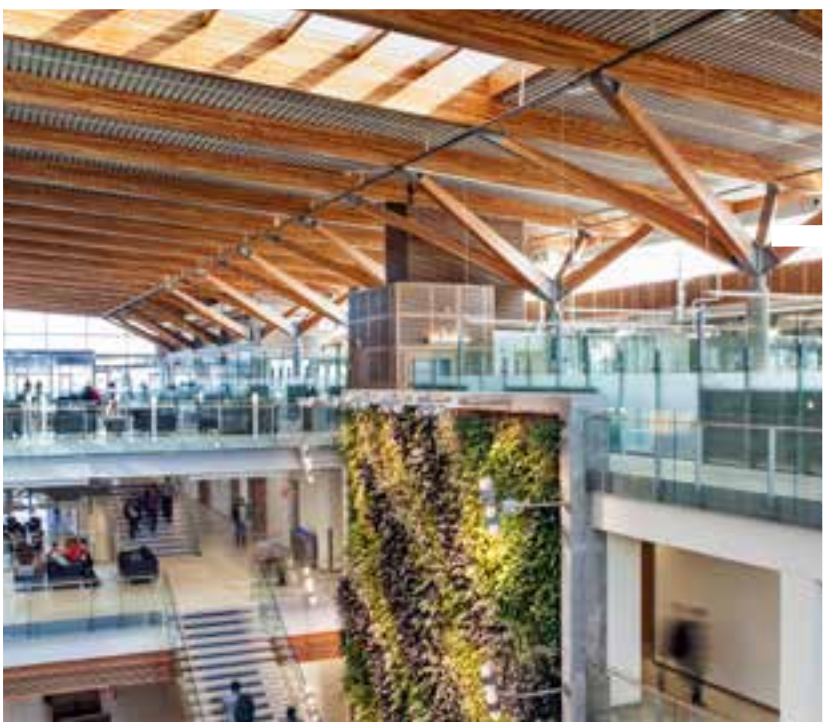
SPECIAL 8-PAGE SUPPLEMENT

EDUCATIONAL FACILITIES

WINTER 2014 – VOLUME 3, ISSUE 2



WHAT'S INSIDE

WOODWORKS! Program of the Canadian Wood Council

cecobois Centre d'expertise sur la construction commerciale en bois

Canadian Wood Council / Conseil canadien du bois

Tried, Tested and True – Teaching by Example

ABBOTSFORD SENIOR SECONDARY SCHOOL
PHOTO CREDIT: AARON MILLAR, CRAVEN | HUSTON | POWERS ARCHITECTS

Nelson Mandela once said, "Education is the most powerful weapon which you can use to change the world." One of the main objectives of the Canadian Wood *WORKS!* program is to educate the design community and future practitioners about the opportunities that exist for wood products within construction. The perception of wood's capabilities needs to catch up with the research and technology that confirms that wood is a safe, sophisticated and viable option for a variety of building projects.

Taking a multifaceted approach toward education, the Wood *WORKS!* programs throughout Canada seek to inspire designers through workshops, Wood Solutions Fairs, conferences, awards programs and galas. Acting as a hub of excellence for wood education is the eLearning Center (www.woodworkselearning.com), a free, online, self-paced forum offering an assembly of lectures from internationally renowned architects, engineers, researchers, and educators who present professional development programs that provide viewers with the most current information on new wood products, designs and applications.

With the underlying theme of education threaded throughout many of the Wood *WORKS!* initiatives, we thought it fitting to feature educational facilities in our Winter 2014 magazine insert. Talk about seeing the fruits of our labor – Wood *WORKS!* educational efforts resulting in the predominant use of wood throughout educational facilities.

Interested in attending a Wood *WORKS!* educational opportunity in your region? Check out the events listed in this insert and get involved with your regional Wood *WORKS!* today.

Etienne Lalonde

This Wood *WORKS!* magazine insert was created to help inspire design professionals throughout Canada. Do you have a project that features wood as a primary building material? Take advantage of our Wood *WORKS!* magazine insert and get featured today! Contact Natalie Tarini at ntarini@cwc.ca, and share your story.

