CELEBRATING EXCELLENCE IN WOOD ARCHITECTURE

2015-16 WOOD DESIGN AWARD WINNERS

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2015-16 WOOD DESIGN AWARD WINNERS

Canadian Wood Council
99 Bank Street, Suite 400, Ottawa, Ontario K1P 6B9
Tel: (613) 747-5544 Fax: (613) 747-6264
www.cwc.ca

Celebrating Excellence in Wood Architecture
2015-16 Wood Design Award Winners

Editor: Theresa Rogers, Dovetail Communications Inc.
Design: Sharon MacIntosh, Dovetail Communications Inc.

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SHOWCASING

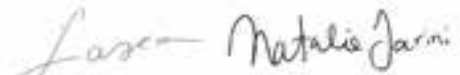
Leadership in Wood Architecture and Design

Submissions from our 2016 awards program pushed the boundaries of conventional applications for wood products – reaffirming wood's versatility within construction. The Wood Design & Building Awards program is an opportunity for design teams to showcase their exceptional wood buildings and construction techniques. Project submissions demonstrated a well-articulated understanding of past and present techniques for wood in architecture, highlighting applications for wood/wood products that could be applied to different projects throughout the world. "It's one thing to build a building, and quite something else to ensure that the building respects its surrounding environment from a green, structural/functional and aesthetic point of view," explains Etienne Lalonde, Vice-President of Market Development for the Canadian Wood Council.

Advancements in wood science and research are providing new options for design communities to explore the endless possibilities for wood in construction. Our Wood Design & Building Awards program celebrates design teams that dare to push and inspire the way we think about wood in buildings. Author Kevin Keenoo once said, "When they say you can't, they show you their limits, not yours."

We are honored to feature the winners in our coveted and award-winning *Celebrating Excellence in Wood Architecture* awards book. As you flip through these colorful pages, we hope that you will be inspired to challenge your views of wood in construction, and be inspired to use wood in your next project.

Etienne Lalonde
Publisher
Wood Design & Building



Ioana Lazea & Natalie Tarini
Coordinators
Wood Design & Building Awards

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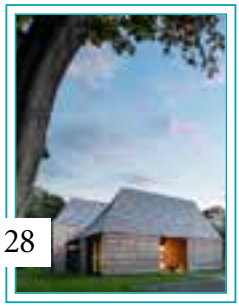

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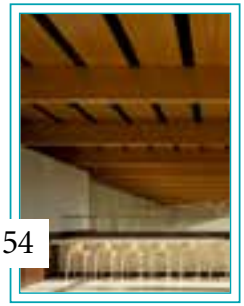

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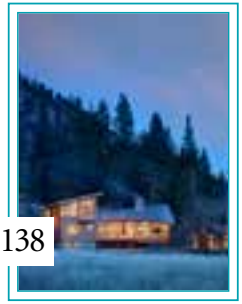

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2015 PRAIRIE

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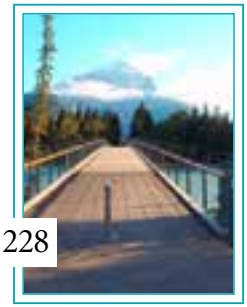
Meadows Community Recreation Centre and Meadows Library



Bow River Foot Bridge and Utility Crossing

Borden Park Pavilion

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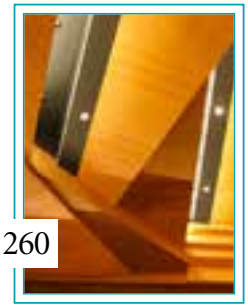
2015 PRAIRIE

2015 ONTARIO

2015 ONTARIO



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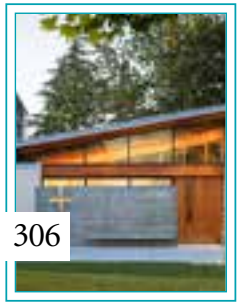


2016 UNITED STATES

China Pavilion at
Expo Milan 2015

Unitarian Universalist
Fellowship of
Central Oregon

Nest We Grow

Aspen Art Museum

2016 UNITED STATES

The Brooklyn
Riverside

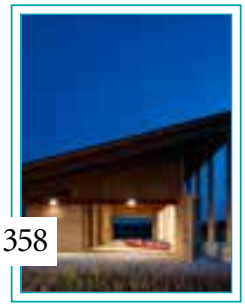
Cottonwood Valley
Charter School E-Pod

Olney Branch Library

Office>Entropy
(For Echoing Green)

2016 UNITED STATES

Scott Family Amazeum



Terry Trueblood
Boathouse

2015-16 OTHER

British Columbia and Ontario

WOOD DESIGN & BUILDING AWARDS

Jurors

DAVID KELTNER
Principal
HACKER
www.hackerarchitects.com

STÉPHAN LANGEVIN
Principal
ST-GELAIS MONTMINY + ASSOCIÉS/ARCHITECTES
www.stgm.net

DEAN MALTZ
Managing Partner
SHIGERU BAN ARCHITECTS AMERICA
www.shigerubanarchitects.com

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WRCLA
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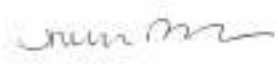
Building a Culture of Excellence in Wood Design

As I looked through my library of past Wood Design Awards books recently, I was struck by how many projects we have featured over the years. Since the program's inception in 2001, our job has always been to showcase the innovative use of wood in construction. Until last year, the scope of that job was limited to North America, however, now we have the privilege of showcasing the very best in wood design and building from around the world.

As a structural material, wood is experiencing a resurgence in popularity as people recognize its strength, beauty, value, versatility, and of course, environmental attributes. Through our affiliations with the Canadian Wood Council, American Wood Council, and their respective Wood Works programs, our job is to be there for you as a technical resource and source of inspiration as you make your wood buildings a reality.

In this book there are post-earthquake reconstruction projects; multi-family residential projects; centers for learning, health and wellness; transportation hubs and commercial projects, all earning the right to stand on the podium as valuable, inspirational contributions to our communities.

Wood has the potential to meet the construction challenges and desires of modern society head-on. We'll be there to continue to reward the very best of those endeavors.



Theresa Rogers
Editor
Wood Design & Building Magazine

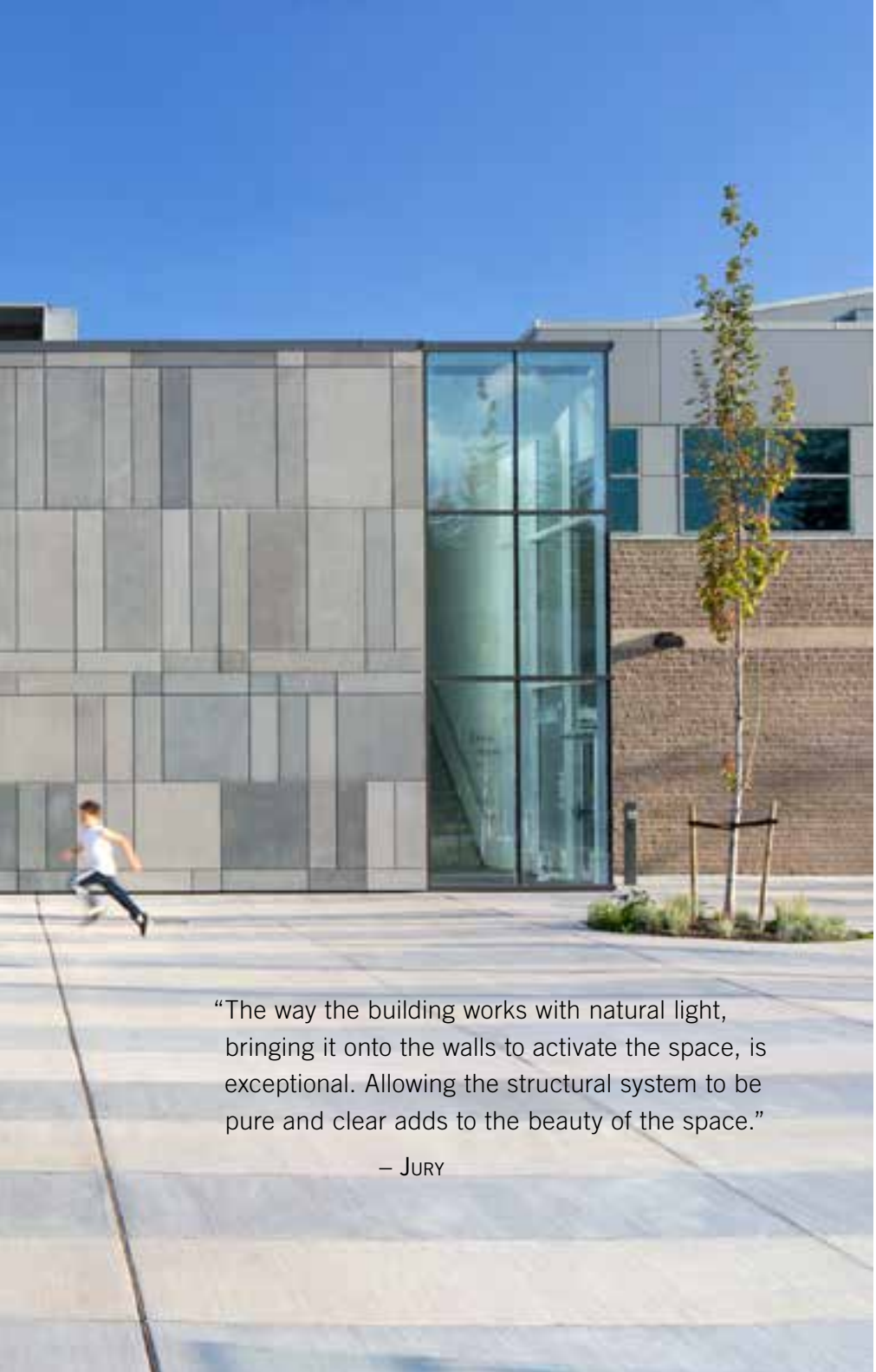
HONOR **Awards**

Preassembled long wood trusses save project time and money

North America

Guildford Aquatic Centre

Bing Thom Architects Inc.,
Shape Architecture (Associate Architect)

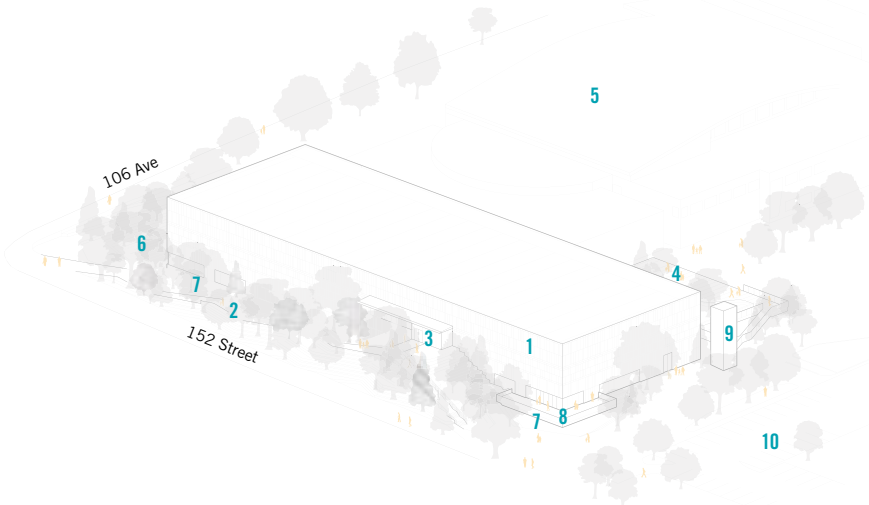


"The way the building works with natural light, bringing it onto the walls to activate the space, is exceptional. Allowing the structural system to be pure and clear adds to the beauty of the space."

– Jury

The design brief for the new Guildford Aquatic Centre called for a 164-ft. International Swimming Federation (FINA) certified lap and leisure pool added to the existing recreation center, creating a refreshed and amenity-filled community hub. Located at a prime gateway to the rapidly expanding city of Surrey, it was important that this new building had the visual and urban presence to reinforce the community's position as one of the fastest growing cities in the province.

The design was conceived as a magic box with the pixelated precast concrete exterior acting in tension with the white pearl natatorium interior. The charcoal tones of the precast concrete present an animated facade in symphony with the transparent curtain wall, creating an interplay between solid spaces and voids. The fluidity of the landscape enclosing the building was strategically designed to accommodate the existing slopes of the site, providing desired pedestrian entry points as well as acting as a foil to the rectilinear architectural form. Terraced rain gardens which were composed for stormwater retention help create an ecological habitat as well as providing a water garden, which can be viewed from the interior pool deck. Elevated above the terraced gardens is a meandering pathway which invites incoming patrons to the main entrance of the building.



1. concrete precast panel
2. path to east entry
3. entry vestibule
4. west entry plaza
5. existing recreation center/library
6. new landscaping
7. retention pond
8. exterior deck
9. exterior elevator
10. new parking lot

OVERVIEW

The new main entrance at the east, which faces the main freeway and future transit lines, is further enforced by an interior bridge traveling through the natatorium toward the existing library and recreation facilities on the west. This unique approach allows the public to arrive at the new building with a spectating view of the pool activities below.

The main feature of the natatorium is the prefabricated wood truss system, generated as a result of the city's Wood First Initiative, which promotes the use of B.C. wood products. The architect worked closely with the design-builder to create preassembled, 95-ft. long trusses that were fully integrated with lighting, mechanical services and acoustic absorption. The prefabrication process also greatly reduced the construction time. As the prime architectural feature in the natatorium, the wood trusses provide both economical and unique solutions to the structural and operational requirements of the facility.

Early in the design process, it was determined that lighting would be used as one of the principle elements of the natatorium. The desire was to maximize the impact of sunlight while acknowledging the heavy energy consumption notorious with this building type, notably the challenge of managing heat gain and loss from expansive glazing. To address this, the design team chose to limit the amount of glazing and to be very deliberate in its placement in order to maximize daylight impact and minimize glare at the water level. Windows are located at the pool deck level allowing selectively framed views to the surrounding gardens. As the natatorium is entirely lit by indirect lighting through the trusses, the interior walls were carefully selected with specific tint and gloss levels, in order to achieve the desired reflectivity. The continuous ribbon of skylights allows beams of sunlight streaking across the walls and moving with the time of day, enhancing the animation of the natatorium.

CLIENT
City of Surrey, Planning & Development Department
Surrey, BC

ARCHITECT
Bing Thom Architects Inc.
Vancouver, BC

ASSOCIATE ARCHITECT
Shape Architecture
Vancouver, BC

STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

GENERAL CONTRACTOR
Heatherbrae Builders
Richmond, BC

PHOTOGRAPHY
Ema Peter Photography
Vancouver, BC

"The structure has dynamism reflective of the sport it's housing yet it's also a controlled, clear system. It's a gallery for sport."

– Jury

Cantilevered roof folds over indoor field and doubles as spectator seating for outdoor field

North America

Stade de soccer de Montreal

Saucier+Perrotte Architectes and HCMA Architecture + Design

The history of the site of the Saint-Michel Environmental Complex in Montreal has been marked by change and evolution. Since its beginning as a mining center, then as a dumping site, human intervention has taken a severe toll on the land. This location is now destined to become one of the city's biggest parks with a focus on environmental and ecological restoration.

The result? A new LEED Gold-targeted indoor soccer stadium emerges from the park's artificial topography as a layer of mineral stratum recalling the geological nature of the site. The mineral stratum is articulated by a continuous roof which cantilevers over the entry plaza and folds down over the interior soccer field, extending to the ground to become spectator seating for the outdoor field. In this way, the roof reacts to the requirements of the program and enables the interior soccer center to become the exterior open-sky stadium.

The park's immense size called for an architectural intervention of grand scale, a truly unique gesture in the city. In order to ensure the unity of the project, the design was developed as the transformation of a single expansive element: a structure conveyed as a single formal gesture in cross-laminated timber (CLT). The structural grid forms a layered mesh, which appears to be random at first sight, but is actually denser in zones where added structural strength is needed. The main roof is supported by 13 separate, 226-ft.-long uncambered box beams, 1.6 ft. wide by 13.5 ft. high, constructed of a combination of glulam and CLT, each weighing 85 tons.

The wood structure is flexible and allows the integration of mechanical systems because of the varying heights of its layered chord members; sometimes members are at full height, and at other instances they allow for a gap above to permit the passage of ventilation systems. Lighting fixtures are placed under the mesh's beams, highlighting the seemingly random pattern.

Along Papineau Avenue, the architecture adapts to the existing landscape by embedding its supporting functions within the berm. This integration accommodates an elevated pedestrian path as well as preserves the existing trees. A subsequent series of crystals emerge from the landscape to provide daylight and views for the administrative and public spaces behind. The crystals project out toward the street to receive abundant natural light. A large crystal box containing the main lobby emerges from the terrain's southeast end, signalling the entrance of the soccer center. Despite the broad scope of the project's program, these luminous elements and preserved vegetation give the architecture a critical human scale that respects the residential neighborhood it faces. The transparency of the building promotes a sense of openness.

The programmatic elements are organized efficiently by taking advantage of the linearity of the site, as well as considering the program associations and usage of players, spectators and park visitors. The program is divided into two levels with each level organized using a main circulation corridor linking the interior to the exterior. On the public entrance level, the corridor is continuous from the plaza entry, through the lobby and central programmatic spaces, permitting access directly to the stands. On the second level, the corridor extends toward the exterior playing surface where it integrates with the exterior stands.

The Montreal soccer stadium is truly a symbol of creativity and innovation.

CLIENT
City of Montreal
Montreal, QC

ARCHITECTS
Saucier+Perrotte Architectes
Montreal, QC

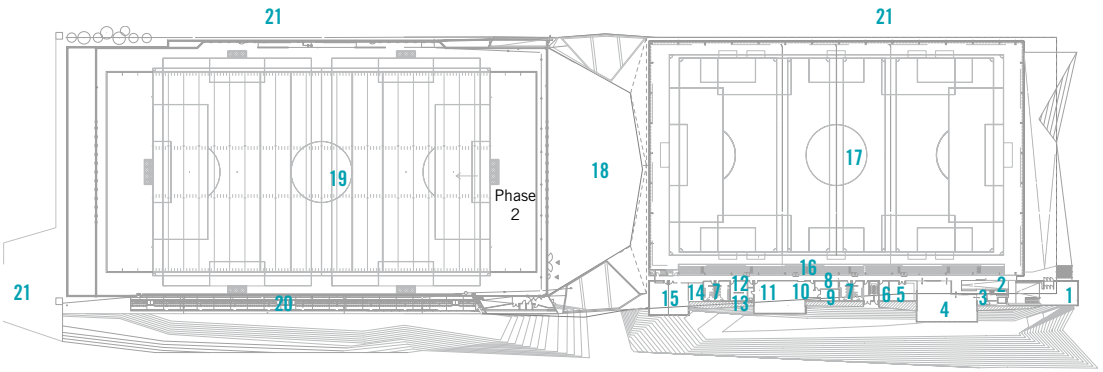
HCMA Architecture + Design
Vancouver, BC

STRUCTURAL ENGINEER
NCK Inc.
Montreal, QC

GENERAL CONTRACTOR
Groupe TEQ
Montreal, QC

TIMBER SUPPLIER
Nordic Structures
Montreal, QC

PHOTOGRAPHY
Olivier Blouin Photos
Montreal, QC



1. entrance lobby
2. reception
3. boutique
4. event space/ dining area
5. food court
6. family room
7. restrooms
8. storage
9. meeting room
10. showcase/ welcome area
11. partner organization
12. employee kitchen
13. employee lockers
14. storage furniture and media
15. multipurpose area
16. bleachers
17. interior field
18. exterior multifunction space
19. exterior field
20. exterior bleachers
21. access road

GROUND FLOOR PLAN

"Each one of these sculptural forms creates courtyards. The forms themselves, while feeling traditional, are exceptional in the way that they step down to allow the light in, and morph and twist like the landscape."

– Jury

Single coursing and pitched roofs
harken back to early Quaker settlements

North America

Underhill

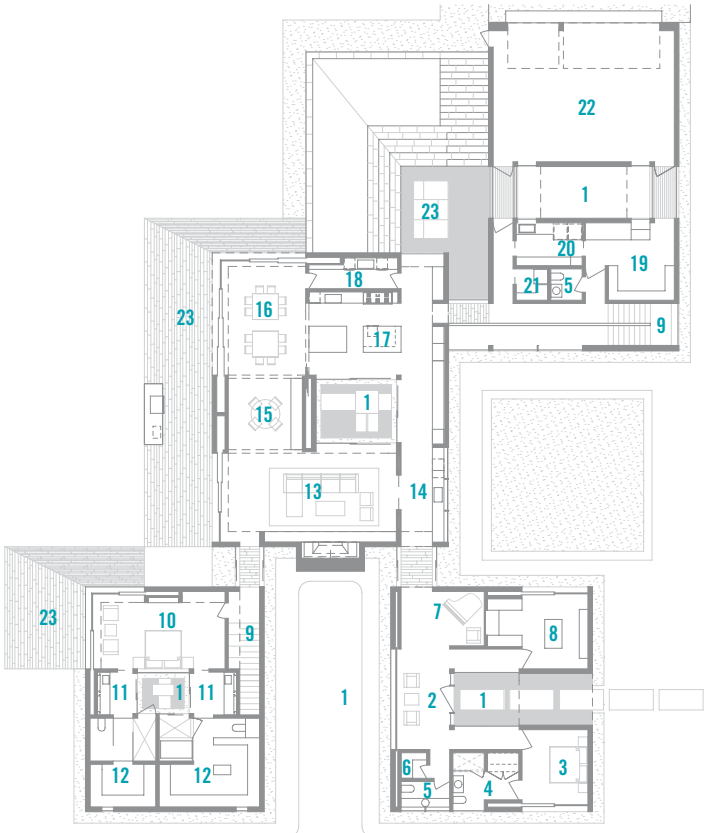
Bates Masi + Architects LLC

Socially and professionally, the clients wanted to live in an urban environment. However, living in the city didn't afford the lifestyle they wanted for their nearly school age children. To compromise, they relocated to the suburbs, remaining close to the city while raising their family. Their goal was to create a strong sense of place and privacy in an environment with close neighbors on all sides of their property. The history of the community they chose, an early Quaker settlement, inspired the solution. Based on the Quaker tenants of simplicity, humility and inner focus, the house is broken into a series of modest gabled structures, each one focused inward on its own garden courtyard instead of out to the surrounding neighbors.

The simplicity of each courtyard distills the experience of nature, encouraging one to appreciate its subtleties. Every interior space is connected to the exterior on two sides. The layering of spaces, from exterior to interior to courtyard, collapses the boundaries between them. From selected vantage points, one is able to see across multiple spaces and courtyards to framed views beyond. Each volume has a sculpted roof that funnels light and air into the center of the structure.

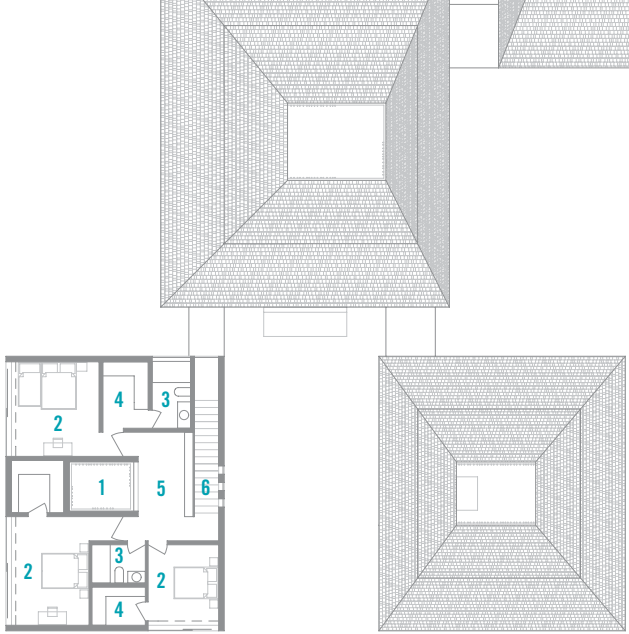
The detailing of materials accentuates the central courtyard. The oak floor and weathered oak ceiling boards both radiate outward from the center. The floor and ceiling boards are custom cut in width and mitered to trace continuously and concentrically around the courtyard. Weathered metal straps on the ceiling further emphasize this geometry and act as a device to organize lighting and audiovisual equipment throughout the house.

The idea of the pavilion is evident through several moves in the landscape. The building's inverse form is carved out of the earth to create a lower courtyard at the basement level. Planted retaining walls slope down to let light and air into the lower level. Similarly, a sloped, depressed area forms a destination in the landscape, where a grove of trees grows, creating a contemplative spot much like the interior courtyards.



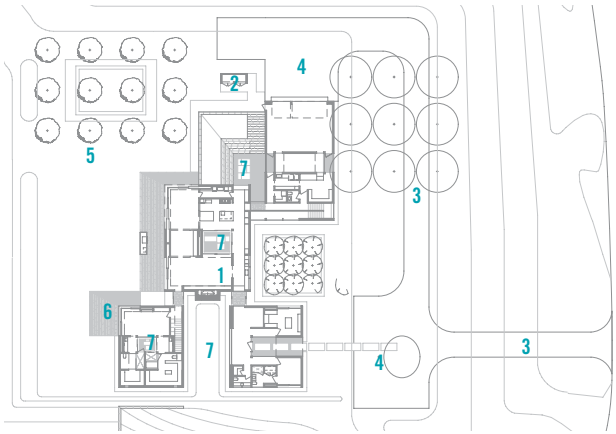
1. courtyard
2. entry
3. guest room
4. guest bath
5. powder room
6. closet
7. sitting room
8. office
9. stair
10. master bedroom
11. master bath
12. master closet
13. family room
14. bar
15. shared room
16. dining room
17. kitchen
18. butler's pantry
19. mud room
20. laundry
21. pantry
22. garage
23. terrace

GROUND FLOOR PLAN



1. courtyard
2. bedroom
3. bath
4. closet
5. hall
6. stair

SECOND FLOOR PLAN



1. house
2. shed
3. driveway
4. parking
5. lawn
6. terrace
7. courtyard

SITE PLAN

The shingle coursing and pitched roofs reference the early Quaker settlement buildings in the area. A limited number of materials are carefully detailed to accentuate the geometric form of each pavilion, and a pronounced shadow line traces around each building and articulates the scale of the oversized shingles and undercoursing layer. On the roof, the shingles are an ideal material as they accommodate tapering courses that follow the roofs compound pitches. In areas below grade, bluestone is cut to the same size and shape and applied in a shingled manner on the chimney to retain the uniformity of the volumes.

The Quaker values of simplicity and craft tie the new home to the community. Using the courtyard as a device to bring light and nature into the interior of each volume results in an inward-looking and contemplative home that addresses the practical concerns of the parents and creates a desirable environment for the children.

ARCHITECT
Bates Masi + Architects LLC
Sag Harbor, NY

STRUCTURAL ENGINEER
Steven L. Maresca Engineer
Hampton Bays, NY

GENERAL CONTRACTOR
Qualico Contracting Corp.
Locust Valley, NY

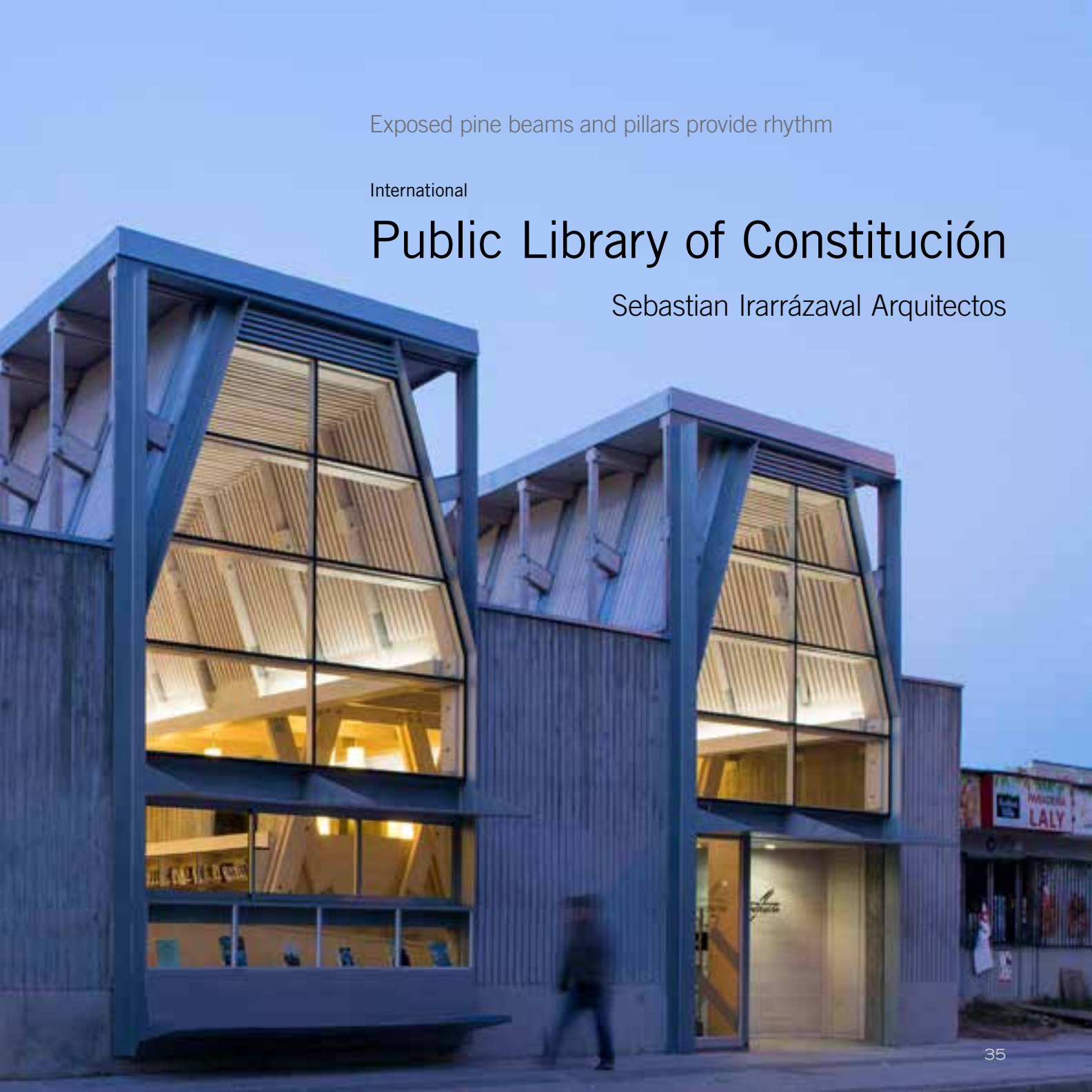
PHOTOGRAPHY
Michael Moran/OTTO
Brooklyn, NY

Exposed pine beams and pillars provide rhythm

International

Public Library of Constitución

Sebastian Irarrázaval Arquitectos



"An exquisitely articulated building that holistically utilizes wood for structure, finish and form to create a serene and contemplative atmosphere well suited for a library."

– Jury

The Public Library of Constitución is part of a public-private initiative taken to rebuild Constitución, Chile, after an earthquake and subsequent tsunami devastated the town in 2010.

The entire project is based on three main decisions. Firstly, in order to overlook the millenary trees of the civic square located in front of the site, the library was raised more than five feet above street level. Secondly, to filter and balance the interior light, the team covered the three main areas of the program (children, young adult and adult readers) with reticulated wood naves. Thirdly, in an effort to properly communicate the public character of the structure, the goal was to organize the facade with its three monumental glass cases in such a way that it not only invited people to see the new book arrivals, but also offered shelter for passing pedestrians with the facade's benches and canopies.

The construction is maded of wood and only the firewalls are done with exposed poured concrete. The structure is prefabricated and is made of laminated pine. In order to give rhythm to the interior space and make the loads and the construction process obvious, the wood beams and pillars were kept as visible as possible. Coating the wood with white varnish enhances the required luminosity of the spaces and also creates homogeneity between the structure and the on-site built furniture. Fabric colors were chosen to mimic the colors of the trees and leaves of the square. In this sense, the library can be seen as a resonance box.

CLIENT
Municipality of Constitución
Constitución, Chile

ARCHITECT
Sebastian Irarrázaval Arquitectos
Santiago, Chile

STRUCTURAL ENGINEER
Cargaz Ingenieria Ltd.
Santiago, Chile

GENERAL CONTRACTOR
Proessa
Constitución, Chile

PHOTOGRAPHY
Felipe Díaz Contardo
Santiago, Chile

Prefabricated CLT modules increase light,
warmth and space for cost-efficient housing units

International

Puukuokka Housing Block

OOPEAA – Office for Peripheral Architecture

"This is a great space that takes on a couple of issues with multi-family housing that are usually the hardest things to deal with. One is the experience of the hallway and arriving at your front door. Here, there is always light and space. They also take on the challenge of indoor/outdoor space with flexible balconies that can be opened or closed. This is phenomenal."

– Jury


2

Completed in November 2014, Puukuokka is the first eight-story wooden apartment building in Finland. It explores the potential of modular prefabricated cross-laminated timber (CLT) construction to meet the goal of providing high-quality, environmentally responsible and affordable housing.

The housing block is an energy-efficient and ecological trio of multi-story wood-framed apartment buildings in the Jyväskylä suburb of Kuokkala. The entire load-bearing structure and frame is made of mass timber and composed of prefabricated volumetric CLT modules. Facade elements that were prepared separately and brought to the site ready for assembly are also entirely made of wood. Spruce was used in the facades facing the street, and untreated larch was used in the interior courtyard side. The spruce was treated with a coat of dark paint and the larch in the interior courtyard will turn silvery gray over time.

Puukuokka pilots an innovative lease-to-own financing strategy that aims to support social sustainability by promoting stable communities. In Puukuokka, the goal was to find a solution that made the best possible use of the technical and aesthetic qualities of CLT and to create a large-scale wooden building with a distinct architectonic expression of its own, as well as to create a building that combines the sense of privacy of a single-family dwelling within the semi-public character of the shared spaces of an apartment building. The vision was to provide the residents with a functional space rich in experiential qualities.

Puukuokka served as a pilot case to develop and test a CLT-based system of volumetric modules. Working with CLT enabled several important aspects in the project. First, the use of CLT made it possible to create a spacious hallway and atrium space with a lot of light realized in an energy efficient manner. Second, the use of CLT, thanks to the insulating qualities of mass timber, allows control of the temperature of the individual apartments independently from that of the hallway space. And third, the use of prefabricated volumetric CLT modules also made it possible to integrate the heat, water, electricity, and ventilation in the wall structure in the hallway, allowing for an efficient organization of the plan and making it possible to maximize the space allotted for each apartment.

Each apartment is composed of two prefabricated modules made of spruce, one housing the living room, the balcony and the bedroom, and the other housing the bathroom, the kitchen and the foyer. Since the CLT modules were prefabricated in a local factory less than two hours from the site, it was possible to cut the construction time on-site to six months and to reduce the exposure to weather conditions. All of this made it possible to achieve a higher quality end result.

