

**SPECIAL
8-PAGE
SUPPLEMENT**



**INSPIRING WOOD
SOLUTIONS
THROUGH
INNOVATION**



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Canadian Wood Council / Conseil canadien du bois

WOOD DESIGN AND CONSTRUCTION – PROUDLY UNIQUE!

Walter Lippman, a well-known journalist, media critic and philosopher once said, “When all think alike, then no one is thinking.” With the theme of ‘innovation’ for our second Wood WORKS! magazine insert, Lippman’s notion of ‘thinking outside of the box’ is colorfully displayed throughout the various projects that dared to be different with their applications of wood and wood products. Categorized by each Wood WORKS! region, the following pages take you on a journey of some of the most innovative projects constructed in British Columbia, Alberta, Ontario, Québec and Atlantic Canada.



Before these unique buildings came to life, a lot of work took place behind the scenes. The Wood WORKS! team diligently worked toward building pride in wood culture through awareness and education, as well as proficiency in the use of wood through training, education, networking and technical support. All of this is accomplished so that architectural, engineering and building professionals can support and inspire excellence in wood design. This insert celebrates a selection of wood champions who inspire this excellence in building with wood, and who go to great lengths to ensure wood is ubiquitously displayed for all of its aesthetic, structural and environmentally friendly attributes.

Innovation that pushes the limit

The projects featured in this insert serve not only as examples of the unique capabilities of wood as a building material, but also as a reminder for the possibility of broader applications of wood in future projects. At events hosted by Wood WORKS!, participants are always eager to learn about ‘what’s new’ in the world of wood design and construction. The team at Wood WORKS! assumes the role of ensuring these professionals have the tools and knowledge they need to foster innovative approaches to wood in construction. The Wood WORKS! Awards Program is a time when we gather within the various regions to celebrate this excellence in wood design and take the time to publicly recognize the efforts of the design and engineering firms who embraced some of the challenges of building with wood and turned them into magnificent solutions that serve as living proof that sometimes it is through adversity that great ideas are born.



Etienne Lalonde

Etienne Lalonde
National Project Director

Mark your CALENDARS 2013 EVENTS

JANUARY

TBA

B.C. Professors’ Conference
www.wood-works.ca

Jan. 24

Cross-Laminated Timber Seminar
Winnipeg, MB
www.wood-works.ca

Jan. 25

Deadline for Wood Design Awards nominations
www.wood-works.ca

Jan. 31 – Feb. 1

2013 Timber Connections Design Workshop
Delta Vancouver Airport Hotel
Richmond, BC
www.wood-works.ca

FEBRUARY

Feb. 20

Large Wood Structure Symposium
Vancouver, BC
www.wood-works.ca

MARCH

March 4

B.C. Wood Design Awards Gala
www.wood-works.ca



BRITISH COLUMBIA



North Shore Credit Union Environmental Learning Centre

North Shore Credit Union
Environmental Learning Centre:
a showcase for wood innovation
(CNW Group/Canadian Wood
Council for Wood WORKS! BC)

“Our building explicitly shows how ‘wood first’ initiatives are not only achievable, but rather, intrinsic in our realization of a more satisfying built environment.”

John Hemsworth—Project Architect
McFarland Marceau Architects Ltd.

“As the building industry looks to lower its environmental footprint, wood is a natural and renewable choice.”

J. ERIC KARSH, MEng, PEng, StructEng,
MIStructE, ing
Principal—Equilibrium Consulting Inc.

“B.C. is entrenching its status as one of the global leaders in wood design and engineering, and innovative uses of wood applications. Building designers already recognize the economic, social and environmental benefits of wood, and are now seeing the expanding possibilities for wood.”

Mary Tracey—Executive Director
Wood WORKS! BC

“The aesthetics of the wood inside the building create a seamless connection to the outside world. With a lighter environmental footprint, our building speaks the language of its purpose.”

John Lewis—Superintendent & CEO
North Vancouver School District

The new \$5.8 million North Shore Credit Union Environmental Learning Centre (ELC) in Brackendale, B.C., is an 850-sq.m. building set in a magnificent forest with a treehouse aesthetic. Using structural mass timber construction to conserve energy and reduce the centre’s environmental footprint, it is truly a showcase for wood innovation.