Mark your CALENDARS
2015 EVENTS

JANUARY

Jan. 23
Prairie Wood Design Awards
Deadline for submissions
www.wood-works.ca/alberta/wda

Jan. 29
International Wood Symposium
Vancouver, BC
http://wood-works.ca/bc/educational-events/symposiums

FEBRUARY

Feb. 12
Wood Design Symposium
Calgary, AB
http://wood-works.ca/alberta/educational-events/

Feb. 17, 18
Wood Design Workshop
Calgary, AB
http://wood-works.ca/alberta/educational-events/workshops-2/

Feb. 19, 20
Timber Connections Design
2-Day Workshop
Kelowna, BC
http://wood-works.ca/bc/educational-events/workshops

MARCH

Mar. 2
BC Wood Design Awards Gala
Vancouver, BC
http://wood-works.ca/bc/wda/event-information

Mar. 17
Prairie Wood Design Awards Gala
Edmonton, AB
http://wood-works.ca/alberta/wda/event-information/

BRITISH COLUMBIA

Earth Sciences Building, UBC

Vancouver, BC

The Earth Sciences Building (ESB) is located on the Vancouver campus of the University of British Columbia (UBC). Shared between Earth, Ocean and Atmospheric Studies, the Department of Statistics, the Pacific Institute for the Mathematical Sciences and the Dean of Science, ESB is designed to enhance the growing links between each department, providing valuable opportunities for shared learning and collaboration.

The building is located along Main Mall of UBC, the primary north-south pedestrian route on campus, providing opportunity to add visual interest to the pedestrian experience by displaying the research taking place inside the building. To achieve this, the ground floor is considered the primary public space, and is glazed on all sides to maximize visibility into the building.

The building contains faculty and staff offices for each department, research laboratories, teaching spaces that include three lecture theatres, a museum component and a cafe. A five-story atrium divides the north and south wings of the building, providing an organization structure for the different departments while at the same time providing an east-west pedestrian route directly through the building. Unlike the concrete south wing that contains labs and offices, the north wing houses offices and lecture theaters, with wood as the primary structural material. The wood structure provides a welcoming environment for the inhabitants of the building. The embodied carbon footprint of the heavy timber structure is almost 50 per cent less than the concrete structure and is less than the average UBC laboratory building.

To provide rain cover for pedestrians in line with the university's design guidelines, a solid wood CLT canopy wraps three sides of the project. It extends from inside the building, where it forms the interior ceiling finish of the museum and cafe, blurring the boundaries between interior and exterior space. Located in the atrium is a free-floating cantilevered solid timber staircase. The dramatic stair is fully cantilevered off the bridge floors and is composed of a seamless folding "ribbon" of rigid glulam stringers, a first of its kind in the world. The clean and elegant lines of the massive timber seem to defy gravity and dramatically demonstrate the aesthetic and structural capabilities of modern engineered timber.

The ESB project sets a new standard of structural performance and innovation in heavy timber construction and demonstrates how modern engineered timber can be used efficiently and competitively in the most demanding of institutional projects.

Courtesy: Wood *WORKS!* BC

Wood Design Awards

Winner: 2013 Institutional Wood Design – Large

ARCHITECT	STRUCTURAL ENGINEER	GENERAL CONTRACTOR	MASS TIMBER CONTRACTOR
Perkins+Will	Equilibrium	Bird Construction	Nicola Logworks

ALBERTA

PHOTO CREDIT: JASON DZIVER

PHOTO CREDIT: BARBARA MURRAY

SAIT Polytechnic Trades and Technology Complex – Thomas Riley Building Atrium

Calgary, Alberta

By Gibbs Gage Architects

SAIT Polytechnic's Trade and Technology Complex is a series of three buildings designed upon the consideration of future advancements of academic curriculums and the delivery of education, while also incorporating a high level of reverence to the unique and collegiate architecture of Heritage Hall – the institution's historical and inspirational focal point at the heart of the campus. The architecture reflects consideration not just of functionality, but of the character and nature of SAIT Polytechnic. A close look at SAIT Polytechnic's spirit revealed a great sense of fun as well as a reverence for tradition and history, which was not only reflected in the architecture of the Trades and Technology Complex, but also in the Master Plan, a design conceived by Gibbs Gage Architects.