CLIENT
Lakea Oy
Jyväskylä, Finland

ARCHITECT
OOPEAA – OFFICE FOR PERIPHERAL ARCHITECTURE
Seinäjoki, Finland

STRUCTURAL ENGINEERS
Insinööritoimisto Pertti Ruuskanen Oy
Jyväskylä, Finland

Sweco
Jyväskylä, Finland

GENERAL CONTRACTORS
JVR-Rakenne Oy
Jyväskylä, Finland

Stora Enso Building Solutions Finland Oy
Helsinki, Finland

PHOTOGRAPHY
Mikko Auerniitty
Jyväskylä, Finland

MERIT **Awards**

Shou Sugi Ban creates striking black exterior

North America

Fire Station 76

Hennebery Eddy Architects, Inc.

"How poetic that the finish on the living quarters is charred wood. We love the many different uses of wood, from structure, to interior finish and siding. All building systems are exquisitely thought out."

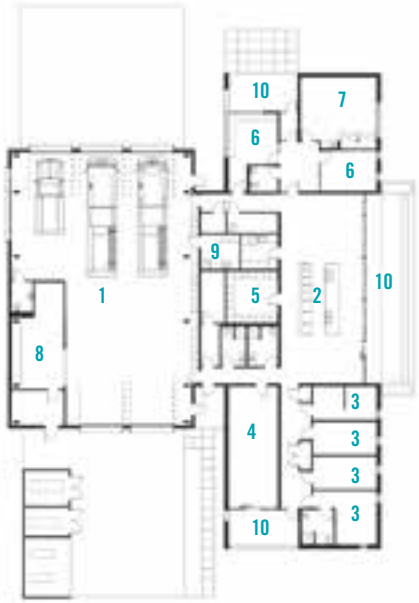
– Jury

The functional simplicity of Multnomah County's Fire Station 76 fits right in with the practical agricultural buildings that dominate this rural community. Indeed, the fire station comprises little more than a dwelling with an oversized garage. The understated aesthetic is echoed in the building materials and provided the inspiration for the building concept.

Fire Station 76 is comprised of two buildings: an apparatus bay and living quarters. The apparatus bay houses the emergency response vehicles and work spaces that include a shop, washing machines and storage, and an Emergency Medical Services (EMS) room. The living quarters house the crew and provide a day room, kitchen, fitness room, showers, lockers, and bunk rooms. An area for public reception that includes the station office, conference room, and district administrative office space is located at the front entry to the living quarters.

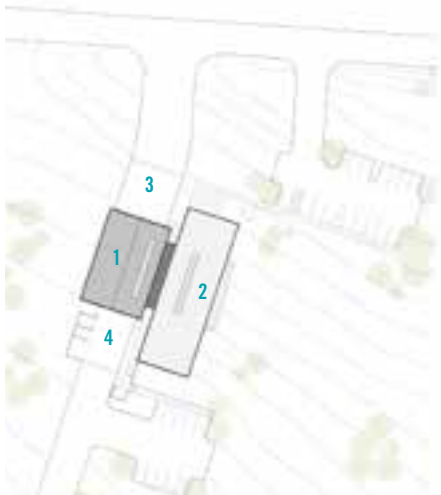
Fire, the primary focus of the station, influenced the treatment of materials. The building is clad in dark, charred, reclaimed Douglas fir timber from an old barn. The reclaimed barn boards were milled into siding and treated with a Japanese technique called Shou Sugi Ban, a treatment that transforms the wood by charring its surface. The effect is striking and it protects the wood from moisture, decay and insects. The material and treatment presents the dualities of fire to create a structure suffused with meaning.


76



1. apparatus bay
2. day room
3. bunks
4. fitness
5. lockers
6. office
7. conference room
8. shop
9. EMS
10. patio

FLOOR PLAN



1. apparatus bay
2. living quarters
3. front apron
4. back apron

SITE PLAN

Functionally, the design solution divides the facility into two complementary masses: a vaulted apparatus bay featuring exposed glulam arches, skinned with a light-colored metal exterior, and conventionally framed living quarters featuring wood siding on both the interior and the exterior, blending the inside and outside through material continuity. The long, linear form of the living quarters faces the Cascade Mountains and warm Western red cedar-clad porches carve into the living quarters' structure, sheltering these gathering spaces from weather.

The cedar continues to the building interior, surrounding the primary gathering space of the living quarters. Large skylights fill the fire crew's living and working spaces with natural light. The apparatus bay faces the road, presenting the most recognizable feature of a fire station, the engines, to the public. The exposed wood structure extends over the fire engines like the vaulted ceiling of a cathedral with regularly spaced glulam Tudor arches and exposed Douglas fir tongue and groove roof decking.

The station reflects the context of its community in both massing and materials, providing a legacy for the fire district. The result is a station that embraces fire and uses it as a feature of beauty and protection.

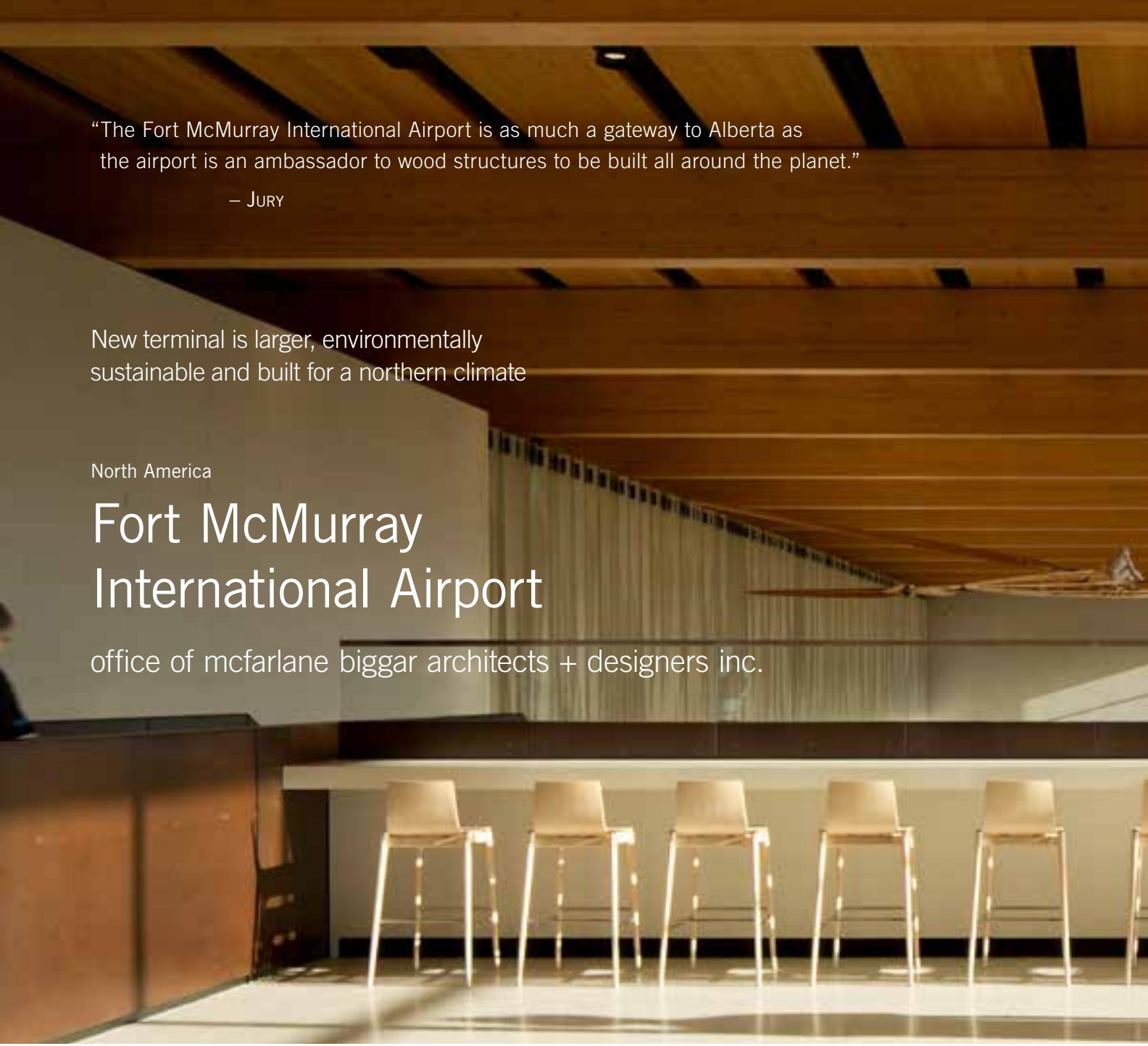
OWNER
Multnomah County Rural Fire Protection District #10

ARCHITECT
Hennebery Eddy Architects, Inc.
Portland, OR

STRUCTURAL ENGINEER
Nishkian Dean
Portland, OR

GENERAL CONTRACTOR
Bremik Construction, Inc.
Portland, OR

PHOTOGRAPHY
Josh Partee
Portland, OR



"The Fort McMurray International Airport is as much a gateway to Alberta as the airport is an ambassador to wood structures to be built all around the planet."

– Jury

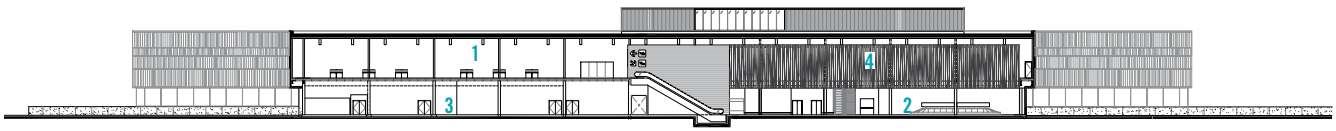
New terminal is larger, environmentally sustainable and built for a northern climate

North America

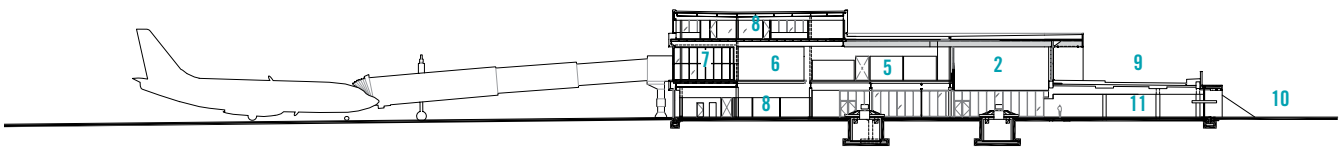
Fort McMurray International Airport

office of mcfarlane biggar architects + designers inc.

WEST ELEVATION



LONG SECTION



CROSS SECTION

1. check-in hall
2. arrivals hall
3. services
4. art screen wall
5. security checkpoint
6. passenger waiting area
7. retail, food and beverage
8. offices
9. departures curb
10. arrivals curb
11. entrance tunnel

The new Fort McMurray International Airport responds to unique challenges while seeking to define a meaningful place for a growing community whose identity is continually evolving. The building showcases both wood's ephemeral qualities – an inviting, culturally significant material with universal appeal – and its practical characteristics – a renewable, sustainable and adaptable product.

Major public areas are defined by a mass timber structure comprised of seven-ply spruce-pine-fir cross-laminated timber (CLT) panels in combination with glue-laminated (glulam) wood beams and plywood. The airport is currently the largest application of CLT in North America. The architect and code consultant worked out an alternative solution under the building code for the use of mass timber in a non-combustible building.

The issue of building technique is paramount. Due to the scale of the industrial projects in the region and general labor shortages, construction costs are inflated by 30 per cent to sometimes 80 per cent when compared to major centers. In response, the terminal building is designed to maximize the amount of off-site fabrication to the greatest degree possible.

The CLT system was quick to erect and was resilient in terms of construction tolerances where it was required to tie into the other structural systems. The system also provided a number of thermal advantages. For example, the simple detail of a CLT panel on edge creates a parapet detail with superior thermal performance and eliminates the problematic voids associated with a steel stud assembly.

The depth of the assembly enabled the integration of a number of other systems.

In particular, the cavities or chases created between the top of the glulam and the underside of the plywood allowed the architect to carefully coordinate the plethora of systems that compete for real estate on a ceiling. Sprinklers, PA speakers, CCTV, lighting, and smoke detection are all housed in these chases.

The building form uses simple means to generate an iconic and memorable presence in the landscape, exemplifying modesty and directness to resonate with the community it serves. A collection of robust volumes are deployed to express their programmatic functions, further stratified to facilitate easy expansion with minimal disruption to airport operations.

The exterior has a robust material palette derived from the industrial landscape to withstand heavy abuse, both from the ground service equip-

ment on the air side, as well as from the occupants on the land side. Precast concrete insulated sandwich panels were used on the first floor where the potential for damage from airport vehicles was highest. On the second and third floor, the envelope is wrapped primarily in a painted steel cladding with preweathered steel cladding incorporated at a number of key areas.

These tough materials are complemented with more sophisticated yet durable materials to soften the interior spaces: unitized triple glazing, terrazzo flooring, acoustic wood panels, and an exposed mass timber structure. The finish on the exposed wood contains the minimum quantity of pigment while still providing adequate UV protection for the wood. The matte finish appears natural, with just enough gloss to help avoid dust collecting on the surface.

The concept of reduction informed the building throughout the design process. Wherever possible, measures were taken to build with less and minimize the resources necessary to create a robust, durable and efficient building responsive to its use and setting. The design centers on the most meaningful building practices applicable to an airport typology, including passive solar orientation, energy optimization, superinsulated building envelope assemblies, in-floor radiant heating, displacement ventilation, and sophisticated heat recovery systems. Low-emitting materials are used throughout to promote a healthy interior environment for passengers and employees.

The building's orientation was predetermined by its relationship to the runway, however, special consideration was given to the location of the programmatic elements in order to optimize the relationship to the energy of the sun. A large south-facing courtyard is complemented by expansive western-oriented glazing to passively harness the energy of the sun. In addition to reducing the energy consumption of the building, the glazing ensures arriving passengers will be greeted with generously day-lit spaces with direct physical and visual access to a landscaped courtyard, a welcome change from the dark and compressed basement-like arrivals spaces found in many more conventional airports.

ARCHITECT
Completed by office of mcfarlane biggar architects + designers (omb). Commenced as mcfarlane green biggar architecture + design.
Vancouver, BC

STRUCTURAL ENGINEER
Equilibrium Consulting Inc.
Vancouver, BC

GENERAL CONTRACTOR
Ledcor Inc.
Vancouver, BC

PHOTOGRAPHY
Ema Peter
Vancouver, BC

"This project brings stick frame construction to another level. The obsessive precision to grids and detail are carried through from structure to finish."

– Jury

Minimally exposed wood frame supports a glassy cage that captures light

North America

Lightbox

Bohlin Cywinski Jackson

Designed as a home and studio for a photographer and his young family, Lightbox is located on a peninsula that extends south from British Columbia across the border to Point Roberts, WA. The densely forested site lies beside a 180-acre park that overlooks the Strait of Georgia, the San Juan Islands and the Puget Sound.

Having experienced the world from under a black focusing cloth and large format camera lens, the photographer has a special fondness for simplicity and an appreciation of unique, genuine and well-crafted details. The home is made decidedly modest, both in size and means, with a building skin utilizing simple materials in a straightforward yet innovative configuration. The result is a structure crafted from affordable and common materials such as exposed wood "two-bys" that form the structural frame and directly support a prefabricated aluminum window system of standard glazing units uniformly sized to reduce the complexity and overall cost. Accessed from the west on a sloped boardwalk that bisects its two contrasting forms, the house sits lightly on the land above the forest floor.

A south-facing two-story glassy cage for living captures the sun and view as it celebrates the interplay of light and shadow in the forest. To the north, stairs are contained in a thin wooden box stained black with a traditional Finnish pine tar coating. Narrow apertures in the otherwise solid dark wooden wall sharply focus the vibrant cropped views of the old growth fir trees at the edge of the deep forest.

Durable finishes were chosen because they are also easily repairable and maintainable. Floors are concrete on the lower level, and there is exposed wood car decking on the upper floor. Much of the building's skin is a simple system of standard-sized glass and aluminum windows over a minimally exposed wood frame of standard lumber sizes. Natural and reclaimed materials were used when possible. Shelving is crafted from resawn timbers, the exterior finishes are a pine tar product over cedar, and much of the furniture and fixtures were found during the owner's travels, such as the antique Pittsburgh mercury lamp hanging in the dining area. While hydronic heat and antique cast iron radiators that are electrified keep the house efficiently warm throughout the year, the home also has a centrally located fireplace that transforms the space into a cozy sanctuary as the storms move across the peninsula. After each storm, fallen branches are collected and the fuel is restocked for enjoying the dramatic effect of the inevitable next storm.

Lightbox is an uncomplicated yet powerful gesture that enables one to view the subtlety and beauty of the site while providing comfort and pleasure in the constantly changing light of the forest.

ARCHITECT
Bohlin Cywinski Jackson
Wilkes-Barre, PA

STRUCTURAL ENGINEER
PCS Structural Solutions
Seattle, WA

GENERAL CONTRACTOR
HBHansen Construction Inc.
Lyndon, WA

PHOTOGRAPHY
Nic Lehoux Photography Ltd.
Vancouver, BC

"The space is as inviting as it is environmentally sustainable. This is a great example of what workplaces can be in the future."

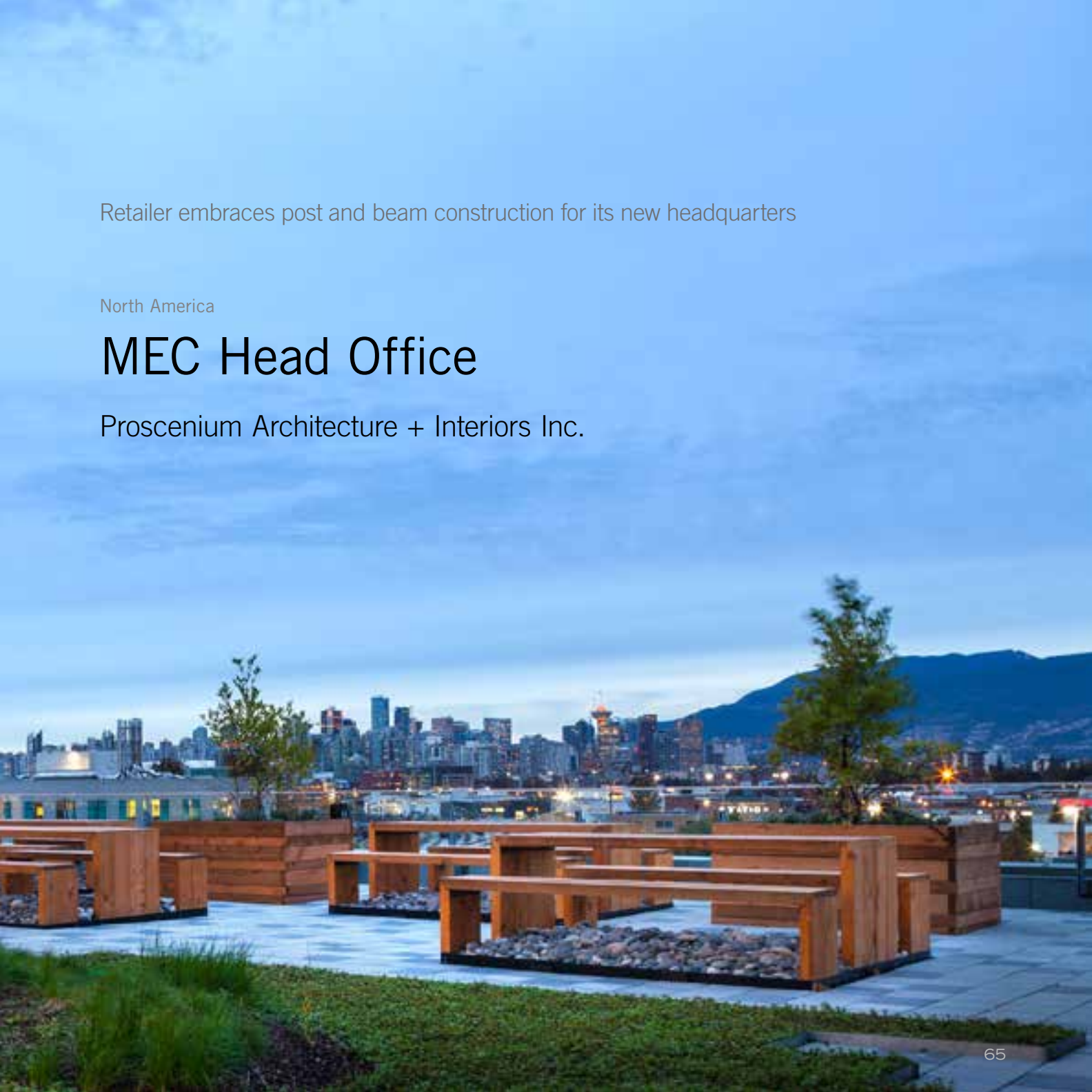
– Jury

Retailer embraces post and beam construction for its new headquarters

North America

MEC Head Office

Proscenium Architecture + Interiors Inc.



Mountain Equipment Co-op (MEC) is one of Canada's most progressive retailers, having embraced a philosophy of corporate, social and environmental responsibility since its inception in 1971. With each new building project it undertakes, MEC endeavors to advance its sustainability agenda.

In this respect, wood has played an important role: a reclaimed wood structure for its store in Ottawa, ON; a demountable post and beam frame for its store in Burlington, ON; and now an exposed heavy timber structure for its new four-storey 130,000-sq.ft. head office in Vancouver, BC.

Completed in the fall of 2014, the new facility is home to all MEC's head office functions, accommodating a staff of 375.

The plan consists of two intersecting wings, oriented to optimize daylight and natural ventilation. The narrow floor plates are organized so that enclosed offices and service rooms are in the centre and open plan offices close to exterior walls and windows.

The arms of the plan intersect at the atrium, the social focus of the building where employees can meet, and the activities on one floor can be seen and heard from another. This feature is just one of many in the building that demonstrate MEC's commitment to the well-being of its staff.

This commitment also influenced the choice of wood for the structure, which creates warm and welcoming interior spaces that could not have been realized using any other material.

With the desire for simplicity, economy and flexibility, a glulam post and beam system was chosen for the primary structure and mass timber panels were specified for the floors. The preferred option was to use cross-laminated timber (CLT) panels for the floors, but to design in such a way as to permit nail-laminated timber (NLT) panels to be carried forward as an alternate. At the time of tender, NLT proved

to be the more economical choice.

To limit the cross-grain shrinkage that can be a challenge in a building of this height, the structure was designed with single storey-height glulam posts, placed one on top of the other with end-grain-to-end-grain bearing. A combination plate and saddle connection secures the base of one post to the top of the next and provides bearing plates for the beams that run either side. The plates are secured to the top of each column with wood screws. Rebar dowels above the plate are epoxy-grouted into holes drilled into the bottom of each post.

Each main bay of the building is 60 feet wide and is divided into three equal sub-bays of 20 feet. Thus, there are four lines of glulam columns connected by three sets of paired glulam beams in each main bay. The NLT panels are four feet wide and 40 feet long so that they span two sub-bays of the building. To facilitate diaphragm action, the panels are laid in an overlapping pattern to minimize continuous joints. Plywood sheathing is similarly laid across two adjacent panels in a staggered configuration, again to facilitate diaphragm action.

The heavy timber post, beam and panel structure provides a minimum one-hour fire-resistance rating.

The MEC Head Office offers us a glimpse into the past and the future simultaneously. In the 19th and early 20th centuries a significant proportion of Canada's commercial buildings were constructed using a heavy timber post and beam frame structure, with floors of solid nail-laminated dimension lumber. This system was chosen for its economy, strength and durability, and many examples (including the nine-storey Landing building in Vancouver, BC) can still be found.

Today, wood structures continue to deliver on the promises of the past, but now our understanding of wood has broadened to include its benefits to environmental sustainability and human health. These contemporary concerns are central to the corporate philosophy of Mountain Equipment Co-op, which has demonstrated its commitment to environmental stewardship for more than 40 years, and whose concern for employee well-being is recognized. Its new head office may well prove to be a prototype for a new generation of commercial buildings.

ARCHITECT
Proscenium Architecture + Interiors
Vancouver, BC

STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

GENERAL CONTRACTOR
Ventana Construction Corporation
Burnaby, BC

GLULAM SUPPLIER
Structurlam
Penticton, BC

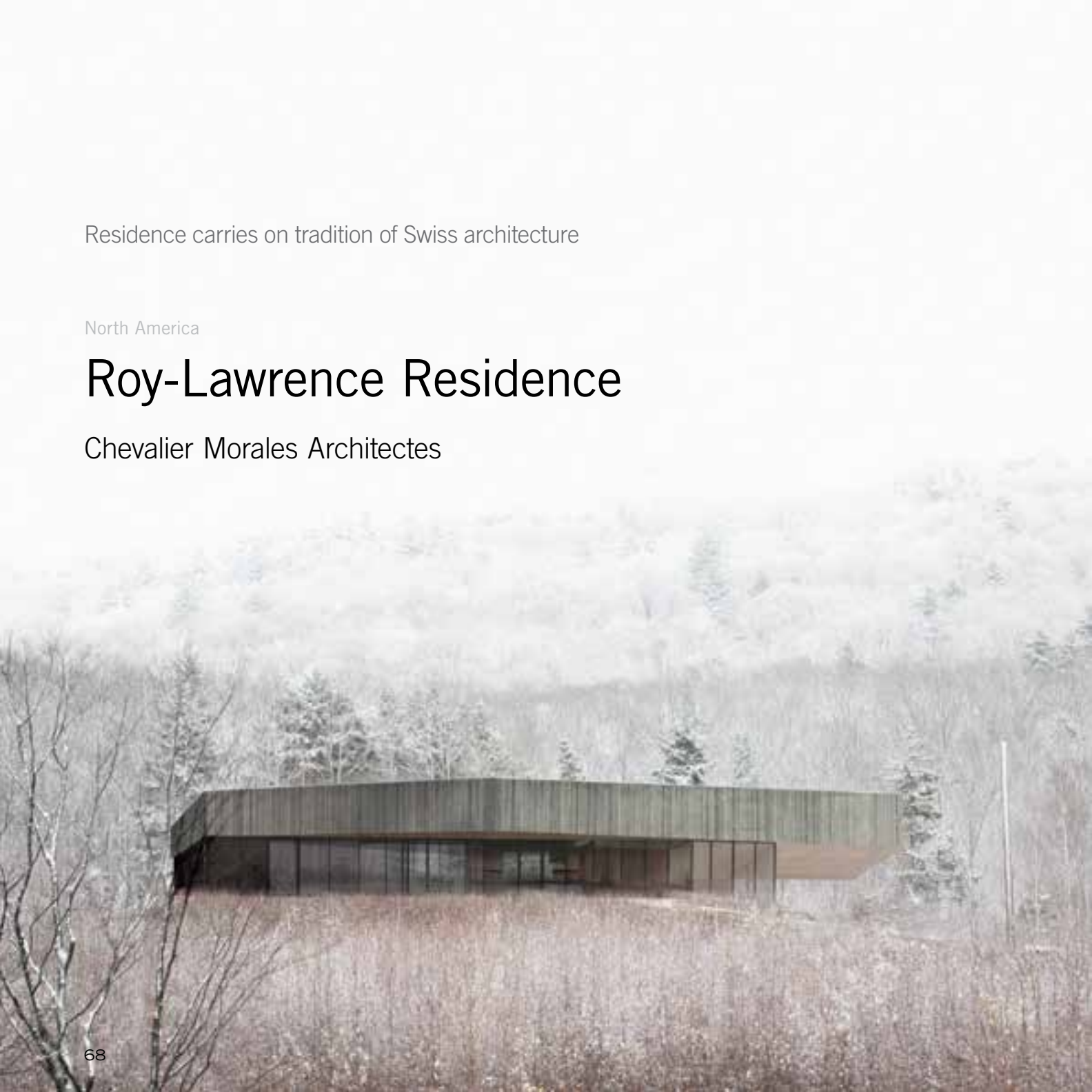
PHOTOGRAPHY
Ed White Photographics
Courtesy: Wood *WORKS!* BC
Vancouver, BC

Residence carries on tradition of Swiss architecture

North America

Roy-Lawrence Residence

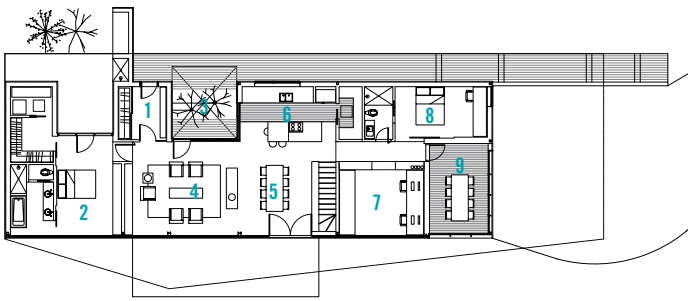
Chevalier Morales Architectes



"The design and the setting are sublime. The use of the deep wood truss to make the cantilever while giving the building its form is enchanting."

– Jury

The impressive wood roof is a strong statement and magnifies the view above the valley. Traditional wood trusses form the structure. The depth of the roof is used to span the six-meter-long cantilever, and permits different ceiling heights, varied interior spaces and an interior courtyard. The rough cut pine cladding is stained with a semi-transparent coating. Here, the mountain and surrounding nature influenced the choice of colors and textures, intrinsically linking the residence to its local environment and landscape.



1. hall
2. master bedroom
3. courtyard
4. living room
5. dining room
6. kitchen
7. office
8. bedroom
9. veranda

FLOOR PLAN

The interior layouts were organized according to very simple principles. Informed by the structure's geographic orientation, the layouts are a response to natural lighting, dominant winds and panoramic views to the southwest. On the northeast side, a long wooden wall follows the path and leads visitors to the main entrance which has been recessed toward the middle of the residence, creating a compression effect at the entry point. Like a bite taken in the layout, the glazed interior courtyard creates transversal transparency and gives the owners the opportunity to fully experience contact with the mountain. This connection between built space and exterior space contributes to the spatial quality of the main living area by integrating within the house a fragment of the mountain.

ARCHITECT
Chevalier Morales Architectes
Montreal, QC

STRUCTURAL ENGINEER
Structure Pierre Gosselin
Montreal, QC

GENERAL CONTRACTOR
Self-construction/client

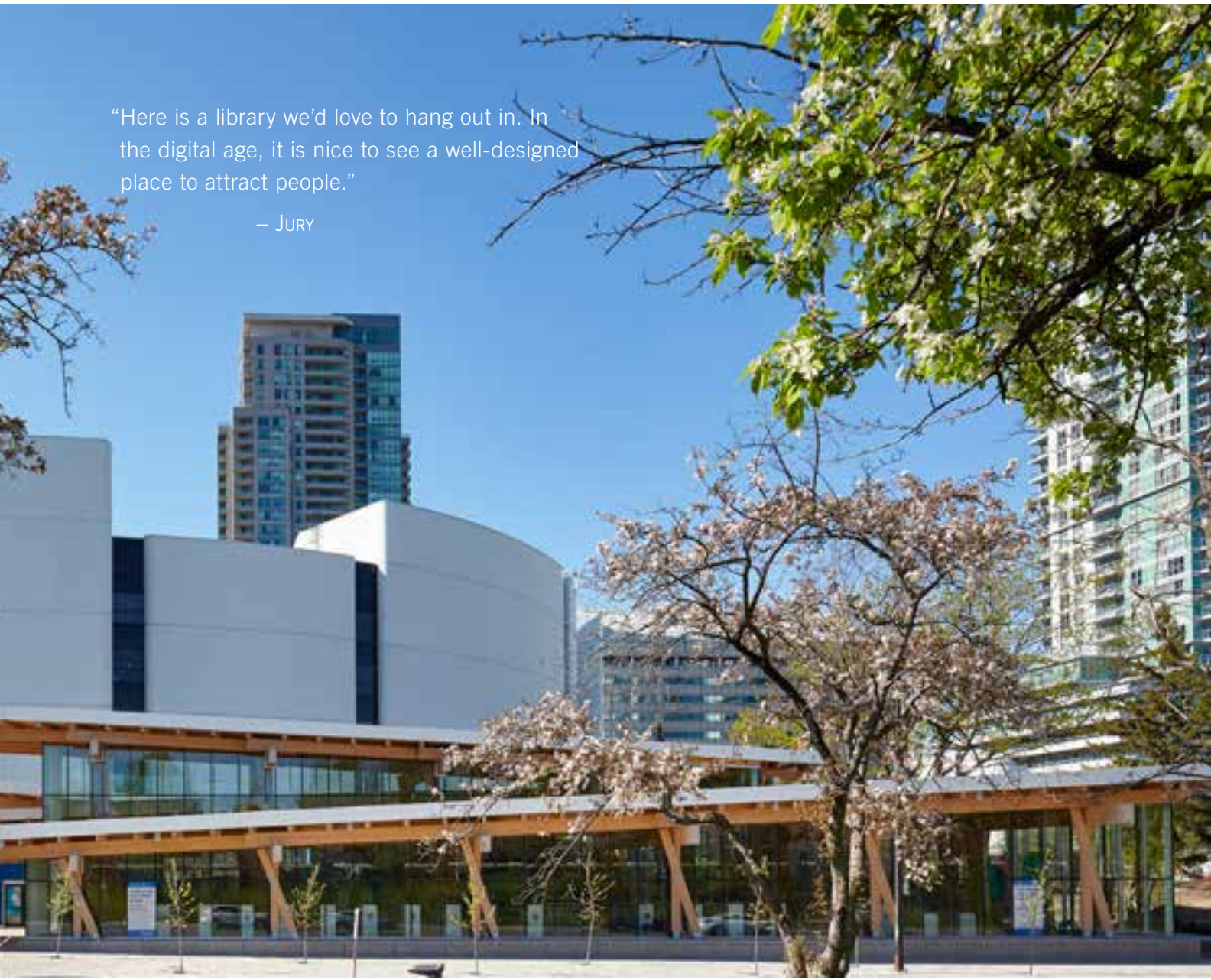
PHOTOGRAPHY
Chevalier Morales Architectes
Montreal, QC

Three layers of structural framing allow large loads and spans

North America

Toronto Public Library Scarborough Civic Centre Branch

LGA Architectural Partners and
Phillip H. Carter Architects in joint venture


"Here is a library we'd love to hang out in. In the digital age, it is nice to see a well-designed place to attract people."
– Jury

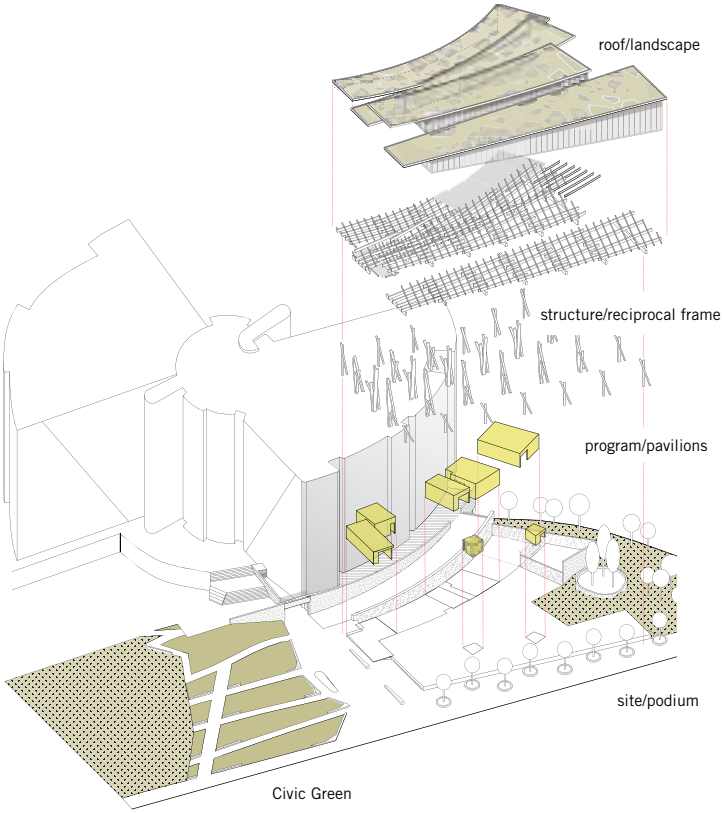
The Toronto Public Library's 100th branch is set into an existing grass slope in the Scarborough Civic Centre Precinct. The design is premised on an integrated landscape-building relationship that envisions the library as a wooden garden-podium foreground to Raymond Moriyama's iconic Civic Centre, which was built in 1973 as an "object in the landscape."

