

# DIVERSE AND INNOVATIVE FOREST PRODUCTS

## British Columbia Offers Innovative Products

British Columbia's (B.C.) productive forests are a rich and diverse source of wood, including species unique to this western-most region of Canada.

British Columbian manufacturers offer a wide variety of versatile, high-quality products, including pulp, paper, wood pellets, construction and appearance grade wood for structural and finishing building applications.





# BRITISH COLUMBIA WOOD. SUSTAINABLE BY NATURE. INNOVATIVE BY DESIGN.



**500** *forest products manufacturers*

**40+** *native softwood and hardwood species*

**52** *million hectares of certified (CSA, FSC, SFI) forests in B.C.*

## A Wide Variety of Wood Species

Few places on earth can match the diversity and richness of B.C.'s forests. The province has more than 40 different species of native trees. Softwood or coniferous wood such as western hemlock, western red cedar and Douglas fir come from the temperate rainforests along the Pacific Coast. Many pines and spruces come from the dry and cooler forests of the interior of B.C.

*British Columbia wood products offer added assurance because they come from public forests that are managed to consider environmental, social and economic values.*

## Ideal for Many Structures and Finishings

### WARMTH AND BEAUTY

The attractive grain, colour and strength of B.C. wood species are ideal for millwork, doors, windows and furniture. As one of the most beautiful, versatile, durable and safe building products available, wood from B.C. performs while delivering cost and environmental benefits. As an interior structural or finished product, wood is durable and requires little maintenance. In addition, the visible presence of wood has been shown to reduce stress and promote health and well-being, creating optimal learning and work environments and public spaces.

whether custom or prefabricated, is fast and efficient, and can be undertaken year-round in almost any climate. The Wood Innovation and Design Centre in Prince George, B.C. continued construction of multiple levels throughout the cold and snowy winter months.

### QUALITY AND RELIABILITY

B.C. has developed a sophisticated system of product standards, engineering design guidelines and government regulations to assure customers of uniform product quality. Under B.C.'s quality control system, forest products are manufactured and graded to internationally-recognized standards or to specifications designed to meet the specific requirements of the customer and/or the product's intended end use.

### FLEXIBLE AND VERSATILE

B.C. wood suppliers offer a wide range of high-quality wood in both construction and appearance grades. Building with wood,



*Above: The Richmond Olympic Oval showcases the ingenuity and innovation of B.C. wood products with a massive wood wave roof encompassing 6.5 acres. Photo: KK Law*

*Top Left: The Cloverdale Recreation Centre in Surrey, B.C. is designed using wood beams and columns throughout the building's interior and exterior. Photo: Ed White Photographics*



## Forest Certification in B.C.

Wood is the only material with third-party certification programs in place to verify that products originate from a sustainably managed resource.

Canada is the international leader in forest certification with B.C. contributing more than any other province. There are three forest certification programs used in B.C.



*Left to Right: Canadian Standards Association's Sustainable Forest Management Standards (CSA), Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI).*

## British Columbia Forest Products

### STRUCTURAL PRODUCTS

B.C. wood products are ideal for wood-frame, post-and-beam and hybrid construction. B.C. suppliers export dimensional lumber and solid timber that can be used for any type of structure. Structural wood products include joists and purlins, prefabricated trusses, laminated lumber, machine stress-rated lumber and posts and beams.

### ENGINEERED AND MASS TIMBER WOOD PRODUCTS

The range of engineered and mass timber wood products from B.C. offer incredible design versatility, high-performance and dimensionally-stable options for any building project, residential or commercial.

These products are comprised of wood veneers, lumber, panels, fibres or strands bound together with an adhesive. Product examples include laminated veneer lumber (LVL), parallel strand lumber (PSL), I-joists, I-beams, glulam, oriented strand board (OSB) and plywood. Mass timber products such as cross laminated timber (CLT) and nail laminated timber (NLT) enable both structural and exposed design solutions.

### FINISHED PRODUCTS

Architects and interior designers know that unique, high-quality B.C. wood products can add artistic appeal and value to any residential or commercial building. B.C. manufacturers provide a wide

range of value-added products that add quality finishing touches, such as furniture, doors, window frames, architectural millwork, mouldings, trim and cabinetry.

### MARKET PULP AND PAPER PRODUCTS

B.C.'s wood fibre supply for pulp and paper comes from a variety of wood species. Due to the climatic conditions in B.C., these species naturally develop long, slender and thin-walled fibres. These fibre properties result in pulp that has excellent tensile strength properties, offering sheet dimensional stability. As a result, B.C. pulp is in demand worldwide for its superior ability to produce a wide range of high quality paper products. Examples include magazines, specialty and writing papers, tissues, paper towels, newsprint and containerboard.

### BIOMASS AND WOOD PELLETS

B.C. wood pellets are made from material that would otherwise be wasted. This includes sawmill residues such as sawdust and planer shavings and logging residuals. B.C. accounts for about 65% of Canadian capacity and production.