The Thomas Riley Renovation, which involved extensive renovations throughout the building and the replacement of the East Atrium, figured prominently in the Master Plan. As a north-south link from the community through to the heart of the campus, the atrium is an introduction to the new vision for the campus. Following the pedagogical approach of the building as a tool for learning, the Thomas Riley building was designed to illustrate methods of framing with wood. Starting with the dramatic roof form, the building features a repeating elegant S-curved glulam structure. The warmth of this engineered wood structure reflects the use of the building as a school that trains and educates framers. The connections are simple steel to wood strapping that sits on a slightly tapered glulam column. The curved roof also curves up along the length of the building from beam to beam with a more traditional framing system built off the more engineered S members. This additional framing that makes reference to residential roof framing steps up in successive heights, creating a dramatic entrance to the campus on the north. The entire addition flanks the east end of the Thomas Riley building and provides a new and welcoming entrance to the school as a significant urban educational facility in the Calgary landscape.

ARCHITECT
Gibbs Gage Architects

STRUCTURAL ENGINEER
DIALOG

GENERAL CONTRACTOR
PCL Construction

TIMBER SUPPLIER
Structurlam

ONTARIO

Ed Lumley Centre for Engineering Innovation

Windsor, Ontario

Designed to meet the university's 21st-century needs – with more classrooms and meeting rooms, expanded laboratory facilities, and the latest technological tools – the Ed Lumley Centre for Engineering Innovation has transformed the Faculty of Engineering, greatly enhancing the student experience at the University of Windsor.

This complex is the Faculty of Engineering's flagship facility and includes student study and activity spaces and faculty offices in addition to the 80 flexible high-tech classrooms and specialized research labs designed to meet the faculty's emerging teaching and research demands.

The 310,000-sq.ft. (28,800 m²) center is a pedagogical tool for students that represents a significant leap in the evolution of educational buildings. It is a living and learning building where a combination of exposed structures and monitored systems exhibit construction concepts and illustrate engineering principles through environmentally friendly technologies. It is a facility where students actively learn through their surroundings, collaboration and experience.

The cutting-edge project also had significant sustainability targets where wood played an important role as a renewable and sustainable material. Wood is highly visible throughout the building in the structural roof applications, laser cut acoustical wood panels used for acoustic mediation in the atrium and classrooms, as well as on the exterior of the building in the form of fins and solar shades that reduce the effect of western solar gain.

The atrium structure is comprised of long roof beams supported by a series of inverted pyramidal glulam-steel hybrid frames. The resulting structure is elegant and sophisticated. Even though the structural system is complex, the overall effect is very streamlined and the use of glulam in the atrium infuses the building's primary gathering space with warmth.

"The glulam and steel really worked to their particular strengths in this building," says Chris Williams, Vice-President of Timber Systems Limited, the project's timber supplier. "We were able to tackle the support conditions by using the high tensile capacity of the steel bridging to tie the pyramids together, while keeping its visual profile low – the timber is really the star of the show there, and most of the 'action' is concealed within the timbers. The result is the appearance of independent bays, when the structure actually works as an interconnected space-frame."

Windsor's Centre for Engineering Innovation is not just a remarkable building, it is also a tool that transforms the student experience. The building's many visible and often interactive architectural features provide hands-on experiences that bring the engineering principles taught in the classroom to life.

OWNER
University of Windsor

LEAD ARCHITECT
B+H Architects

ASSOCIATE ARCHITECT
Di Maio Design Associates

STRUCTURAL ENGINEER
Halsall Associates Ltd.

