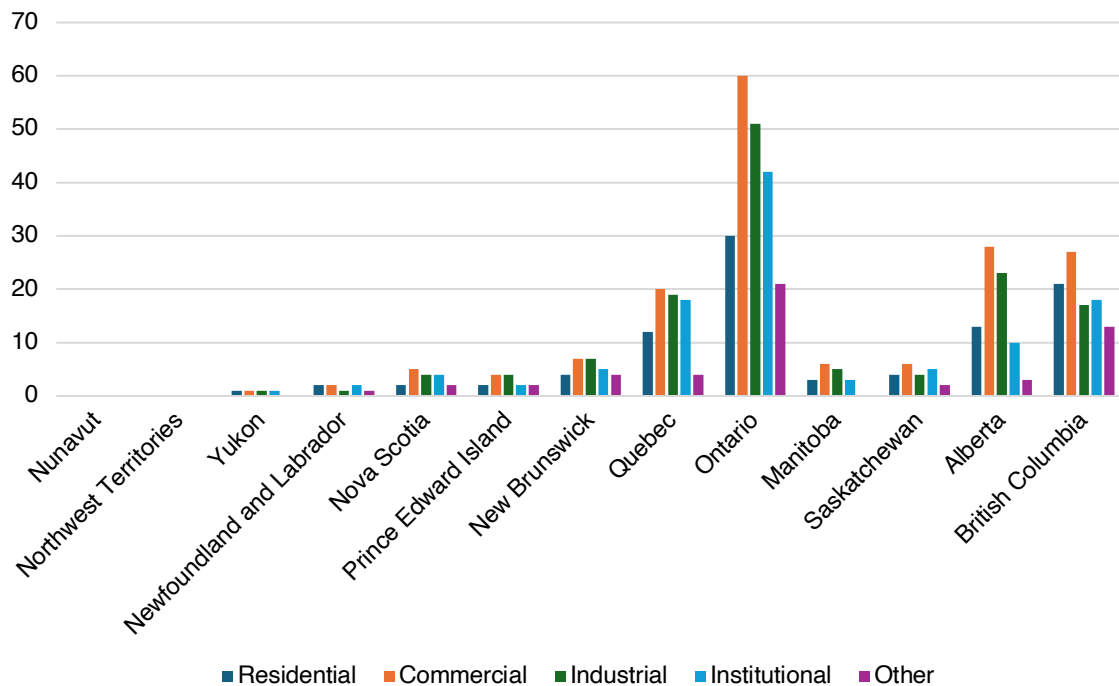


Figure 10: Number of company locations producing steel products by market segment.





Modular HVAC equipment for an office building (credit EJS New York).

HVAC and Building Systems

Many of the 27,484 HVAC and mechanical¹⁴ and 27,880 electrical¹⁵ contracting companies in Canada have some level of fabrication facility where they assemble and customize equipment and systems. Many of the major general contracting firms can ramp up prefabrication services when necessary for large projects. Most have storage space and a workshop, but it is difficult to determine the level of offsite activity as this depends, in large part, on their level of engineering and BIM capabilities.

The 45 companies identified clearly demonstrate that they offer prefabrication, modularization and industrialized construction solutions. However further research is needed to better understand the scale of prefabrication activity in this sector.

Figure 11: Examples of prefabrication solutions for building services and equipment

Mechanical prefab	Electrical prefab
Complete mechanical rooms with chillers, boilers, pumps pre-piped and mounted on skids	Complete electrical rooms with switchgear and distribution
Pump packages and hydronic distribution assemblies	Panel assemblies and power distribution centers
Pre-insulated piping assemblies and racks	Cable tray assemblies
Sheet metal ductwork assemblies with dampers and accessories	Light fixture assemblies with mounting hardware
Plumbing carrier walls with rough-in	In-wall rough-in assemblies
Multi-trade racks combining mechanical, electrical, plumbing	Communication room racks
Fan coil unit assemblies with piping connections	Underground duct bank assemblies
Bathroom pods (often in collaboration with other trades)	Pre-wired equipment skids
Process applications	
Process piping skids and modules	
Clean room mechanical systems	
Industrial ventilation systems	
Power distribution for manufacturing	
Industrial cooling systems	
Data center power and cooling modules	

Other Types of Prefab Systems

There are several clusters of other types of prefabrication products and assemblies available in Canada. These groups include manufacturers of trusses, insulated panels and insulated concrete forms, all of which are represented by active industry associations. Also of significance are the interior partition and commercial fit out solutions companies, although there are only eight, they are large, technologically sophisticated and active internationally. Other prefab products manufactured in Canada include precast stucco panels, foundations, tent structures, balconies, stairs and decks.

