

**SPECIAL
8-PAGE
SUPPLEMENT**



WOODWORKS!
Project of the Canadian Wood Council

WOOD IN EDUCATIONAL BUILDINGS

FALL 2013 – VOLUME 2, ISSUE 1



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KNOWLEDGE IS GROWTH – WOOD USE THROUGHOUT EDUCATIONAL BUILDINGS

With the school season in full swing, it is fitting that this Wood WORKS! insert focuses on educational buildings that feature wood. When exposed, wood's golden undertones often have an aesthetically warming effect on a room's overall ambiance, creating a less institutional look-and-feel. The projects included in this insert highlight the evolution for design teams to cater more to the clients' and occupants' needs, both functionally and aesthetically, rather than merely reproducing a standard school building.

Thinking outside the box

With the 'greening' movement in full-swing, clients and occupants are more in-tune with aspects of their buildings such as natural light exposure, carbon footprint and LEED certification. Wood is a building material that has proven a favorable choice, meeting or exceeding the clients' expectations on a performance level and in visual appeal. Known to have inherently calming effects on occupants, wood is an excellent building material choice for learning environments. Wood use throughout the design of schools is not a new concept, and has evolved throughout the years to meet the changing demands of both students and faculty, paying homage to wood's diversity and innovative capabilities.

Maya Angelou once said, "When you know better, you do better." Continuing with the

theme of education, the Wood WORKS! program focuses a large part of its efforts on educating the design community about the possibilities of wood/wood products throughout construction. Having provided 27,000 hours of education for the past year, the Wood WORKS! team relies heavily on technical presentations, conferences and one-on-one educational sessions to help educate designers and builders about the benefits of using wood.

We build pride in our wood culture through awareness and education

Interested in a Wood WORKS! in-house seminar? Visit www.wood-works.org to book yours today! With regional programs throughout Canada (British Columbia, Alberta, Ontario, Québec (Cecobois), and the Atlantic region), our staff are on-hand to answer any of your wood-related questions and to offer insight into the latest advances from our industry – because when you stop learning, you stop knowing and innovating.



Etienne Lalonde

Etienne Lalonde
National Project Director



The Wood WORKS! team hosts conferences and one-on-one sessions to educate builders and designers about the possibilities and technical aspects of building with wood.

Mark your CALENDARS 2013 EVENTS

OCTOBER

Oct. 15

Wood Solutions Fair
Portland, OR
www.woodworks.org

Oct. 16

Wood Solutions Fair
Edmonton, AB
www.wood-works.ca

Oct. 24

Structural CLT Design Workshop
Calgary, AB
www.wood-works.ca

Oct. 25

Structural CLT Design Workshop
Edmonton, AB
www.wood-works.ca

Oct. 29

Wood Solutions Fair
Vancouver, BC
www.wood-works.ca

NOVEMBER

Nov. 12

Wood Solutions Fair
Toronto, ON
www.wood-works.ca

Nov. 13

Ontario Wood Design Awards
Toronto, ON
www.wood-works.ca

Nov. 27

Prairie Wood Design Awards
Edmonton, AB
www.wood-works.ca



“This project is an outstanding example of how using wood makes buildings better by providing warm, human-centered environments in which people thrive, and in this case, for students as they work and learn.”

Mary Tracey, Executive Director,
Wood WORKS! BC

“The character of the salvaged Douglas fir timbers is intrinsic to this design. It sets the scale of the building. It is woven around all of the spaces - the rhythm of its spacing calibrated to the length of span. It renders light with warmth. It softens acoustics. It describes an environment for learning that supports many scales of interaction. It has a personality and intimacy that is unexpected in a school.”

Craig Duffield, Design Architect,
McFarland Marceau Architects



PHOTO CREDITS: MCFARLAND MARCEAU ARCHITECTS; WOOD WORKS! BC; DEREK LEPPER

BRITISH COLUMBIA

École Mer-et-montagne

École Mer-et-montagne, completed in 2012, is a new 1,500 sq.m. elementary school in Campbell River, B.C., constructed for the Conseil Scolaire Francophone – the school district responsible for all the francophone schools within the province.

The concept for the design evolved out of the re-use and repurposing of salvaged wood timbers discovered within the derelict existing school building on the site. This was partly in support of the LEED Gold target, but mainly as an appropriate response to a remarkable resource, and a means to create an exceptionally warm and inviting learning environment.

One of many similar schools rapidly constructed across British Columbia in the late 1960s and early 1970s, the existing building had long outlived its service life and was slated for demolition. However, the building contained two key resources worth preserving: a treasure-trove of beautiful 3 x 12 tight-grained Douglas fir joists, and a serviceable gymnasium which was larger than the gym size currently prescribed by

the province for a small elementary school.