The library consists of four gently tilted roof planes that create an elevated garden landscape resting on a series of crossing column clusters. The alternating roof slopes allow the greenery to be visible from the street, from the elevated walkways of the Civic Centre, and from the tops of nearby future residential development. From the library interior, the weaving roof planes orchestrate views out through clerestory windows to the planted roofscape above and allow the depths of the plan to be illuminated by natural daylight.

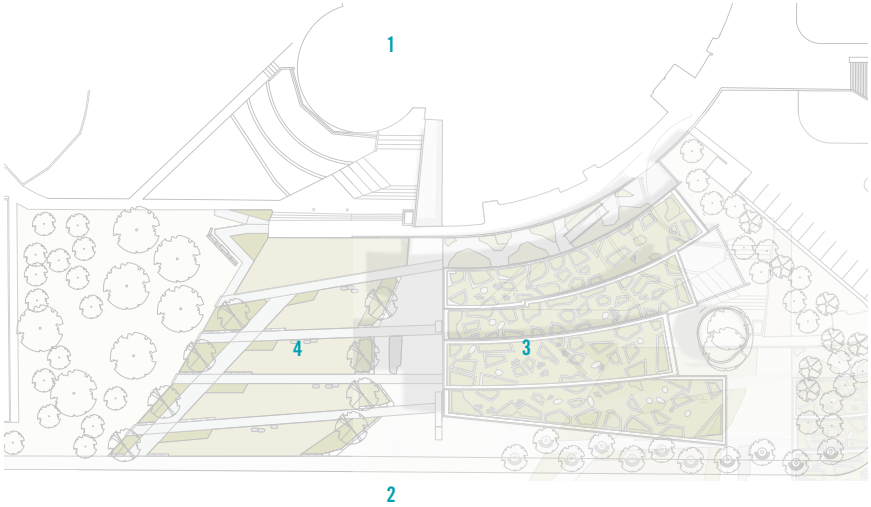
Three layers of structural framing – primary, secondary and tertiary – are stacked to allow double cantilevers and maximize the number of bearing type connections. Lateral loads in this project were particularly challenging because the weight of the plantings resulted in higher than normal seismic loads.

The crossing columns in the column clusters, which are a dominant architectural feature, effectively resist lateral loads without relying on walls or bracing. The large spans of the glulam structure create an open and flexible floor space below that allows the library to adapt to the evolving technology and needs of the surrounding community. The exposed wood is a uniform and all-encompassing material, enhancing the monumentality of the space while the warm tones of the wood enliven the space as they catch the changing light throughout the day.

The objective of optimizing the structure for material use resulted in virtually no repetition. The versatility of glulam allowed the engineers to optimize each piece for its specific use and to create a structure that is almost entirely made of wood, from the large columns and beams, down to the decking and window lintels. The complex geometry was achieved through the use of a Building Information Management (BIM) model built by the architect and engineer, which was then shared with the glulam manufacturer. The manufacturer then produced its own detailed digital model that was directly used for production of every structural element on a computer numerical control (CNC) router machine.

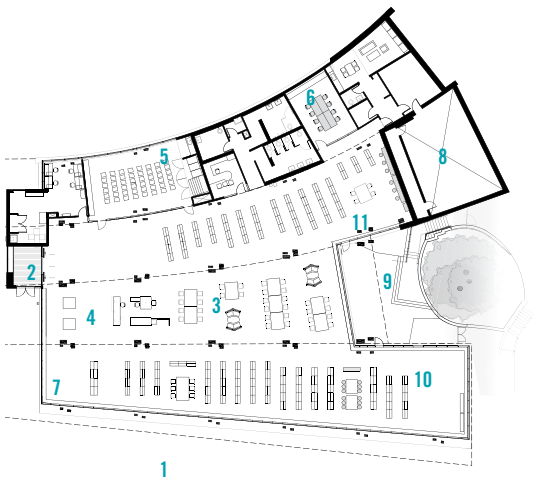


BUILDING COMPONENTS



1. Scarborough Civic Centre
2. Borough Drive
3. Toronto Public Library Scarborough Civic Centre Branch
4. Civic Green Park

SITE PLAN



1. Borough Drive
2. entry
3. library commons
4. circulation desk
5. community program room
6. media lab
7. living room
8. mechanical
9. story courtyard
10. children's zone
11. teen zone

GROUND FLOOR PLAN

The prefabricated structure allowed for a rapid installation of a complex structure through the winter months in only six weeks, reducing cost, construction time and waste. The Forest Stewardship Council-rated (FSC) black spruce grown near the Quebec production facility is harvested near its lifecycle end. The manufacturer's "Enviro-Lam" process utilizes sizes as small as 1 x 2 in., optimizing fiber recovery from the entire tree. The glulam structure is one of several environmental features of the building including stormwater collection, green roof and large overhangs to manage heat gain and loss through the seasons. The end result is an extraordinary and enduring place for discovery; one that will inspire the community's library users for generations.

CLIENT
Toronto Public Library
Toronto, ON

ARCHITECTS
LGA Architectural Partners
Toronto, ON

Phillip H. Carter Architects
Toronto, ON

STRUCTURAL ENGINEER
Blackwell
Toronto, ON

GENERAL CONTRACTOR
Aquicon Construction
Brampton, ON

PHOTOGRAPHY
Michael Muraz
Toronto, ON

Ben Rahn/A-Frame
Toronto, ON

"This is an extraordinary project. There is structural and design rigor that yields delightful and interesting forms."

– Jury

International

PINCH/SWEEP/WARP

Hong Kong University Architecture students

Three distinct timber projects play a part in earthquake reconstruction efforts

The Pinch, The Sweep and The Warp are three earthquake reconstruction projects located in Yunnan Province, China. Built by students of architecture from The University of Hong Kong, the projects maximize the social and programmatic impact of small-scale interventions. Located in a remote mountainous landscape of peaks and valleys, each project is designed with the strategy of optimizing the use and experience of the landscape via structural wooden trusses and decked, ruled surfaces.

THE PINCH
Library and Community Center

The Pinch is a library and community center in Shuanghe Village. The project is part of a government-led reconstruction effort after an earthquake in September, 2012. The University of Hong Kong decided to sponsor the design of a new library building that would serve to activate the community. Due to limited funds, the building was designed as a two-phase project and was initially set against an existing 13-ft. high retaining wall for structural support. The design acts as a bridge between the rebuilt village and the new memorial plaza. Emphasizing its location in a remote mountain valley, the design responds visually to the space of the valley, offering stunning views across a dramatic double-curved roof. The structure itself rises to a peak, a monument to the earthquake and rebuilding effort. The construction involved collaboration with a local timber manufacturing factory. The process resulted in the development of a surprisingly diverse form through simple means. A series of trusses are anchored between the upper road level and lower plaza level. The form of each truss changes to create both a gradual decline (to bring people down) and then a sharp upward pitch (to elevate the roof). The trusses were covered in an aluminium waterproofing layer and timber decking. On the interior, the trusses extend downward to support a floating bookshelf. Simple, traditional school benches are used as chairs. Polycarbonate doors create a completely open space extending out to the plaza.

THE SWEEP
Viewing Platform and Play Area

The Sweep is a viewing platform and play area built in another Yunnan Province village. The project is located at the entrance to the local primary school. Students live in the school on weekdays and are picked up by parents for the weekend. The platform is a natural waiting area for parents and students, offering a shaded space below. Though the arrangement of trusses is simple, the overall structure delivers a diversity of views and spaces, providing a 360-degree panoramic view of village houses, mountains, valley and farmland.

THE WARP
Rest Area and Roadside Market

The Warp is a rest area and roadside market built in Ludian, serving as a meeting point and lookout along the main entry road to the mountain village. The project provides three key spaces: stepped seating area for selling fruit and produce, a wooden deck for viewing, and a covered resting and eating area. The deck extends toward the scenic valley, transforming from a straight line into a sine curve. Its peaks and valleys mimic the landscape while providing two mirrored spaces (above and below) for viewing and resting.

These projects focus on how a single small structure can address several community needs at once. They are the result of ongoing collaboration with a local timber workshop, adapting complex geometries to simple traditional techniques. These projects revitalize the role of local timber craft, through strategies of responsive, programmatically diverse and economical design. Collectively the series explores the activities of buying and selling, bridging, resting, viewing, eating, reading, and playing. On each of these sites, the projects have become a monument to the rebuilding effort, while as an architectural effort, they serve to educate the public on timber architecture.

ARCHITECT
The University of Hong Kong
Hong Kong, China

GENERAL CONTRACTOR
Kunming Dianmuju Shangmao Company
Hong Kong, China

GENERAL CONTRACTOR
Kunming Dianmuju Shangmao Company
Hong Kong, China

PHOTOGRAPHY
The University of Hong Kong
Hong Kong, China

"The overall quality is very precise,
almost like a jewel box from the inside."

– Jury

Long cantilevers achieve a pioneering project

International

World Intellectual Property Organization Conference Hall

Behnisch Architekten

The new World Intellectual Property Organization (WIPO) conference hall and access center, completed in 2014, is located in Geneva, Switzerland. WIPO is a self-funding agency of the United Nations with 188 member states.

The conference hall, which accommodates approximately 900 delegates from around the world, lies between the organization's main building, known as Bâtiment AB, and the WIPO administration building, designed by the same architect and erected earlier, in 2011. The structure is placed like a sculpture between the two buildings, within the WIPO Garden. Together, the three buildings comprise the WIPO campus at the United Nations' Place des Nations.

Despite the conference hall's large volume and introverted appearance, it is light and approachable. From its fulcrum, arms cantilever out to create openings framing picturesque views, such as that of the French Alps and Mont Blanc in the distance. Structurally, the lobby separates the hall from its base, allowing the building, seemingly, to levitate. It is accessed through a newly designed main entrance, which interfaces with the main AB building's lobby at the same level.

The state-of-the-art 900-seat auditorium is located on the second and third floors of the new conference hall. It is designed to ensure user friendliness and comfort and is filled with daylight, which streams in through the north-facing glazing above the stage. The interior of the hall is finished in local wood, such as pine, creating a room with a very pleasant ambience and enhanced daylighting.

The architect worked in close collaboration with structural and environmental engineers to create a sculptural, pioneering project. Timber is the prime construction material of the new hall and dominates its structure, interiors, and facade, which is clad in larch shingles. The building's design, with cantilevers of up to 98 ft. in length, pushes the limits of timber construction.

In the early design stages, it was decided that wood was the material with the most suitable characteristics for meeting WIPO's design criteria, primarily for its flexibility as a structural

material, ranging from large span beams to small-scale cladding elements including the larch shingles of the facade, its renewability and its fire-protection characteristics.

The supporting structure is made up of assembled box girder elements – beams that are connected to slabs above and below so they do not slip. By gluing the layers in a cross pattern, a biaxial load-bearing board is created from the wood.

The low ratio of embodied energy in the materials also played an important role, as did the thermal characteristics and haptic qualities of the wood. The small proportion of thermal mass and rapid response to interior climate adjustments is advantageous for the intensive utilization of the building during conferences.

The wooden supporting structure also enhances the interior heating and cooling systems for occupants. For example, cavities created by the layered structure direct airflow while renewable cooling energy is drawn from Lake Geneva. This efficient displacement ventilation system provides a high level of user comfort with minimal energy use.

The new conference hall opens up a new dimension in modern timber construction and was designed to meet the client's goals of an environmentally friendly and structurally sound building. The decision to build with wood and all decisions in this project were based upon the goal to create ecologically, economically and socially sustainable built environments.

CLIENT
World Intellectual Property Organization (WIPO)
Geneva, Switzerland

ARCHITECT
Behnisch Architekten
Stuttgart, Germany

STRUCTURAL ENGINEERS
Schlaich, Bergermann & Partner
Stuttgart, Germany

T-ingénierie SA
Geneva, Switzerland

Erricos Lygdopoulos
Geneva, Switzerland

Consortium Bois OMPI
(Charpente Concept, SJB
Kempter + Fitze AG, J. M. Ducret)
Geneva, Switzerland

GENERAL CONTRACTORS
Atelier Coplan
Fribourg, Switzerland (site supervision)
Burckhardt+Partner SA
Geneva, Switzerland (project pilot)

PHOTOGRAPHY
Courtesy of David Matthiessen
for Behnisch Architekten
Stuttgart, Germany

CITATION **Awards**

"With more than five miles of engravings on 75 panels, this is truly a project of wonder."

– Jury

Interior hewn from sinuous mahogany embraces patrons

North America

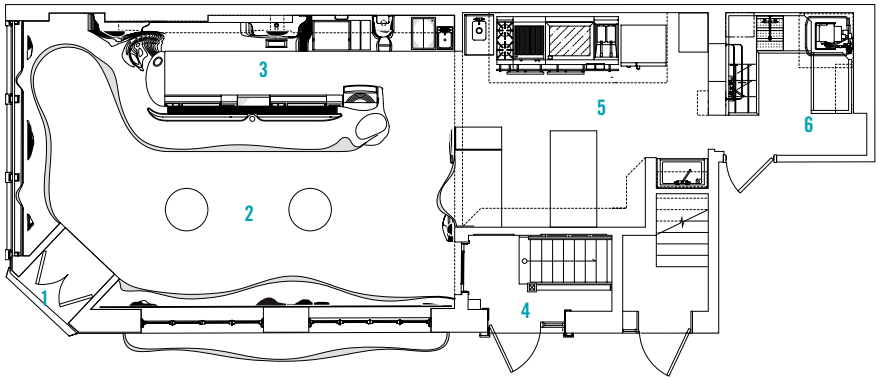
Bar Raval

PARTISANS Architects

Carefully hewn from what looks like Mobius strips of sinuous mahogany, Bar Raval is a 21st-century reinterpretation of Spanish Art Nouveau that introduces Toronto to the pintxo bar, a cornerstone of social and gastronomic culture in Basque Country, in northern Spain.

The architects were commissioned by Canadian chef Grant van Gameren to execute an ambitious task: create an art piece that would become an enduring culinary and civic institution. The directive was interpreted through two aesthetic lenses: Spanish design and the physicality of the three owners who became the team's muses. Raval's sculptural sentience ultimately pays homage to tattooed musculature in the context of Art Nouveau tropes and craftsmanship reimagined for contemporary Toronto.

The fluid smoothness of the final product belies the rigorous research and development required to achieve the vision. The biggest challenge was identifying a fabrication technique that would not only permit the development of intricate 3D geometries but also allow a layer of rich detail to emerge from the fabrication process itself, revealing those inherently textured qualities of wood that are akin to muscle tissue. Those efforts were synchronized with fabricators and software engineers to rewrite software patches that would enable the customization of toolpaths to execute sculptural engravings on complex 3D surfaces. The result is approximately 5.5 miles of serpentine engravings on 75 panels of seamlessly aligned wood.



1. main entry
2. bar/restaurant
3. service space
4. entrance vestibule
5. kitchen
6. washing space

N FLOOR PLAN

The architects were also challenged to reimagine the functional aspects of the classic bar as a stage for performance and interaction. Each workstation and vantage point was optimized for efficiency and every back-of-bar detail was personalized down to the custom-made drip trays and brass beer pulls, which the owners moulded in clay with their own hands.

Bar Raval's soft curves foster intimacy, fluidity and community. A series of 3D "tattooed limbs" enfold patrons in a warm mahogany embrace, and their rippling surfaces encourage patrons to lean into and become part of the woodwork.

CLIENT
Grant van Gameren,
Mike Webster & Robin Goodfellow
Toronto, ON

ARCHITECT
PARTISANS
Toronto, ON

GENERAL CONTRACTOR
Grant van Gameren
Toronto, ON

PHOTOGRAPHY
Jonathan Friedman/PARTISANS
Toronto, ON

"The glulam beams of the roof are a nice counterbalance to the glass and steel structure and staging systems below."

– Jury

Timber dominates hall, paying homage to area's thriving forest industry

North America

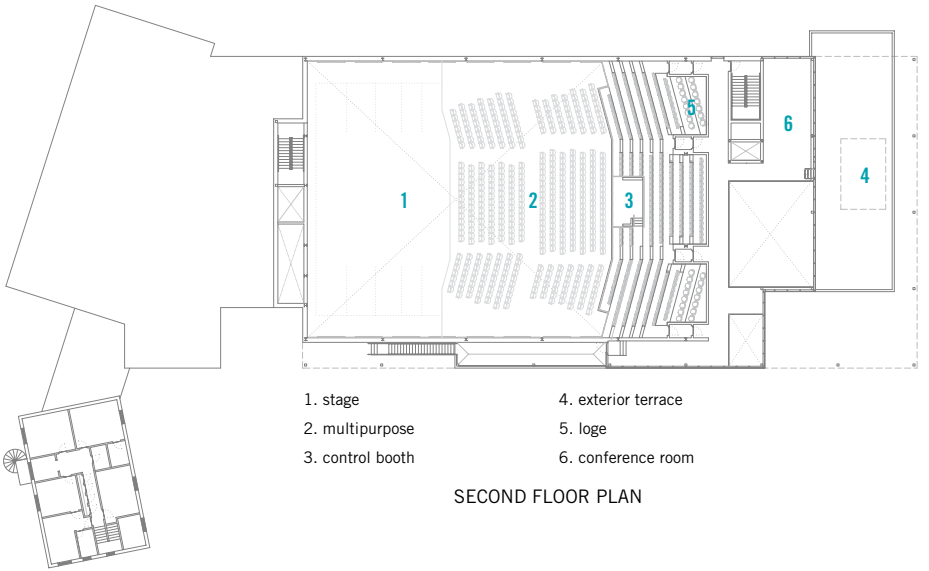
Mont-Laurier Multipurpose Performance Hall

Les architectes FABG

Located in the Laurentian Mountains, 115 miles northwest of Montreal, Mont-Laurier is a small town where the forest industry still plays a central role.

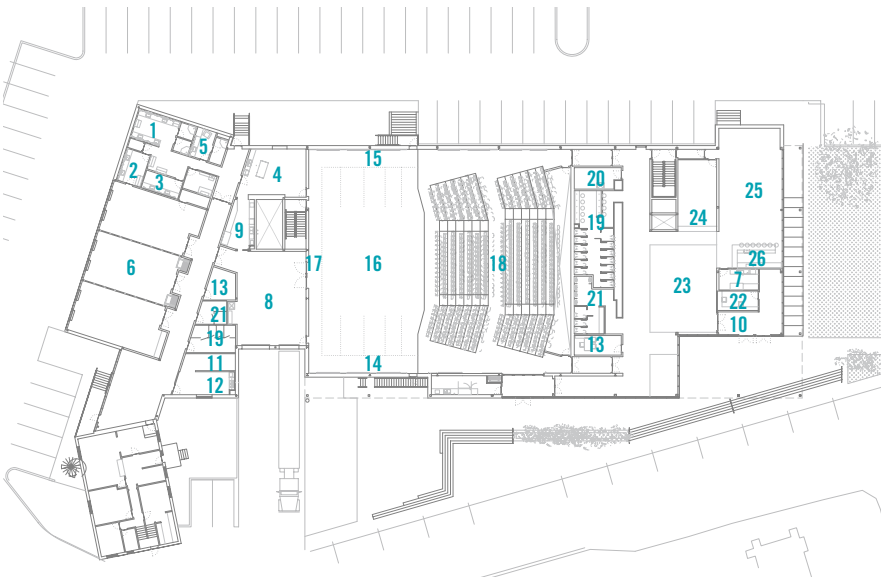
The project of a new multipurpose hall was the subject of an architectural competition initiated by a non-profit host for multidisciplinary professional performances that has been operating in the region for more than 30 years. The building site is located on the southern embankment of the Rivière du Lièvre between Notre-Dame-de-Fourvière Cathedral and Mont-Laurier's public school. In order to respond effectively to the project brief and be site-sensitive, the building was integrated into its environment with respect to its two neighboring institutions, yet became a new and vital social anchor and cultural hub for the community and its residents.

The building's principal feature is a large multipurpose performance hall that is divided in three sections along its length and combines a series of mechanisms for easy and efficient reconfiguration. The capacity of the hall is variable from 270 to 700 seats in order to accommodate comedy shows, theater presentations, school performances, and various concerts. The portion of the theater closest to the stage consists of a hydraulic platform that connects the hall to a storage space without columns below the auditorium floor and a section of mobile seating independent of the platform. The middle portion of the hall consists of a section of telescopic seats that retract to provide additional floor space when needed. Finally, the rear section of the hall features a mezzanine of 184 seats whose guardrail can be removed depending on the



1. stage
2. multipurpose
3. control booth
4. exterior terrace
5. loge
6. conference room

SECOND FLOOR PLAN



1. dressing room
2. dressing room
3. dressing room
4. green room
5. dressing room
6. entertainment room
7. kitchen
8. loading dock
9. caterer
10. entrance hall
11. employee cloakroom
12. employee kitchen
13. office
14. stage right
15. stage left
16. playing area
17. crossover
18. multipurpose hall
19. women's restroom
20. concierge
21. men's restroom
22. box office
23. hall
24. cloakroom
25. foyer
26. bar

GROUND FLOOR PLAN

configuration of the auditorium. In addition to the multipurpose hall, the programmatic elements include dressing rooms for artists and performers, a green room, an entertainment room, administrative offices, a ticket office, a cloakroom, washrooms and the other technical and support spaces.

Among the competition parameters was the request for the proposal to utilize wood as much as possible in order to signify the importance of the thriving forestry industry to the area. This demand was met by designing a structural wood grid that supports the roof and technical equipment and creates a canopy over the main entrance. The exposed wooden roof structure, a square grid composed of spruce-pine-fir (SPF) glulam beams, clearly communicates the importance of this natural resource for the successful development of the region. This feature of the building is highlighted in the transparent grand hall and by an architectural lighting strategy that provides a strong and dramatic presence. The wood structure is a bold gesture that unifies the architectural proposal and expresses the desire to build with a smaller environmental footprint than a steel and concrete structure would entail. As a result, this significant building element embodies the aesthetic, sustainable and social values of contemporary Quebec.

In addition to the glulam roof structure, the building features other defining elements made of wood. All of the wall surfaces in the performance hall, including the stage and underside of the technical grid are clad with NU Green ZERO, a MDF panel with no added formaldehyde. The product is FSC-certified (Forest Stewardship Council) and ECCTM-certified (Eco-Certified Composite by the Composite Panel Association). It is made using 100% pre-consumer recycled or recovered wood fiber. This product was chosen because of its sustainable characteristics but also because it is made in Mont-Laurier, the project site.

Since its inauguration, the performance hall has continuously transformed, offering Mont-Laurier's residents various artistic performances, corporate events and socio-cultural activities. It has instilled a sense of great pride in the institution within the community. The project offers a new cultural model for regional development, blurring the lines between experimental theater, convention center and concert hall.

CLIENT
Muni-Spec Mont-Laurier
Mont-Laurier, QC

ARCHITECT
Les architectes FABG
Montreal, QC

STRUCTURAL ENGINEER
SNC-Lavalin Group Inc.
Montreal, QC

GENERAL CONTRACTOR
Construction Lavacon Inc.
Montreal, QC

PHOTOGRAPHY
Les architectes FABG
Montreal, QC

"A great example of adaptive reuse or remodel; taking a cold, nondescript box building of the 1970s and adding much-needed life and interest. The variable-dimensioned glulam beams, each one being different to make the variable curve, utilize what is beneficial to wood fabrication: the CNC technology that allows for economical variation."

– Jury

Wood patterning informed by basket-weaving traditions of Indigenous cultures

North America

Thompson Rivers University Old Main Academic Building Addition

Diamond Schmitt Architects,
Stantec Architecture (Associate Architect)

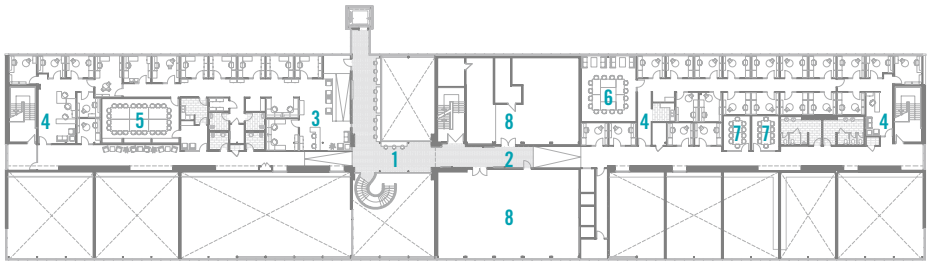
The natural surroundings and First Nations' heritage that inform Thompson Rivers University's (TRU) identity inspired the design for the first new law school in Canada in 30 years. To accommodate 45,000 sq.ft. of program space without contributing to campus sprawl by building anew, a virtue was made of necessity to refashion a nondescript, low-slung facility and add two stories atop its 400-ft. length. Taking a cue from the surrounding mountains held sacred by First Nations, an undulating roofline makes a bold connection with the terroir. The curvature of the roof also serves to unify the east and west wings of the new floors with the existing penthouse block.

For the building to be grounded in its context, it was decided from the beginning that wood as a local, sustainable material should feature in the structure and finishes. Because the two lower floors of the existing Old Main building had to remain in use, the only way to complete the shell of the addition on a very tight schedule over the summer months was to use prefabricated panels for the roof. A system of glulam beams and plywood deck was the best way to prefabricate modules in 39-ft. spans and a slim 20-in. depth that smoothly follows the complex double curvature of the roof and allows for the construction tolerances required to connect to the slender 5-in. wide steel columns. The soffits of the projecting roof as well as two new ground floor entrance canopies are clad in cedar, appearing from ground level as flowing ribbons of wood against the curtainwall facade.

The decision to use wood in the roof structure required innovative thinking to comply with the building code. At four stories, the addition was too tall to permit flammable materials in its structure. An alternative solution based on heavy timber and fire-retardant-treated dimensional lumber had to be developed, involving computer modeling of fire conditions to demonstrate the building safely met the intent of the code. The success of this approach opens up new opportunities for wood structures in building types where it has not been conventionally used.

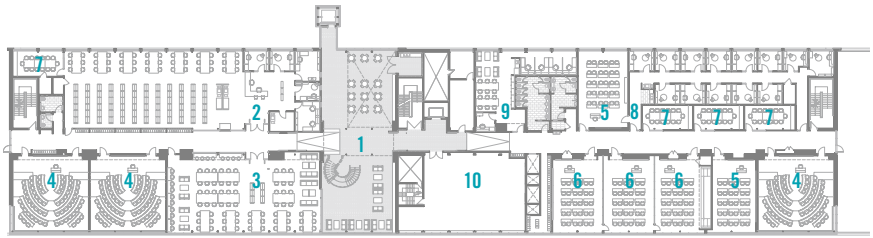
In the interior, the wood finishes similarly refer to natural and cultural heritage. The main public spaces – a double-height atrium, a 2,600-sq.ft. reading room, and three interconnected multi-purpose rooms – are unified with a ceiling of acoustic planks finished with maple veneer. The light color of the wood enhances the natural light coming in from generous glazing, while its pattern subtly suggests the basket-weaving traditions of the Indigenous cultures.

The walls of the atrium are also clad in wood paneling with perforated upper portions for acoustic control. The use of wood adds warmth and human scale to these large spaces that



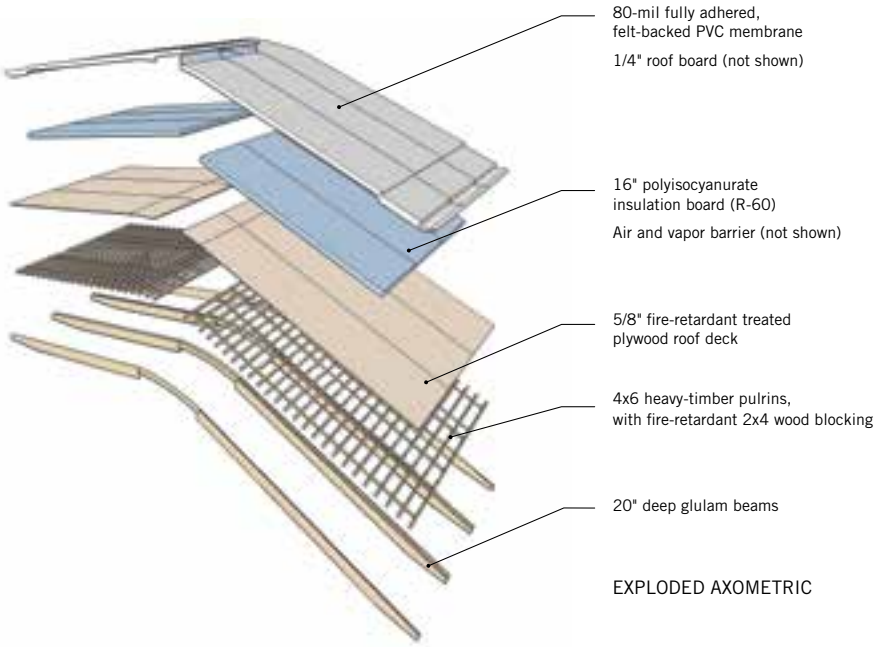
1. atrium
2. new corridor
3. dean's suite
4. office suite
5. boardroom
6. large meeting room
7. seminal room
8. mechanical room

FOURTH FLOOR PLAN



1. atrium
2. library
3. reading room
4. 60-seat classroom
5. 30-seat classroom
6. multipurpose classroom
7. seminal room
8. office suite
9. student law society
10. new mechanical room

FIFTH FLOOR PLAN



EXPLODED AXOMETRIC

CLIENT
Thompson Rivers University
Kamloops, BC

ARCHITECTS
Diamond Schmitt Architects
Toronto, ON

Stantec Architecture
Toronto, ON

STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

GENERAL CONTRACTOR
Yellowridge Construction Ltd.
Port Moody, BC

PHOTOGRAPHY
Tom Arban Photography
Toronto, ON

Ed White Photographics
Vancouver, BC

might otherwise feel impersonal and cold. Wood is also used extensively in millwork, lending refinement and a welcoming feeling to reception desks, benches and the curved desks in the main lecture rooms. Bands of veneered plywood are used for the front panels of these desks, extending the basket-weave motif. Overall, the wood finishes in the lecture rooms provide a calm and harmonious environment conducive to learning.

With a special focus on First Nations law, the university sought to establish a strong connection through design with Indigenous culture as well as create a bold identity to express the energy of this institution. In this, the Old Main addition succeeds by harmonizing landscape, culture, materiality and architecture.

Red cedar cladding and shingles
blend seamlessly with surrounding forest

North America

Whitetail Woods Regional Park Camper Cabins

HGA Architects and Engineers

Nestled into the hillside of a new regional park within the Minneapolis/St. Paul metropolitan area, three new camper cabins weave their way into a stand of pine trees. They serve as a key amenity in the first phase of the park's master plan. From the onset, the cabins were defined in the plan as being unique, integrated with the site, sustainable, affordable, and restorative for overnight guests through the heightened interaction with nature and everything the park has to offer. The concept for the cabins riffs on the idea of a treehouse, but makes it accessible to all by building a house in the trees entered from a bridge at the crest of the hill along adjacent ski and hiking trails.

"We love this project on so many levels: the design, the material, the fabrication, and the use. These small 80-sq.ft. spaces redefine a cabin in the woods."

– Jury

At 227 sq.ft. with an 80-sq.ft. deck, the cabins provide ample living area, electricity, lighting, heat and natural ventilation with framed views of the surrounding forest bringing modern comfort to the overnight outdoor adventurer. Two full-size bunks with built-in storage, dining and sitting areas, provide optimized cabin accommodations for four individuals, while sleeper sofas and additional folding seating, hidden via built-in storage, are able to comfortably accommodate six. The cabins are supported by a bathhouse farther up the hill.

Built on concrete piers to minimize the impact on the surrounding wilderness, the cabins hover between 14 and 16 ft. above grade with trees almost at arms-reach, creating privacy and intimacy within the natural environment. Above the concrete pier foundation, the structures are comprised of a red cedar glulam chassis, cedar and pine framing and red cedar cladding. Dark cedar shingles on the exteriors blend seamlessly with the beauty of the pine forest, while the interiors are stained naturally to create an immersive warm environment. Floor-to-ceiling glass on the decks frame the forest, creating a focal centerpiece from the interior.

The camper cabins at Whitetail Woods Regional Park are intended to be a natural, warm and inviting environment that ties to and capitalizes on the beauty of the surrounding wooded landscape. Wood served many purposes for the project. As a natural material, wood maximized the connection to nature envisioned for the cabins. Being recreational and restorative in their use from a program standpoint, wood provided the perfect aesthetic and psychologically healing environment for the cabins. The beauty of wood was complemented by its sustainability, cost efficiency and ease of construction. Because the cabins were built with the aid of high school students in a vocational training program, the choice of wood maximized the ease of teaching and execution of the construction.