TIMBER SUPPLIER
Timber Systems Limited

QUÉBEC

PHOTO CREDITS: LAURENT GOULARD

Pavillon Gene-H.-Kruger de l'Université Laval

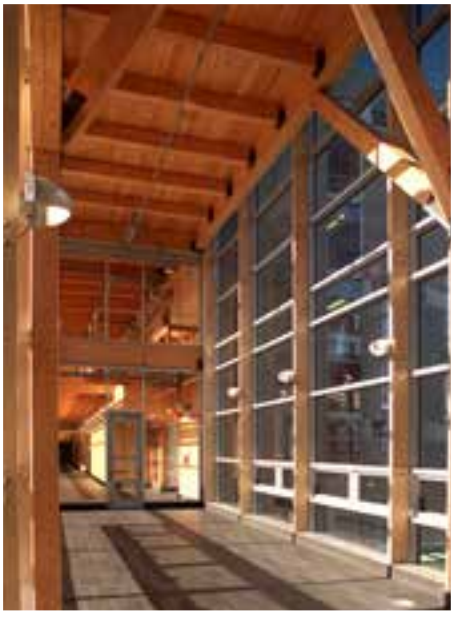
Québec, Québec

Housing the Renewable Materials Research Centre (RMRC) associated with the Faculty of Agriculture, Forestry and Geomatics Sciences at Laval University, the Gene-H.-Kruger Pavilion is one of the most important research hubs specializing in the transformation of wood in Canada. Indeed, wood was the material of choice in the construction of this 86,111-sq.ft. (8,000 m^2) building. The aim was to provide a showcase for different uses of Canadian wood, but also to construct a building following the principles of sustainable development.

The Kruger pavilion incorporates a cocktail of structural and design products. From the frame to the exterior siding, through walls, ceilings, windows and interior decorative elements, various uses of Canadian wood are employed. The main structure uses beams and columns in glue-laminated wood, solid wood flooring, as well as flooring and the roof in lightweight wood frames. Interior finishes include decking and softwood plywood, OSB panels, MDF panels, maple veneer, white pine wall protection strips and walls in solid maple and hardwood floors in the conference room. The exterior cladding is grey-tinted milled spruce boards which work in harmony with the rest of the campus.

The project was executed with the collaboration of the Groupe de recherche en ambiances physiques (GRAP) of the university's School of Architecture. Particular attention was paid to occupant comfort: maximum natural light for visual comfort and natural-mechanical hybrid ventilation for physical comfort. In addition, the materials used were chosen for their low environmental impact, durability and high percentage of recycled components, not to mention they had to meet the low VOC emissivity standards. The use of local products was promoted to encourage the regional economy and minimize pollution and costs associated with transportation. The building is energy efficient, consuming up to 30 per cent less energy than a conventional building of the same size.

The main pavilion is composed of two sections separated by a firewall. The various laboratories of the research center are on one side, while the second section houses the classrooms and conferences as well as administrative offices. The warehouse space is found in a separate building constructed on the site.



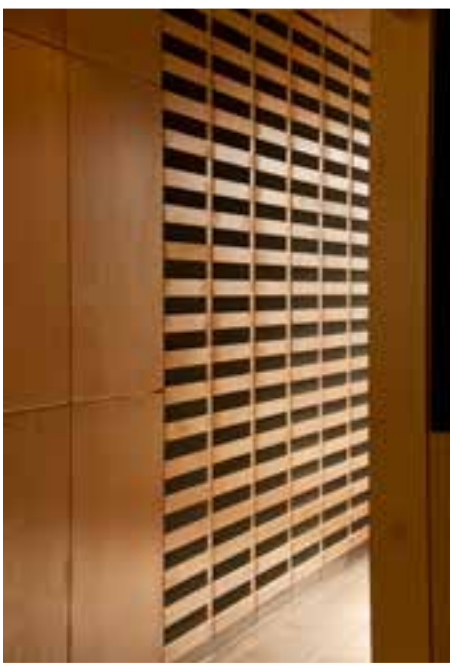
ARCHITECT
Gauthier Gallienne
Moisan Architects
(now ABCP architecture)

STRUCTURALENGINEER
BPR groupe-conseil

STRUCTURAL WOOD SUPPLIERS
Goodfellow,
Nordic Engineered Wood

ATLANTIC

PHOTO CREDITS: JAMES STEVENS



Mona Campbell Building

Halifax, Nova Scotia

The Mona Campbell Building acts as a gateway from the north end of Halifax into the Studley Campus of Dalhousie University. Located at the intersection of two main streets, Coburg Road and LeMarchant Street, the building interacts with the university campus and the surrounding residential communities.