The building form is expressed by the salvaged timbers as a contiguous undulation of walls, roofs, eaves and columns, which tie the interiors together in a consistent, warm, organic expression. Similarly, the exterior is clad in a continuous wrapping of corrugated cladding, whose custom blue-tinted charcoal color is chosen to complement the warmth of the wood. Natural light is introduced in a controlled manner and the beautifully aged patina of the rough-sawn structure is left unfinished, except for a light sanding to remove splinters.

The salvaged timbers, hidden for 40 years above an acoustic tile ceiling, have been repurposed with reverence: as structure, doorway, cabinetry, seating, shelving, privacy screen and moveable partition – all in support of a small school which will function as a de-facto community centre and the most visible presence of the Francophone community in Campbell River.

**ELECTRICAL
ENGINEER**
MMM Group

CIVIL ENGINEER
Highland Engineering
and Surveying

ARCHITECT
McFarland Marceau
Architects

STRUCTURAL ENGINEER
Equilibrium
Consulting Inc.

**MECHANICAL
ENGINEER**
Bycar Engineering Ltd.

**CONSTRUCTION
MANAGER**
Newhaven

ALBERTA

PHOTOS: STEVE
NAGY PHOTOGRAPHY



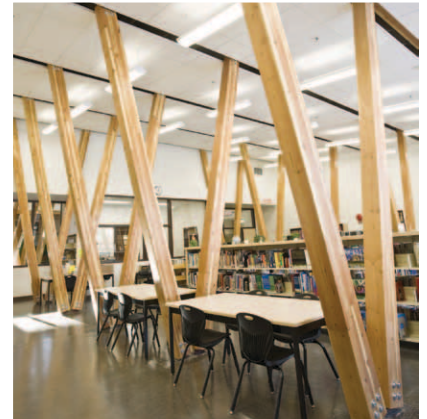
École Lawrence Grassi Middle School

Located 105 km west of Calgary is beautiful Canmore, a recreational and administrative centre at the entrance of Banff National Park in the Canadian Rockies. A bustling community with 12,000 permanent residents, the surrounding architecture pays homage to the town's evolving needs. Built in 1950, the town's elementary school no longer accommodated the growing population decades after the building was completed. GEC Architecture was engaged to conduct a feasibility study that led to the recommendation to build a new school for students.

Architecture in the Canadian Rockies extensively uses the region's indigenous materials – stone and wood. Wood is a building material seen throughout the majority of historic and modern buildings in Canmore and throughout the Rockies due to its appearance, economic benefits and availability. École Lawrence Grassi Middle School is comprised of wood-frame and post-and-beam construction, which required large spans. In the main public spaces and corridors the glue-laminated structure is left both partially and fully exposed to create a warm and welcoming atmosphere. These high-traffic areas are also accentuated with

stained wood panels, battens and other trim elements. The glue-laminated structure is given partial expression in the classrooms, offices, library, music and other ancillary spaces. Wood casework of local and regional origin and wood doors are used throughout the building provides an aesthetic warmth and opportunity for natural lighting, a far stretch from the more conventional institutional design for schools.

With an impressive overall cost of \$3,100 per sq.m., École Lawrence Grassi Middle School is an excellent example of how merging local trades with resources can lead to positive economic and social benefits. Preliminary cost comparisons by GEC Architecture found that glulam structural members were cost competitive with other materials. The design maximized the use of local materials and trades, which also allowed the cost to stay within provincial funding limitations. The benefits of wood use throughout the construction of the school do not stop at the economic level, but also translate into environmental gains - with the design of the school resulting in 50 per cent less energy use below the baseline defined in the Model National Energy Code of Canada



for Buildings – allowing for a LEED Silver target.

École Lawrence Grassi Middle School shows how a simple, rational and cost-effective construction system based on regionally harvested and manufactured materials, components, and assemblies can harness local skills, enhance the local economy and create a durable and functional building of lasting beauty and enduring cultural significance.

**ERECTING/FRAMING
CONTRACTOR**
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GENERAL CONTRACTOR
Stuart Olson

GLULAM SUPPLIES
Western Archib

SIP SUPPLIER
Emercor

ARCHITECT
GEC Architecture

ELECTRICAL CONSULTANT
Beaubien Glover Maskell
Engineering

**MECHANICAL
CONSULTANT**
Hemisphere Engineering

STRUCTURAL ENGINEER
Read Jones
Christoffersen

RENDERING: LAROCQUE ELDER ARCHITECTS, ARCHITECTES INC.

ONTARIO



St. Victor Elementary School

St. Victor Elementary School, currently under construction in Mattawa, Ontario, is a one-story, 24,840-sq.ft. facility that is framed almost entirely in wood. Wood-frame construction is a strategic option for low-rise educational buildings in Ontario because it is able to meet code and project requirements while simultaneously achieving economic and environmental outcomes that surpass those of competing construction materials.