CLIENT
Dakota County
Minneapolis, MN

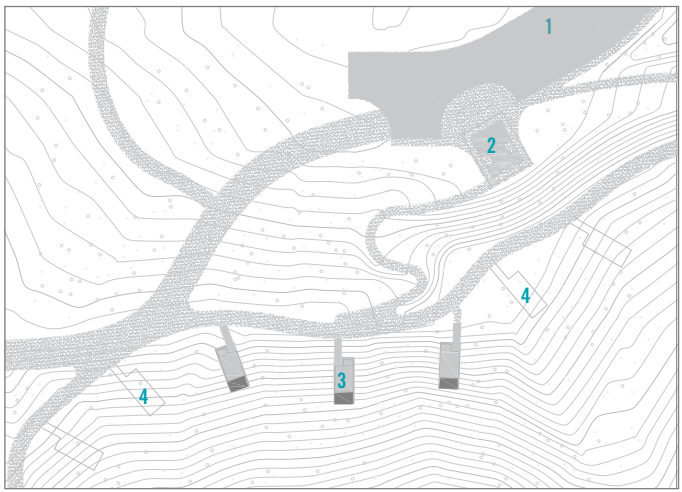
ARCHITECT
HGA Architects and Engineers
Minneapolis, MN

STRUCTURAL ENGINEER
HGA Architects and Engineers
Minneapolis, MN

GENERAL CONTRACTOR
George Siegfried Construction
Bayport, MN

PHOTOGRAPHY
Paul Crosby Photography
Minneapolis, MN

Pete VonDeLinde Visuals
Minneapolis, MN



1. parking
2. bath house
3. cabin
4. future cabin

SITE PLAN

Untreated appearance of Western red cedar cladding changes with the seasons

International

Dune House

Marc Koehler Architects

"Nice balance of form, relation to context, material usage, and sustainability. We appreciate the use of CLT panels – what is typically done commercially – in a residential application."

– Jury

The Dune House, half-sunk into the dunes in Terschelling, Netherlands, is an environmentally friendly design with a minimal ecological footprint. It is, above all, a contextual design and every material was chosen after close examination of the colors and textures found in the environment. The result is a peculiar architectonic object: a wooden diamond that is experienced very differently from each of its sides.

The use of wood was inspired by the sandy landscape, the local vegetation and the local naval industry. And, since it does not react with salt, it is ideal for this seaside site.

The exterior surfaces are materialized with Western red cedar wood cladding that give the project a homogeneous, natural and lively appearance. The untreated wood will age and wear out with time, turning from ochre into a grayish gold color. The appearance of the house will shift between seasons like the surrounding landscape: darker in the rainy seasons, glowing and reflective in the summer.

The open and ventilated wood-clad facade acts as a tropical roof that keeps the inner thermal layer protected from direct sunlight and, due to the differences in pressure between the exterior and the air gap beneath the cladding, the hot air that accumulates in it is quickly removed, reducing heat gains greatly.

The Dune House is inspired by the experience of having a walk on the dunes around which the house is built, like a walk from dune to dune, going up and down in search for the spot with the best views over the sea. This idea is translated inside the house as a promenade architecturale: a spiraling path around its core – the fireplace and chimney – that finds its climax at the top platform of the house.

This stepping, spiraling path through the house connects the more private rooms of the house in the basement with the more open areas above,

forming a continuous sequence of spaces, each of them just a few steps higher than the previous one. This creates very direct and interesting spatial and visual relations between all of the rooms, allowing the light entering from the many openings in the facades to freely invade the whole space, giving the feeling of a much bigger space.

The great glazing that dominates the main space of the house offers many different views. As in each transition from one platform to another, the perspective shifts and the visitor establishes a different relation with the surroundings. Arriving to the top platform it feels like being at the top of a dune, facing the sea.

Walnut is used throughout the interior, shaping cupboards, closets, kitchen elements and bathroom furniture. These elements bring warmth to the interior and relate to the colors of driftwood handcrafting that is typical of the region. Green and brown colored textiles and furniture upholstering refer to the vegetation that grows in the dunes, shifting between the two colors throughout the seasons.

The interior wooden surface gives warmth to floors and walls that do not need any additional finishing and gives the interior a homogeneous and sculptural look. Only with such a holistic approach, aesthetically blending craft and modern technologies, was it possible to achieve an intrinsic integration between interior design, architecture and landscape, resulting in a house that is both tough and sophisticated, unique and contextual.

ARCHITECT
Marc Koehler Architects
Amsterdam, Netherlands

STRUCTURAL ENGINEER
Pieters Bouwtechniek
Haarlem, Netherlands

GENERAL CONTRACTOR
P.A. Wiersma
Aannemingsmaatschappij BV
Leeuwarden, Netherlands

PHOTOGRAPHY
Filip Dujardin
Amsterdam, Netherlands

"A beautiful project that completely transforms the notion of what a traditional horse farm is through its flat-roofed curvilinear structures of mass timber corralled around a central courtyard with the landscape on top. This is a horse's paradise where horses can graze not only in the fields, but on top of the roof."

– Jury

Continuous canopy roof provides protection from the weather in all parts of the complex

International

Güssing Agricultural School

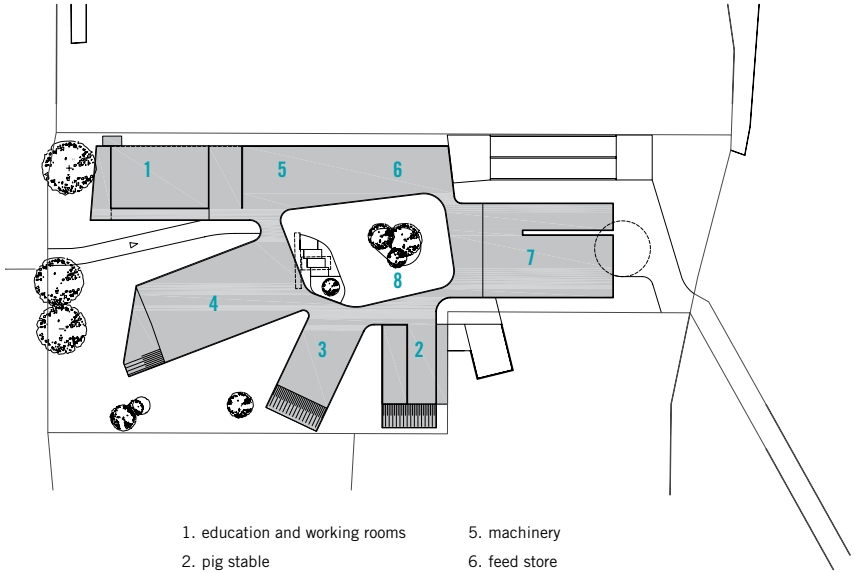
Pichler & Traupmann Architekten Zt Gmbh

This project involved the construction of an entirely new complex to house the Güssing Agricultural School in Güssing, Austria. The alternative proposal, to retain and adapt parts of the existing complex, was rejected because renovating the existing buildings would still not provide the facilities required to run the school. During the course of the design work it was also revealed that the required dimensions of the complex meant successful integration of parts of the existing complex were practically impossible.

The new complex would focus on stables. The stables were laid out around a central courtyard. This allows short routes and a clear overview from every point in the yard. This layout also allows the staff to carry out their daily work with maximum efficiency. A continuous canopy roof provides protection from the weather in accessing all parts of the complex. The stables intervene radically in the surroundings and are enveloped by open spaces, air and sunlight. This establishes an adequate relationship to outdoor space for the animals.

The stables extend like fingers into the surrounding landscape. The complex looks more like a cluster than a traditional four-square farm or a bastion. The buildings, consciously interpreted as part of the landscape, are folded out of the surrounding meadows; their roofs like elevated grass scars. The entire development is a loosely scatted agricultural enterprise, not a compact industrial complex.

A services wing closes off the northwest and offers protection from the elements. A teaching wing forms the start of the complex. As it is the part of school that is most often visited by the general public, the riding hall is also located here. Most of the building materials used can be recycled and were produced in a way that makes the best economic use of resources. The green roofs, for example, help buffer



1. education and working rooms
2. pig stable
3. horse, sheep and goat stable
4. riding hall
5. machinery
6. feed store
7. cattle stables
8. central courtyard

SITE PLAN

the impact of the summer heat, the rainwater feeds into the public separate drainage pipe and the earth excavated in the course of the construction work will be used for modelling the surrounding terrain.

In principle, three different tectonic levels are articulated in the structural design, each of which is expressed by means of its respective materials: the parts that rest on the ground are made of concrete, the rising walls are built in lightweight timber frame or timber rod construction and the roofs are load bearing wooden structures and covered with extensive green planting. In accordance with these construction approaches, the most suitable construction method was chosen for each architectural position and optimized.

CLIENT
BELIG-Beteiligungs- und Liegenschafts GmbH
Eisenstadt, Austria

ARCHITECT
Pichler & Traupmann Architekten ZT GmbH
Wien, Austria

STRUCTURAL ENGINEER
RWT PLUS ZT GmbH
Vienna, Austria

GENERAL CONTRACTOR
Bauunternehmung Granit GmbH
Feldkirchen bei Graz, Austria

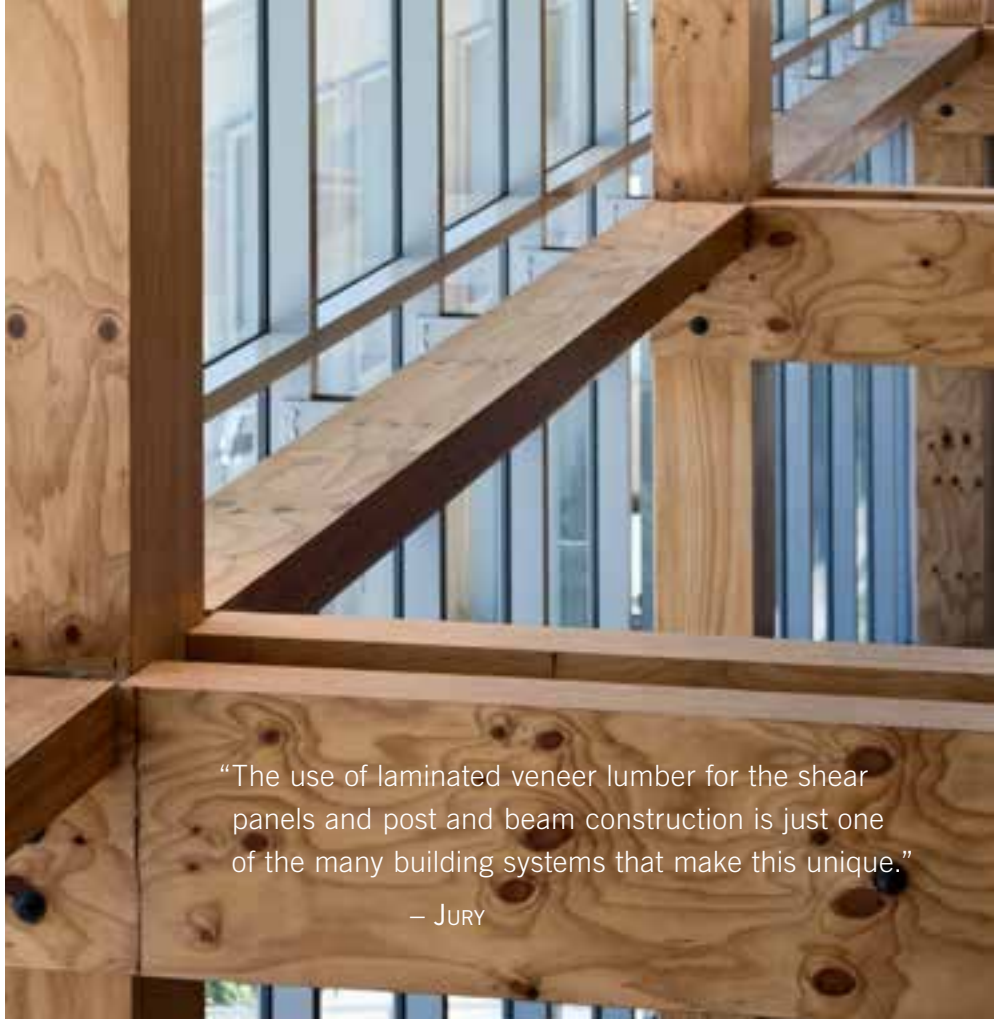
PHOTOGRAPHY
Paul Ott/pxt
Graz, Austria

Landmark project showcases structural timber

International

Nelson Marlborough Institute of Technology Arts and Media Building

Irving Smith Jack Architects Ltd.



"The use of laminated veneer lumber for the shear panels and post and beam construction is just one of the many building systems that make this unique."

– Jury

Set in a region of New Zealand renowned as an arts incubator, the Nelson Marlborough Institute of Technology (NMIT) building is the built intersection of paired aspirations: the Nelson region's physical and philosophical requirement for a leading-edge arts teaching environment and the New Zealand government's objective for a landmark timber structure that showcases structural timber within architecture.

Commissioned following success in a national design competition, this new building reconnects a variety of artistic disciplines to encourage collaboration and cross-fertilization. Completing a significant campus crossroad, the facility connects arts teaching, studio, performance, and workshop facilities to the campus via a three-level atrium.

Enjoying northern sunlight and views beneath a broad, protective eave, this campus circulation space encourages social interaction centered on the display, critique and exhibition of art. The teaching and studio areas gather soft southern light without the need for elaborate sun control. This vision of "Exhibition not Inhibition" for art education parallels the expression of timber components within the building and to the surrounding community.

Locally sourced Douglas fir and pine are used for their structural integrity, but also to warm, articulate and de-institutionalize the teaching environment. All timber elements are left on show to express their function and highlight timber's potential as a design and structural element. The building utilizes laminated veneer lumber (LVL) for all structural components.

Where the world's first seismic design employs an advanced damage avoidance design technique marking a fundamental change in design philosophy, this project takes seismic design of multi-story timber buildings in a new direction where similar performance-to-base isolation can be achieved. The NMIT seismic system relies on pairs of coupled LVL shear walls that incorporate high-strength steel tendons post-tensioned through a central duct. The walls are centrally fixed allowing them to rock during a seismic event. A series of U-shaped steel plates placed between the walls form a coupling mechanism and act as dissipaters to absorb seismic energy. This design allows the primary structure to remain essentially undamaged while these readily replaceable connections act as plastic fuses.

This seismic approach enables the use of a straightforward post and beam gravity frame, immediately legible in its simplicity. Spanning more than 31 ft., the primary LVL floor beams provide a large open floor plate throughout the structure. The structural design relies on the combined action of a concrete topping and the LVL floor beam acting as a composite section. The columns were erected at their full height; the corbels assisted with the quick installation of the beams alongside each column as continuous spans and allowed simple bolted connections. The stressed skin flooring panels employ a flange-hung connection to the primary structure. The overall floor depth is reduced, and, more importantly, visible connections between secondary joists and primary structure are eliminated, visually simplifying the timber detailing.

The timberwork, while upscaled, speaks to conventional domestic timber structures, developing the notion of a crafted, provincial vernacular. The structural approach is entirely legible, and the material finishes and surfaces are described, positioned and read in the manner of a drawing legend. The art of making the building is on show in an environment for producing art.

All structural components are grown, milled, manufactured and erected within a 50-mile radius of resource. All timber is fundamentally local, acting as a carbon sink, the foundation of an environmentally sensitive design philosophy. Sustainable passive approaches to daylighting, ventilation and shading are combined with double glazing, high insulation values and extensive thermal mass to reduce energy use. This innovative timber building provides an uplifting environment for learning, an economic community asset and a sustainably sound solution to the provision of tertiary education facilities.

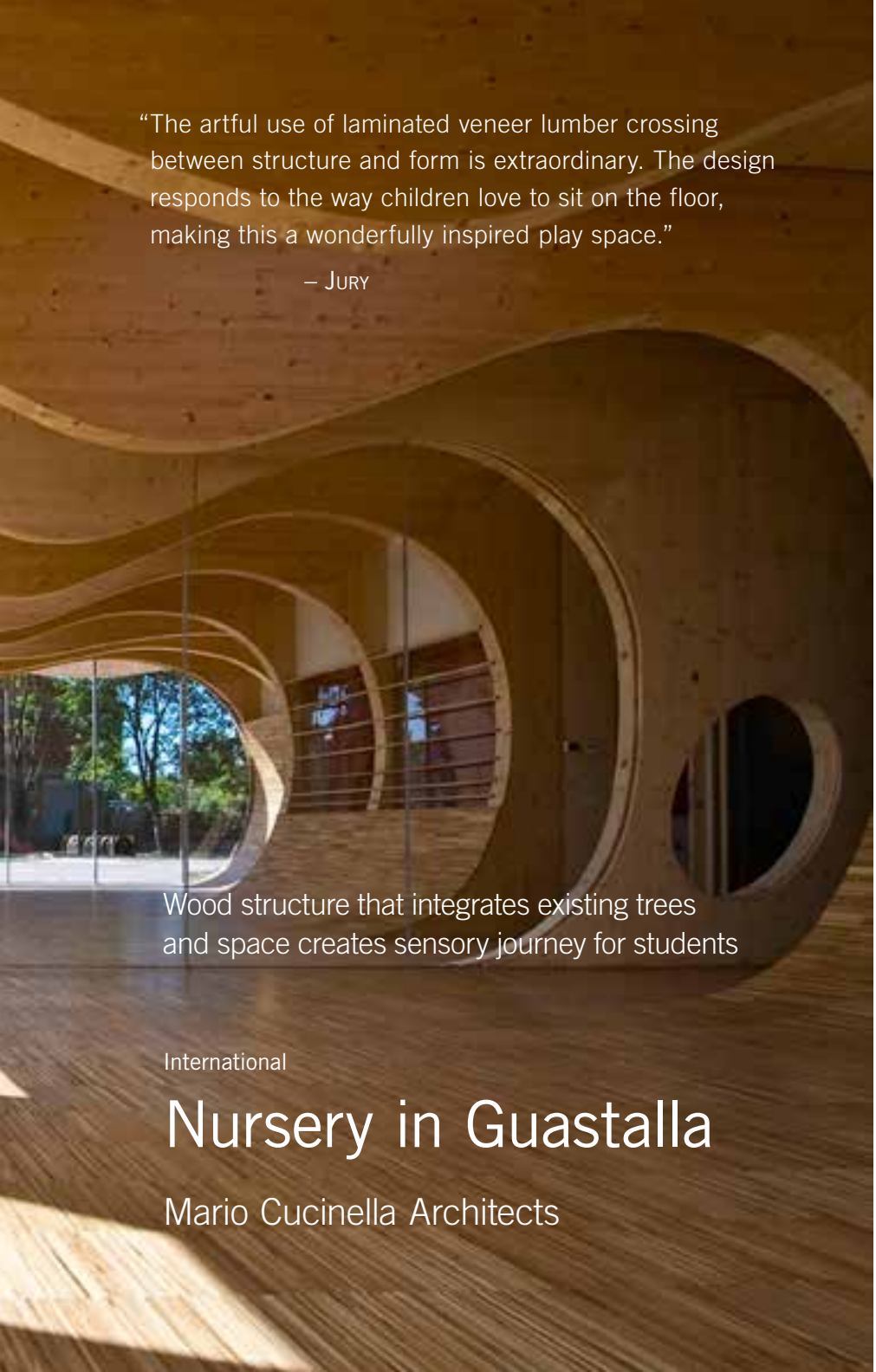
CLIENT
Nelson Marlborough
Institute of Technology
Nelson, New Zealand

ARCHITECT
Irving Smith Jack Architects
Nelson, New Zealand

STRUCTURAL ENGINEER
Aurecon
Nelson, Australia

GENERAL CONTRACTOR
Arrow International
Auckland, New Zealand

PHOTOGRAPHY
Daniel Allen Photography
Nelson, New Zealand



"The artful use of laminated veneer lumber crossing between structure and form is extraordinary. The design responds to the way children love to sit on the floor, making this a wonderfully inspired play space."

– Jury

Wood structure that integrates existing trees and space creates sensory journey for students

International

Nursery in Guastalla

Mario Cucinella Architects

This project won an architectural competition held in February 2014 for the design and build of a new school in the Guastalla District (Reggio Emilia), Italy. The new building replaces the two existing schools that were damaged by the earthquake which struck the territory in May 2012 and hosts up to 120 boys and girls up to age three.

The new nursery in Guastalla is thought to stimulate the child's interaction with the surrounding space according to a vision of teaching in which nothing is left to chance, from the distribution of educational areas, to the choice of materials of construction, up to the integration and interaction between indoor and outdoor spaces. Architectural elements of the new kindergarten – like the shape of the interior, the organization, the choice of materials, all the sensory perceptions related to the light, the colors, the sounds, the tactile suggestions – were designed taking into account the pedagogical and educational needs related to the growth of the child.

The structure uses natural materials with low environmental impact. In particular, the supporting structure is made up of a wooden frame, a safe and ideal material to maintain the thermal insulation of the building. There's also the high insulation, the optimal distribution of transparent surfaces, the use of advanced systems for rainwater harvesting and the insertion of a photovoltaic system on the roof, which minimize the building's use of mechanical equipment to meet the energy needs of the school. This design also ensures that the children are driven to discover places that are complex and, at the same time, familiar, where they develop abilities through the special features. Even the areas of connection between the classrooms and laboratories are designed to be experienced with curiosity and pleasure. For example, along the route, there are expanded play and relationship areas, niches to stop and rest, and transparent elements to peek out of or watch the activities of the other children. Similar to the internal design, there is also a sensory journey articulated outside the building, which has the structure encompassing and integrating the existing trees, creating protected areas for the activities of the children, educators and parents.

CLIENT
Comune di Guastalla
Guastalla RE, Italy

ARCHITECT
Mario Cucinella Architects
Bologna, Italy

STRUCTURAL ENGINEER
Geoequipe Studio Tecnico Associato
Tolentino MC, Italy

GENERAL CONTRACTOR
Scisciani & Frascarelli Impresa Edile
Tolentino MC, Italy

PHOTOGRAPHY
Moreno Maggi
Rome, Italy

Lightweight and flexible plywood structure helps resist strong seismic events in the region

International

Veneer House – Cogon Day School

Kobayashi Maki Design Workshop

The Cogon Day School is a lightweight, low-cost, and quick-to-build community center and day school for the children located on Bohol Island, in the Philippines. The school was designed so the entire community could participate in the construction process.

The building's innovative structural frame is composed of pieces of CNC-cut plywood veneer. The plywood was sourced locally and cut in a fabrication laboratory at Bohol Island State University. Producing the components nearby helped cut transportation costs while also involving local students.

The completed structure is extremely lightweight and, at the same time, highly flexible. Cladding and roof materials were also selected to minimize building weight. These strategies help the building resist the strong seismic events in the region. This has become increasingly important in Bohol in the wake of the 2013 earthquake that destroyed many heavy masonry structures across the island.

"A nice low-cost application of plywood and CNC technology for humanitarian purpose. This construction system allows for assembly and disassembly, making it easier to bring education to the rural countryside."

– Jury

The participation of the community of Cogon was crucial in the completion of the project. Local residents were involved in the assembly of the plywood frame, and they also influenced the design by helping to select and procure local finishing materials. The exterior skin of the building is composed of a local woven bamboo screen. Using this indigenous material makes maintaining the building a familiar process for the villagers and blends the building into the local context. Support from the captain of the village of Cogon and from the Governor of Bohol Island was also instrumental in realizing this vision.

The components of the structural frame were inexpensive to produce, easy to transport and simple to assemble. This minimized the need for skilled labor and advanced power tools. The innovative joint system also allowed for quick assembly without the use of nails or glue.

The Cogon Day School fulfills a vital function for the children of the village and, as a meeting hall, benefits the community at large. Through their involvement with material selection, construction and maintenance, local residents strengthened their bond and understanding of the building. The finished product is a symbol of recovery from the earthquake and something in which the community can take pride.

CLIENT
The Cogon Day School
Bohol, Philippines

ARCHITECT
Kobayashi Maki Design Workshop
Tokyo, Japan

STRUCTURAL ENGINEER
Keio University Shonan Fujisawa Campus
Fujisawa, Japan

PHOTOGRAPHY
Atsuro Abe/Keio SFC
Fujisawa, Japan

SPECIAL **Awards**

Interior exposed wood beams
recall the image of an unfolding fan

Canadian Wood Council Award

Mazama House

FINNE Architects

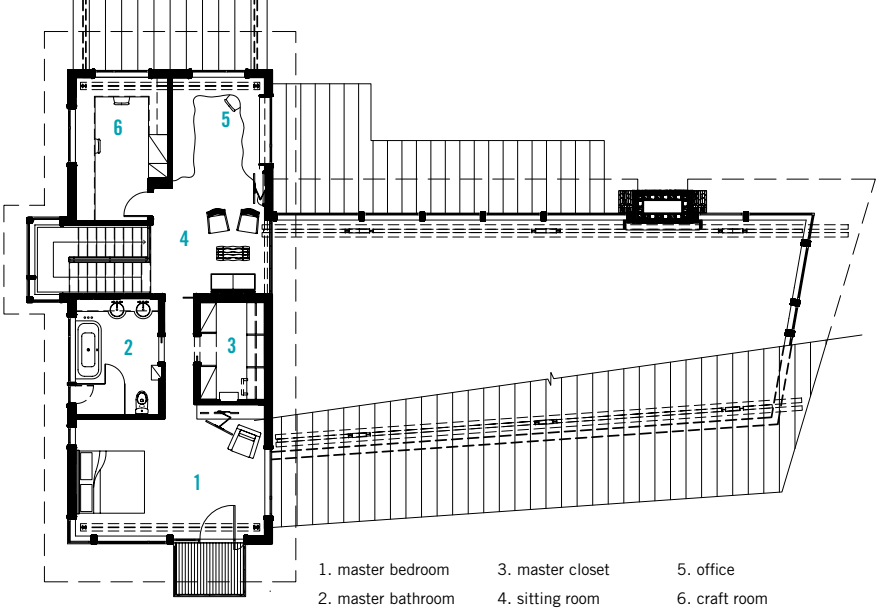
Mazama house is located in the Methow Valley of Washington state, a secluded mountain valley on the eastern edge of the North Cascades, about 200 miles northeast of Seattle.

The house was carefully placed in a copse of trees at the easterly end of a large meadow. Two major building volumes indicate the house organization. A grounded two-story bedroom wing anchors a raised living pavilion on a series of exposed steel columns. Seen from the access road, the large meadow in front of the house continues right under the main living space, making the living pavilion into a kind of bridge spanning the meadow grass with the house touching the ground lightly on the columns. The raised floor provides enhanced views as well as keeps the main living level well above the three to four feet of winter snow accumulation that is typical for the upper Methow Valley.

To further emphasize the idea of lightness, the exposed wood structure of the living pavilion roof changes pitch along its length, so the roof warps upward at each end. The interior exposed wood beams look like an unfolding fan as the roof pitch changes. The main interior bearing columns are a tapered V-shape, recalling the lightness of a dancer.

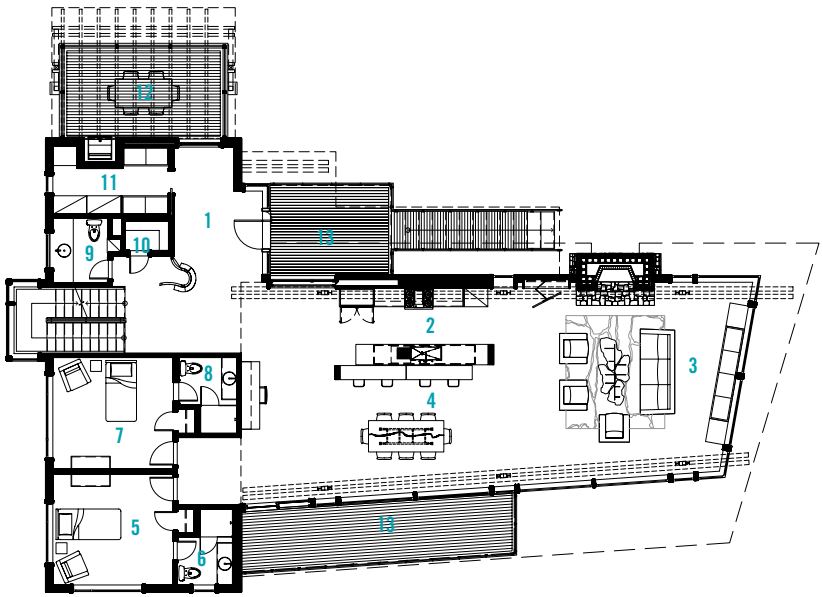
The house reflects the architect's investigation into the idea of crafted modernism with cast bronze inserts at the front door, variegated laser-cut steel railing panels, a curvilinear cast glass kitchen counter, waterjet-cut aluminum light fixtures and many custom furniture pieces. The house interior has been designed to be completely integral with the exterior. The living pavilion contains more than 12 pieces of custom furniture and lighting, creating a totality of the designed environment that recalls the idea of Gesamtkunstverk.

The house was designed from the start as a sustainable structure, including 40 per cent higher insulation values than required by code, radiant concrete slab heating, efficient natural ventilation, large amounts of natural lighting, water-conserving plumbing fixtures and locally sourced materials. Windows have high-performance insulated glazing and are equipped with concealed shades. A radiant hydronic heat system with exposed concrete floors allows lower operating temperatures and higher occupant comfort levels. The concrete slabs conserve heat and provide great warmth and comfort for the feet.



1. master bedroom
2. master bathroom
3. master closet
4. sitting room
5. office
6. craft room

SECOND FLOOR PLAN



1. entry
2. kitchen
3. living room
4. dining room
5. bedroom
6. bathroom
7. bedroom
8. bathroom
9. powder room
10. pantry
11. mud room
12. screen porch
13. deck

GROUND FLOOR PLAN

Deep roof overhangs, built-in shades and high operating clerestory windows are used to reduce heat gain in summer months. During the winter, the lower sun angle is able to penetrate into living spaces and passively warm the floor. Low volatile organic compound (VOC) paints and stains have been used throughout the house. The high level of craft evident in the house reflects another key principle of sustainable design: build it well and make it last for many years.

ARCHITECT
FINNE Architects
Seattle, WA

STRUCTURAL ENGINEER
Monte Clark Engineering
Stevensville, MT

GENERAL CONTRACTOR
Rimmer & Roeter
Cashmere, WA

PHOTOGRAPHY
Benjamin Benschneider
Seattle, WA

Unique timber connections push the envelope at new museum

Canadian Wood Council Award

Philip J. Currie Dinosaur Museum

Teeple Architects and Architecture | Tkalcic Bengert

Philip J. Currie Dinosaur Museum is an international institute for experiential learning dedicated to Alberta's paleontological heritage through research, collection, preservation, exhibition, public programming, publications, and innovative outreach. Located within minutes from one of the world's densest Mesozoic bone bed sites in Wembley, AB, the museum opened on September 3, 2015.

The design draws on an abstraction of the paleontological excavation experience, with two massive retaining walls of poured concrete and gabions pushing back the earth to reveal the main gallery wall. The museum includes classrooms, a paleo lab, Canada's only theatre partnered with National Geographic, a restaurant, and a gift shop.

Wood was introduced as a natural element vital to the paleo heritage metaphor, akin to the skeletal finds of the excavated bone bed. Unique multi-faceted zinc roof plates emulate the shifting tectonics of Earth over millions of years. This creates an exceptionally energy-efficient and sustainable building envelope able to handle the temperature extremes in the region. The entire building is heated and cooled by a displacement ventilation system located under the concrete floor of the museum.

The museum is supported by exposed beetle pine timber beams and struts, with complex asymmetrical wood nodes – the intersecting connection points of these members – that create a very structurally sound building. The nodes are a groundbreaking venture into the engineering of timber connections, with unique structural behavior.

Using heavy timber for the supporting members would be fairly straightforward, but, due to the complex geometry and varying angles, difficulties were had with the structural nodes. Engineers explored ways of seamlessly holding the structure together to support the architectural intent. By working iteratively with the architect, a wood node was shaped in a way that respected the desired form and kept the size within element constraints.

By testing the system with and without screw reinforcement, stress parameters could be deduced which could inform the structural analysis of the nodes themselves. Screws up to 19 mm in diameter and 1,200 mm long were used in a "strut-and-tie" fashion, much like rebar in concrete. Grasshopper, an algorithmic modeling plugin for Rhino, drove this process, making for a true digital fabrication design paradigm. The biggest nodes needed to be more than 1,500 mm tall by 2,400 mm wide, made with roughly 180 CNC pieces. The 3D automation allowed for small aligned drill holes on every layer, allowing for the installation of 150-mm long wood dowels so that the layers could be stacked on top of each other with precision. Temporary steel posts held the nodes in the z-direction while x and y were adjusted with cable-stays.

The museum offers stunning interior and exterior views with excellent vantage points, and holds an array of spectacular interactive exhibits.

CLIENT
River of Death and Discovery Dinosaur Museum (RDDD M) Society
Wembley, AB

ARCHITECTS
Teeple Architects (Design Architect)
Toronto, ON

Architecture | Tkalcic Bengert (Architect of Record)
Edmonton, AB

STRUCTURAL ENGINEERS
Fast + Epp
Vancouver, BC

GENERAL CONTRACTOR
PCL Construction Management Inc.
Edmonton, AB

StructureCraft
Delta, BC

PHOTOGRAPHY
Tom Arban
Toronto, ON

SITE Photography
Vancouver, BC

StructureCraft
Delta, BC

Structural logs hand-selected
from traditional Splatsin territory

Sustainable Forestry Initiative Award

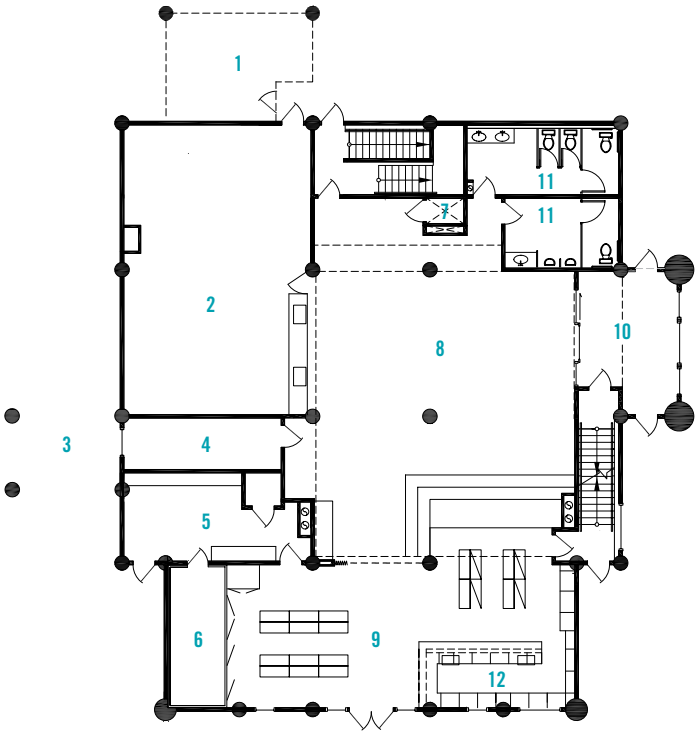
Quilakwa Centre

KH Designs Inc.

The Quilakwa Centre project was designed for the Splatsin Band to replace the original log-constructed store destroyed by fire in 2012. The aim was to replace a landmark building using a similar method of construction but also to add to the list of functions, including a new space for an artifact display area near the store, an adjoining restaurant, washroom facilities on the main floor, and offices and a meeting room upstairs.