There are numerous “custom” prefab companies that will engineer and manufacture bespoke products to order. These companies work in all types of materials and produce large and/or complex components such bridge decks, long-span trusses, etc.



Bow River Pedestrian Bridge, Banff, Alberta (credit: StructureCraft, courtesy naturallywood.com).

Regional Perspectives

There is a range of construction prefab manufacturing activity across Canada with most companies located in Ontario (Figure 12 and Figure 13). Note that many companies make multiple product types.

Figure 12. Distribution of construction prefab companies across Canada.

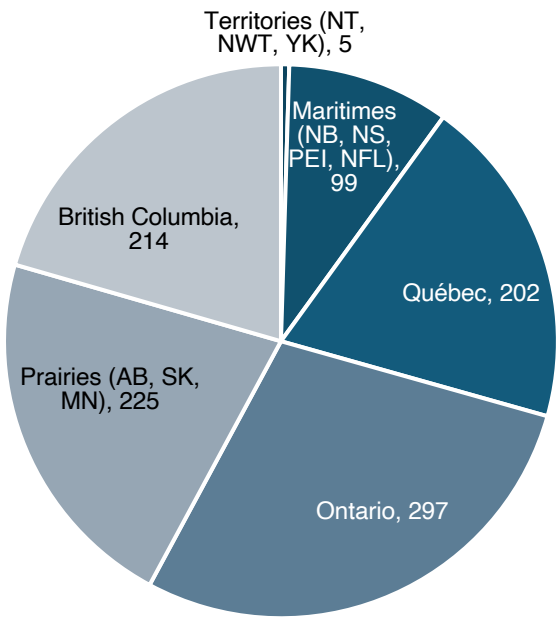
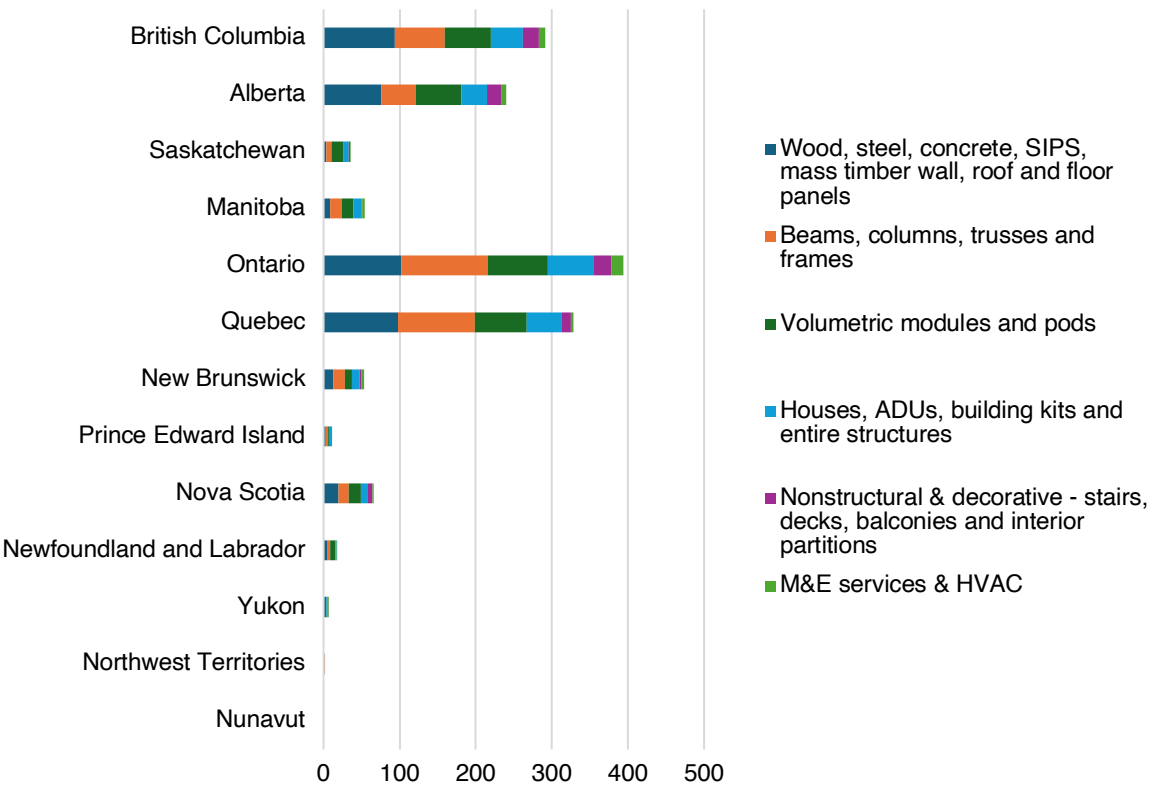
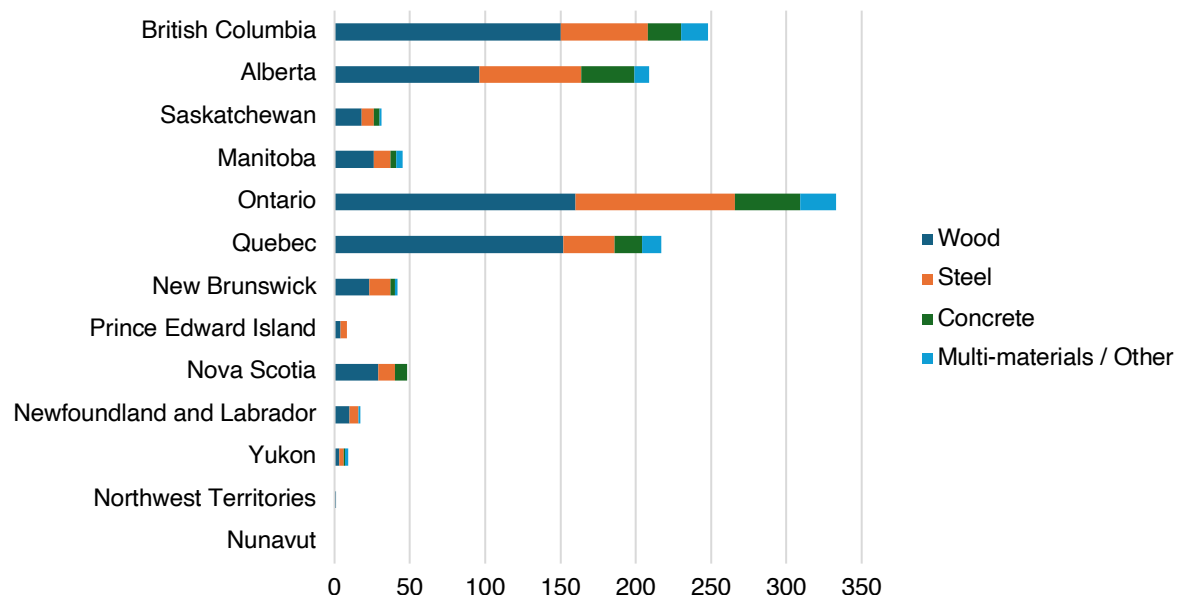


