



SPECIAL
8-PAGE SUPPLEMENT

MID-RISE BUILDINGS

WINTER 2018-19 – VOLUME 6, ISSUE 2



WHAT'S INSIDE

Letter from the National Director2

Calendar2

Mid-Rise Buildings3-7

National Partners8





PRODIGY
PHOTO CREDIT: WOOD WORKS! BC – 2018 WOOD DESIGN AWARDS IN BC

Canada Recognizes the Wood Mid-Rise Opportunity

Steve Jobs once said, "Innovation is the ability to see change as an opportunity – not a threat." Design and construction teams pushing for the mid-rise opportunity, coupled with code change advancements, have resulted in 650 wood mid-rise projects in Canada that are either in design, under construction or recently completed. Speed of construction, sustainability benefits and affordability are some of the many benefits driving the momentum for wood in mid-rise construction. Building taller with wood is gaining traction in Canada because it offers a solution to urban densification challenges faced by many communities, as well as growing pressure on design teams to reduce greenhouse gas emissions. In 2011, building a mid-rise wood building was only possible in British Columbia; today, we're happy to feature mid-rise projects from each of our Wood WORKS! regions across the country in this edition of our magazine insert.

Building code changes that allow the use of wood in mid-rise construction did not happen overnight. As part of a five-year process, code changes to provide new structural options were backed by science and research. There was also an education component that needed to take place, and that's where the Wood WORKS! program had a role to play by hosting events and bringing renowned experts to present on the topic of wood mid-rise construction.

Wood continues to have a significant role to play in the mid-rise market, and will for years to come. The same is true for Wood WORKS!, a program with a vision of building pride in our Canadian wood culture through awareness and education. To learn more about Wood WORKS! visit www.wood-works.ca, and connect with your regional programs.

Etienne Lalonde
National Director
Wood WORKS!

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.

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@cwcc.ca, and share your story.

Mark your CALENDARS 2019 EVENTS

February 6

Webinar:
Mid-Rise Cost Comparison Research
– Wood, Concrete,
Steel (11am EST)
Presented by Patrick Crabbe,
Business & Brand Development
Manager, Bird Construction
www.woodworkselearning.com

February 12

Prairie Wood Design Awards
Edmonton, AB
<http://wood-works.ca/alberta/wda/event-information/>

February 21

Ottawa Wood Conference
(8am-5pm)
**The Shaw Centre
Ottawa, ON**
www.wood-works.ca/ontario

March 4

15th Annual Wood
Design Awards in BC
**Vancouver Convention Centre
Vancouver, BC**
www.wood-works.ca/bc

March 7

Toronto Wood Building Tour (all day)
Various Toronto-area buildings
www.wood-works.ca/ontario

March 7

Architect Guest Lecture
(6:30-8:30pm)
**Young Centre for the Performing Arts
Toronto, ON**
www.wood-works.ca/ontario

PHOTO CREDIT: WOOD WORKS! BC – 2018 WOOD DESIGN AWARDS IN BC



BRITISH COLUMBIA

Prodigy

Vancouver, BC

Located on the UBC campus in the heart of Wesbrook Village, Prodigy uses West Coast modern architecture that blends a stunning six-storey wood-frame building with the natural elements of its surroundings using exposed wood beams, cedar soffits and inviting warm brick cladding interplayed with glass. A courtyard encompasses a grid of wide, flat reflecting ponds that extend to edges of the building's outdoor patios, giving the effect of a waterfront location. The use of natural materials reflects locale; gorgeous glazing blurs the boundary between interior and exterior, bringing in the outdoors. The dramatic two-storey lobby bridge and breezeway is designed with floor-to-ceiling glazing and rich cedar soffits for stunning character upon arrival.

An open, inviting layout is created through an efficient use of space. Rooftop terraces create additional private outdoor living spaces. Prodigy includes the largest private rooftop lanais ever built by a developer, entered through a sky study with panoramic views of surrounding neighbourhoods – the ultimate private outdoor retreat for living large. Over 50 percent of the materials used were manufactured locally, all lumber was harvested from sustainable forests and 70 percent of construction waste was diverted from landfill.