The ELC was one of three wood demonstration projects selected in July 2010 to expand the use of wood products by applying traditional products in non-traditional ways, or creating innovative wood solutions structurally or architecturally. Supported by the Government of British Columbia through Forestry Innovation Investment as well as *Wood WORKS! BC*, FPinnovations, and BC Wood, the important innovations demonstrated are intended to accelerate the adoption of the wood design and engineering systems in B.C. and beyond.

A common component in all three project innovations is the introduction of mass timber, which is a paradigm shift in the possibilities for wood use in construction projects. Mass timber systems offer significant benefits in terms of fire, acoustic and structural performance, scale possibilities, stability and construction efficiency. They are a valid alternative to

steel and concrete as they are lighter, more environmentally friendly, and easier and faster to install.

The ELC is constructed with cross-laminated timber (CLT), and a glulam column and beam super-structure. This project also demonstrates the effectiveness of off-site prefabrication using state-of-the-art design/fabrication technologies.

Wood WORKS! BC has strongly supported emerging wood technologies and innovation through involvement in the Wood Demonstration Projects and also through its support of the introduction of CLT to Canada by hosting the first CLT symposium in early 2011. *Wood WORKS! BC* will be hosting a Large Wood Structures Symposium – Bigger, Better, Faster on February 20, 2013 at the Vancouver Convention Centre. It will be a unique opportunity to learn more about the products and their advantages. Visit www.wood-works.ca for more information.

ARCHITECT
McFarland Marceau
Architects Ltd.

BUILDER
D.G.S. Construction
Company Ltd.

ENGINEER
Equilibrium
Consulting Inc.

**CLT/GLULAM
SUPPLIER**
StructurLam Products Ltd.

ALBERTA



Athabasca University's Academic Research Centre

BY KENT MCKAY

The Westdek story began during the design process for Athabasca University's Academic Research Centre. Manasc Isaac, the project architects, were devising a way to deliver high-impact design through the creation of a unique wood roof structure for the building, to celebrate the community's wood-based economy.

Working closely with Fast + Epp for structural engineering support, Manasc Isaac designed a stunning exposed timber roof featuring solid wood panels of staggered 2x4/2x6 spruce. The panels were nailed together like a butcher block would be – but the twist is that the panels were also staggered. The system was panelized by manufacturer Western Archrib, and each piece was lifted into place by crane. The results were exceptional, providing both visual warmth and superior sound absorption.

Western Archrib saw potential for a commercial product using this concept. The manufacturer created a similarly textured deck, using beams lying on their flat – this product was called Westdek.

By the time Westdek hit the market, Manasc Isaac had completed the Academic Research Centre. The firm was moving on toward its next challenge: rebuilding Slave Lake's Government Centre & Library following a devastating forest fire which had consumed many of the town's buildings in May 2011. In the Government Centre's original design, its roof structure utilized wooden beams

with a metal deck in between. The downside to this was that, although not obvious, screws coming through the metal deck were visible to the building's occupants. This effect was not appreciated by all of the project's stakeholders. "Initially, the Town had wanted to put in drop ceilings to conceal the decking," says Vivian Manasc, senior principal at Manasc Isaac.

When Alberta Wood WORKS! became aware of the rebuild of the project they suggested the use of the Westdek panel as a viable alternative to the original system.

"We were very pleased that Manasc Isaac were early adopters of this product," says Roger Halbgewachs of Western Archrib. "It was exciting that they had enough faith in us to use this product in this manner for the first time." The forward-thinking choice paid off; the new roof structure looked more beautiful than the original, and performed better acoustically. Despite being a significant improvement, this solution was not any more expensive than using the original design's metal deck. Best of all, the Town loves the way the wood roof looks: "Now that we have nice wood ceilings, they want it exposed," Manasc says, smiling.

Kent McKay is Communications Director for Manasc Isaac Architects. He can be reached at (780) 784-1169 or kmckay@manascisaac.com.