Figure 13. Number of company locations by type of products manufactured in each province and territory.



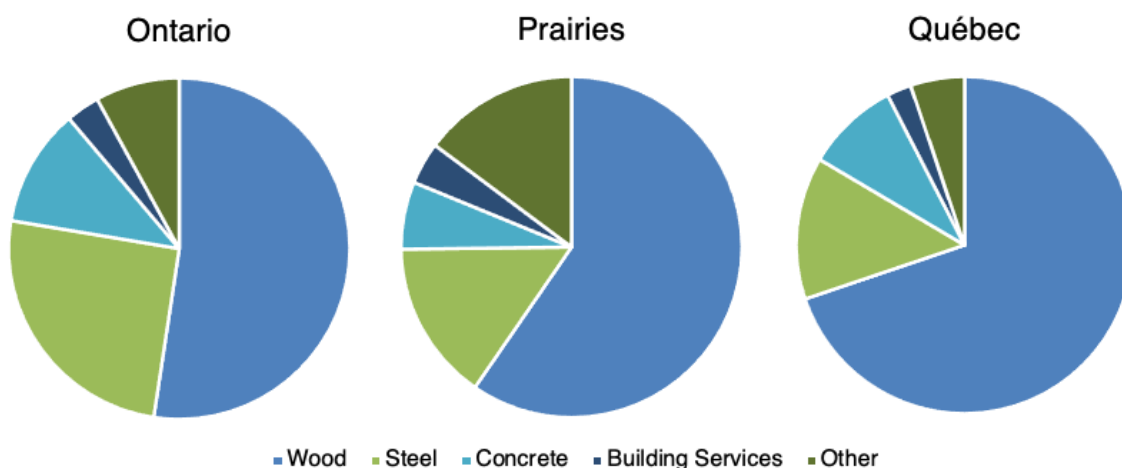
There are companies producing wood, steel and precast concrete in most regions (Figure 14).

Figure 14. Number of company locations by type of products manufactured in each province and territory.