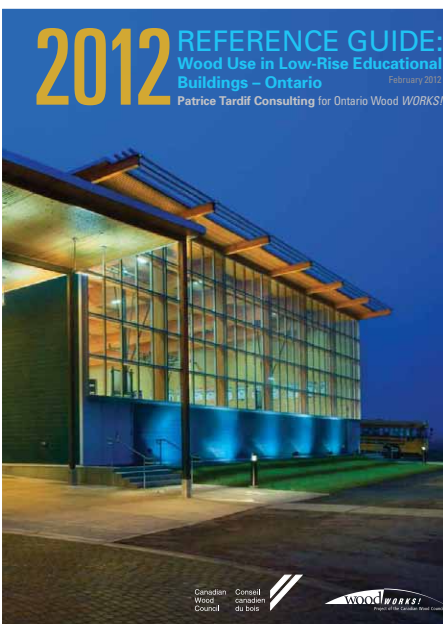
Designed to enhance academic, social and spiritual success, the new school will provide students from junior kindergarten to grade eight, with a safe, welcoming, modern and sustainable learning environment. A true community building, the new facility also incorporates a daycare component to provide complementary support services for infants, toddlers and preschool children.

A deep respect for Mattawa's rich cultural heritage and strong ties to the forest industry as well as an understanding of the importance rural elementary schools have on the social, economic and environmental fabric of a community significantly influenced the project during the early design stages. Guided by these strong community influences, the Nipissing-Parry Sound Catholic District School Board and the design team supported the selection of wood as the primary construction material. The use of wood complements and further emphasizes the sustainable values of the architectural design.

The Ontario Wood WORKS! 2012 reference guide, *Wood Use in Low-Rise Educational Buildings – Ontario*, supported the decision to use wood. The guide was specifically created to assist building and design professionals working in the educational buildings sector. It contains

several case studies, as well as a detailed review of the Ontario Building Code conducted by Morrison Hershfield, outlining the possible applications for wood in educational buildings (Group A, Division 2), identifying limits, conditions and restrictions, as well as opportunities for alternative solutions. The guide was a key component of an educational presentation given to the school board by Marianne Berube, Executive Director of Ontario Wood WORKS!. Wood WORKS! further supported the decision to use wood by providing information that was requested concerning the design of wall assemblies and fire safety-related requirements.

The environmental and socio-economic benefits of wood-frame construction in low-rise educational buildings are numerous and the reference guide covers these in detail. If you are designing a new school and considering a wood option, the detailed analysis of the building code contained in the guide is a valuable reference tool. The guide can also help you explain to your client why a wood solution might be the best option for their project. Printed or electronic copies of the guide can be requested from Ontario Wood WORKS! by contacting Tim Buhler by email at tbuhler@wood-works.ca.



ARCHITECT
Larocque Elder Architects,
Architectes Inc.

GENERAL CONTRACTOR
Kenalex Construction Co. Ltd.

STRUCTURAL ENGINEER
Halsall Associates

MECHANICAL AND ELECTRICAL ENGINEER
Jain and Associates Ltd.



QUÉBEC

CRÉDIT PHOTO : CECOBOIS

Construire en bois pour instruire les jeunes

Située dans l'arrondissement de Sillery à Québec, l'école primaire trilingue Vision possède maintenant un gymnase dynamique, chaleureux et moderne fait complètement en bois du Québec. Une idée qui s'inscrivait parfaitement dans le thème de l'année scolaire de l'établissement: A Vision of our Planet. « Nous voulions introduire un volet environnemental dans la structure de notre gymnase pour développer de saines habitudes de vie chez nos élèves », précise Christiane Couture, directrice et propriétaire de l'école privée Vision.

Le bois, l'idée de l'architecte

Dès le début du projet, la consigne était claire : il était très important de respecter le budget alloué. Pour répondre aux besoins de l'école Vision, l'architecte Claude Guy a suggéré de construire un gymnase entièrement en bois, différent complètement des anciens gymnases construits en acier et en blocs de béton. Un choix non seulement écologique, mais économique. En effet, la structure en ossature légère ainsi que les revêtements en bois ont permis de respecter le budget de l'école en faisant des économies réelles par rapport aux coûts d'un gymnase

traditionnel.

Le bois d'épinette, de pin et de cèdre ont ainsi été utilisés pour la structure des murs et des toitures, pour les revêtements intérieurs et extérieurs ainsi que pour les fenêtres qui laissent entrer une

abondante lumière naturelle. Le concept écologique qui a inspiré la construction du gymnase a amené l'architecte à inclure la géothermie et un toit ventilé avec des fermes de toit de 5 pi (1,5 m) de hauteur. Ce toit permet d'avoir plus de jeu pour l'épaisseur d'isolant rigide, un procédé qui donne un coefficient de résistance thermique (CRT) de R40, ce qui est de beaucoup supérieur à la norme. L'entretoit ventilé est recouvert d'une membrane gris pâle à 2 % de pente qui répond à l'une des normes du système d'évaluation LEED.