**BUILDER**Chandos Construction
(general contractor)**ENGINEER**

Fast + Epp

ARCHITECT

Manasc Isaac



ONTARIO

Wayne Gretzky Sports Centre

The incorporation of a CLT roof system is thought to be the first commercial use of CLT in Ontario. Cross-laminated timber panels (CLT) and re-used glulam roof beams were used to construct the roof system over the new pool area. The project design team made the decision to incorporate wood for many compelling reasons.

PAUL MARCOCCIA – CS&P

Why did you consider wood for this building?

“Wood was used at various locations throughout the building to add a level of warmth and richness. The glulam roof beams within the new 25 m. pool were originally located within the hockey rink which Wayne Gretzky had played on as a youth. This hockey rink, located on the project site, was demolished as part of the first phase of construction activity for the new Wayne Gretzky Sports Centre (WGSC) project. As part of our strategy to adhere to sustainable design principles and preserve an important component of this historically significant original building, it was decided that these existing glulam roof beams would be salvaged and refinished for use in the new building.”

What was the motivation to use CLT in particular?

“The use of CLT roof panels had a positive impact on both the project budget and on the project construction schedule. At least two weeks of time was saved by installing CLT roof

panels in lieu of traditional timber decking over the entire pool roof. The CLT panels were stained to a color selected to integrate with the color of the glulam roof beams which meant the overall roof system color could be coordinated with a high degree of certainty to the final finish result.”

DAVID MOSES – MOSES STRUCTURAL ENGINEERS

Is sustainability a motivational factor to use CLT panels in construction?

Definitely. I look at CLT as another tool in my belt when I want a renewable material that sequesters carbon. CLT is a wood product and makes complete sense in a country like Canada where our forests are sustainably harvested.

Does CLT contribute to increased energy efficiency? (If yes, can you cite specific examples in the case of the Wayne Gretzky project?)

CLT is manufactured to tight tolerances in the factory under higher quality control compared to site fabrication of conventional materials.

This means that the building fits together much tighter. Tighter fit makes for tighter building envelopes which are required for energy efficiency.

Perhaps even more importantly, the question about energy should consider the amount of energy that is used in the materials with which we build. Where CLT shines is in the storage of carbon and by the low amount of energy required to harvest, manufacture and install the panels. The so-called ‘embodied energy’ of our buildings accounts for a significant amount of the total energy used by a building over its lifetime. In our practice, we view CLT as a very adaptable structural material. We are using it in conjunction with all other building materials – steel, concrete, masonry and wood framing – and in each case it helps to offset or reduce the embodied energy of other materials being used in the building. Since CLT panels are screwed into place, they lend themselves to disassembly and re-use in the future.

**CLT/ GLULAM
INSTALLERS** Timmerman
Timberworks

CONSTRUCTION MANAGER
Ball Construction

**ENGINEER ON ROOF SYSTEM &
CONNECTIONS**
Moses Structural Engineers

ARCHITECTS
CS&P and MMMC Inc.

CRÉDIT PHOTO: LOUISE LEBLANC

QUÉBEC



CRÉDIT PHOTO : CECOBOIS

L'édifice Fondation CSN

Une première en Amérique du Nord

Près de 1 000 m³ de bois lamellé-collé composent la structure, soit 500 m³ pour les poutres et colonnes et 480 m³ pour les platelages de plancher et de la toiture. En plus de cette ossature bien visible à l'intérieur, l'immeuble comprend plusieurs éléments en bois d'apparence : tremble torréfié pour les plafonds suspendus extérieurs et le mur d'accent en façade principale, érable massif pour les portes et cadres de portes, ainsi que contreplaqué d'érable pour les revêtements des murs dans les halls. L'ensemble du bâtiment a par ailleurs été conçu de façon à en minimiser l'empreinte écologique, à la fois durant la construction et tout au long de sa vie et s'est mérité une certification LEED niveau or.

Les solutions de rechange du Code

Avec le nouveau Code national du bâtiment 2005 (CNB), adapté et incorporé au Code de construction du Québec (CCQ) en 2008, il était désormais possible d'ériger des immeubles de plus de quatre étages avec des éléments porteurs en matériaux combustibles. Il s'agit de proposer des « solutions de rechange » à la Régie du bâtiment, en démontrant qu'elles permettent de respecter les objectifs visés par la division prescriptive du CNB.