There are regional differences when it comes to the strengths and characteristics of the construction prefab production in terms of the materials used. Most notably, Quebec has the highest proportion of wood product manufacturers. Ontario has the most steel and concrete company locations, and the Prairies are home to the most diverse range of companies (Figure 15).

Figure 15. Distribution and relative strengths in construction prefabrication by material, leading provinces and regions.



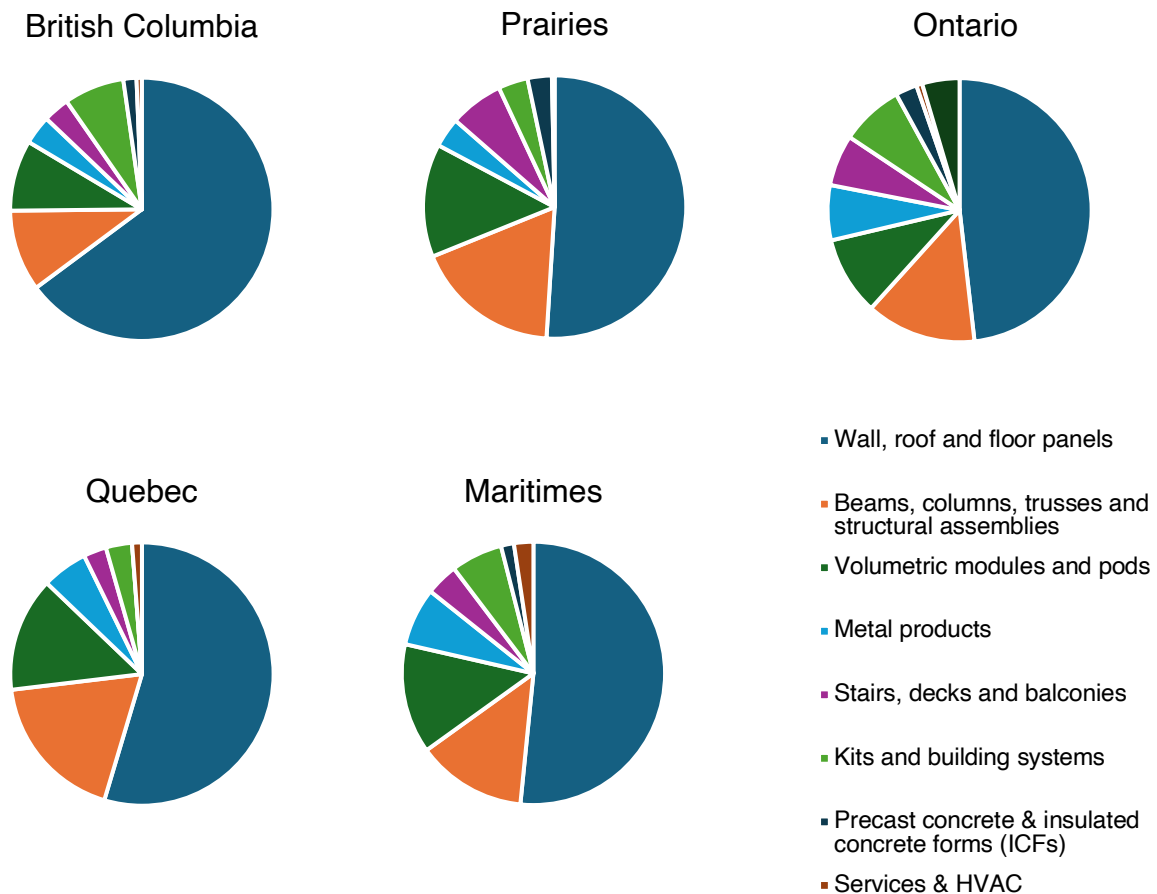
There were few companies identified in northern locations beyond service centres and retail outlets for prefab homes. However, there are prefab projects in the North because of the advantages of being able to complete projects within the short construction season. Modular camp housing for mining and energy companies is commonplace and there are several Indigenous-led initiatives that are developing residential prefab solutions suitable for small communities.



buildings in Montreal, Quebec (credit: Schöckbeton & Saramac).

There are some differences in the diversity of products manufactured, with companies across the Prairies offering the widest range of prefab projects and BC being the most focussed on one product type: specifically, wood panels (trusses, light wood frame systems and mass timber) (Figure 16).

Figure 16. Distribution and relative strengths in construction prefabrication by products.



Challenges and Opportunities

Construction prefabrication is poised for significant growth, particularly in the face of government priorities to fast-track housing delivery. The construction industry, as a whole, is struggling with rising material and energy prices and a systemic labour shortage. For example, the cost to construct a residential building in Canada has increased by 58% since 2020, well outpacing the overall inflation rate of 15% over that time period¹⁶. Prefabrication has an important role to play in improving productivity, accelerating delivery schedules and de-risking construction projects.