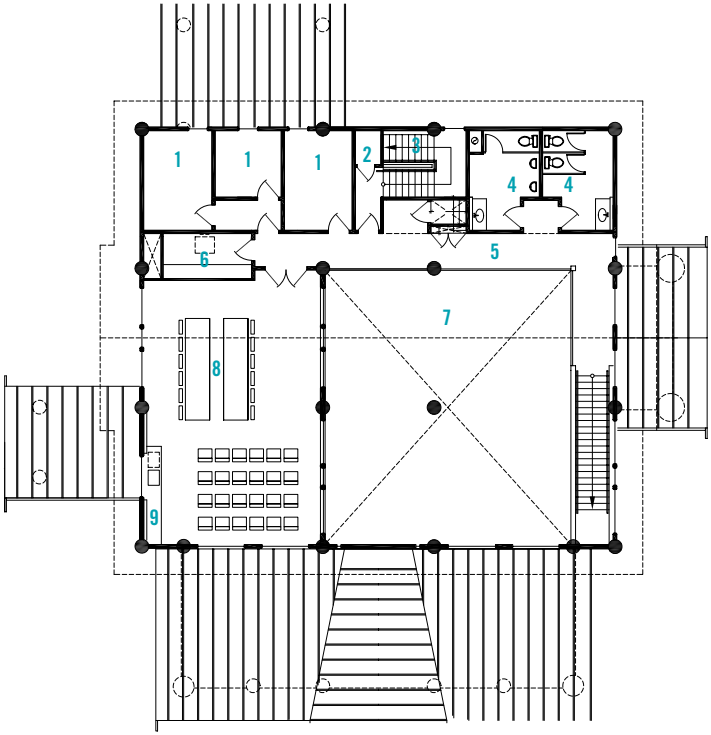
The ceilings range from 12 ft. to more than 34 ft. at the highest peak in the 1,400-sq.ft. seating area of the restaurant. This section of roof has a series of 12 large skylights that illuminate the entire interior with natural light. The 5,400-sq.ft. lower floor has a staff room, kitchen and washroom facilities along with a large storage area. The 2,500-sq. ft. upper floor with a vaulted ceiling of more than 22 ft. consists of several offices, washroom facilities and a large meeting room, which has a south-facing window overlooking a 1,400-sq.ft. seating area on the north side. All of the vaulted ceilings in the store, including the entire main roof vault, are finished in pine tongue and groove boards.

All of the structure above the lower floor consists of a combination of Douglas fir and cedar logs (some of which are wider than 45 in. at the base) for the post-and-beam framework of the building. These logs were hand-selected by the Splatsin Band from their traditional territory in Revelstoke, British Columbia area, as well as from some salvaged logs from the original store. All exterior wall and roof panels are structural insulated panels (SIPs), which means each log is cut to form a straight edge, or, in the case of the log roof purlins, an angled seat, to accept the SIP panel connection. Each of the logs were hand-cut with precise workmanship to hide any steel connections, and each were individually picked for their naturally occurring features – knots, curves and butt flares. Additionally, depictions of Splatsin folklore were carved directly into the supporting logs in the seating area of the restaurant and the wood doors. Traditional First Nations art was also incorporated in glass etchings on the windows, glass doors and imprints in the concrete flooring.



1. mechanical
2. kitchen
3. drive thru lane
4. drive thru tenant
5. storage
6. cooler vault
7. lift
8. restaurant
9. store
10. vestibule
11. restroom
12. cashier

GROUND FLOOR PLAN



1. office
2. janitor
3. stairs
4. restroom
5. hall
6. computer server room
7. open to below
8. meeting room
9. kitchen

SECOND FLOOR PLAN

CLIENT
Splatsin First Nations Tribal Council/
Quilakwa Investments Ltd.
Enderby, BC

ARCHITECT
KH Designs Inc.
West Kelowna, BC

STRUCTURAL ENGINEER
Omega & Associates Engineering Ltd.
Salmon Arm, BC

GENERAL CONTRACTOR
Driven Construction Ltd.
Enderby, BC

PHOTOGRAPHY
Sperlich Log Construction Inc.
Enderby, BC

Cedar-clad Treehouse perches above treeline, blending living spaces with nature

Western Red Cedar Award

Treehouse

Ha² Architecture Design

Treehouse is a truly unique concept home, the kind of project that reflects its every intention by stitching each and every detail from one to the other, deeply connecting it to rich its site.

Originally, the lush corner property, surrounded with spruce and crabapple trees, virtually engulfed the little bungalow that lay beneath the abundant foliage. This inspired the genesis of a symbiotic design by elevating the living experience into the trees. The resulting Treehouse is a living space that experiments with blending inner and outer spaces, diverse yet complementary textures, angles and rich colors. Contrasting materials and volumes balance the natural and refined with the rough and exposed as harmonious contemporary living spaces continue to thrive among the naturally evolving landscape.

The second floor cedar-clad volume of Treehouse perches just high enough to be floating amongst the rich foliage, while the starkly contrasting metallic wrapped grey zinc and glass box proudly props it up and engages one in a seasonal experience through observation of the ever-changing crabapple trees as they bloom and change throughout the year.

Nature and architecture inherently become one; the protective presence of the leaves, along with the south-facing cantilevered overhang jointly serve as shelter from the rain and also keep the scorching heat at bay during the summer and early fall months. The visitor is invited to take a journey into the Treehouse via the custom steel, glass and concrete staircase to the second floor main living area where kitchen, dining and living rooms flow into one another through an open concept divided merely by a see-through gas fireplace.

The custom exterior staircase has railings that overlap the whole balcony in one continuous string on three tiers, similar to a ribbon that wraps a gift box. It contrasts beautifully against the various cedar-laced applications on the exterior, making the climb an integral part of the design purpose.

ARCHITECT
Ha² Architecture Design
Ottawa, ON

STRUCTURAL ENGINEER
Genivar (now WSP)
Montreal, QC

GENERAL CONTRACTOR
Binnette Construction
Ottawa, ON

PHOTOGRAPHY
Justin Van Leeuwen
Ottawa, ON

Houry Avedissian
Ottawa, ON

Canadian Wood *WORKS!* Awards

Canadian Wood *WORKS!* Awards

Advances in wood product research, design, engineering, and construction practices have expanded the opportunities for wood in building and design, creating new possibilities for our urban landscapes. An exciting new age of architecture, design and structural engineering is emerging in communities across the country. We are pleased to showcase excellence in contemporary building and design, and to honor leadership in wood use in structural and architectural applications through the 2016 Canadian Wood Design Award programs.

Canada's architects, engineers, designers, and project teams continue to explore wood's potential, leading us to more responsible, resilient and appealing urban development. Not only are they playing an important role in sustainable development and climate change mitigation, they are also recognizing our wood heritage. We are proud of the great historical role the forest and wood products industry have had in building our country, and happy to showcase the sustainably sourced wood products they've produced for these outstanding award-winning structures.

We wish to congratulate all nominees and winners in the building and design communities across the country for their inspired and innovative work with wood, and thank our wood product manufacturers and all levels of government for their commitment and vision. It should be noted that this year, there was a surge of interest in the Wood Design Awards program by many local governments. We commend them for their growing recognition of wood's role in enhancing urban streetscapes, increasing density while retaining a human scale, as well as embracing a sustainable design ethic, which often incorporates locally produced materials.

Finally, we wish to acknowledge and sincerely thank our jurors for their skilled work, and our sponsors for their generous support, which makes the Wood Design Awards programs possible.

Advancement of wood use and continuous exploration of opportunities for wood are building prosperity in our country and enhancing our streetscapes and living environments. We are amazed by what has been achieved and proud to share the results with you in the pages to come.

Lynn Embury-Williams
Executive Director
Wood *WORKS!* British Columbia

Rory Koska
Executive Director
Wood *WORKS!* Alberta

Marianne Berube
Executive Director
Wood *WORKS!* Ontario

Jurors

From left to right:

PETER WOOD
Western Canada Region Manager
WEYERHAEUSER
www.weyerhaeuser.com

JOSEPH MAYO
Assoc. AIA, LEED AP
MAHLUM ARCHITECTS INC.
www.mahlum.com

IAN NIAMATH
Architect AIBC, Dip. Arch., Poly., RAIC

MARK PORTER
FIStructE, P.Eng., Struct. Eng.
Division Manager – Buildings & Facilities Technical Services
ASSOCIATED ENGINEERING
www.ae.ca

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woodWORKS! Program of the Canadian Wood Council

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CANFOR
CONIFEX
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Council of Forest Industries
FPInnovations
GORMAN The Finest Boards
HEROLD ENGINEERING
INTERFOR Building Value
STRUCTURLAM Intelligence In Wood
West Fraser
WFP Western Forest Products Inc.
western archrib structural wood systems
Weyerhaeuser

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Forestry Innovation Investment
Natural Resources Canada / Ressources naturelles Canada

Institutional – Large

Thompson Rivers University
Old Main Academic Building Addition
Kamloops, BC
Diamond Schmitt Architects and
Thompson Rivers University

Please see page 102

Jury's Choice

Guildford Aquatic Centre
Surrey, BC
Bing Thom Architects Inc.

Please see page 16

Wood Innovation

Philip J. Currie Dinosaur Museum
Wembley, AB
Teeple Architects and Architecture I Tkalcic Bengert

Please see page 146

Sustainable Forestry Initiative (SFI)

Quilakwa Centre
Enderby, BC
KH Designs Inc.

Please see page 152

BRITISH COLUMBIA

Commercial

Building harnesses the power of wood to promote healing and rehabilitation

Tall Trees Integrated Health Centre

Cascadia Architects Inc.

The Tall Trees Integrated Health Centre is a single-story physiotherapy clinic located on the Saanich Peninsula outside of Victoria, BC. Situated along a primary thoroughfare in peri-urban contexts, the small-treed site nests between a local commercial node and a pedestrian footpath and arterial street. This unique site creates the central architectural challenges inherent to the project and shapes the design principles that define it. While relating to and acknowledging a vibrant and dynamic social context, this clinic strives to simultaneously become a serene and calming oasis, harnessing the capacity of the natural world to promote healing and rehabilitation.

The clinic expresses its architectural concept through a language of structural, material and formal simplicity. Its curvilinear form and natural material palette of wood, stone, and steel are based on the thoughtful integration of landscape and built form. This approach allows the project to strengthen the existing fabric and character of the local community, while simultaneously creating new relationships between users and the natural environment.

1. reception
2. circulation/waiting
3. office
4. staff room
5. utility
6. treatment room a
7. treatment room b
8. open clinic room
9. treatment room c
10. treatment room d
11. treatment room e
12. treatment room f
13. flex room
14. storage 1
15. storage 2
16. restroom
17. restroom
18. restroom
19. restroom
20. tenant 2 – open space
21. tenant 2 – kiln room

FLOOR PLAN

The extensive use of wood as both a structural and finishing element throughout the building is central to its design. Structural cross-laminated timber (CLT) is used for the roof and shear walls, comprised of timber locally harvested and manufactured in British Columbia. The CLT roof is 12 in. in depth and spans more than 26 ft. to create a structurally open floor plan. It is expressed as a monolithic element, punctured by large ocular skylights that are detailed to emphasize the solid mass and thickness of the material. The underside remains exposed as a finished wood ceiling, hovering above a continuous band of clerestory glazing and curving exterior granite rock walls, hewn from the site itself. The CLT shear walls are also expressed, articulating their massive quality, while rough-hewn fir walls carry the warmth of the material palette into the heart of the building.

The boomerang form of the clinic's floor plan is also critical to the concept of the project and performs multiple functions. Primarily, it minimizes disturbances to the existing canopy of mature trees and allows the building to respond sensitively to the environmental conditions present on the site. At the ends of the building's extended arms, full-height glazing wraps the curved interior spaces, immersing users in the treed environment.

The interplay between built space and environmental context filters through every design decision in the project, whether it be material palette, structural elements or formal composition. The building fulfills its simple programmatic agenda, providing a tranquil and therapeutic space, insulated from the frenetic activities of the everyday, for healing of the body. Through careful calibration, the project finds balance between accessibility on a busy arterial street and refuge in a quiet haven in the woods.

CLIENT
Tall Trees Integrated Health Centre
Victoria, BC

ARCHITECT
Cascadia Architects Inc.
Victoria, BC

STRUCTURAL ENGINEER
Herold Engineering Ltd.
Nanaimo, BC

GENERAL CONTRACTOR
Pentech Projects Inc.
Victoria, BC

PHOTOGRAPHY
Silent Sama Architectural Photography
Burnaby, BC

Environmental Performance

Wood-first approach fulfills owners' aspirations

Alta Lake Passive House

Karel & Karen Jonker and Matheo Durfeld

The objective of the design for this lakeside home was to create a modern, high-end interpretation of green design. Focusing on both energy performance and comfort, the clients mandated the project must embody the Passive House (PH) Standard with the caveat there would not be a compromise on design. Taking a wood-first approach with construction fulfilled many of the owners' and design team's aspirations for high performance, design, comfort, quality of construction, accuracy, and low environmental footprint when compared with alternative materials.

Preliminary discussions focused on typical planning and programming within the home, given the topography and the compact nature of the site posed significant challenges. The waterfront site slopes sharply down to the east with panoramic views over the lake to the mountains across the valley. Windows are an important contributor to the overall performance of a building. Fortunately, the desired placement of windows complemented the need to optimize passive solar gains and losses.

Shading from a neighboring home and its stand of coniferous trees interfered with solar gains on the lower levels of the south orientation. The massing of the home, therefore, was stepped and jogged on the upper floor to optimize the glazing and views without sacrificing privacy. Exterior window blinds and overhangs were used to prevent overheating during the shoulder and summer months.

The envelope for the residence was constructed using a high-performance, prefabricated panel package. The main structural wall consists of standard stud 2 x 10 framing (engineered I-joist for floor and roof panels) sandwiched between oriented strand board (OSB) and a wood fiber diffusion board. OSB is also classified as a Class II vapor retarder that works in conjunction with the exterior wood fiber diffusion board to ventilate excess vapor in the system to the exterior. In addition to reducing thermal bridging, the exterior wood fiber diffusion board provides protection from the elements while permitting drying to the exterior. A combination of blown cellulose, recycled paper products and stone wool batts were used for insulation. An interior service wall, constructed of 2 x 4 lumber, provides further insulation and a cavity to run services, limiting penetrations to the air barrier.

Prefabrication was crucial in overcoming the challenges, increased costs and time considerations faced due to the site conditions. The prefabrication process was performed in a controlled indoor environment, increasing efficiency, quality control and precision while reducing the occurrence of changes (e.g. swelling, mold growth, warping) in the material from exposure to weather. Framing for the project took place offsite, in a controlled environment at the same time the foundation and site works were underway. Once on-site, the panels were installed and the project was out of the weather within five days, dramatically reducing construction time.

Hiding mechanical corridors when roofs and floors did not have exposed floor joist cavities set up challenges that in the end created beautiful solutions. Dropped ceilings were constructed on the main floor to conceal the mini-split system. The exterior wall containing the fireplace was protruded out to accommodate a mechanical cavity, which in turn influenced the jugular angled marble block of the fireplace. The bulkheads in the family room were contained by a wood ceiling detail.

A staircase tower was introduced early on in order to create a stack effect, allowing excess warm air to be expelled from the building. This plays an important role in maintaining a comfortable interior temperature. The feature was played up with a floating staircase and a decorative pendant installed into a complementing wood ceiling detail. In the end, the home has elevated the experience of living in an eco-conscious fashion that reflects a modern approach to contemporary resort living.

ARCHITECT
Murdoch & Company
Architecture + Planning
Whistler, BC

STRUCTURAL ENGINEER
Mountain Resort Engineering
Whistler, BC

GENERAL CONTRACTOR
Dürfeld Constructors
Whistler, BC

PHOTOGRAPHY
David McColm Photography
Whistler, BC

Institutional – Small

Glulam timber system allows open design

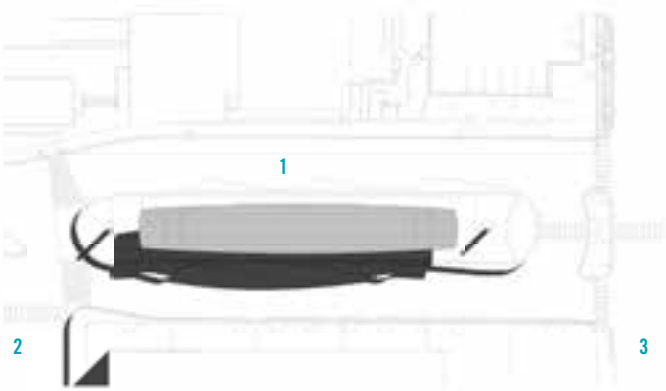
Queensway Transit Exchange

VIA Architecture

The Queensway Transit Exchange project, designed for the City of Kelowna and British Columbia Transit, is a prominent and important landmark as the central transit exchange for the City of Kelowna and surrounding area. A "placemaking" opportunity for the city was the goal – an elegant, unique and unifying structure that would visually and physically provide shelter and a sense of community. As well, the structure needed to provide a mental and physical enclosure, as protection from the elements for transit patrons on the existing transit island. The aim was also to encourage increased transit usage and be an important feature of the downtown's central core.

Fir was chosen to help achieve these established project goals based on its characteristics and structural capabilities: a locally grown material, part of an important local industry, sustainable, and a material with a warm, friendly and natural character. The canopy's long curvilineal low-arc shape reflects the rolling hill topography surrounding Kelowna and a gentle wave from adjacent Okanagan Lake. Two major curvilineal glulam beams simply and truthfully create this unique and desired shape in a smooth and continuous manner. The beams curve up from their lowest height of 13 ft. to their highest point in the center at more than 18 ft., creating an enclosing and embracing quality for the three centralized waiting areas.

Four inline steel Y-columns, symbolic of the orchards characteristic of the Kelowna area, lightly and delicately support two main beams. The cantilevering roof slopes upward from the two low ends of the canopy, providing an open and welcoming shape for approaching patrons. A system of glue-laminated timbers (GLTs) span the two main glulam beams and cantilever out past the sides of the beams with a curved shape to provide additional coverage and protection for the transit exchange and patrons. The GLTs easily span and cantilever these distances, keeping the total deck thickness to a minimum, offering a thin and delicate roof profile. Using the GLT system for the roof structure and as a finish ceiling lowered construction costs, shortened construction time and give the canopy a warm, natural and aesthetically pleasing character. The structural capabilities of glulam beams and GLTs allow the 184-ft. by 30-ft. canopy to be supported on only four columns. This promotes a visually and physically open design that highlights public and transit user safety and accessibility for all.



1. Queensway Street 2. Pandosy St. 3. Ellis St.

SITE PLAN

CLIENT
City of Kelowna
Kelowna, BC

ARCHITECT
VIA Architecture
Vancouver, BC

STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

GENERAL CONTRACTOR
Sawchuck Developments Co. Ltd.
Kelowna, BC

TIMBER SUPPLIER
Structurlam Products LP
Penticton, BC

PHOTOGRAPHY
Ed White Photographics
Vancouver, BC

Interior Beauty Design

Timber unifies revitalized building,
honoring Canada's wood industry

Canada House

Stantec Architecture Ltd.

Canada House, located on Trafalgar Square in central London, has been Canada's diplomatic home in the United Kingdom since 1925. Over time, consular functions expanded and technology evolved. The result was an underperforming building that no longer celebrated the best of Canada and couldn't accommodate all the required staff. It was time for a change.

The vision for the project was to review the 200-year-old building and connect it to an adjacent building on Cockspur Street. With this, the Canadian High Commission was brought together under one roof for the first time in 50 years.

Designing a bespoke, modern and evocative Canadian space, while preserving and restoring an historic British building, was a significant challenge. Even though Canada House had many historic features worth saving, the newly acquired Cockspur Street building was essentially a blank slate. The challenge was to integrate the period interiors with new, contemporary elements in a complementary manner that honored both styles.

As Canada is one of the world's largest exporters of timber, wood became a natural material choice as a unifying feature of the revitalized building. Canada House celebrates the beauty, versatility and sustainability of wood, showcasing wood products in paneling, flooring, architectural details, custom furniture and artwork.

1. vestibule
2. lobby
3. reception
4. immigration/ consular services
5. The Queen Elizabeth Atrium
6. business center
7. workspace
8. tea area
9. quiet room
10. Arctic Room
11. Atlantic Room
12. collaboartion space
13. link
14. car lift
15. vestibule
16. reception
17. informal meeting space
18. grand stair
19. lobby
20. cloak room
21. kitchen
22. storage
23. gallery vestibule
24. Canada Gallery
25. Sir Robert Borden Room
26. William Lyon Mackenzie-King Room

GROUND FLOOR PLAN

The public lobby at the Cockspur entrance and the staff amenity spaces showcase Canadian hemlock and maple. Meeting and gathering spaces feature a variety of handcrafted wood furniture. Existing wood floors, trim and doors were restored and repaired.

The existing atrium, which brought light into the building, was devoid of character. As a feature space in the new design, the atrium needed a special treatment. To create a focal point in the space, the eastern wall, where daylight naturally falls, is clad in natural hemlock siding. Strong horizontal wood fins superimposed on the existing window wall complete the effect. The other three walls of the atrium are treated with simple white paint to allow them to fade as recessive elements within the space, allowing the natural beauty of the wood to shine.

A new flight of stairs was inserted into the atrium, but rather than stacking it vertically in the traditional manner, the staircase steps vertically and horizontally as it rises through the space. This strategy allows daylight from above to fall onto each flight. The stair treads are finished with Canadian oak, while the soffits match the hemlock on the adjacent wall.

The restoration of Canada House represents one of the most significant building refurbishments on Trafalgar Square in the past decade. It is not only an investment in the city of London and in the larger idea of city building but, more importantly, it truly celebrates the best of Canada.

ARCHITECT
Stantec Architecture Ltd.
Vancouver, BC

STRUCTURAL ENGINEER
Arup
London, England

GENERAL CONTRACTOR
Overbury
London, England

PHOTOGRAPHY
Ben Blossom
London, England

International

Undulating timber roof caps off welcome center designed and constructed in eight months

Tsingtao Pearl Visitor Centre

StructureCraft Builders Inc.

Nestled in a mountain meadow surrounded by rocky outcroppings and narrow bands of farmed terraces in coastal China, the 28,000-sq.ft. Tsingtao Pearl Visitor Centre highlights the beauty of the site and serves as a welcome portal to a growing suburban community near Qingdao. Besides the unique form, two things set this building apart from the Chinese norm: it is constructed using ordinary Canadian wood, and it does so in an extraordinary way.

Over the past 20 years, China has shown increasing interest in utilizing the skills of Western architects. However, as the country imports ideas and technology, its insistence that construction be carried out solely by domestic contractors has sometimes resulted in impediments to progress often felt by Western architects left powerless to ensure their designs are successfully communicated and implemented. This project was an experiment in how Western designers can overcome these challenges to see their innovative designs executed in detail, even with a sophisticated form and a building material unfamiliar to locals.

The key was finding a delivery method that could achieve this. A method was devised to parcel construction so that complex components and connections could be designed and fabricated in Canada, while mass wood elements could be assembled according to computer-generated shop drawings by the domestic workforce in China.

The roof structure showcases wood's low embodied energy and carbon sequestering capabilities. A green roof sits atop the solid timber plate roof structure, supported below on clusters of prefabricated timber columns.

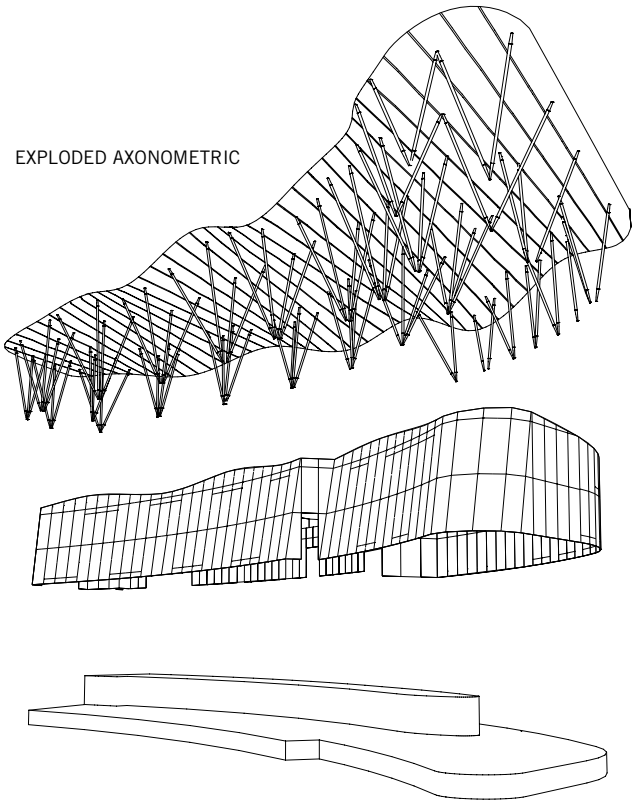
The 39 roof panels comprising the solid timber roof were fabricated on-site using nail-laminated dimensional lumber. Many of the 6.5-ft wide panels are up to 131 feet long, necessitating division in two lengths for handling and erection. To avoid visual seams at these joints, a staggered pattern was developed which uses same length pieces to stitch together the two halves in-situ. All of the roughly 25,000 pieces of lumber in the roof are straight. The undulating surface is capped with several layers of plywood to create rigidity in the direction perpendicular to the lumber. The orthotropic nature of the wood plate was considered in the structural analysis using finite element software.

In Canada, concurrently with the on-site panel manufacture, 93 glue-laminated wood columns of varying length (up to 33 feet long) were individually tapered, milled and fitted with custom universal connectors, and shipped to China. A filigree cable-net assembly comprising small diameter glulam kingposts and thin stainless steel cables undergird the timber panels, enabling them to span up to 49 feet between column supports.

As all of the supporting columns lean in different directions, the slopes of each of the columns were established by iteration to achieve a net balance of forces in the roof in both lateral directions, and in torsion, with the roof diaphragm used to resolve the resulting internal forces.

Parametric 3D modelling using the latest tools in digital design (Rhino, Grasshopper) early on in the project was central to the realization of the roof's complex, free-form geometry. The parametric model was linked to the structural analysis model, allowing a feedback loop to determine appropriate column frequency and location. This model also allowed interactive design with the architect, providing a detailed 3D model which eliminated the need for formal working drawings and linked directly to fabrication models and shop drawings downstream.

Extensive prefabrication and planning secured the project's success, as well as compliance with an extremely tight schedule, which saw the building wholly designed and constructed in eight months.



EXPLODED AXONOMETRIC

This project encourages the use of timber in a country that in the past century has all but forsaken this versatile and sustainable material, despite the rich history of its use in traditional Chinese architecture. Part of the intention of the project was to introduce Chinese builders, architects and the public to the potential of timber as a building material for projects beyond simple wood-frame residential construction.

CLIENT
Vanke

ARCHITECT
Bohlin Cywinski Jackson
Seattle, WA

STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

TIMBER STRUCTURE DESIGN-BUILDER
StructureCraft Builders Inc.
Delta, BC

PHOTOGRAPHY
Bohlin Cywinski Jackson
Seattle, WA

Nic Lehoux
Vancouver, BC

StructureCraft Builders Inc.
Delta, BC

Jury's Choice

European self-drilling dowel technology utilized to maximize natural light passing through glulam trusses

The Nest – UBC Student Union Building

Read Jones Christoffersen
with DIALOG and B+H Architects

Striking and bold with a distinctive form and character, the new Student Union Building (SUB), The Nest, excites those who gaze upon it from both inside and out.

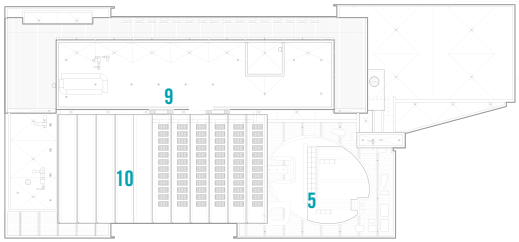
The full-height central atrium is characterized by breathtaking views to the outside and exposed heavy timber structural components. The saw-tooth roof was designed using a hybrid structure of glazed, 90-ft. glulam trusses and CLT panels. To maximize the natural light passing through the glulam trusses, leading-edge European self-drilling dowel connection technology was utilized. This not only improved structural efficiency but led to the creation of a simple, clean and elegant structural element within the atrium space. For the glazed west facade, 60-ft. twin-glulam columns continue the expression of wood. Connectivity across the atrium was achieved through hybrid timber and steel skybridges that energetically cantilever off the west facade columns through an innovative use of concealed timber rivets.

Pride of place within the atrium is an elevated theater space and open-air lounge. This standalone structure is supported by three widely spaced columns. Wood was utilized in this feature element in both the shear panel walls between the two levels and in the exterior cladding elements.

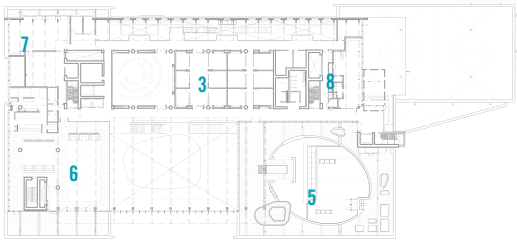
The east atrium provides a quiet escape within the building and features dramatic cantilever-supported staircases and four-story, cowl-shaped glulam columns. The cowl shape was a nod to the adjacent Aquatic Centre and the glulam columns create a sense of warmth that would not have been possible with any other structural material.

Other features within The Nest that required creative structural engineering and close team collaboration include a great hall space (30-ft. deep and 120-ft. long trusses), a 40-ft. indoor climbing wall, in-slab services throughout, art storage space, and connectivity to the old SUB building.

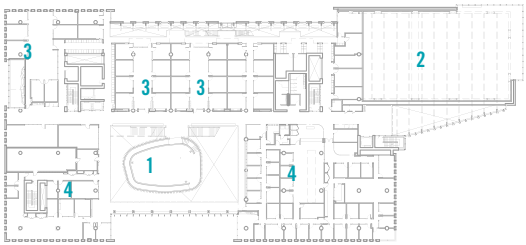
The UBC Student Union Building was created with a global benchmark for sustainable design excellence in mind. Students voiced that having a sustainable building was important to them. Because of this, sustainability and efficiency are highlighted throughout The Nest's elements and within the structure.



ROOF



LEVEL 4



LEVEL 3

1. nest
2. great hall
3. club rooms
4. AMS offices
5. roof garden
6. Perch restaurant
7. graduate student services
8. childminding
9. mechanical penthouse
10. sawtooth roof/solarpanels

Various sustainable design strategies were recommended by the team and subsequently implemented on the project. FSC-certified wood was specified for all structural wood elements. The atrium roof was designed for solar hot water panels and the mechanical penthouse roof was designed to support a future solar photovoltaic (PV) system. In addition, the building's columns were widely spaced and the floors were designed for assembly loading to ensure future flexibility and adaptability.

CLIENT
UBC Alma Mater Society
Vancouver, BC

ARCHITECTS
DIALOG
Vancouver, BC

B+H Architects
Toronto, ON

STRUCTURAL ENGINEER
Read Jones Christoffersen Ltd.
Vancouver, BC

GENERAL CONTRACTOR
BIRD Construction
Vancouver, BC

TIMBER SUPPLIER
Structurlam Products LP
Penticton, BC

PHOTOGRAPHY
Ema Peter Photography
Vancouver, BC

Mike Sherman Photography
Vancouver, BC

Multi-Unit Residential

Use of wood pays tribute to timber industry's role in the history of New Westminster

The Dominion

Integra Architecture Inc.

New Westminster was the original capital of British Columbia, and forestry and the wood products industries have played an important role in the growth of the city. The Dominion condominiums continue this tradition in the use of wood, utilizing the innovation of six-story wood frame residential construction permitted by the BC Building Code. Wood-frame construction is important in the evolution and sustainability of cities and in making the six-story mid-rise building form more economically viable.

Royal Avenue is a grand boulevard and is significant in the city of New Westminster. The six-story building form is appropriate for the scale of the boulevard, creating a memorable urban edge that reestablishes a pedestrian presence on the street. The design approach for The Dominion recognizes the significance of Royal Avenue in a form that respects the historic nature of its location, while harmonizing with the character of the residential Queen's Park neighborhood.

In most ways, The Dominion adheres to the detailing of standard

platform frame construction. Engineered floor systems and kiln-dried lumber are essential in minimizing shrinkage. Detailed structural framing layouts establishing the location of studs, hold down devices and shear walls were critical in planning the location of electrical and mechanical services and finalizing suite layouts. The Dominion is a testament to teamwork and strong communication by the contractors and consultants.

As in most residential construction, wood is also used extensively throughout the building in cabinets, millwork, interior doors, and lobby finishes. Wood is incorporated in the composite fiber cement cladding and in the detailing of the balconies, brackets and the main entry canopy. Although the overall building expression is contemporary, the warmth and familiarity of wood is important to have the building relate to the context of Queen's Park and to create a sense of home.

For the architect, The Dominion is seen as a contribution to the fabric of New Westminster. It was important that wood was a part of the building structure and expression to pay homage to the role of wood in the history of the city.

CLIENT
Ledingham McAllister Properties
Vancouver, BC

ARCHITECT
Integra Architecture Inc.
Vancouver, BC

STRUCTURAL ENGINEER
Thomas Leung Structural
Vancouver, BC

GENERAL CONTRACTOR
Marcon Construction Ltd.
Langley, BC

PHOTOGRAPHY
Raef Grohne
Vancouver, BC

Woodtone
Chilliwack, BC

Residential

CLT structural system is exposed on the interior for texture and warmth

CLT Courtyard House

Leland Dadson


3515
3516

This two-story cross-laminated timber (CLT) house is perched on a hill in central Vancouver. The family home is built for three generations: the owners, their daughter and their two grandchildren, and was designed by their son. Comprised of a 2,600-sq.ft. main house and a 475-sq. ft. laneway coach house, the unique siting allows for dramatic views of the scenic city downtown and mountains beyond, as well as views toward an intimate courtyard formed between the two structures.

An early design decision was to use a CLT structural system and to expose the material as an interior finish. As prefabricated wood panels that can be used for both walls and floors, CLT offered the advantage of quick assembly on-site and allowed for long spans without any steel beams or columns. The CLT structure also has the unique advantage of providing beautiful texture and natural warmth on the interior, as well as advantages in terms of acoustic properties, thermal value, fire resistance, and seismic reliance – all properties valued by the client and the region.

On the main floor, an open living room, dining room and central kitchen take advantage of the views on both sides and offer access through large, full-height glazed sliding partitions. Concrete floors with radiant heat warm the house in the winter and also help store solar gains through the east and west glazing. Blackened steel panels also make a strong presence in the design as cladding on the exterior and on the south wall of the stair with flush, custom-designed LED strip lights. In the courtyard, a fountain introduces a water element as a natural complement to the wood.

The wood finish is exposed on the interior of the north and south walls and is dramatically expressed in the design as it rises up the fully exposed two-story CLT wall along the main stair. A skylight at the roof level brings light down the whitewashed wood and through the open stair risers, bringing light to the basement. The owner patiently milled every solid wood stair tread to size from a large fallen white spruce tree. The stair rises to access the green roof garden, planted by the owner to increase water retention in the wet climate and allow for a more sustainable footprint. Solar panels can be installed in the future to the roughed-in conduit. The long-term goal of running the home on fully renewable energy would provide an added benefit to the already environmentally conscious design that has a lighter carbon footprint stored in its structure, as it is made out of the natural and renewable resource of wood.