A university is a place to promote the exchange of ideas. It is important to provide not only teaching and learning spaces but in-between spaces, where opportunities for the informal discussion of ideas occur between staff, students and visitors. These connective, non-programmed spaces form the soul of the Mona Campbell Building, in the four-story, south-facing central spine or atrium. This provides both physical and visual interaction with all departments, access to daylight and the exterior green space.

The building is programmatically diverse and houses four departments: the College of Continuing Education, the School of Social Work, the Faculty of Computer Science's research space and the College of Sustainability. It also contains the PCPC computer store, a pizza shop and 10,000 sq.ft. of classroom space, all within 100,000 sq.ft. Such density of program was only possible by the precise integration of mechanical, structural, electrical and architectural systems, making single components serve multiple functions. This economy was achieved throughout the project by using an integrated design approach with a diverse client group, a skilled construction manager and a complete consultant team.

Wood is used throughout public spaces. Its highly tactile quality invites people to touch and linger, in contrast to the rawness of the concrete structure. One room has wood used on multiple surfaces, and this becomes a precious place within the building: the thesis defense room, in many ways signifying the highest level of academic achievement within academia.

The form of the building and the building section address sustainability, programme and context. The building is clearly ordered – with zones for each function. The office spaces are located on the north and the classroom spaces are located to the south with the interstitial south-facing atrium encouraging socializing, integration and learning. Plywood panels integrated with acoustical panels enhance this space by adding the warmth of wood whilst improving the acoustics of the space, making it one of the most used spaces on campus.

ARCHITECT
Fowler Bauld & Mitchell Ltd.

STRUCTURAL ENGINEER
CBCL Engineering Ltd

GENERAL CONTRACTOR
AECON Atlantic

NATIONAL PARTNERS

Canadian Wood Council / Conseil canadien du bois

Natural Resources Canada / Ressources naturelles Canada

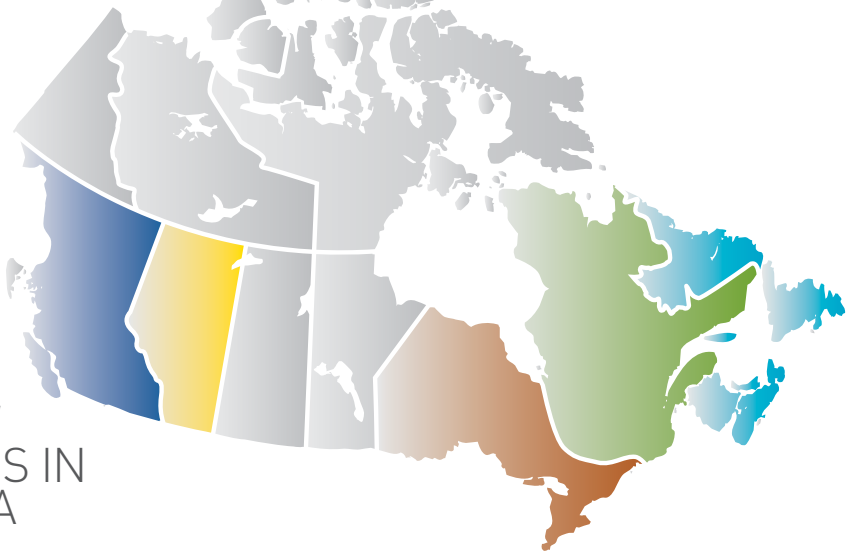
BSLC

StructureCraft

STRUCTURLAM structurlam.com

western archrib structural wood systems

Weyerhaeuser



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
837 Riverside Drive
North Vancouver, BC V7H 1V6
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
P.O. Box 459
Amherst, NS B4H 4A1
Tel: 902-667-3889