Working in a factory setting allows multiple components to be completed at the same time. Efficiencies allow components to be produced more quickly. This time savings allows project schedules to be greatly reduced, resulting in savings for items such as holding costs and insurance, or employee overhead, while reducing risk. These time savings have not been well quantified financially and will likely vary between projects.

Prefabrication also offers social and environmental benefits. An efficient industrialized process generates significantly less waste while ensuring safer working conditions. On-site installation is faster, less disruptive to the neighbourhood, and reduces time of exposure to inclement weather.

Despite these advantages, prefabrication companies face several challenges, in particular:

- Standardization conflicting with municipal requirements
- Procurement and financing challenges
- Competition

The construction of a mass timber and steel hybrid office building in Vancouver, formerly known as "Mountain Equipment Co-op (MEC) Head Office". (credit: KK Law, courtesy naturallywood.com).



Standardization Conflicting with Municipal Requirements

The variability of codes and regulations between municipalities in Canada limits the ability of prefabricated panel manufacturers to provide standardized and repeatable products that can be widely used. The patchwork of regulations increases design and production costs and limits preparation of a standard inventory. It also limits where a manufacturer may choose to do business if accommodating more variations to suit different municipalities is not cost effective. Standardized codes and bylaws would provide larger markets for manufacturers and a wider variety of options for developers, driving competition and reducing costs.

Code-compliance inspections for prefabricated components can be best conducted before completed panels or modules arrive on site. CSA A277-16 (R2021) "Procedure for certification of prefabricated buildings, modules, and panels" specifies the procedure for modules and can be used to complete certification at the factory site so that components do not need to be opened once delivered¹⁷. However, this standard is not used consistently throughout Canada. Clarity is needed regarding when and how CSA A277 is enforced and where inspections should occur at the factory instead of at the job site¹⁸.

While CSA A277 provides a procedure for certifying off-site constructed modules, its enforceability also varies between provinces. It is recognized in the National Building Code, but categorized as an administrative document, which prevents it from being officially recognized as an "approved methodology". This creates uncertainty at the municipal level, where local inspectors may not be familiar with CSA A277's application. Additionally, because modules can be manufactured in one province and shipped to another for assembly, the lack of regulatory consistency adds further complications and delays.

CSA Z250:21 "Process for delivery of volumetric modular buildings" describes the processes for the delivery of permanent volumetric modular buildings that have been constructed in a factory¹⁹. It specifies key processes for

- design
- logistics, transportation, and storage
- nonmodular and modular sitework
- lifting, placement, and setting
- installation and finishing
- commissioning and handover.

These aspects of factory-built construction modules are not currently covered by most building codes. Recognizing CSA Z250 in the National Building Code would support the prefabrication industry by standardizing methods and providing needed consistency²⁰.

These standards could also be expanded to provide procedures for inspection and delivery of other prefabricated components, allowing onsite installation to be conducted quickly and efficiently.

Procurement and Financing Challenges

The use of prefabricated building products and methods is most effective when projects involve standardized and repeatable designs. Manufacturing components in factory settings delivers improved quality control, economies of scale, material efficiency, and enhanced worker productivity, reducing costs and risks.

The timing of involving prefabrication manufacturers within the construction process significantly affects cost and scheduling. Engaging manufacturers early can inform design and streamline production but may forgo the benefits of competitive bidding to balance quality, cost, and capacity. Additionally, manufacturers may differ in fabrication methods. If brought on board after design completion, rework may be needed to adapt designs for fabrication. Choosing a manufacturer too early also carries risks, such as unavailability of products or cost increases at later stages.

Prefabrication enables earlier production of components but requires earlier material procurement and coordination of concurrent project work to align schedules. Projects procured through design-bid-build methods may not provide opportunities for prefabrication optimization since manufacturers are brought on at the tender stage once the design has been completed. In contrast, methods like design-build, construction management, or integrated project delivery incorporate manufacturers earlier, allowing designs to integrate prefabrication considerations and reducing redesign efforts during construction. This approach maximizes prefabrication's scheduling advantages, accelerating construction and delivering significant cost savings.

Prefabrication financing presents challenges, as it requires upfront investment for materials, labour, and factory production before on-site assembly. This need conflicts with traditional lending practices, limiting options for offsite construction projects.