ARCHITECT
Leland Dadson
Toronto, ON

STRUCTURAL ENGINEER
Equilibrium Consulting Inc.
Vancouver, BC

GENERAL CONTRACTOR
HR Pacific
Golden, BC

TIMBER SUPPLIER
Nordic Structures
Montreal, QC

PHOTOGRAPHY
Rebecca Dadson
Toronto, ON

Curved ceiling of Douglas fir floats above maple floors

Abbot's Residence and Buddhist Retreat

JWT Architecture and Planning

Set on a five-acre oceanfront site on Bowen Island, BC, this retreat crosses cultural boundaries, where Eastern philosophy meets West Coast contemporary design. Working with principles of Feng Shui, the main structure sits perched on a terrace overlooking the Howe Sound. A simple floorplan and graceful curved roofs set this project up to create a very special dynamic of flow, space and view. The interior layout is scripted to provide a unique flow as one travels through the space and appreciates the delicate artworks and massive Buddha statues. The project scope included master planning, landscape architecture and the design of two forest cottages.

Within the main structure, the service spaces, dining area and sleeping rooms are located on the first floor. With a 12-ft. ceiling height and a wall of ocean-view glass, the main room's functions are primarily meals and relaxation. Upstairs contains a larger sanctuary and meditation hall, an alter along with a cantilevered outdoor terrace, additional sleeping rooms, and the Abbot's chambers and private study. The ceiling and exterior soffits are rendered with clear fine-line cedar containing a slight reveal. The windows are clad with metal on the exterior and Douglas fir on the interior.

A primary system of curved glulam wood beams allowed wood truss joists to be in-filled between and back-framed to the depth of the primary beams. The engineered wood products allow for clear spans and no interior columns, a requirement for this project. The larger cantilevers are built from laminated veneer lumber (LVL) for strength and stability and are also back-framed and clad in fine-grained cedar. This gives the illusion that the massive curved ceiling is floating above the maple floors, creating an aura of calm and serenity.

The retreat is a simple shape and its elegance and beauty is found in the proportions and design expression of the roof and deck overhangs.

CLIENT
Buddhist International Society
Bowen Island, BC

ARCHITECT
JWT Architecture and Planning
Bowen Island, BC

STRUCTURAL ENGINEER
Ennova Structural Engineers Inc.
Vancouver, BC

PHOTOGRAPHY
Debra Stringfellow
Bowen Island, BC

James Tuer/JWT
Architecture and Planning
Bowen Island, BC

Jurors

From left to right:

JAMES BROWN
Director
BING THOM ARCHITECTS
http://bingthomarchitects.com

HERBERT ENNS
Professor, Department of Architecture
UNIVERSITY OF MANITOBA
http://umanitoba.ca/architecture

STEPHEN TEEPLE
Principal
TEEPLE ARCHITECTS
www.teeplearch.com

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Commercial

Fort McMurray International Airport
Vancouver, BC
office of mcfarlane biggar architects + designers inc.

Please see page 54

PRAIRIE

Douglas fir glulam decking on roof and platform provides warmth, beauty and reduced building costs

Kingsway/Royal Alex LRT Station

Stantec Architecture Ltd.

The Kingsway/Royal Alex LRT Station is one of two new LRT stations using wood on the North LRT line in Edmonton, AB. This new line is a two-mile extension of the light-rail transit system from the Churchill LRT Station in downtown Edmonton to the Northern Alberta Institute of Technology. In total, the extension will bring two new LRT stations and one bus transfer station into service.

Douglas fir was used for both structural and architectural elements of the station. Glulam decking and beams were used for the platform and building roof. The roof structure is cantilevered from pairs of columns located at the center of the platform so that the edges of the platform are not obstructed. Using timber in this project provided the additional benefit of creating an inviting space while respecting city construction budgets.

The glulam members were factory-finished with two coats of clear tone base and one coat of clear UV protection. All the exposed, non-structural wood was finished on-site with the same finish. All wood elements are located at least 10 ft. above the floors and furniture to protect them from vandalism. For all exterior applications, wood members are protected by overhangs or are kept back from drip lines to provide end-grain protection from potential moisture damage.

During the public consultation, the city received positive feedback

from the community about using wood in both of the new stations to create bright, welcoming spaces. In the Kingsway/Royal Alex LRT Station, wood and landscaping were used to blend the station into the existing neighborhoods, given the proximity to existing and planned buildings. The roofs of both new stations were required to be free of mechanical equipment to provide a clean appearance when viewed from above. Now the standard for station architecture, it is expected that future stations on the North LRT line will also use wood to create a unified appearance.

CLIENT
Edmonton Transit System
Edmonton, AB

ARCHITECT
Stantec Architecture Ltd.
Edmonton, AB

STRUCTURAL ENGINEER
Stantec Architecture Ltd.
Edmonton, AB

GENERAL CONTRACTOR
North LRT Link Partnership
Edmonton, AB

TIMBER SUPPLIER
Western Archrib
Edmonton, AB

PHOTOGRAPHY
Western Archrib
Edmonton, AB

Wood provides a unified identity to a diverse building

Meadows Community Recreation Centre and Meadows Library

Group2 Architecture Interior Design Ltd.

Located in a fast-growing area in southeast Edmonton, the new Meadows Community Recreation Centre and Meadows Library provide year-round recreational and cultural opportunities for the surrounding neighborhoods. With a focus on creating relationships between indoor and outdoor programs, the facility emphasizes transparency and connectivity to create active spaces that are open and welcoming during every season.

Weaving a variegated quilt of recreation and culture, the project evokes the Dominion Grid as an organizational theme. Designed to be seen in the round, this disposition of public gathering places, outdoor recreation areas, parking zones and pedestrian routes on the site places the building at the convergence of many approaches. The building's massing consists of four ribbons of undulating roof planes that diverge in plan to create defined squares of open space. These entry courts support outdoor programming and cultural activities. When seen from the side, the four bands of roof evoke a topographic appearance, with alternating peaks and valleys superimposed. This sturdy nod to the monumental character of the prairie landscape ties the facility to its place and to the traditions of large-scale agrarian structures and compounds. The building creates a collective identity to unify distinct programs. The landscape and architecture engage the site and surrounding streets by sheltering micro-climates that support year-round activity. The

composition is dynamic whether seen in the distance from a moving car or up close as a pedestrian sheltered beneath its great roof.

The design shapes civic outdoor spaces to form a dialogue with the activities housed inside. Twin National Hockey League-sized ice pads; a fitness area complete with a running track; a gymnasium; an aquatic centre with competition-sized pool, therapy and leisure pools; a public library; two levels of multipurpose community rooms; and various support spaces form a robust interior program. These are paired with external spaces such as function-flexible entrance plazas, recreational skating loop, reading courtyard, spray park, outdoor basketball court, and playground. Transparency between indoors and outdoors deploys natural light and materials to create a warm and inviting atmosphere, maintaining a visual link stretching to the neighborhood beyond. Both the site and building components are arranged to capitalize

on synergies between programs, creating relationships that reinforce civic interaction and healthy community recreation.

Wood is used throughout the design as both a structural and finish material. Because wood is a renewable resource with low embodied energy, it supports goals of sustainability. Different kinds of wood are used for different purposes, from Douglas fir glulam roof beams to maple slat walls. Using wood allows the structure of the building to be openly celebrated and exposed, which helps to give a unified identity to a very diverse building. All the programs and activities are united by the undulating and expressive roof. The warmth of the material and its rich color and texture evoke a feeling of welcome for visitors, encouraging people to keep returning and make this a place that contributes to the life and health of the city for years to come.

CLIENT
City of Edmonton
Edmonton, AB

ARCHITECT
Group2 Architecture Interior Design Ltd.
Edmonton, AB

PROJECT ARCHITECT
Perkins+Will
Vancouver, BC

STRUCTURAL ENGINEER
CH2M Hill
Edmonton, AB

GENERAL CONTRACTOR
PCL Construction Management Inc.
Edmonton, AB

PHOTOGRAPHY
Tom Arban Photography Inc.
Toronto, ON

Jury's Choice

Banff becomes home to one of the world's longest timber footbridges

Bow River Footbridge and Utility Crossing

StructureCraft Builders Inc.

The historical Town of Banff, set in the beautiful Canadian Rockies, is one of the most visited tourist destinations in North America. The town sought a new crossing which would be functional and would also enhance the stunning mountain and river setting. Wood was chosen as the primary building material not only because of its environmental benefits but also because the town was very interested in the natural aesthetic.

The project also had to meet the stringent environmental requirements of Canada's oldest national park. The 80-m. clear span is, for a timber bridge, one of the longest of its kind in the world.

The primary structural system is simple: propped by drilled piers located just outside the normal river channel, 40-m. haunched glulam girders cantilever from either side to support a 34-m. suspended span. The bridge cross-section comprises twinned sets of high-mountain close-grain Douglas fir glulam girders stepped to follow the flow of forces, which range in depth from 2.6 m. at the piers to 0.9 m. at the suspended span.

The 4-m. wide deck is made of prestressed solid timber panels, removable to provide access to the service pipes concealed below. The concrete abutments at either end of the crossing tie down the haunch ends, but they also

house the pump station, eliminating the need for any additional above-grade structures.

The horizontal steel trussing provides both the diaphragm and support for the service pipes just below the bridge deck. It is configured such that only the timber is continuous, resulting in very little length expansion or contraction from temperature fluctuation. Durability was a topic of significant interest to the client, and great care was taken in detailing to ensure a 75-year design life. The long span and slender profile of the bridge, while enhancing aesthetics and minimizing material, make it susceptible to both vertical and lateral excitation from human traffic on the bridge. To counteract this, two unique tuned-mass dampers were installed to address footstep and jogging excitation respectively.

A parametric 3D model of the entire bridge was created early in the process, allowing rapid investigation of a multitude of design parameters, providing visual feedback to both designer and client. However, a tight, remote site, huge structural elements, and harsh winter weather all combined to make the bridge erection a challenge. This, coupled with a desire to complete the lifts before spring thaw and a firm arrival date for a large mobile crane, put a huge emphasis on ease and accuracy of assembly in the field.

The main structural elements of the bridge were too large to be transported to the site in modules ready for installation and fitting up the pieces over the river with a smaller crane would have presented significant environmental and safety challenges. In order to accurately assemble and erect the bridge, the individual elements were prefabricated in the shop and shipped to site as a kit of parts. All cutting, drilling, sanding and finishing was performed indoors under controlled conditions so that members were protected from the elements both in transit and on site. Jigs were built to ensure accurate assembly of the main bridge components in the field. In all, the entire bridge superstructure was erected in three lifts over two days, with the heaviest assemblies weighing in at more than 100,000 pounds.

Footbridges are an excellent opportunity to exploit timber, especially in beautiful settings, however, great care in design and execution must be taken to account for its unique properties. This will ensure the structure will remain an enhancement to the setting which all can enjoy for many years to come.

ARCHITECT
StructureCraft Builders Inc.
Delta, BC

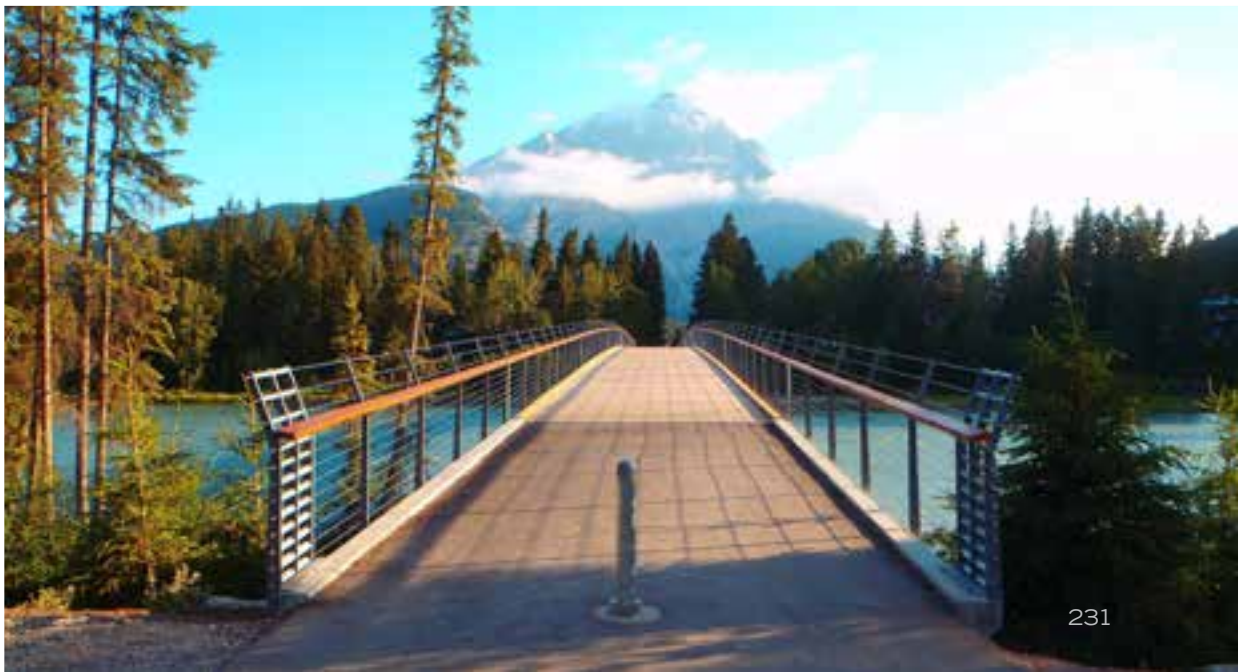
STRUCTURAL ENGINEERS
StructureCraft Builders Inc.
Delta, BC

Fast + Epp
Vancouver, BC

GENERAL CONTRACTOR
StructureCraft Builders Inc.
Delta, BC

PHOTOGRAPHY
Paul Zizka Photography
Banff, AB

StructureCraft Builders Inc.
Delta, BC



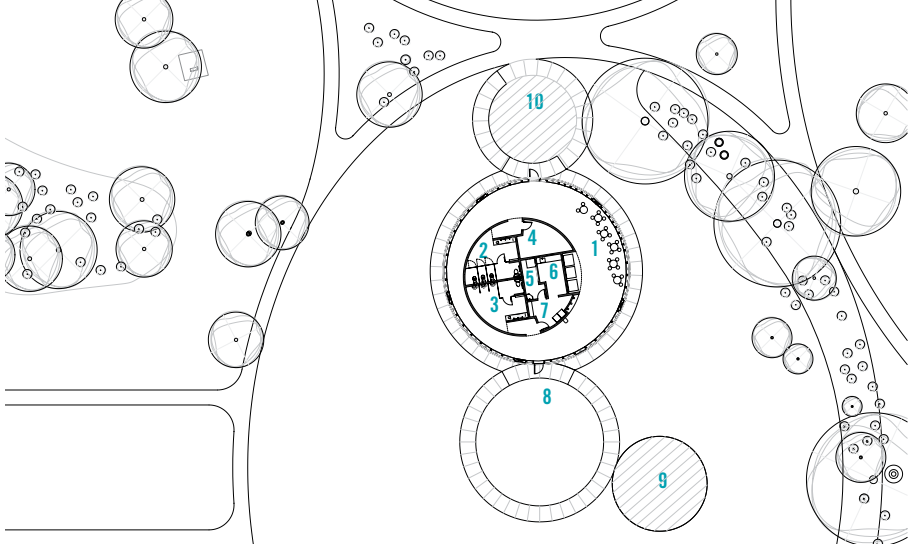
Circular pavilion references historic carousel and bandstand on the site

Recreational Wood

Borden Park Pavilion

gh3

This building commission was awarded through an International Design Competition in 2011. One of the fundamental approaches underpinning the competition entry was an integrated approach to environmental sustainability in the choice of materials. The concept was to make reference to historic elements (a carousel and a bandstand) existing on the site, which is a city park. The building recalls the iconic geometry of classical parks and pavilions, given the surrounding curving paths and loose axial relationships, typical of traditional English school of landscaping. The brief called for the provision of public washrooms and a multi–purpose seating/warm–up area for community use.



1. seating area
2. men's restroom
3. women's restroom
4. mechanical room
5. janitor room
6. staff room
7. staff program room
8. secondary entrance
9. patio
10. entrance court

SITE PLAN

Inside, the core of the circular pavilion contains rooms that require privacy and controlled environmental conditions i.e. the public washrooms, a mechanical room, janitor room and staff programming rooms. This core also contains recesses for vending machines and waste disposal. The central core is surrounded by a continuous ambulatory space, useable in all seasons, and designed to provide programmatic flexibility for users, offering unobstructed views of the park through its elegant, laminated timber truss structure. A seating area is located to the west of the pavilion. From the outside, the pavilion is clad with triangulated, highly reflective glass panels, effectively dissolving into its surroundings.

The integrated building facade is comprised of glulam Douglas fir, overclad with sealed glazed units. Floor-to-ceiling glazing is fixed to the wood structure and allows captivating views out from the pavilion while expressing the structural grid and pattern on the exterior. This mirrored glass facade reflects the surrounding park and seasons in striking triangular facets.

With its prominent wood and concrete component, the pavilion proves its success in the choice of durable, permanent and timeless materials. The structural ambition of the design emphasizes the use of rough whitewashed laminated timbers, whose rich patina and spatial arrangement recall the iconic structures and materiality of the park's history while foregrounding the sustainable character of the building. The building's remaining palette consists of simple materials that, in character, emphasize the surrounding landscape, and in quality, ensure a robust and enduring building.

CLIENT
City of Edmonton
Edmonton, AB

ARCHITECT
gh3
Toronto, ON

STRUCTURAL ENGINEER
Chernenko Engineering Ltd.
Edmonton, AB

GENERAL CONTRACTOR
Jen-Col Construction Ltd.
Stony Plain, AB

PHOTOGRAPHY
gh3
Toronto, ON

Atrium with exposed structural woodwork creates a warm and sensitive space

Silver Sage Elder's Lodge

Kreate Architecture and Design Ltd.

Silver Sage Elder's Lodge is a new housing structure designed in response to the social needs of First Nations elders in Regina, SK. The design process began with direct consultations with the elders, representing the First Nations groups of Silver Sage Holdings Ltd. The process was carefully constructed to provide the elders with a voice in determining the outcome of design and development of their future living space.

The consulting team and the client worked directly with the elders to draw out their experiences and concerns for living within an urban environment. Sessions were held over a period of eight weeks to allow participants time for input, reflection and review.

This process was unique to the client and participants, being one of their first experiences in making their voices heard and discussing the needs and issues facing First Nations elders within city limits. Design studies were suspended during the consultation process to facilitate open discussion and opinion without leading the client toward any prescribed solutions.

The consultations resulted in key requirements for the intended design solution: provision of a safe environment, interaction with the community, minimize the potential for isolation, connection with First Nations heritage, and natural light and atmosphere conducive to a positive living environment.

The final design solution was derived from First Nations' attributes and used the four directions as the impetus for living spaces along with the circle form for a central hub. Responses to each of the key requirements were successfully incorporated into the design solution to address the elders' utmost request – a place to call home.

The design incorporated a central atrium through the two-story height, capped off by clerestory windows to provide ample natural lighting. The atrium space acts as the main entrance to the building wings, providing immediate interaction in response to potential isolation concerns. This atrium also creates a central gathering space for use in First Nations events such as family feasts, cultural ceremonies, local events, and heritage celebrations. The supporting structure for the atrium is finished in exposed structural woodwork with a four directions motif integrated in the floor finishes. These materials create a warm and sensitive space.

The design also incorporates circulation to minimize the possibility for loneliness or isolation between the tenants. Tenant wings are contained with limited doors on each level to allow a high level of security for residents. The facility contains 26 suites in combinations of one and two-bedroom units. The suites are arranged over two floors, divided between four wings to minimize corridor lengths, providing direct sight lines and ease of supervision. The building design presents opportunities for supervision between suites as well as common areas, allowing residents to engage and participate within the building activities.

The facility is linked to adjacent affordable housing developments recently completed by Silver Sage Holdings Ltd. to provide support for families and also to allow engagement between the communities.

CLIENT
Silver Sage Holdings Ltd.
Regina, SK

ARCHITECT
Kreate Architecture and Design Ltd.
Regina, SK

STRUCTURAL ENGINEER
Brownlee Beaton
Kreke Engineering Ltd.
Regina, SK

GENERAL CONTRACTOR
MPM Construction Services Ltd.
Regina, SK

PHOTOGRAPHY
Patricia Holdsworth Photography Ltd.
Regina, SK

Finish and craftsmanship replicate every detail of early shed

Forest Service Shed

Macdonald & Lawrence Timber Framing

The Forest Service Shed is a replica of a historic building typical of early 20th-century construction in northern Alberta. The shed uses a transitional heavy timber/balloon frame structure, which was standard practice for industrial-type structures in those days. When building the shed, the materials and construction methods used were the same as those available in northern Alberta at that time. It was therefore necessary that the building be constructed of heavy timber and clad in wood. All door hinges, latches and wood spikes of traditional forged iron were used to uphold the construction techniques of the early 1900s, with the exception of hidden modern screw connectors where necessary to ensure compliance with today's building codes.

Wood posts needed to connect to the historical foundations, so some modern engineering was required to allow them to sit on large rocks at certain points as the primary foundation system. Since the foundations are not frost-protected, the team relied on the wood structure to be fairly flexible and able to accommodate frost-heave throughout its life without inducing damage to the structure or impacting the operations of the building. For this reason, wood was the primary material choice – relying on both the flexibility of the traditional mortise and tenon joint connections and the characteristics of wood itself.

The shed's exterior siding is Western red cedar board and batten, and the windows have simple trims to maintain authenticity. The doors are of the same construction as the walls and have blacksmith-forged hardware. The entire frame is exposed on the interior, contributing to the presentation of the artefacts inside as well as forming the structural system. The finish of the wood and craftsmanship of the joinery is representative of timberwork of the time.

Unlike most buildings, the shed technically has no structural floor. The bare ground forms the interior floor to maintain historical accuracy and simplicity of the design, thus, the timber to rock connection and rock to ground interaction was relied upon for the lateral stability of the post bases and of the building as a whole.

The shed will house various artefacts for the Fort McMurray Heritage Park, including an old Bombardier snowmobile used by Alberta Fish and Wildlife, a jet boat used by the Alberta Forestry service, and more. Other smaller artefacts relating to the forest industry/milling and other small industries in northern Alberta's history will also be housed and displayed in the uninsulated but weather-protected enclosure the shed provides.

CLIENT
Fort McMurray Historical Society
For McMurray, AB

ARCHITECT
Macdonald & Lawrence Timber Framing
Cobble Hill, BC

STRUCTURAL ENGINEER
ISL Engineering and Land Services
Calgary, AB

GENERAL CONTRACTOR
Macdonald & Lawrence Timber Framing
Cobble Hill, BC

TIMBER SUPPLIER
Andersen Pacific Forest Products Ltd.
Maple Ridge, BC

PHOTOGRAPHY
Elisa Rubalcava
Fort McMurray, AB

Jurors

From left to right:

JEAN LAROCQUE
Principal
LAROCQUE ELDER ARCHITECTS, ARCHITECTES INC.
www.leaainc.com

JIM EVANS
Partner
EVANS BERTRAND HILL WHEELER ARCHITECTURE
www.ebhwarchitecture.ca

AMBER SALACH
Partner
YALLOWEGA BÉLANGER SALACH ARCHITECTURE
www.ybsa.ca

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LP

Ontario

ONTARIO WOOD TRUSS FABRICATORS ASSOCIATION

OFIA

resolute

olma

Timber Systems

Weyerhaeuser Growing Ideas™

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CAPITAL BUILD CONSTRUCTION MANAGEMENT CORP.
Engineered Building Systems

NORDIC STRUCTURES

twg* COMMUNICATIONS

The Working FOREST newspaper

CARPENTERS UNION

Institutional Commercial <$10 M

Toronto Public Library
Scarborough Civic Centre Branch
Scarborough, ON
LGA Architectural Partners and
Phillip H. Carter Architects in joint venture

Please see page 72

Interior

Bar Raval
Toronto, ON
PARTISANS Architects

Please see page 94

ONTARIO

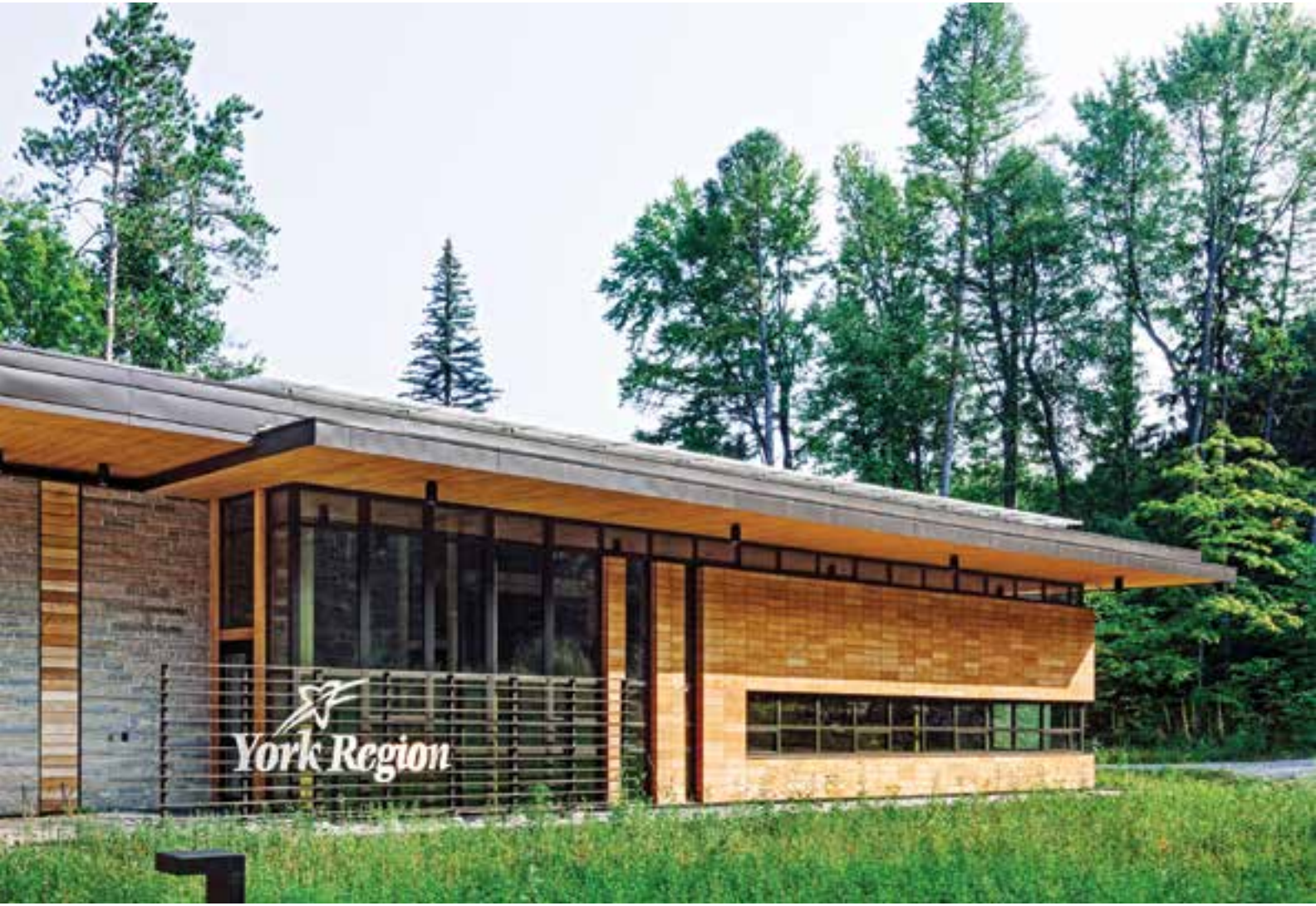
Reclaimed Douglas fir provides structure and finish

Bill Fisch Forest Stewardship and Education Centre

DIALOG

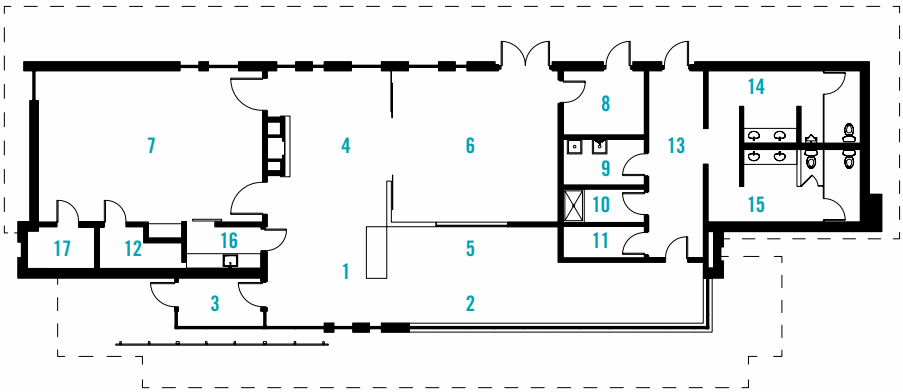
The Bill Fisch Forest Stewardship and Education Centre was built for the residents of the Regional Municipality of York, to educate them about the importance of natural resources and forest ecosystems. The Regional Municipality of York, located on the Oak Ridges Moraine between Toronto and Lake Simcoe, includes the York Regional Forest, which is internationally recognized as a leader in site restoration and forest management. It is the first public forest in Canada to be certified by the Forest Stewardship Council (FSC). The education center is located in the Hollidge Tract, one of 23 tracts that make up the York Regional Forest.

Constructed of wood and accented with stone, the education center reflects the materials of the surrounding forest. The single-story, 4,000-sq.ft. building includes space for corporate meetings and community educational programs. The use of wood in the design was integral to its function as a forest education center. For example, reclaimed ash salvaged from the area was used for the main entry reception desk as an educational feature. It retains the tracks of the emerald ash borer insects that have devastated ash forests in Ontario. The ash was treated to prevent further infestation. Cross-laminated timber (CLT) panels form the structural elements for the exterior walls and are also their exposed finish. The insulation is located on the exterior of the CLT walls and the cladding is reclaimed Douglas fir.


York Region

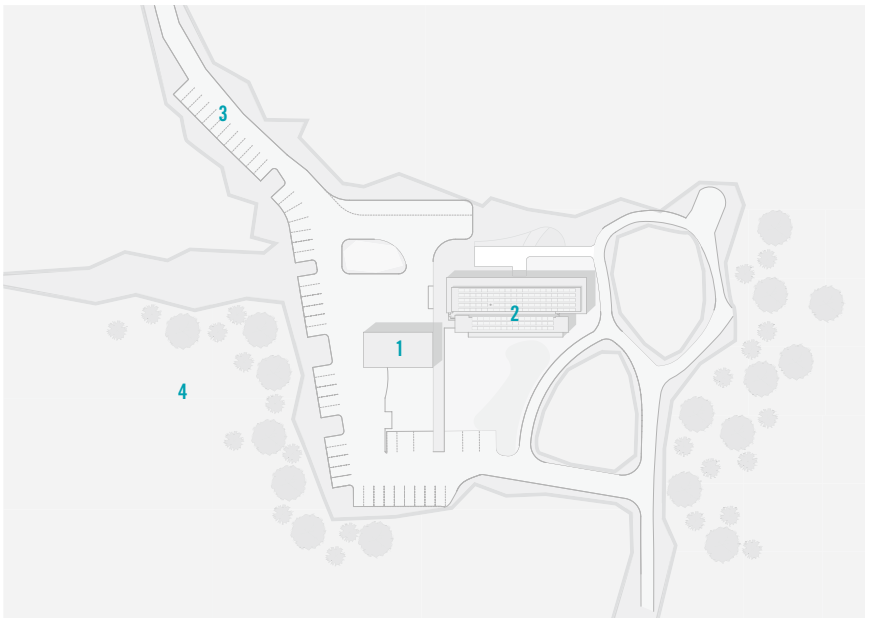
Structurally, the centre is very unique. Unlike most post and beam structures, the structural beams are located above the CLT roof. The CLT roof panels and the entire structural load of the roof are suspended from the glulam beams by means of self-tapping, engineered screws and bolts. This design provides interior clearance and a clean appearance for the ceiling. The glulam columns that support the beams have a shoulder at the top over which the CLT roof panels were placed. The shoulder does not provide structural support for the CLT panels, but provides a gap-free joint between the columns and the roof panels.

The predominant interior finish is the exposed surfaces of the CLT wall and roof panels. The CLT and glulam columns are coated with a zero volatile organic compound (VOC) stain, which is used on all exposed surfaces. Several featured interior wall panels are clad in maple-veneered FSC plywood. These panels are located within the reception area and open office workstations. The open office areas are separated from



1. administration
2. circulation
3. entrance vestibule
4. lobby/reception
5. hotelling station
6. classroom
7. multi-purpose room
8. storage
9. mechanical
10. shower
11. IT/phone
12. storage
13. mud room
14. men's restroom
15. women's restroom
16. kitchenette
17. electrical

FLOOR PLAN



1. garage
2. education center
3. Highway 48
4. Hollidge Tract, York Regional Forest

SITE PLAN

the circulation corridor by a series of horizontal maple louvres that are supported on a metal frame.

The well-considered use of a variety of wood products enhances both the exterior and interior structure, showcases the simple beauty of warm, natural finishes, and provides environmental benefits throughout the project.

CLIENT
Regional Municipality of York
Newmarket, ON

ARCHITECT
DIALOG
Toronto, ON

STRUCTURAL ENGINEER
DIALOG
Toronto, ON

TIMBER SUPPLIER
Nordic Structures Inc.
Montreal, QC

PHOTOGRAPHY
Tom Arban
Toronto, ON

Institutional Commercial >$10 M

Versatile wood connects modern architectural techniques to surrounding agricultural landscape

Gore Meadows Community Centre & Library

ZAS Architects + Interiors

Located on a 143-acre rural site in a rapidly growing area of Brampton, the Gore Meadows Community Centre & Library was designed to be a new anchor for the expanding multicultural community. Focused on achieving a highly sustainable design, the center's architecture features clever and prominent integration of wood, a move that both supports the Canadian economy and reflects the community focus of the building.

Conceived as the new heart of the community, the unique facility has more than 300,000 sq.ft. of amenities for residents, offering sport, fitness and library services under one roof. A large timber-framed public galleria stretches prominently along building's main facade, linking the community center, aquatics center and public library.

Both the site and building, from the surrounding flower beds to the curve of the multidirectional glass wall, reflect a modern design mindful of the location's natural landscape and agricultural heritage. Reminiscent of the adjacent farmers' fields, the site design is an abstract expression of linearly planted bands of vegetation and perennial flower beds, framed by grids of bushes and orchards.

A conscious effort was made to use local resources and incorporate wood into the facility's design. Wood's versatility allowed the architects to create a beautiful public space that reflects a modern aesthetic but still draws on a powerful connection with the surrounding natural landscape.