Dans le cadre de l'édifice Fondation CSN, les mesures suivantes ont dû être proposées:

- **Incendies**

- Surdimensionnement de 40 mm de toutes les faces des pièces de bois

composant la structure;

- Recouvrement de toutes les connexions métalliques par des goujons de bois;
- Bonification de 30 % du système de gicleurs;
- Ajout d'une issue de secours;
- Portes coupe-feu aux sorties;
- Matériaux de finition répondant aux exigences d'une construction incombustible.

- **Fluage et secousses sismiques**

- Disposition des colonnes en continu;
- Utilisation des cages d'escalier et d'ascenseurs en béton comme éléments de contreventement;
- Joints d'expansion à chaque étage pour protéger le revêtement de verre de la déformation du bois.

Une avenue prometteuse

Tout au long de son édification, soit de l'automne de 2008 au printemps de 2010, et depuis lors, ce bâtiment n'a cessé de susciter l'intérêt partout en Amérique du Nord. Il s'agit donc d'une excellente vitrine pour le savoir-faire québécois, lequel s'est d'ailleurs lui-même enrichi de l'expérience.

CODES ET SÉCURITÉ
INCENDIE Civelec consultants
inc. (Paul Lhotsky)

STRUCTURE EN BOIS
LAMELLÉ-COLLÉ
Nordic bois d'ingénierie

ENTREPRENEUR
Pomerleau (Frédéric
Fecteau)

GÉNIE STRUCTURAL
BES – Bureau d'études spécialisées inc.
(Stéphane Rivest)

ARCHITECTE GH A architecture et
développement durable (Gilles Huot);
INTÉRIEUR Tergos Gestion (Bruno Verge)



ATLANTIC

White Point Beach Main Lodge Replacement

For many of us, White Point Beach Lodge is our vacation home away from home. The design for the new lodge recaptures that familiar, comfortable feeling with honesty and authenticity using the forms and materials of the White Point we all remember so well. Like the original, the new lodge is sustainably constructed with local, natural materials, such as wood and stone. With modern windows, insulation and efficient mechanical and electrical systems, the new lodge has a smaller ecological footprint, using much less water and energy than the older building.

The new lodge welcomes people at both of its two levels at grade, making it easily accessible for all. The orientation maximizes solar gain and provides amazing views of the beach for all of the building functions. Oceanside raised patios with overhead heavy timber trellises provide protected areas to relax and enjoy the spectacular marine sights and sounds.

The building's internal features provide all the amenities of the original, and more. On the main level, guests are welcomed into a reception area with stunning views of the ocean. Everyone will be drawn to the lodge's new heart: the warmth of twin, wood burning, beach stone fireplaces surrounded with comfortable soft seating.

The upper level includes a lounge, 3,000-sq.ft. meeting and convention hall,

and a 3,000-sq.ft. dining hall, both served by a new, modern commercial kitchen. The lower level features a new pool and hot tub, sauna, fitness centre, games room and "kids' zone". Provisions have been made for a spa and two barrier-free accessible rooms, all with signature White Point views.

The building pays homage to the original with hipped roofs and deep protective overhangs reminiscent of the iconic White Point beach umbrellas. The brightly coloured red roof with twin projecting stone chimneys act as a beacon to guests as they stroll down the beach.

The lodge is designed to continue the great traditions at White Point, ensuring it remains a special place for visitors, guests and staff for generations to come.

TIMBER FRAMES
Gillis & Company
Timber Frames

INTERIOR DESIGN
Design 360

SIDING
Amos Wood, Cape Cod Siding

BUILDER
JWLindsay

**MECHANICAL & ELECTRICAL
ENGINEER** DUMAC Energy

ARCHITECT
WHW Architects

STRUCTURAL ENGINEER
BMR Structural Engineering



NATIONAL PARTNERS

Canadian
Wood
Council

Conseil
canadien
du bois



Natural Resources
Canada

Ressources naturelles
Canada

BSLC

British Columbia Lumber Council

FPI Innovations



StructureCraft

STRUCTURLAM

structurlam.com



western archrib
structural wood systems



Weyerhaeuser

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