These challenges are more pronounced for wood prefabrication, which is relatively new to the market. Contractors and insurers often charge premium fees due to unfamiliarity and perceived risks. Supporting wood prefabrication in Canada requires incentives alongside measures to address procurement practices, financing models, regional standardization, inspection processes, and education. These steps will help ease its adoption and mainstream use.

Competition

There is a significant potential for substitution of materials in construction projects and prefabricators specializing in one material commonly face competition from those specializing in another. For example, steel and heavy timber structural systems can be used interchangeably and precast concrete is increasingly facing competition from mass timber.

There is also significant international competition for prefabricated construction products despite shipping costs for heavy and bulky items. China is known for its cost-effective manufacturing capabilities in steel and concrete prefab as well as façade systems driven by low labour costs and economies of scale. China has developed world-class expertise and advanced manufacturing capabilities in producing a wide range of specialized products and components which are not as readily available in Canada. Similarly, prefab companies in the US are frequently shipping modules and panels north to Canada. Even with a low Canadian effective exchange rate, there is price competition from foreign markets where manufacturers benefit from lower wages, fewer regulations and supply chain efficiencies.

The Future of Prefab in Canada

Exciting times are on the horizon for the Canada's construction prefabrication industry, with billions in projects slated for 2025 and ambitious national housing targets requiring rapid delivery. Several factors position the sector for significant growth.

The combination of labour shortages, rising material costs, and productivity challenges in traditional construction creates strong incentives for prefabrication adoption. Factory-based production offers documented advantages in speed, quality control, and waste reduction while providing safer working conditions and reduced neighborhood disruption during installation.

However, the sector must address key challenges to realize its potential. Standardization of building codes across municipalities would enable more efficient production and wider market access. Procurement processes and financing models need updating to align with prefabrication's earlier material acquisition and production timelines. The industry must also continue developing strategies to compete with international manufacturers who benefit from lower costs and fewer regulations.

Looking ahead, several trends suggest continued sector expansion:

- Government housing initiatives increasingly emphasize prefabrication
- Growing acceptance of mass timber driving innovation in wood products
- Rising construction costs favour factory efficiency
- Environmental regulations encourage controlled manufacturing environments
- Digital design tools and automation advancing manufacturing capabilities

Success will require:

- Harmonized building codes and inspection protocols
- Updated financing and procurement models
- Investment in automation and digital integration
- Workforce development programs
- Supply chain optimization
- Enhanced quality standards and certification processes

The data collected through this study provides a foundation for tracking the sector's evolution and informing policy decisions that will shape its development. The accompanying web-based dashboard clearly communicates the location of companies across Canada and the markets they serve. Regular updates will document the industry's maturation as it responds to rising demand for faster, more efficient construction solutions.

The engineered timber roof structure at Central City, Surrey, BC comprises prefabricated tetrahedral space trusses consist of nearly 4,000 Douglas Fir peeler cores connected by custom castings on exposed connections between the steel cables and the struts (Credit: Tae Ik Hwang, courtesy naturallywood.com).



Appendix

Policies and Programs Supporting Prefab

The following policies and programs have been put in place to support construction using prefabrication or modular components. The breadth of these initiatives demonstrates the potential prefabrication demonstrates in addressing the housing crisis and improving productivity in construction.

Advanced Manufacturing Homebuilding Challenge

www.ngen.ca/funding/advanced-manufacturing-homebuilding-challenge

The Government of Canada announced \$50 million for the Homebuilding Technology and Innovation Fund to be led by Next Generation Manufacturing Canada (NGen), who are leveraging an additional \$150M from industry and other levels of government to integrate advanced manufacturing technologies and innovation in the Canadian home manufacturing sector. The overwhelming number of proposals submitted has resulted in this fund to be limited to one round.

Affordable Housing Fund

www.cmhc-schl.gc.ca/professionals/project-funding-and-mortgage-financing/funding-programs/all-funding-programs/affordable-housing-fund

CMHC launched the Affordable Housing Fund in November 2024 to provide low-interest and/or forgivable loans and contributions to community housing, rapid housing and preservation and revitalization projects.

Canada Housing Infrastructure Fund

<https://housing-infrastructure.canada.ca/housing-logement/chif-fcil/index-eng.html>

The Canada Housing Infrastructure Fund directly funds upgrades and new construction of housing-enabling drinking water, wastewater, stormwater and solid-waste infrastructure needs, but it is tied to increasing housing supply through new construction. It has requirements to adopt zoning for increased density, implement a freeze on increases in development charges, support development and adoption of the Housing Design Catalogue and use of standardized designs, and implement the 2025 National Model Codes to support the exploration of housing supply actions, such as single egress construction, modular construction, tiny homes, and code digitalization.