WINNER: 2018 WOOD DESIGN AWARDS IN BC – Multi-Unit Residential Wood Design

DEVELOPER
Adera Development
Corporation

ARCHITECT
Rositch Hemphill
Architects

ENGINEER
London Mah
and Associates

WOOD FABRICATOR
Structurlam Mass
Timber Corporation

ALBERTA

PHOTO CREDITS: WOOD WORKS! ALBERTA

Red Deer College Residence

Edmonton, AB

Manasc Isaac Architects is no stranger to seeing the extraordinary potential within ordinary confines. They've set the bar high in Edmonton with a net-zero office building, the Mosaic Centre – a project that has revolutionized the concept of working in a socially interactive, environmentally conscious environment. Their newest project, Red Deer College Residence, is the first “tall” (five-storey) wood building in Alberta, permissible by the new clause in the recently adopted revision to the Alberta Building Code. This project pushes the limits of the social-to-private-premises ratio in a typical student residence: The conventional five to 10 percent of common space has been increased to about 33 percent, providing better quality of life for students while maintaining the original building size and budget.

According to the project's lead architect, Vedran Skopac, the client had several goals beyond developing an exceptional building on a conventional budget. The school needed to provide 300 beds for athletes during the upcoming Canada Winter Games, while in the long-term providing a space for students to thrive during their time at Red Deer

College – ideally, becoming a residence that students can be engaged with, and in which they would love to spend their free time. The housing units also would be rented to visitors when students were on vacation.

“Wood was the answer for helping us to achieve an exceptional building within a conventional budget,” Skopac explains. “The wood structure is an integral part of the interior. The beauty and health benefits of the exposed wood also have cost savings by decreasing the amount of interior finishes. Wood construction is light, easy and quick to modify onsite, while providing a sense of comfort for the end users. There is also the local element of being able to use a product grown in Alberta.”

The upper four storeys are entirely built in wood, as a combination of glulam columns and beams, load-bearing dimensional lumber walls and Westdek floor panels, a glulam product by Western Archrib. The main floor is built of steel members supporting the Westdek panels, and it functions as a transfer floor for all the plumbing and HVAC services that do not align with the programmatic disposition of the main floor. The result is

a 145-unit, 62,500-sq.ft. building clad with about 156 kW of integrated photovoltaic (PV) modules, which act as a building element as well as a protective cladding; it is anticipated to offset about 40 percent of the building's annual energy use.

A “micro-habitation model” was designed to optimize the individual room layouts, allowing for the remaining square footage to be distributed throughout the building as common space for the students. The entryway is articulated as a naturally inviting space, vibrant with student activities such as a larger discussion platform and a student cantina. The large staircase at the second floor doubles as a theatre/projection room, inviting students to gather. The seven common spaces vary in character and content; some provide a quiet retreat for students to enjoy the view, meditate or study, while others provide communal areas for presentations and debates. The emphasis on interaction between students increases the chances of sharing ideas, networking, feeling as if they are “at home” and subtly serves as a therapeutic measure to improve mental health.

ARCHITECT
Manasc Isaac

**STRUCTURAL
ENGINEER**
RJC

**CIVIL
ENGINEER**
Stantec

BUILDER
Clark Builders

SUPPLIER
Glulam:
Western Archrib

Lake House

Grimsby, ON

Nestled between the shores of Lake Ontario and the beautiful Niagara Escarpment, Branthaven's Lake House waterfront townhome and condominium community is a modern lifestyle development designed to provide affordable luxury living.