The building's design features a series of accessible interactive spaces sensibly constructed with warm, welcoming materials. The openness and linear arrangement of the plan results in an abundance of natural daylight and visual stimuli, connecting indoor activities with the exterior urban landscape.

Along the west, the promenade is an interpretation of a path cutting through the fields, with a panoramic view of the Humber River beyond. Pedestrian pathways act as the organizing principle linking the facilities and providing spaces for interaction. With its rows of abstracted wood and steel trees, the pathways provide a rich and warm space with a visual connection to indoor and outdoor activities.

In the library, lounge areas between the collections create clear, instinctive wayfinding through the stacks. Interaction between librarians and visitors is facilitated by satellite service stations strategically located throughout the library, a strategy that eliminates the usual barrier imposed by a standard customer service desk. A Reading Garden brings nature into the library, presenting a tranquil space for readers in good weather and a visual pleasure in inclement weather.

The facility's expansion plans include an indoor soccer center that will have a gently arching wood diaphragm structure above a FIFA soccer pitch, and an outdoor skating rink that will incorporate a gently arching wood diaphragm lamella structure above the ice pad.

CLIENT
City of Brampton
Brampton, ON

ARCHITECT
ZAS Architects & Interiors
Toronto, ON

STRUCTURAL ENGINEER
Halcrow Yolles
Toronto, ON

GENERAL CONTRACTOR
Bondfield Construction
Concord, ON

PHOTOGRAPHY
Ben Rahn/A-Frame
Toronto, ON

John A. Ryan/Insight Imaging
Milton, ON

Jury's Choice

Acoustic properties of wooden
interior disperse sound beautifully

Isabel Bader Centre for Performing Arts

N45 Architecture Inc.

The Isabel Bader Centre for Performing Arts, at Queen's University in Kingston, is home to the Music, Drama, Media/Film Studies, and Fine Arts programs. Located on the shores of Lake Ontario, it is an important site composed of several stone heritage structures from the former Stella Buck Brewery, reputed to be the largest of its kind in North America in the 1800s. Adapting and incorporating the wood and limestone buildings into the project was not only important to highlight a modern educational addition in a contemporary way but also to emphasize the contrast between the academic Kingston of the 21st century and the industrial Kingston of the 20th century.

Although condemned, the project team chose to stabilize the old stone structure, salvaging and repurposing the wood beams, columns and flooring. Three wood species appear throughout: pine, spruce and hemlock. The reclaimed wood was sawn, milled and reinstalled as wall and cabinetry finishes in public spaces. A light stain was rubbed into the reclaimed wood, bringing out the grain and enhancing its natural warmth. Some of the wood was used to restore the heritage double-hung windows. During construction, the smell of freshly planed and milled wood added another sense to a building designed for the senses of touch, sound and sight.


EXIT


EXIT
EXIT

The project centerpiece is the Concert Hall. It is a classical music theater with proportions and acoustics based on the great historic European jewel box halls. The design delivers superb live acoustical musical performances, without relying on electronic amplification, and creates an intimate experience for performers and audiences.

The interior design calls to mind the rocky outcrops prominent in Kingston, known as the Limestone Capital of Canada. To achieve a layered look, four different species of wood – American walnut, American cherry, anigre, wild pear – were chosen to give the random stone layering pattern some depth and coloration. The overall effect creates an impressive, yet calming, atmosphere in the hall.

Utilizing modeling algorithms, the team designed a stunning interior that provides the optimum level of sound diffusion, surface texture and specular reflection. The use of wood was extremely important from an acoustical perspective as it created the resonance that musicians love. Not only is wood able to create the lively sounds of a fine string instrument but it also disperses sound beautifully to create a rich, warm and lustrous acoustic experience in a concert hall.

Wood also features prominently in the subtle vertical pattern cladding of the exterior of the heritage brewery. Here, the wood was stained a rich charcoal color to reference the dark weathered buildings of the past. Along with the limestone, wood provides a striking contrast to the stainless steel and glass of the new construction, materials that were chosen to reflect the monochromatic whites and grays of the winter skies and the frozen lake.

CLIENT
Queen's University
Kingston, ON

ARCHITECTS
N45 Architecture Inc.
Ottawa, ON

STRUCTURAL ENGINEER
Halsall
Toronto, ON

GENERAL CONTRACTOR
EllisDon
London, ON

PHOTOGRAPHY
Doublespace Photography
Ottawa, ON

Multi-Unit

Pre-fabricated timber components reduce building costs and increase on-site efficiencies

Windows on the Green Condominium

SMV Architects and Romanov and Romanov

Windows on the Green is a four-story boutique condominium located in the mature, sought-after neighborhood of Erin Mills, in Mississauga, ON. The condominium has a total of 150 units that range in size from 615 to 1,200 sq.ft., including penthouse lofts with 19-ft. ceilings and private outdoor terraces.

Inspired by renowned architect Frank Lloyd Wright, the exterior facade of the wood-framed residence features horizontal lines, roofed balconies and soaring stone columns, reminiscent of Wright's signature architectural style. The building's interior offers a classic-meets-contemporary design with luxurious appointments such as a two-story stone feature wall in the lobby. Windows on the Green has been mindfully crafted to reflect excellence in every detail.

The use of wood enabled the project team to implement a cost-effective structural system that also significantly benefited the construction schedule. By using wood, in addition to the lower material cost when compared to other construction materials, the builder was able to take advantage of pre-fabricated (panelized) production processes. Materials were shipped to the site ready to be erected with a high degree of quality and accuracy. This convenience increased overall on-site efficiency in terms of both erection schedule as well as the amount of remedial work needed. While the flexibility of the wood product easily accommodated design changes, it also allowed for unique architectural expressions such as the vaulted loft units and open, double-height lobby space.

ARCHITECT
SMV Architects and Romanov and Romanov in joint venture
Toronto, ON

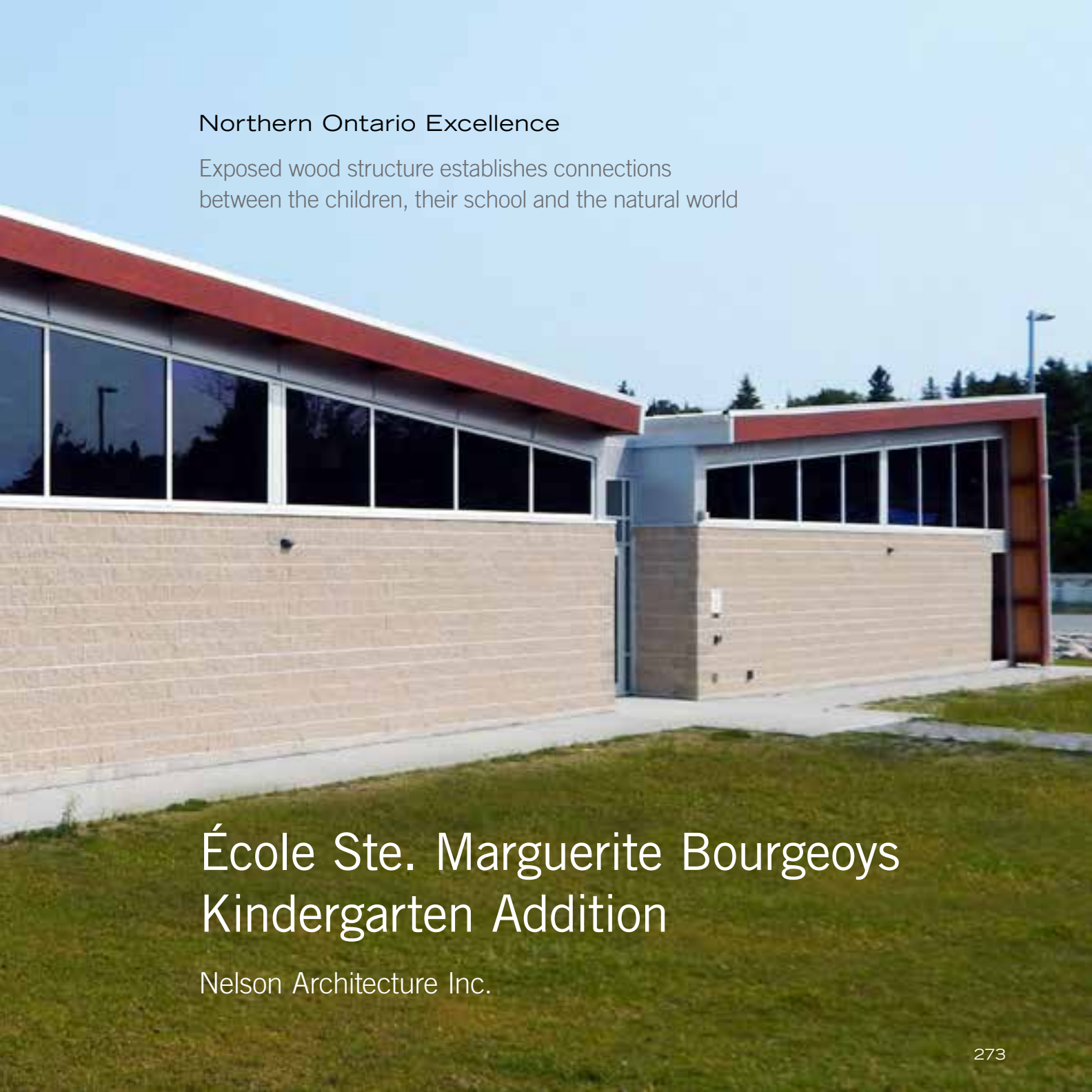
STRUCTURAL ENGINEER
Read Jones Christoffersen Ltd.
Toronto, ON

GENERAL CONTRACTOR
Vandyk Group of Companies
Mississauga, ON

PHOTOGRAPHY
Vandyk Group of Companies
Mississauga, ON

Northern Ontario Excellence

Exposed wood structure establishes connections between the children, their school and the natural world



École Ste. Marguerite Bourgeoys Kindergarten Addition

Nelson Architecture Inc.

The 10,000-sq.ft. addition to École Ste. Marguerite Bourgeoys was designed to accommodate the Full-Day Early Learning-Kindergarten Program of the Kenora Catholic District School Board. The addition consists of four kindergarten classrooms, two grade one classrooms, and associated ancillary space that includes two integrated outdoor classrooms and a parents' lobby. The principles for the development of the space were initially derived from the Ministry of Education's white paper on early learning. The design team set out to determine the means by which the physical building could provide a framework to support some of those educational goals based on the curriculum and pedagogy demands.

The new construction supports two different areas of the revised kindergarten program. First, the building provides space for the children to develop within a complex set of integrated systems that includes the family, the school, the broader community and the world. The school addition was designed to physically integrate the classroom to the school, to the campus, and the rest of the community and the parents' lobby engages the parents in their children's education. Second, the new learning environment reflects the social and cultural context in which the children are developing. The cultural past of the community is distinguished by its wood-based economy, and the structural system reflects that heritage through its use of wood.

Learning is most effective and authentic when it occurs within a healthy environment. This healthy school not only uses healthy building materials but also establishes a connection to the natural world. The use of wood and the exposed wood structure forms a visual and conceptual connection between the child, the school and the natural world beyond.

The project is an addition to an existing elementary school, circa 1970, which had a primary structural system of glulam beams with a low-slope wood roof deck. In this context, choosing glulam beams and a wood deck for the addition was a logical decision. While the material selection was consistent and uniform with the existing building, the roof's slope was inverted to differentiate the new addition from the existing

school. This roof form also created spatial differentiation from the old school with a lower ceiling in the corridor and the larger more playful spaces of the classrooms themselves. The classroom enclosure is principally defined by the roof which returns to grade with the exterior canted wall. While there is an extensive use of glass curtainwall to build the connection to the outside world, the glazing is positioned to face the outdoor classroom courtyards to shade the windows and prevent overheating, yet still provide a substantial amount of daylight. Daylight sensors were used in each classroom to minimize artificial lighting requirements.

The building attempts to craft a contextual response to the existing building, site and campus that is respectful to its foundation yet declares itself as new space for early learners.

CLIENT
Kenora Catholic District School Board
Kenora, ON

ARCHITECT
Nelson Architecture Inc.
Kenora, ON

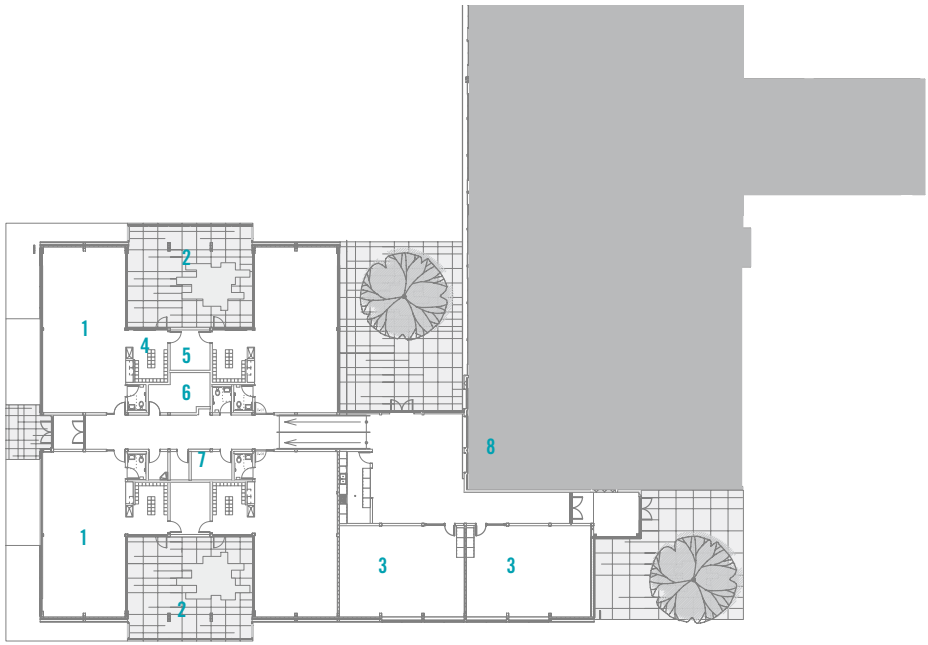
STRUCTURAL ENGINEER
Lavergne Draward & Associates
Winnipeg, MB

GENERAL CONTRACTOR
Jarnel Contracting Inc.
Kenora, ON

PHOTOGRAPHY
Ihor Kortchevich
Kenora, ON
Nelson Architecture Inc.
Kenora, ON

1. new addition
2. existing school
3. Pope John Paul II school
4. board office
5. parking

SITE PLAN



1. kindergarten
2. outdoor classroom
3. classroom
4. coatroom
5. storage
6. mechanical room
7. electrical room
8. existing school

FLOOR PLAN

Ontario Wood

Exposed wood structure blends traditional barn aesthetics with modern construction techniques

St. Jacobs Farmers' Market

Architecture Incorporated, Architect

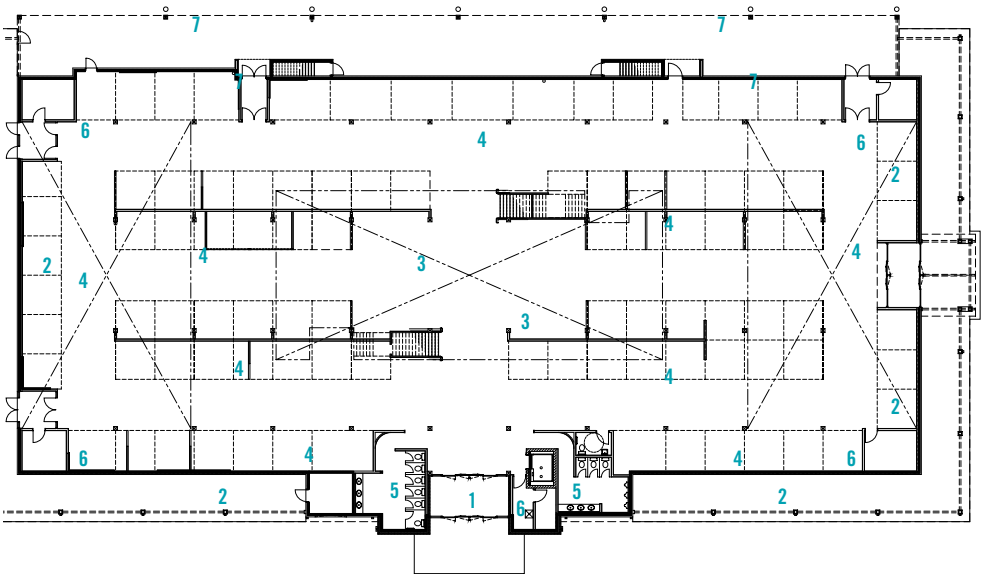
The St. Jacobs Farmers' Market is one of the largest year-round farmers' markets in Canada and is of significant cultural and commercial importance to the region. The market features many traditional Mennonite vendors, some of whom still use buggies pulled by horses to bring their produce to market. It is known across Canada as a tourist destination for its hundreds of vendors, who offer everything from meat and produce to baked goods and artisan creations.

In 2013, the original market building was lost to fire and plans to rebuild the market began immediately. From the beginning, it was decided that the structure, as well as all interior and exterior wall and ceiling finishes, would be exposed wood. The goal of the rebuild was to reflect the traditional barn feel of the original market while improving on its deficiencies. The new building features an additional 10,000 sq.ft. of space, wider aisles, as well as elevators and a sprinkler system.

The market is one large room with high clerestory windows and a second-level mezzanine that provides additional vendor space as well as

many people-watching vantage points. Heavy timber columns and beams and cross-laminated timber (CLT) planks supporting the upper floor allowed the project team to leave their surfaces exposed. The CLT flooring provides an uncluttered, beautiful wood finish on the ceilings of the level below. The mezzanine floor was topped with three inches of concrete to provide a wear surface on the floor.

All wall and ceiling finishes are rough sawn except in the food preparation areas where smooth plywood was installed because it is easier to clean. All interior wood surfaces are sealed pine, and all exterior surfaces are stained board and batten. Some charred timber beams reclaimed from the original market building were coated with urethane and used as a design finish on the face of one vendor's new stall.



1. entry
2. outdoor vendors
3. tables and chairs
4. indoor vendor
5. restrooms
6. service rooms
7. vendor loading area
8. mechanical roof

GROUND FLOOR PLAN

CLIENT
Mercedes Corp.
St. Jacobs, ON

ARCHITECT
Architecture Incorporated, Architect
Waterloo, ON

STRUCTURAL ENGINEER
Blackwell Structural Engineers
Waterloo, ON

GENERAL CONTRACTOR
Frey Building Contractors
Hawkesville, ON

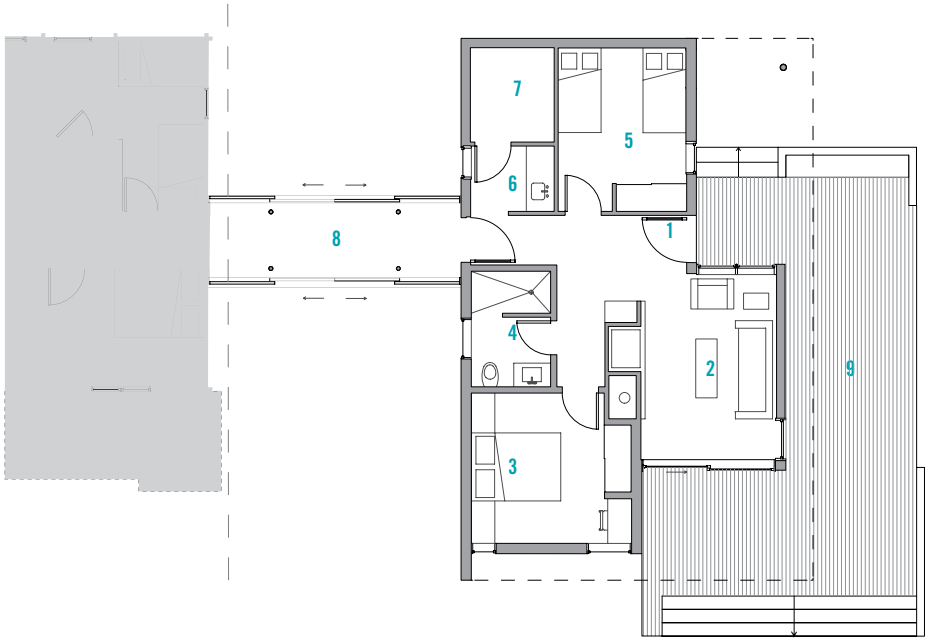
PHOTOGRAPHY
Hannah Marie Photography
Waterloo, ON

Residential
Wood Design

Prefabricated, panelized wood structure saves time, money and reduces waste

Pointe Cabin

superkül



1. entry
2. living room
3. master bedroom
4. restroom
5. bedroom
6. wet bar
7. utility room
8. link
9. wood deck

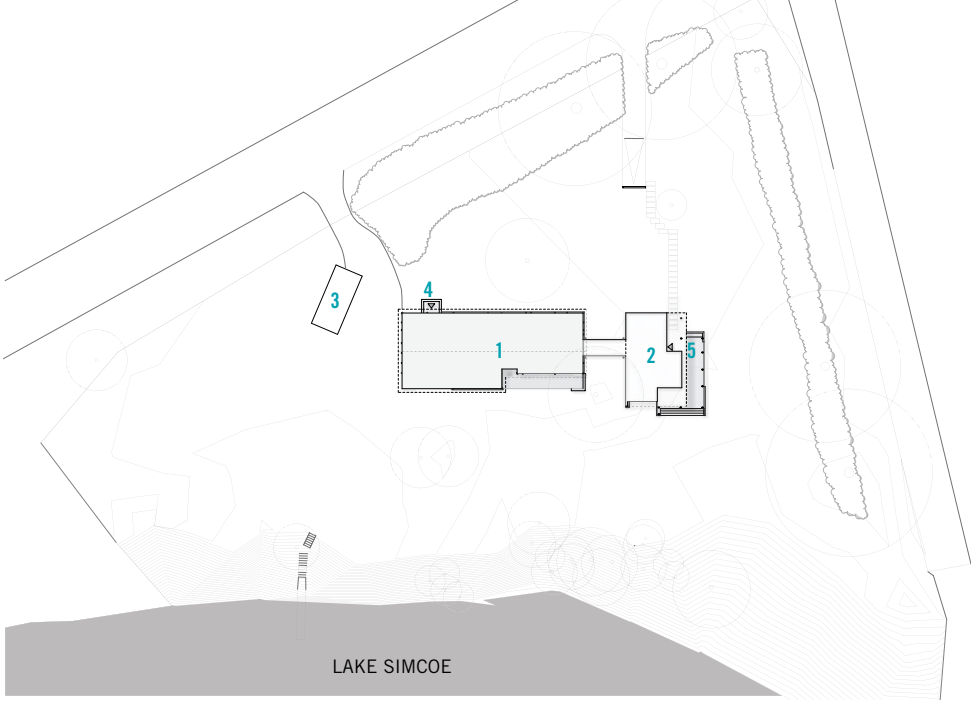
FLOOR PLAN

An addition to a cottage weekend home in the town of Georgina, ON, addressed the evolving needs of a multigenerational family by creating a separate and adjoining suite for the patriarch, leaving the original cottage to his children and grandchildren. The new structure has living quarters, two bedrooms and a private entry, but is linked to the original building by a glazed passageway.

Sited at the edge of Cook's Bay at the southern tip of Lake Simcoe, the cottage enjoys clear, unobstructed views of the water, sky and abundant foliage of the region. The existing home is oriented to the west, facing the lake and providing the enjoyment of dramatic sunsets. The addition extends to the south and is designed with optimal lake views in mind; it capitalizes on the prime southern exposure with an expansive wraparound deck. Consequently, the indoor living space expands beyond physical boundaries to embrace the outdoors, bringing the family that much closer to the water's edge.

The fully glazed passage between the old and new buildings creates two exterior courtyards and provides a powerful transitional experience. Awash in natural daylight, the passage offers both east and west views of the property, encouraging pause and reflection and an appreciation of the changing seasons. A rich complexity of layered spaces and views results from the new design strategy – in and through the new addition, around the tree-framed property and toward the shores of Lake Simcoe.

The temporal narrative of the home is clear in the contrast between the traditional bungalow form of the original cottage and the distinctly modern addition. Though several decades separate the two structures, the new building continues the tradition of wood construction throughout. Selected for its superior performance, aesthetic character and sustainability, wood was an ideal choice to complement – in mate-



1. existing cottage
2. cabin addition
3. existing shed
4. existing entrance
5. new entrance

SITE PLAN

As a graceful complement to a modest cottage bungalow, the new addition sits lightly on the landscape. Its spare and minimal articulation in both form and materiality enhances the natural beauty of the lakefront property and represents a sympathetic response to building through a carefully considered wood-focused strategy encompassing both structure and finish.

ARCHITECT
superkül
Toronto, ON

STRUCTURAL ENGINEERING
Robert E. Brown & Associates Ltd.
Toronto, ON

GENERAL CONTRACTOR
Duffy & Associates
Toronto, ON

TIMBER SUPPLIER
H+ME Technology
Toronto, ON

PHOTOGRAPHY
Shai Gil
Toronto, ON

rial form – the original cottage. Cost and efficiency were primary considerations, so the addition was designed as a prefabricated, panelized wood structure of spruce, pine and fir. This decision reduced both waste and the duration of on-site construction. Wall, floor and roof panels were factory-built, flat-packed and trucked to the site, allowing the entire frame to be erected over a period of just a few days in winter.

Beyond the wood utilized for the building's structural components, extensive use of wood on both the interior and exterior communicates a sense of warmth and connects the building to its surroundings through a harmonious engagement with the treed landscape. Natural, low-maintenance materials are used throughout the indoor and outdoor living areas to provide maximum comfort. Western red cedar wraps much of the building and comprises the deck and screens. Interior wood floors visually extend to the exterior as the white oak planks appear to continue uninterrupted to the exterior with similarly hued but appropriately hard-wearing cedar decking. Rift-cut white oak bathroom vanities, custom furniture and millwork further contribute to the cottage's design, resulting in a refined sense of consistency and seamless continuity.

U.S. WoodWorks Wood Design Awards

U.S. WoodWorks Wood Design Awards

As I looked to the award-winning projects to inspire a theme for this letter, I was struck by the concept of wood's evolving narrative. I don't think it's an overstatement to say there is no more traditional building material than wood. And yet, considering this year's U.S. Wood Design Award winners – and the groundbreaking structures being built around the world – it's also among the most innovative.

This evolution can be seen at a small scale in the Beauty of Wood – Craft winner. The elegantly detailed Whitetail Woods Regional Park Camper Cabins evoke centuries of craftsmanship, with a decidedly modern aesthetic.

It can also be seen in the Green Building by Design category. Designers of the Unitarian Universalist Fellowship of Central Oregon chose a variety of wood products, including traditional 2x wood framing, to help achieve the very modern objective of net zero energy consumption.

The Brooklyn Riverside, which won a Regional Excellence award and consists of seven multi-family buildings, exemplifies the fact that a growing number of designers are choosing wood for the value it brings to mid-rise projects. Meanwhile The Radiator and Framework, which won in the Multi-Story and Commercial categories respectively, illustrate the trend toward buildings that utilize mass timber to achieve greater heights and longer spans than many thought possible.

As always, I am honored to celebrate the individuals who design wood buildings that excel, in terms of their beauty and performance, and whose ingenuity continues to expand the possibilities for wood while inspiring other building designers.

Jennifer Cover, PE
Executive Director
U.S. WoodWorks

Jurors

WILLIAM BISHOP, AIA
Vice President
AKEL LOGAN SHAFER
www.alsarchitects.com

MARK ERNST, AIA, LEED AP BD+C
Partner
ENGBERG ANDERSON
www.engberganderson.com

LAWRENCE SCARPA, FAIA
Principal
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Beauty of Wood

Whitetail Woods Regional Park Camper Cabins
Minneapolis, MN
HGA Architects and Engineers

Please see page 108

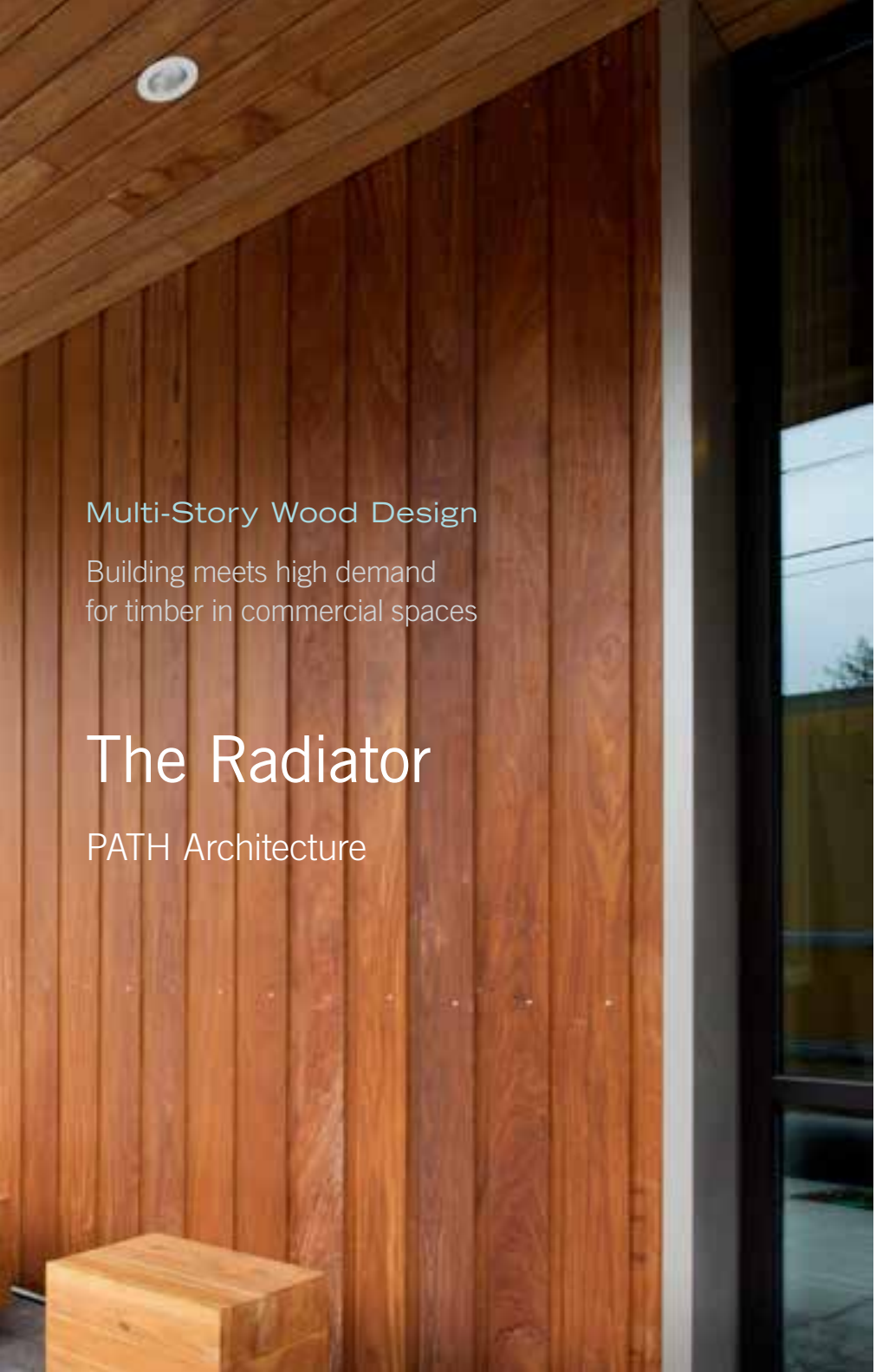
Institutional

Fire Station 76
Portland, OR
Hennebery Eddy Architects, Inc.

Please see page 48

UNITED STATES


3530



Multi-Story Wood Design

Building meets high demand for timber in commercial spaces

The Radiator

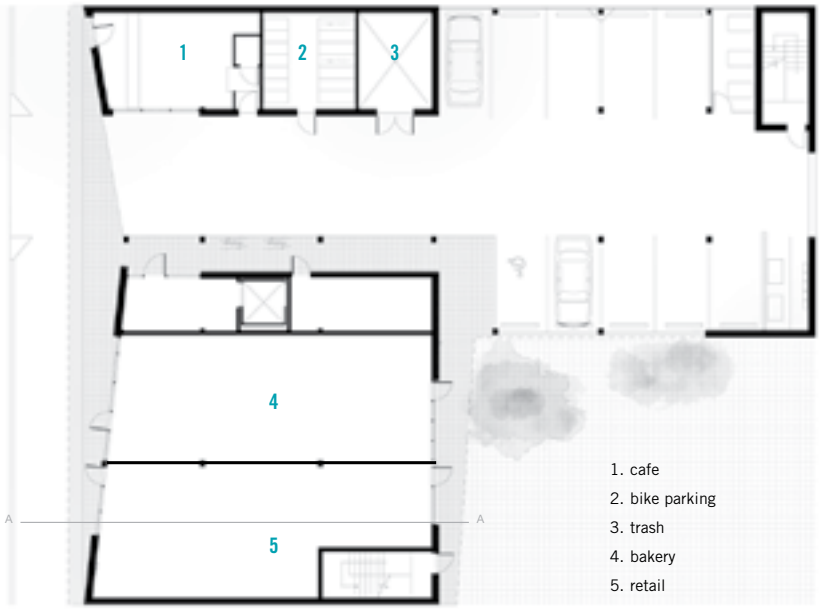
PATH Architecture

The Radiator aspires to live up to the "20-Minute Neighborhood" model to support and help progress Portland's Climate Action Plan. These neighborhoods are places where residents have easy, convenient access to many of the places and services they use daily, including grocery stores, restaurants, schools, parks and work, without relying heavily on a car. They are characterized by a vibrant mix of commercial and residential establishments, all within a one-mile walking distance. They have higher concentrations of people and are complete with wide sidewalks, bike lanes and bus routes that support a variety of transportation options.

The Radiator is a five-story, 36,000-sq.ft. community-conscious building that reflects Portland's high standards, environmental values and culture. It has creative office spaces on floors two to four, an office with a roof garden on the fifth floor, and ground floor retail overlooking an accessible 14,000-sq.ft. courtyard equipped with 123 covered bike parking stalls. The courtyard is a public space defined by the surrounding three buildings, providing an attractive civic amenity. The courtyard was made possible through partnerships with the surrounding buildings, organizations and Portland's regional government. The building's office and business spaces support the area's rapidly increasing residential density.

The Radiator was a leader in the surge of mid-rise mass timber buildings in the United States. Demand is higher than ever for the look and feel of timber construction in commercial spaces, and The Radiator is a contemporary version of a historical classic; its engineered timber beams and columns create interior spaces that are direct descendants of the huge timber warehouse buildings that remain popular to this day.