Consultation on an Industrial Housing Strategy for Homebuilding

In August 2024, the Government of Canada announced the launch of a consultation to source additional ideas on accelerating innovation and productivity in Canada's homebuilding industry. The consultation is supported by an expert panel and seeks input from professionals in the construction sector, academics and community leaders to discuss

- Enhancing productivity within Canada's housing ecosystem
- Incenting innovation and technology adoption
- Exploring the impacts of access to capital
- Strengthening supply chains

Green Construction through Wood (GCWood) Program

<https://natural-resources.canada.ca/funding-partnerships/green-construction-through-wood-gcwood-program>

The Green Construction through Wood (GCWood) program encourages the use of innovative wood-based building technologies in construction projects. This program supports Canada's commitment to reach 2030 and 2050 emissions reduction targets under the Paris Agreement and advance long-term priorities regarding greenhouse gas (GHG) emissions reduction.

Housing Design Catalogue

<https://housing-infrastructure.canada.ca/housing-logement/design-catalogue-conception/index-eng.html>

The Housing Design Catalogue supports modular and prefabrication technologies through a program to provide standardized housing designs. Standardization of the designs will reduce the time required for design, approvals and construction. The catalog will feature a variety of housing types, from accessory dwelling units to mid-rise multifamily housing.

Industrial Research Assistance Program (IRAP)

<https://nrc.canada.ca/en/support-technology-innovation/about-nrc-industrial-research-assistance-program>

The National Research Council of Canada's IRAP program offers financial support to small and medium-sized enterprises (SMEs) for technology innovation projects. It provides advisory services, research and development funding and access to expert guidance. This program helps businesses enhance their technology capabilities and competitiveness, fostering innovation and growth.

Investing in Canada Infrastructure Program

<https://housing-infrastructure.canada.ca/plan/icp-pic-INFC-eng.html>

The Investing in Canada Infrastructure Program provides funding for infrastructure projects that include transportation, community, cultural and recreational buildings, rural and northern communities' priorities, and "Green Infrastructure". Green infrastructure includes items like renewable energy and wastewater treatment but also supports energy efficient buildings.

Investments in Forest Industry Transformation (IFIT)

<https://natural-resources.canada.ca/forest-forestry/forest-programs/investments-forest-industry-transformation-ifit>

Created in 2010 and administered by Natural Resources Canada, the Investments in Forest Industry Transformation (IFIT) program facilitates the adoption of transformative technologies and products in the Canadian forest sector by bridging the gap between development and commercialization. The program aims to create a more competitive, resilient, and environmentally sustainable sector with a focus on innovative, low-carbon projects that result in new or diversified revenue streams.

Mass Timber Demonstration Program

www.naturallywood.com/mass-timber-demonstration-program

The Province of British Columbia (B.C.) and Forestry Innovation Investment have invested over \$9.1 million since 2020 through B.C.'s Mass Timber Demonstration Program (MTDP) to help with the incremental costs associated with the design and construction of 19 building projects and 8 research projects that demonstrate emerging or new mass timber or mass timber hybrid building systems and construction processes. This program is focussed on supporting advanced construction methods such as prefabrication and digitization.

Programme d'innovation en construction bois

<https://www.quebec.ca/agriculture-environnement-et-ressources-naturelles/forets/entreprises-industrie/aide-financiere/programme-innovation-construction-bois>

Quebec's programme d'innovation en construction bois (Wood Building Innovation Programme) provides financial support to companies and organisations that integrate wood material in an innovative way into a major construction or renovation project in the non-residential and multi-family sectors. The aim is to increase the use of wood in construction and thus reduce greenhouse gas (GHG) emissions from new buildings and civil engineering works (such as bridges).

Rapid Housing Initiative

www.cmhc-schl.gc.ca/professionals/project-funding-and-mortgage-financing/funding-programs/all-funding-programs/rapid-housing

The Canada Mortgage and Housing Corporation (CMHC) launched the Rapid Housing Initiative in 2021, creating 10,000 new housing units in 24 months using modular construction. In 2024 the program was expanded to also provide funding for rehabilitation or conversion of structures to permanent affordable housing.

Regional Homebuilding Innovation Initiative

www.canada.ca/en/atlantic-canada-opportunities/services/regional-homebuilding-innovation-initiative.html

Canada's Regional Development Agencies (RDAs) are promoting innovation in residential construction through strategic investments that enhance efficiency and output in the homebuilding sector. The Regional Homebuilding Innovation Initiative provides support to pursue new approaches for building houses, including designing and upscaling modular homes, the use of 3D printing, panelized construction, as well as implementing net-zero and climate resilient homebuilding practices.

