

City of North Vancouver Civic Centre Renovation



The City of North Vancouver's stunning new Civic Centre renovation is a 770-square-metre space featuring a one-storey atrium connecting the City Hall to the Library. Visitors are immediately captivated by the modern aesthetic; with large windows and a central skylight flooding the airy space with light; and wood generating warmth, beauty and comfort. The public building is also a showcase for wood innovation, with state-of-the-art design fabrication behind the roof panel system, and an inventive new floor system.

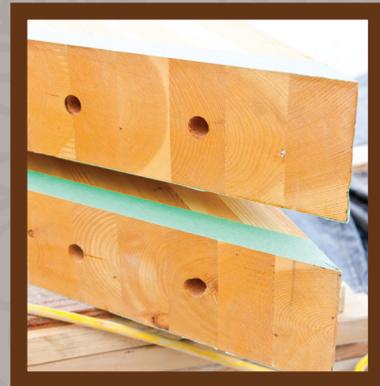
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The extensive use of wood in the design of the renovated city hall provides a warm welcome to our residents. The use of local, renewable construction materials and connection to the Lonsdale Energy Corporation district energy system demonstrates the City's strong commitment to sustainable practices to reduce our greenhouse gas emissions.

Mayor Darrell Mussatto
City of North Vancouver

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Innovating with wood: Mass Timber – expanding the possibilities of wood



Key wood innovation features:

- *Laminated Strand Lumber (LSL) structural roof panel system*
- *LSL wall panelling*
- *Composite glulam/concrete floor system with specialized steel shear connectors and integrated radiant heat*

Mass timber systems are very large, complete wall, floor and roof sections made from engineered wood products, and used in a variety of building sizes. These products offer significant benefits in terms of fire, acoustic and structural performance; scale possibilities, rigidity, strength, stability and construction efficiency. They are a valid alternative to steel and concrete as they are lighter, more environmentally-friendly and easier to install.

The City of North Vancouver Civic Centre Renovation is constructed with **Laminated Strand Lumber (LSL)** roof panel systems. LSL is a process which involves cutting wood into thin strands which are then glued together using a steam-injection process. The stranded lumber roof panels provide structural support, architectural beauty, conceal all electrical and mechanical systems and absorb sound.

The composite floor system consists of glulam post and beams supporting the **concrete floor slab**, a first in BC, Canada and the U.S.

This project demonstrates “multiple function components” at a new level, with ceiling/roof panels that integrate services in a single easy-to-install element. It also demonstrates the effectiveness of off-site prefabrication using state-of-the-art design/fabrication technologies, such as computer numerically-controlled equipment to ensure absolute precision of structural components.

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Only wood starts off green, and stays green.



“Comparative life cycle assessment studies generally show wood in construction performs well relative to non-wood materials in a number of environmental impact measures, including greenhouse gas emissions, other emissions to air and water, embodied energy and carbon storage.”

FPIinnovations

With growing pressure to reduce the carbon footprint of the built environment, building designers are increasingly being called upon to balance functionality and cost objectives with reduced environmental impact. Wood can help to achieve that balance. Wood costs less—economically and environmentally—while delivering more in terms of its beauty, versatility and performance. Innovative new technologies and building systems have enabled longer wood spans, taller walls and higher buildings, and continue to expand the possibilities for wood use in construction. Wood is more than a building material; it’s a renewable and responsible choice.

reTHINK
WOOD

City of North Vancouver
Civic Centre Renovation
June 2012

Architect: Michael Green Architecture Inc.
Engineer: Equilibrium Consulting Inc.

V Volume of wood products used: 298 cubic metres

C Carbon stored in the wood: 133 tonnes of CO₂

T BC forests grow this much wood in: 5 minutes

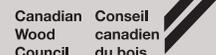
A Avoided greenhouse gas emissions: 499 tonnes of CO₂

This is equivalent to either

C 133 cars off the road for one year, or

H Energy to operate a home for 59 years

The wood products used in this building help minimize its environmental footprint.



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The City of North Vancouver Civic Centre Renovation is one of several demonstration projects in the province selected in July 2010 to expand the use of wood products by applying traditional products in non-traditional ways, or creating innovative wood solutions. This and two other projects have been supported by the forest products and wood design industries and the Government of British Columbia (Forestry Innovation Investment) along with Wood WORKS! BC and FPIinnovations.

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The City of North Vancouver Civic Centre Renovation demonstrates a blend of leading-edge international technologies and BC design concepts. This further accelerates wood design and construction in BC to the forefront of the global experience.”

Mary Tracey
Executive Director, Wood WORKS! BC

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Linking two aging concrete buildings with the new innovative wood atrium structure created a new sustainable story for City Hall; a story of a material grown by the sun and connected to the past, present and future of the North Vancouver community and economy.

Michael Green
MAIBC FRAIC AAA AIA
Michael Green Architecture Inc.