Amendments to the *2012 Ontario Building Code* in 2015 created a more level playing field between steel, concrete and wood by permitting wood-frame construction in residential and commercial buildings (Group C, Group D) up to six storeys in height. The amendments provide new opportunities for keeping with provincial policies related to the Places to Grow Act (calling for increased densities in urban and suburban environments). While light-frame wood construction is typically associated with single-family homes and townhouse construction, it can now be used for multi-unit mid-rise structures as well, enabling the development of more complete and diverse communities.

The design team took full advantage of the code changes by reimagining a feasibility concept of three four-storey buildings into two six-storey buildings. The redesign enabled the team to realize the same number of units while eliminating the cost of a third set of stairs and elevators. The two buildings were able to be positioned more comfortably on the site, and grade-related amenities became more generous, with stunning views from each dwelling.

The client preferred wood as the primary material for this condominium project because the other buildings in the community were constructed with the same materials and techniques, simplifying the logistics of schedule, supply chain and trades. Wood construction created opportunities to accelerate the construction schedule by building sub-components, such as roof assemblies, at ground level and lifting them into place. This method of



PHOTO CREDIT: Branthaven

construction also reduced safety risks throughout the project. Using wood as the main structural component also provided an opportunity to support local skilled trades, wood panel manufacturers and lumber suppliers.

Lake House features the exclusive use of wood for all above-grade structural systems except the elevator core and exit stairs. Prefabricating lumber assemblies ensured a level of quality, performance and precision that would have been unattainable in conventional onsite construction. Panelization enabled an integration of processes that, from design to review to construction,

led to significant economies of time and budget. The balconies were constructed of pressure-treated solid sawn lumber and engineered timber beams that are independent from the internal structure, so they can be serviced or replaced without disturbing the integrity of the building envelope.

The design team also integrated many architectural finishes to showcase the natural beauty of wood, including wood pergolas on the upper floor, solid sawn timber trellis features, wooden soffits at the balconies, wood panel ceilings and other wood accents throughout the interior of the buildings.

DEVELOPER
Branthaven

ARCHITECT
Kirkor
Architects + Planners

**STRUCTURAL
ENGINEER**
Tacoma Engineers

PROJECT MANAGER
VanMar
Constructors

QUEBEC



PHOTO CREDITS: STÉPHANE GROLEAU

Le Kaméléon

Quebec City, QC

Located at the gates of downtown Quebec City, this six-storey multi-residential project, delivered in December 2017, offers a modular condo concept that is creative, flexible and affordable, thanks particularly to the use of a wooden structure.

And where does the name Kaméléon come from, exactly? Just like the animal of the same name (chameleon in English), the building changes colors depending on the angle from which it's being viewed: blue if you look at it toward the east, and green if you look at it toward the west.

A flexible concept

The distinctiveness of the project lies in the exceptional flexibility of its layout. While traditional-type condos were proposed, clients also had the option of adding a half module or a full module to the base cell of 560 sq.ft., allowing them to design a custom unit that suited their needs. In addition, they had the opportunity

to choose a base cell on the floor of their choice and with the orientation they preferred. In total, 86 individual modules were used to create 72 housing units on five floors, while the ground floor houses commercial spaces.

A hybrid wood structural system

Le Kaméléon features a hybrid structure that maximizes the use of cross-laminated timber (CLT). CLT is used vertically in the walls, including for the stairwells and the elevator shafts, while the floors are comprised of a combination of steel and concrete. This structural system has the added benefit of providing excellent acoustic insulation. Wood is also highlighted inside the units, where the structure was left exposed for approximately one out of every two walls. The use of a wooden structure also contributed to the exceptional flexibility of the project since it was easy to drill door openings through the CLT walls

where a module was being added onto a base residential cell. Furthermore, all the building's mechanical elements were installed in the corridors, making the design possibilities for the units all the more flexible.

The project also uses light wood-frame structural elements for the exterior walls as well as for the roof of the top floor. As the building was classified as combustible due to its wooden structure, the use of roof trusses proved to be an economical solution.