Scientific Research and Experimental Development (SR&ED)

www.canada.ca/en/revenue-agency/services/scientific-research-experimental-development-tax-incentive-program.html

The SR&ED Program is a federal tax incentive initiative encouraging Canadian businesses to conduct R&D activities. It offers tax credits and deductions for eligible expenses related to scientific research and experimental development. This program helps manufacturers offset costs associated with innovation, foster technological advancements and enhance industry competitiveness through financial support for their R&D efforts.

Strategic Innovation Fund (SIF)

<https://ised-isde.canada.ca/site/strategic-innovation-fund/en>

Managed by Innovation, Science and Economic Development Canada (ISED), the SIF funds large-scale projects. It aims to support R&D, foster technological innovation and attract significant investments. The SIF provides financial assistance to businesses to accelerate growth, enhance competitiveness and drive economic prosperity through innovation and technological advancements. SIF has supported projects that benefit the steel industry and its employees through emissions reductions, factory upgrades.

Research Methodology

The research utilized a quantitative approach, relying on data collection from multiple reputable sources and collaborations with industry experts. This ensured the database represented a wide spectrum of contributors, including construction prefabricators, installers and related activities.

Data provided by 10 partner organizations	Publicly available membership lists	Engaged with 102 companies directly	Desktop research
<ul style="list-style-type: none"> • Association des Manufacturiers de Bâtiments Modulaires du Québec • Cecobois • Forest Economic Advisors • Forestry Innovation Investment Ltd. • FPIInnovations • Manufacturiers de Structures de Bois du Québec • National Research Council Canada • Scius Advisory • University of New Brunswick • Université du Québec à Montréal 	<ul style="list-style-type: none"> • Canadian Concrete Pipe & Precast Association • Canadian Institute of Steel Construction • Canadian Precast/Prestressed Concrete Institute • Canadian Wood Truss Association • Mechanical Contractors Association of Canada • Metal Building Manufacturing Association • Modular Building Institute • Structural Insulated Panel Association • Construction & Trade Associations 	<ul style="list-style-type: none"> • Online survey • Phone interviews 	<ul style="list-style-type: none"> • Web-based research

Over 100 companies were contacted by phone. Participants answered 13 structured questions, and responses were documented in a spreadsheet. Data collected included:

- Company headquarters location.
- Additional locations (if any).
- Primary materials used.
- Types of prefabricated products.
- Products manufactured.
- Facility size (square feet).
- Markets served (residential, commercial, industrial, etc.).
- Number of full-time employees.
- Geographic coverage and product distribution.
- Production volume (past 12 months).
- Maximum production capacity.
- Use of digital technologies (e.g., BIM, digital shop drawings, levels of automation).
- CSA A277 compliance.

The combination of phone surveys, internet research, and third-party datasets was essential for achieving sufficient coverage of the prefabrication industry.

- **Phone Surveys:** Validated prior research, identified inconsistencies in publicly available data, and collected data not publicly available.
- **Internet Research:** Provided additional insights for companies unwilling to participate in surveys.
- **Third-Party Datasets:** Enabled access to industry-level data not available through primary research.

Company websites (when active) were reviewed to gather publicly available information. A company was considered to be operational and open for business if their website is active and/or Google.com lists them as being open. A company's headquarters is the address of the company on their website, provided by Google or provided by 3rd party data if no other address was listed.

All phone survey participants provided consent to use their responses. Data collected through interviews and surveys was anonymized to protect individual and organizational identities.

Limitations to the research included:

- **Incomplete Coverage:** Not all companies in the Canadian prefabrication industry were included due to insufficient or unreliable data.
- **Accuracy of Survey Responses:** Dependent on the knowledge and willingness of respondents.
- **Website Data:** Limited by outdated or incomplete website information.
- **Non-Standardized Definitions:** Variations in definitions of terms such as "prefabrication", "modular" "offsite", "industrialized" across materials and industry sectors.
- **Third-Party Data:** Subject to biases and time constraints of the original data collection.
- **Currency:** it was not always possible to determine when the information provided by third parties or on website data was originally collected, or if it was up to date.
- **Geographic Data Gaps:** Facility and headquarters locations were not always provided.
- **Sample Size Variability:** Email surveys yielded a small sample size, while phone surveys provided medium coverage.
- **Financial Data Limitations:** Revenue data may include non-prefabrication products.

This methodology ensures the Canadian Prefabrication Industry Database captures a comprehensive and diverse representation of companies contributing to the prefabrication sector. The combination of primary and secondary data collection, alongside ethical research practices, establishes a strong foundation for future analysis and insights into the industry.

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