Un endroit chaleureux et coloré

Avec sa performance acoustique exceptionnelle, le choix des couleurs découlant de l'utilisation du bois et l'apport

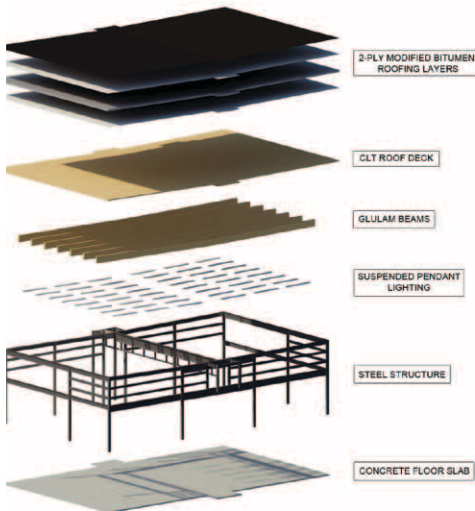


en lumière naturelle, le nouveau gymnase est un lieu stimulant pour les élèves. Une situation qui enchante la directrice de l'école : « Je suis très contente d'avoir placé le bois au cœur de notre nouvelle bâtisse. Celle-ci se marie parfaitement au bâtiment déjà existant. Sans le bois, nous n'aurions pas pu obtenir un résultat aussi éclatant. »



ATLANTIC

Southlands Community Centre



MULTIPURPOSE ROOM EXPLODED VIEW

This exploded view of the multi-purpose room showcases how the CLT and glulam integrates with the rest of the building structure.



Stepping outside the stereotypical boundaries of an educational institution and into the transcending classroom of life, many people know that some of life's most important lessons are experienced without a textbook and within the community they call home. The Southlands Community Centre on the outskirts of St. John's, Newfoundland, will be the home of many lessons for people of all ages. This is the first Atlantic Canadian, cross laminated timber (CLT) project acting as a "community living room," focusing specifically on enhancing the quality of life and wellness of the local community.

The city of St. John's and CEI Architecture, in association with Ron Fougere Associates Ltd. (RFA), met with residents in a series of public sessions to get input on both the nature and scale of development. The notion of a community living room integrated into a recreation complex is a growing trend and something that CEI has recently accomplished at the Edmonds Pool and Community Centre in Burnaby, B.C. Kelvin Nyathi, an intern architect at Ron Fougere Associates Ltd. says, "This is my first CLT project and we chose to use this material as an introduction to a bigger proposed recreation centre in Wedgewood

Park (in the city of St. John's) which will be comprised mainly of CLT. So far it has been a great experience as the design process has been very straight forward integrating with building details."

The Southlands community is home to predominantly new residences with young families. The site is a newly developed green space with playing fields, an outdoor playground and some parking. Residents are anxious for some form of enclosed community gathering and assembly space and Southlands Community Centre is intended to serve the needs of the local community and neighborhood. "We are very pleased with the final design," says St. John's Councillor Wally Collins.

The anatomy of the 9,000-sq.ft. community centre is mainly steel, however, the 3,000-sq.ft. multipurpose room is where the wood construction is showcased. The room will be supported by glulam beams and the ceiling and roof structure will be assembled out of CLT. Michael Krans, CLT design engineer from Timmerman Timberworks Inc. says it best: "When they want a room to look nice, they call the wood guys."

The project is currently under construction and is slated for completion this fall.

ARCHITECTS
CEI Architecture and Ron
Fougere Associates

**CLT ENGINEERING
AND DESIGN**
Timmerman Timberworks

ENGINEERS Roswell Appleby Newton
Engineering Inc., DBA Consulting
Engineers, Kavanagh & Associates

**CLT
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WOOD WORKS! REGIONS IN CANADA

National Wood Works!

c/o Canadian Wood Council
99 Bank Street, Suite 400
Ottawa, ON K1P 6B9
Tel: 613-747-5544

British Columbia

3760 Gates Road
West Kelowna, BC V4T 1A3
Tel: 1-877-929-WOOD (9663)

Alberta

900-10707 100 Ave.
Edmonton, AB T5J 3M1
Tel: 780-392-1952

Québec

1175, avenue Lavigerie Bureau 200
Québec, QC
G1V 4P1
Télé : 418-650-7193

Ontario

60 Commerce Court,
P.O. Box 5001, North Bay ON P1B 8K9
Tel: 1-866-886-3574

Atlantic

c/o Maritime Lumber Bureau
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