This is not the first mid-rise wood project designed by the architectural firm Yvan Blouin Architecte. The firm made its foray into this type of project with Alto, a six-storey building combining cross-laminated wood panels for the floors, the stairwells and the elevator shafts, with concrete exterior walls and steel interior supports. They were also the firm behind the Origine project, a 13-storey building primarily comprised of wood.

ARCHITECT
Yvan Blouin Architecte

ENGINEER
Groupe SID

DEVELOPER
Synchro
Immobilier

CONTRACTOR
Yvan Blouin
Construction

TIMBER SUPPLIERS
Nordic Structures
Freneco and Ultratec



ATLANTIC

The VÉLO

Halifax, NS

Located just five blocks from the Halifax central business district, this former grocery store site had been vacant for 35 years, primarily because the project economics didn't work. In short, the cost of traditional concrete construction exceeded the value that could be obtained based on the modest rental rates that were previously being supported by the neighbourhood. By choosing wood construction, as part of an environmentally conscious development strategy, the VÉLO has positioned itself as one of the leading green buildings in downtown Halifax.

Completed in early 2018, the VÉLO is playing a major role in the ongoing revitalization of Halifax's North End neighbourhood. The building includes 103 residential units and 5,300 sq.ft. of ground-floor retail. The building is extremely energy efficient with R-26 walls, R-50 roof, triple-glazed windows and, thanks to the use of wood, has a minimal number of thermal breaks. Eighty tonnes of air-to-water heat pumps provide energy-efficient, in-floor heating, preheating for domestic hot water and air conditioning for residents in the summer. Each apartment has a smart thermostat that is connected to a hot water, cold water and BTU meter in the unit. Variable-drive circulator pumps are also wired into the building controls, thereby providing a high level of control over the energy and water consumption of the building.

By proposing a wood-frame structure, the developer was able to reduce construction costs by at least 15 percent when compared to concrete construction, thus making the project economically viable. Through alternate compliance to the 2010 National Building Code, a four-storey wood structure was permitted above a single-level concrete podium, resulting in design flexibility and added economy. As a bonus, the use of wood allowed the architect to articulate the facade in a way that would have been cost prohibitive with concrete or steel.

The four storeys of residential floors were constructed



PHOTO CREDITS: HRM APARTMENTS

on-site with wood frames, including all load-bearing walls, partitions, floors and roofs. Floors were 11 $\frac{7}{8}$ -in. TJI joists with concrete topping, which integrated in-floor heating. The main roof was constructed from wood trusses, which allowed enhanced insulation within its depth. Laminated veneer lumber was used as needed. Demising walls between residential units were insulated staggered-stud 2x4s on a common 2x6 sill plate to provide acoustic separation.

In 2018, the Investment Property Owners Association of Nova Scotia (IPOANS) selected the VÉLO as its Development of the Year.

OWNER

2300 Gottingen Street
Limited (HRM Apartments)

ARCHITECT

Lydon Lynch
Architects

STRUCTURAL ENGINEER

Pinto Engineering

M&E

Equilibrium Engineering

PROJECT MANAGER

Roma Developments

NATIONAL PARTNERS

Canadian Wood Council
Conseil canadien du bois



Natural Resources Canada

Ressources naturelles Canada



STRUCTURLAM
Intelligence In Wood

Account **TECH**



CertainTeed
SAINT-GOBAIN



StructureCraft



western archib
structural wood systems



Weyerhaeuser



guardian Structures



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

Quebec

1175, avenue Lavigerie Bureau 200
Quebec, QC G1V 4P1
Tel: 418-650-7193

Ontario

1350 Fisher Street, Unit 115
North Bay, ON P1B 2H1
Tel: 1-866-886-3574

Atlantic

c/o Maritime Lumber Bureau
P.O. Box 459
Amherst, NS B4H 4A1
Tel: 902-667-3889

WOOD WORKS! eLEARNING

NEW & IMPROVED
ONLINE RESOURCE

Earn FREE continuing education credits and browse the open resource repository for wood/wood product advancements and research.

woodworkselearning.com