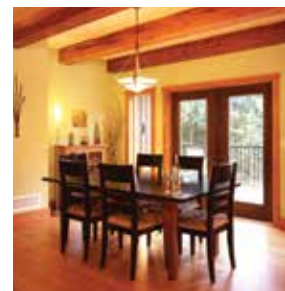
*500 manufacturers in British Columbia deliver a variety of commodity and specialized wood products – from dimensional lumber, engineered, mass timber and specialty products, to furniture, doors and windows, pulp, paper and pellets.*



*Third-party forest certification provides added assurance that B.C. forest products come from legal, sustainable sources. Photo: Brudder*



*Left: Sanlin Housing project in Shanghai is an example of wood-frame construction using B.C. SPF (spruce, pine, fir). Photo: naturally:wood*



*Right: The attractive grain and colour of the western red cedar exterior door casing, Douglas fir window casing and dining room table creates a warm and beautiful home. Photo: Peter Powles*

## Wood Performs: A Safe & Durable Choice

British Columbia building codes recognize wood's safety and structural performance capabilities and allow its use in a wide range of building types. Many public buildings in B.C., including schools, libraries, hospitals and government buildings, are using wood for its versatility, durability and environmental benefits.

When it comes to safety and durability, wood is a preferred choice for any private or public building project. Wood-frame and mass timber construction have a proven safety and performance record for a full range of conditions including fire, seismic and wind.

### FIRE

Wood buildings can be designed to meet fire-resistance ratings. The addition of sprinkler systems, fire-resistance-rated wall and floor/ceiling assemblies, and open spaces around the building, can be used to increase the allowable size of wood-frame structures.

Wood is significantly less heat-conductive than steel or concrete. Heavy timbers have a particular advantage in a fire because they char on the outside while retaining strength, slowing combustion and allowing time to evacuate the building. Building codes require all building systems to perform to the same level of safety, regardless of material used.

### SEISMIC

Years of research and building code development have proven that wood-frame and hybrid structures can meet or exceed the most demanding earthquake design requirements. Forces in an earthquake are proportional to the structure's weight and wood is substantially lighter than steel or concrete.

The fact that wood buildings tend to have numerous connections means they have more load paths, so there's less chance the structure will collapse should some connections fail. This is also why they have inherent flexibility, which allows them to dissipate energy when faced with the sudden loads of an earthquake or high wind event.

### WIND RESISTANCE

Wood has inherent characteristics that make it ideal in areas prone to high wind. All buildings are at risk during high winds and each structure, with its own unique set of characteristics such as stiffness and strength, reacts differently to wind loads. However, wood buildings can be designed to resist high winds.

Wood's elastic limit and ultimate strength are higher when loads are applied for a short time, which tends to be the case in high wind events. When structural panels such as plywood or oriented strand board (OSB) are properly attached to lumber framing, they also form some of the most solid and stable roof, floor and wall systems available. When used to form diaphragms and shear walls, they are exceptional at resisting high winds.

### DURABILITY

Several B.C. wood species are naturally termite-resistant, including western red cedar, yellow cedar, and a number of hardwoods. Douglas fir is moderately resistant. For other species, applying a topical treatment such as borate provides additional resistance.

Western red cedar and yellow cedar are ideal for outdoor applications because they are naturally resistant to rot, decay and insect attacks.



Reflecting its commitment to sustainability and to create a healthy and inspiring workplace for its employees, Mountain Equipment Co-op chose B.C. wood products as the primary building material for its new Vancouver, B.C.-based headquarters. An exposed glulam post and beam system comprise the primary structure and the floors were constructed using NLT panels. Photo: KK Law



As part of the Province of B.C.'s seismic mitigation program for schools, J.W. Sexsmith Elementary was constructed almost entirely of B.C. wood, incorporating species such as Douglas fir, spruce and western red cedar. The result is a structure built to withstand seismic events, complemented by wood finishes which create a warm learning environment. Photo: courtesy of Iredale Group Architecture

## RESOURCES

Case studies, videos and publications of innovative wood buildings in B.C. [naturallywood.com/resources](http://naturallywood.com/resources)

Information on B.C. softwood and hardwood species and products [naturallywood.com/forest-products-species/softwood-species](http://naturallywood.com/forest-products-species/softwood-species)

500 B.C. manufacturers of exterior and interior, construction and finishing, specialty and reclaimed wood products [naturallywood.com/supplierdirectory](http://naturallywood.com/supplierdirectory)

About 50% of wood products exported from Canada come from British Columbia's sustainably managed forests. This publication is part of the 'Forest Facts' series, published by Forestry Innovation Investment, the Government of British Columbia's market development agency for forest products.

To learn more about other B.C. forest facts, visit:

[naturallywood.com](http://naturallywood.com)