SITE PLAN



GROUND FLOOR

The extensive use of wood throughout the project begins with the building's structure; gravity loads are handled through a system of glulam beams and columns, and light-framed lumber and plywood walls provide the structure's shear capacity. A thick timber decking is used to create the structural floor diaphragm and exposed ceilings. Wood's light weight translates into an efficient, resilient and sustainable structural system. On each interior floor of The Radiator, the timber construction is put on display for the tenants' enjoyment. Beams, columns, and the underside of the floor decking are left exposed, and a raised floor system hides utilities and conduits, showcasing the building's dynamic blend of traditional and modern building techniques.

CLIENT
Deco Diner, LLC
Portland, OR

ARCHITECT
PATH Architecture
Portland, OR

STRUCTURAL ENGINEER
Munzing Structural Engineering
Portland, OR

GENERAL CONTRACTOR
Kaiser Group Inc.
Portland, OR

PHOTOGRAPHY
Caitlin Murray/Built Photo
Portland, OR

Josh Partee
Portland, OR

Commercial

Douglas fir framework visible through glass exterior creates the effect of ship in a bottle

Framework

Works Partnership Architecture

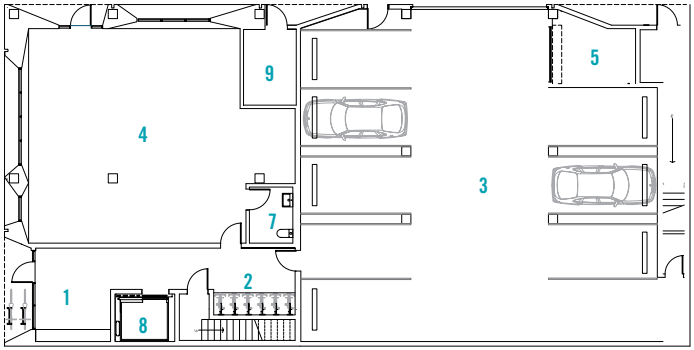
Completed in 2015, Framework is an adaptation of the ship in a bottle idea. From the street, passersby see through the building's exterior glass to the elegant wood structure within. This design also recalls the historic small plate timber structures that weave through the building fabric of the central east side of Portland.

Structurally, the four-story heavy timber frame building is similar to neighboring 100-year-old buildings, except that designers eliminated the masonry perimeter walls in order to give the project a unique identity. The retail frontage in the concrete base is allowed to take on a more sculptural reading, relating by contrast to the taut glass skin above. The building's base is carved as a mass, rising up to hold the framework display. Wood facets frame the entry and spaces along the public realm.

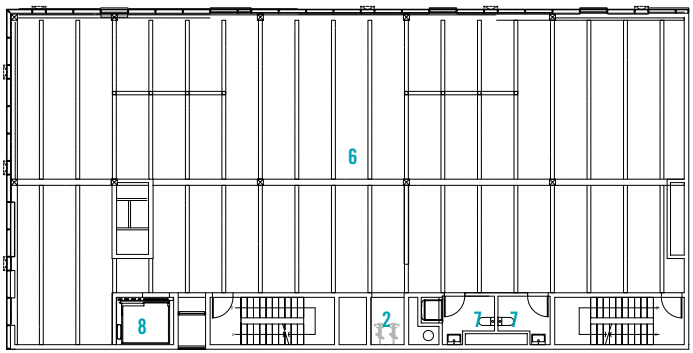
In addition to Douglas fir glulam columns and beams, Framework includes several other mass timber products, along with dimension lumber framing and decking. Mass timber's ability to absorb vibration and minimize its transmission makes the primary structural material of this project itself an acoustic solution; the use of wood offers inherent sound-absorbing capacity in the structure. Also integral to the acoustic strategy is the mass of shear walls used in the structure of the building.

An aluminum and glass curtain wall system clads the heavy timber frame, and prevents the penetration of moisture into the building. To manage the effects of moisture on the wood structure, resealed beams were used in the frame.

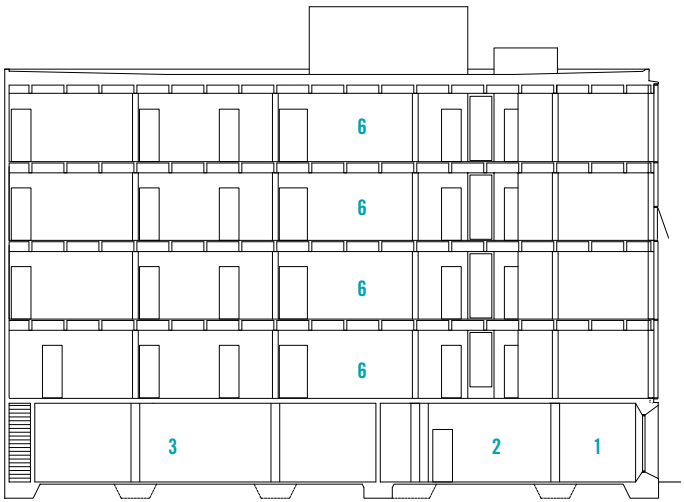
The glazing strategy and a high-performing envelope employed in this project result in high energy efficiency. In response to the site positioning of the building, the east and south walls are solid to protect from solar gain. The main glazing appears on the north and west facades and contains high-efficiency glass. The curtain walls used in the facades contain solid infill insulated panels. Storefront systems used in the building also utilize high-efficiency glazing. Finally, insulation in the framed walls of the structure maximizes thermal stability.



GROUND FLOOR PLAN



TYPICAL WORKSPACE



1. lobby
2. bike parking
3. garage
4. retail
5. trash
6. creative office
7. restrooms
8. elevator
9. electrical room

SECTION

The building's staircases are fabricated with engineered wood products, including laminated strand lumber and structural plywood. The project aims to celebrate its primary material as wood. The design allows 80 per cent of the wood to remain exposed, and all connections were custom-designed to accentuate the wood framing system. The combination of convention in framing and a sophisticated curtain wall system as cladding will add to its success. This 24,447-sq.ft. project was completed for a construction cost of $2.95 million.

ARCHITECT
Works Partnership Architecture
Portland, OR

STRUCTURAL ENGINEER
TM Rippey Consulting Engineers
Portland, OR

GENERAL CONTRACTOR
Yorke & Curtis, Inc.
Beaverton, OR

PHOTOGRAPHY
Joshua Jay Elliot
Portland, OR

Flat mass timber roof is the first point-supported two-way roof of its kind

Chicago Horizon Pavilion

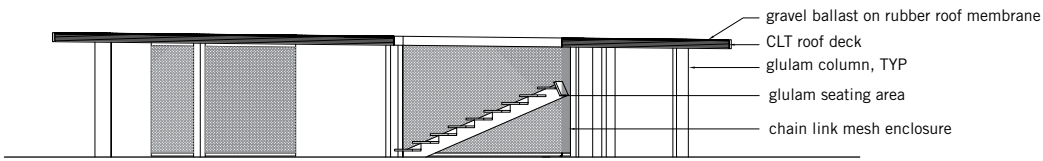
Ultramoderne

The Chicago Horizon Pavilion was built for the Chicago Architecture Biennial, installed permanently as a public amenity and vendor kiosk in Grant Park, facing Lake Michigan. The design, drawing inspiration from the long-span structures of Mies van der Rohe and the Eames film, *Powers of Ten*, proposed a 56-sq.ft. flat roof made entirely of mass timber, aiming to provide as much space as possible with minimum environmental and economic impact.

The kiosk is a flexible space that catalyzes social exchange. The innovative structure allows for large spans and a generosity of open space that can accommodate a truly public engagement with the city. In addition to this being a place of exchange for goods, the space allows for the free exchange of ideas in connection with the exhibition programming. Through talks, films and workshops, the public walks away thinking.

The project was the result of a close collaboration between architects, engineers and fabricators. Design decisions emerged from ongoing, overlapping conversations among disciplines. As a result, the entire pavilion was designed and built in only 10 weeks. Supported at just 13 points, the carbon-negative, mass timber structure is the first point-supported two-way wood roof built to date. The fin columns are distributed in a finely tuned radial pattern to respond to lateral loads and uplift; their orientation creates an intense focus on the space and activities central to the pavilion while simultaneously directing it outward toward the horizon. The expansive plane of the long-span roof is interrupted by only the structural columns and two chain link volumes stretched between roof and ground.


KIOSK
BOLD
MOVES


gravel ballast on rubber roof membrane
CLT roof deck
glulam column, TYP
glulam seating area
chain link mesh enclosure

SECTION

Radical simplicity underlies a subtle and varied experience. The lateral reach of the roof recalibrates the experience of the two extremes of the Chicago landscape: at ground level, the Lake Michigan horizon dominates, forming a line of symmetry between ground and canopy. From the viewing platform, the roof becomes a new artificial horizon, shutting out the foreground and emphasizing the vertical skyline above an abstract floating plane.

CLIENT
Chicago Architecture Biennial – Chicago Parks District
Chicago, IL

ARCHITECT
Ultramoderne
Providence, RI

ARCHITECT OF RECORD
Animate Architecture
Chicago, IL

STRUCTURAL ENGINEER
Guy Nordenson and Associates
New York, NY

GENERAL CONTRACTOR
FH Paschen
Chicago, IL

TIMBER SUPPLIER
Nordic Structures
Montreal, QC

PHOTOGRAPHY
Tom Harris/Hedrich Blessings
Chicago, IL

Inherent functional, aesthetic and healing qualities of wood essential in crafting an environment for contemplation

Our Lady of Montserrat Chapel

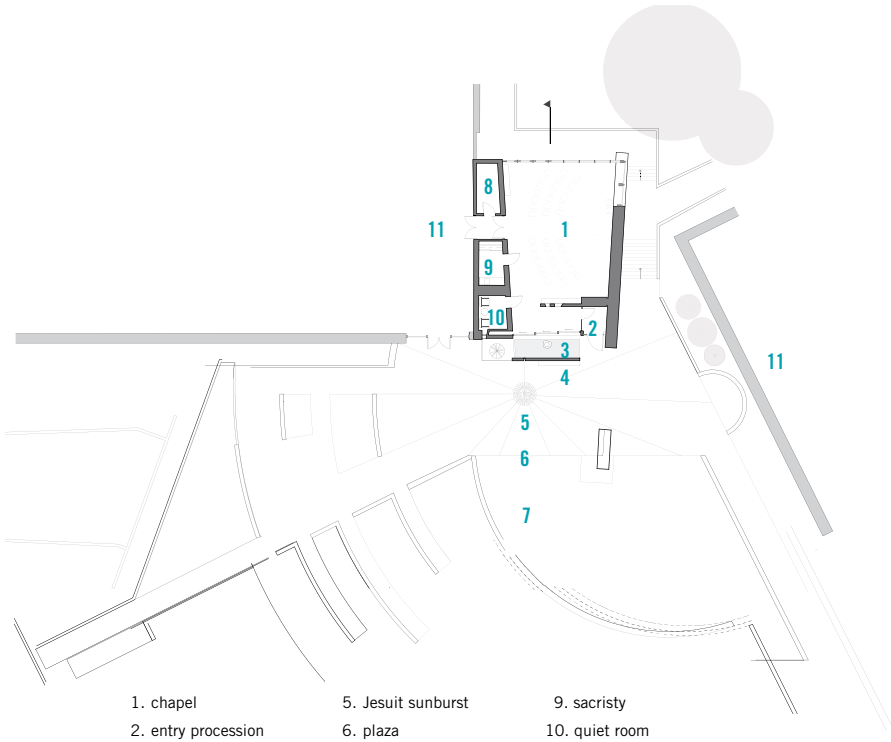
Hennebery Eddy Architects

Our Lady of Montserrat Chapel serves as a sacred, contemplative space on the campus of Seattle Preparatory School in Seattle, WA. The new chapel supports the mission of the school and reflects the traditions and history of the Jesuit order. Inspired by the ruins of 17th-century South American missions, the design blends the strength and permanence of stone with the warmth and simplicity of wood in modern Pacific Northwest architecture to create an open and inviting space.

The extensive use of wood was critical to the structure, aesthetics and function of the new chapel, which hosts classes, mass services and individual reflection. The chapel volume is formed by a heavy timber glulam post and beam structure with steel knife-plate connections. The timber structure complements the battered sandstone wall, which extends into the central plaza anchoring the building to campus. A dramatic wood window wall frames the view of a forest canopy, and a heavy timber shed roof floats above the chapel, orienting visitors skyward. At the main entry, a board-formed concrete screen wall with a cross-shaped void provides visual and spiritual separation from the lively plaza.

The Jesuit spirit and tradition of craft was emphasized throughout the design. This is most prominent in the large entry pivot door, scribed to meet the battered stone wall and accented with solid bronze inlays and a hand-forged bronze pull. The door was handcrafted locally out of vertical grain Douglas fir – specifically selected for its range of color and warmth. Liturgical elements, including the altar, ambo, tabernacle, and crucifix, were fabricated using old-growth fir salvaged from the soon-to-be-demolished Adelphia Hall on campus. Seating in the chapel is simple molded wood chairs which provide a beautiful, highly durable and comfortable solution.

In early mornings and late evenings, the chapel is dramatically present on campus, with accent lights highlighting the warmth of the entry door and shed roof, and the glowing interior expressing the rhythm of the wood structure within. The inherent functional, aesthetic and healing qualities of wood were essential in crafting a warm and inviting environment for contemplation. These qualities have been critical in the modestly-sized chapel, transforming the character of the school for students, faculty, staff and the community at large by creating a spiritual heart to campus.



1. chapel
2. entry procession
3. baptismal pool
4. concrete screen wall
5. Jesuit sunburst
6. plaza
7. existing lawn
8. mechanical
9. sacristy
10. quiet room
11. existing building

FLOOR PLAN

ARCHITECT
Hennebery Eddy Architects
Portland, OR

STRUCTURAL ENGINEER
Coughlin Porter Lundeen
Seattle, WA

GENERAL CONTRACTOR
Sellen Construction Company
Seattle, WA

PHOTOGRAPHY
Josh Partee
Portland, OR

Andrew Pogue
Seattle, WA

Custom glulam members achieve complex and curved geometries

China Pavilion at Expo Milano 2015

Studio Link-Arc and Tsinghua University, Academy of Arts and Design

The China Pavilion at the 2015 World Expo in Milan, Italy, celebrated the expo's theme, "Feeding the Planet, Energy for Life," by focusing on sustainability and the coexistence of nature and city. The timber undulating roof appeared to float above the "Land of Hope," a light installation below. An example of design aligned with technical advances in engineering and fabrication, it pushed the envelope of timber design, using incredible detail of structural components, connections and members to achieve a signature structure.

The effect was a dramatic and educational experience for the public. Longitudinal timber members connected the more than 40,000-sq.ft. roof's sharp-edged and angled timber rafters on its northern side, representing the urban skyline. Soft waves defined the pavilion's southern side, symbolizing the rolling Chinese landscape. The structure enabled an open exhibit space by using few structural support columns. By leaving the rafters exposed, visitors experienced the evolution from metropolitan infrastructure to the rural countryside from both inside and outside the pavilion.

The geometry of the pavilion's roof, with inherently opposing profiles, created complex engineering challenges. The team used longitudinal timber members to connect cityscape to landscape and create a ruled surface in between. The team selected glulam for the pavilion's primary rafters based on its strength and stiffness, geometric

flexibility and aesthetics. This choice made the long spans, cantilevers, varying elevations, and complex geometry possible.

The rafters were each different in overall shape to form the desired profile. A timber grid system, defined by a one-plane rafter and purlin solution, formed the roof's structural system and geometry. This accommodated the desired two-directional long spans while maintaining a lightweight structure. The design created a 3D orthogonal system with partial moment connections in each primary member axis.

Technical advances in engineering and fabrication enabled the project team to realize the signature roof structure. Glulam members are typically manufactured in standard sizes, but were custom-fabricated to achieve a wide variety of shapes and sizes. The configuration of the laminations allowed complex and curved geometries without compromising strength and stiffness.

The pavilion also contained a series of unique structural features, including exposed glulam columns, an interior steel and concrete structure that appeared to grow from a field of light-emitting diodes, and cable trusses embedded into the roof geometry. This cable cross-bracing within the grid provided additional strength without detracting from the grandeur of the undulating timber rafters.

One of the primary goals of the pavilion was to celebrate the expo's theme of sustainability, a commitment seen in the selection of wood as the primary structural material. The panel roof reduced heat absorption and vertical panels stopped direct sunlight in the afternoon. The system allowed natural sunlight into the exhibition space, saving energy. Meanwhile, the controllable panels allowed air to flow into the building.

Several elements of the pavilion's design and construction were intended to connect with Chinese culture and enhance visitors' educational experience. The pavilion's bamboo-shingled roof, for instance, represented traditional Chinese ceramic roof tiles and reduced the weight on the structure.

ARCHITECTS
Studio Link-Arc
New York, NY

Tsinghua University,
Academy of Arts and Design
Beijing, China

STRUCTURAL ENGINEER
Simpson Gumpertz & Heger
Waltham, MA

GENERAL CONTRACTORS
China Arts Construction and
Decoration Company
Beijing, China

Bodino Engineering
Torino, Italy

Unique Europe
Beijing, China

TIMBER SUPPLIER
Stratex SpA
Udine, Italy

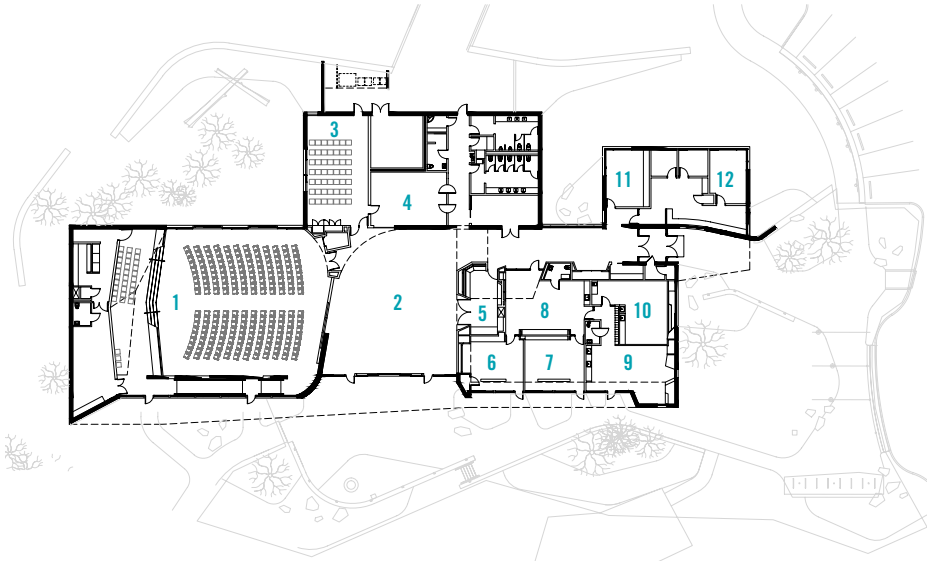
PHOTOGRAPHY
Sergio Grazia
Paris, France

Interior cedar wood planks provide acoustic insulation for the sounds of the choir

Unitarian Universalist Fellowship of Central Oregon

Hacker

There is a sublime purity, a crispness in the dry air, and a profound sense of connection to the land and its geology in the high desert landscape of central Oregon. Here, the processes of erosion and renewal are highly evident, from deep canyons to lava flows. The Unitarian congregation wanted their new home to be a symbol of their respect for the earth and a welcoming, warm space for their community. The project achieved a net zero-ready status through a variety of strategies that included: optimal orientation for passive solar heating, radiant floor heating, thermal mass walls, natural ventilation, on-site stormwater collection, and use of sustainably harvested wood products.



1. sanctuary
2. gathering hall
3. multi purpose
4. kitchen
5. fireside
6. classroom
7. classroom
8. commons
9. classroom
10. child care
11. conference
12. minister's office

FIRST FLOOR PLAN

The simple palette of natural, warm and rich materials included cedar, stone, plaster, concrete, and glass. These materials were selected, not only for their ability to create warm and inviting spaces, but also for their organic and simple chemical composition. Low-volatile organic compound (VOC) or no-VOC paints and coatings were used throughout to protect these long-lasting, natural materials, and no formaldehyde-based materials were installed. Floor coverings, acoustic treatments and other finishes were chosen for their recycled content (denim is used for insulation), recyclability, lack of off-gassing, as well as their proximity to the site to minimize transportation impacts.

Unitarian principles guided the design team to find a form that embodied the ideals of inclusiveness, exploration and community. Charcoal sketches were created as a meditation on these ideals and during the search for archetypal forms. These sketches inspired the floor plan and sectional design. The wood structure is arranged as a series of fractured blocks, with the main circulation area and gathering hall occupying the space between.

The use of wood inside celebrates Unitarian principles by making the spaces warm, inviting and welcoming. Large sliding wood doors are located between the sanctuary and the gathering hall, and between the multipurpose room and gathering hall. These Western red cedar doors were CNC-machined and hand-carved. A cozy wood-paneled fireside room can be closed off from the larger spaces to hold private meetings or comfort crying babies.

The sanctuary is acoustically designed to serve as a concert venue. Two different acoustic wood plank products were used, one slotted and one perforated, both in a cedar veneer. Solid cedar boards were spaced to provide open area and acoustic insulation. Above the choir, a cedar bandshell reflects and refracts the choir music, directing it to the back of the room.

The natural geological processes of central Oregon also inspired the building. The design team considered the forces of formation and erosion, as well as the resulting topography, forms of rock, and other regional materials. From this study, a concept emerged that would see the building embody these processes in its form, appearance and materiality. Every aspect of the design has a story that relates to this idea: from the layered stone walls, to the columnar basalt-inspired relief carvings, to the unique sculptural look of the exterior cedar siding which was achieved by using an innovative wood truss system.

There was also an effort to intensify the connection between the landscape and building's interior. This goal informed all aspects of the building from material selection, to site placement and the design of the openings. The building was carefully placed within the site's existing trees to celebrate and preserve them and to establish a relationship between the interior spaces and the grounds. The thoughtful openings carefully edit and frame views while also modulating sunlight and maintaining continuity between inside and out.

CLIENT
Unitarian Universalist
Fellowship of Central Oregon
Bend, OR

ARCHITECT
Hacker
Portland, OR

STRUCTURAL ENGINEER
Walker Structural Engineering
Bend, OR

GENERAL CONTRACTOR
Kirby Nagelhout Construction Co.
Bend, OR

PHOTOGRAPHY
Lara Swimmer Photography
Seattle, WA

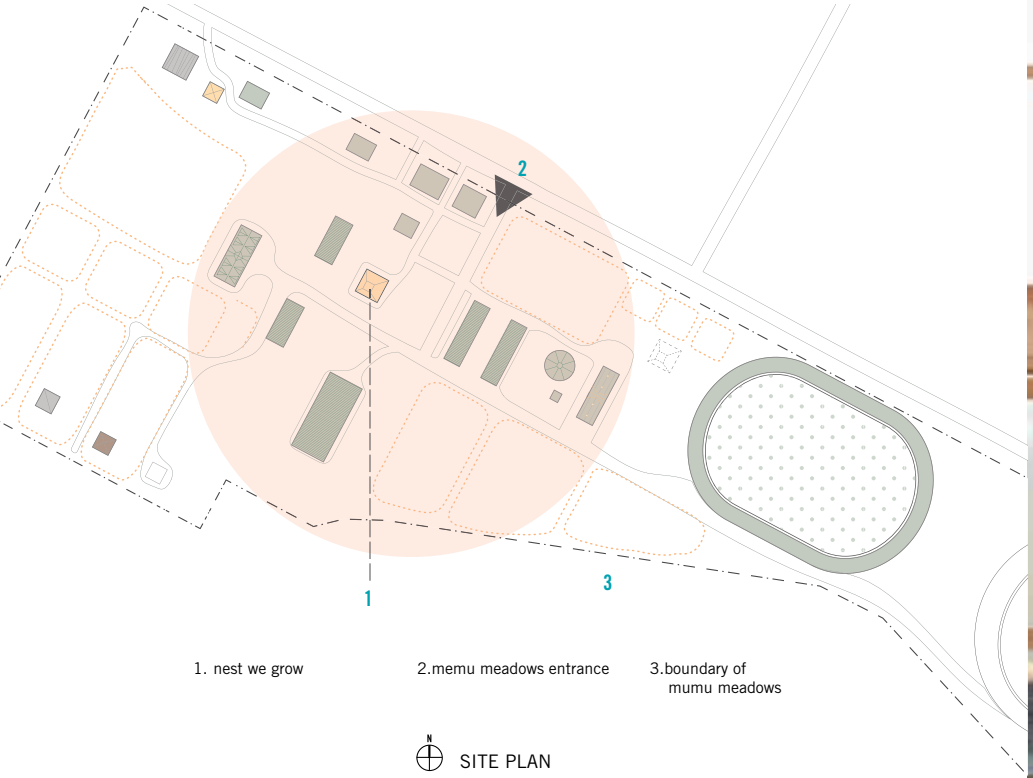
Timber columns recall the
verticality of Japanese larch forests

Nest We Grow

University of California Berkeley and Kengo Kuma & Associates

Inspired by Japanese larch forests, Nest We Grow is a holistic garden designed to connect community members to the cyclical nature of food. Each space within the Nest responds to elements of the life cycle of local foods, from growing, harvesting, storing, cooking/dining, and even composting, which restarts the cycle. All members of the community help to complete each stage, allowing the structure to become a platform for group learning and community gathering activities throughout the year.

The structure is located on a farm for experimental housing called Memu Meadows, which is near the town of Taikicho, on the island of Hokkaido, Japan. The surrounding area is made up of expansive grasslands and wetlands where people enjoy both the greenery of summer and the snows of winter. In Taikicho, people engage in farming and other activities in harmony with nature and the seasons, producing a cornucopia of delicious and nutritious food such as wild vegetables in the spring and salmon, venison and assorted fruit in the fall. Preparing and eating fresh food in these uniquely beautiful natural surroundings is a reminder of what it means to be alive, as well as an opportunity to think about our relationship to the environment.



1. nest we grow
2.memu meadows entrance
3.boundary of mumu meadows

SITE PLAN

The building is a 33 x 33 x 33 cube, with nine larch timber columns making up the ground floor grid. Each column is made up of four 6 x 6 glulam timbers. Steel plates were used to connect the columns and act as anchor points for the vertical steel cross-bracing. The columns rise 29.5 ft., recalling images of Japanese larch forests. Within the structure, the layered grid builds to create two upper catwalks, which allow for circulation and serve as horizontal cross-bracing that provides the necessary resistance against seismic and wind forces. By using the inherit properties of wood, including its high compressive strength, the amount of steel required for the project was significantly reduced.

The original concept was to mimic the effect of a Japanese Larch forest, which focused on a larger cross-section of wood, typical of heavy timber construction in the U.S. In Japan, however, the market for wood is much different and the project team devised a way to recreate a large cross-section of wood by combining smaller glulam columns. These smaller columns are connected with steel plates and are notched to allow for a moment connection between the beams and columns. The glulam column used to generate the heavy timber typology allowed for a more sustainable source of wood to be used and reduced the project's reliance on old growth timber. Both the wood used and the shop chosen to manufacture and mill all the glulam timber were local, reducing the carbon footprint of the structure.

DESIGNER
University of California Berkeley
College of Environmental Design
Berkeley, CA

ARCHITECT
Kengo Kuma & Associates
Tokyo, Japan

STRUCTURAL ENGINEER
Oak Structural Design Office
Tokyo, Japan

GENERAL CONTRACTOR
Takahashi Construction Company
Ichikawa, Japan

PHOTOGRAPHY
Shinkenchiku-sha
Tokyo, Japan

Regional Excellence

Prefabricated timber roof utilizes wood screws

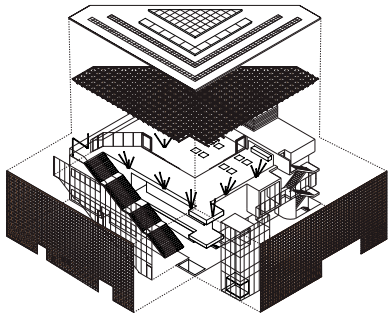
Aspen Art Museum

Shigeru Ban Architects

The new Aspen Art Museum is located in the center of the high mountain town of Aspen, CO on a prominent downtown corner site. The three-story structure provides galleries on the first two floors above ground level and on one floor below. The third floor is a multi-function space and cafe. Half of the third floor area is given over to an outdoor terrace with views of the mountains. Design features include a long-span timber space frame roof structure, woven composite wood panel facade, structural glass floors for gallery daylighting, outdoor gallery staircase which connects the site plaza to the third floor roof level, and glass elevator.

The timber space frame roof structure is an unprecedented prefabricated system that eliminates fabricated metal joints between truss chords and webs. The strength of the wood connections is the result of the geometry of the timber elements which are connected with long wood screws.

The innovative climate design concept for the building relies on a "Thermos" principle, where spaces with a higher tolerance for climate variation are wrapped around the gallery spaces where climate variation must be minimized. The "wrapper" spaces support circulation and visual connections to the outdoors. The entire upper level of the building may be opened to the outdoors by retracting a large-scale wall system, further enhancing the connection between inside and outside. This is a very unique feature for an art museum.



AXOMETRIC

In addition to the innovative climate design, the building maximizes opportunities for daylighting while mediating direct solar gain. The unique woven exterior screen and long-span timber space frame supporting the roof diffuse light entering through the extensive glass curtain wall and skylight system. Structural glass floors further enhance daylighting of gallery spaces.

CLIENT
Aspen Art Museum
Aspen, CO

ARCHITECT
Shigeru Ban Architects
New York, NY

EXECUTIVE ARCHITECT
Cottle Carr Yaw Architects
Basalt, CO

STRUCTURAL ENGINEER
KL&A, Inc.
Golden, CO

in association with
Hermann Blumer
(Creation Holz GMBH)
Herisau, Switzerland

with SJB Kempter Fitze AG

GENERAL CONTRACTOR
Turner Construction
Denver, CO

in association with
Summit Construction
Aspen, CO

PHOTOGRAPHY
Michael Moran/OTTO

Regional Excellence

Wood frame allows design creativity and economy

The Brooklyn Riverside

Dwell Design Studio

Bold and colorful, The Brooklyn Riverside apartments bring a decidedly Miami South Beach flavor to Jacksonville, FL. Marked by large overhangs and vertical bends, the project features an all-wood, Type V structure.

The use of wood allowed significant cost savings, which was central to the project's development. By utilizing a wood-frame system, the team was able to provide "tuck under" garages to increase density on the site. The additional parking enabled the building to go from 25 units-per-acre to 39 units-per-acre. This also allowed the individual units to have more square footage.

To address sound transmission from the corridors to the units, always a concern in multi-family residential complexes, the full width of the cavities between the wood stud walls was filled with spray-applied cellulose insulation with a layer of gypsum board on both sides. Between the units, there are two staggered wood stud walls filled with batt insulation.

1. building entrance and pedestrian connection to Jackson Street
2. building entrance and pedestrian connection to Park Street
3. private garage
4. loading areas
5. open/recreational space
6. pool courtyard
7. vehicular access resident
8. vehicular access exit
9. 'hold out' outparcels
10. vehicular access & call box
11. amenity
12. leasing center
13. building entance
14. landscape buffer

SITE PLAN

Driven partly by the economic downturn and increasing land costs in Florida, The Brooklyn Riverside apartments leveraged value-engineered solutions to provide living spaces that offer cost-sensitive wood-frame performance, as well as an urban-chic design.

ARCHITECT
Dwell Design Studio
Jacksonville, FL

STRUCTURAL ENGINEER
M2 Structural
Atlanta, GA

GENERAL CONTRACTOR
Cambridge Swinerton Builders
Atlanta, GA

PHOTOGRAPHY
Pollack Shores/Matrix Residential
Atlanta, GA

Regional Excellence

Lightly finished tongue and groove wood ceiling bounces and diffuses natural light

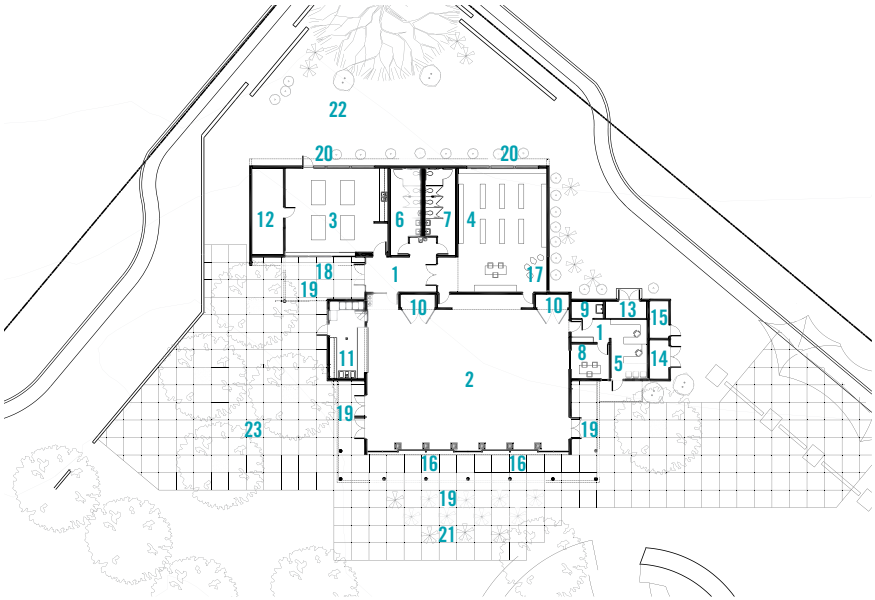
Cottonwood Valley Charter School E-Pod

Environmental Dynamics, Inc.

In 2005, architects designing the Cottonwood Valley Charter School (CVCS) in Socorro, NM, developed a master plan. The design concept promotes symbiotic relationships between each building on campus as well as the school and community. The plan celebrates the idealism and educational objectives of CVCS and promotes sustainable design principles in a way that encourages students to explore and interact with indoor and outdoor learning opportunities.

The first permanent structure to be realized from the master plan is the school's multipurpose building, called the E-Pod. The E-Pod's design exemplifies the school's sustainability and educational objectives through the innovative use of a variety of wood products. It is comprised of a 2,300-sq.ft. multi-use area that functions as gymnasium, performance space, cafeteria, gathering space, and community meeting place. In addition, the E-Pod houses the school's 220-sq.ft. kitchen, a 700-sq.ft. art studio, a 950-sq.ft. library and back stage function, 300 sq.ft. of administrative office space, plus another 1,800 sq.ft. of restrooms, circulation, mechanical and storage space.

The building form is inspired by the simple shed structures of the industrial and agricultural buildings prevalent in the area. Typically, these structures are pre-engineered metal buildings, which offer limited thermal performance, and reduced flexibility of design and desired character. This encouraged the design team to explore alternatives in wood. Structural insulated panel (SIP) construction was selected as the primary building methodology based on thermal performance, ease and speed of fabrication, erection, and finishing, as well as advantages realized from off-site fabrication and waste reduction. The use of SIPs resulted in a high-performance building with a well-insulated and continuous thermal envelope that could readily take advantage of ample and consistent solar exposure for heating during the cold winter months and minimize unwanted heat gains during the rest of the year.



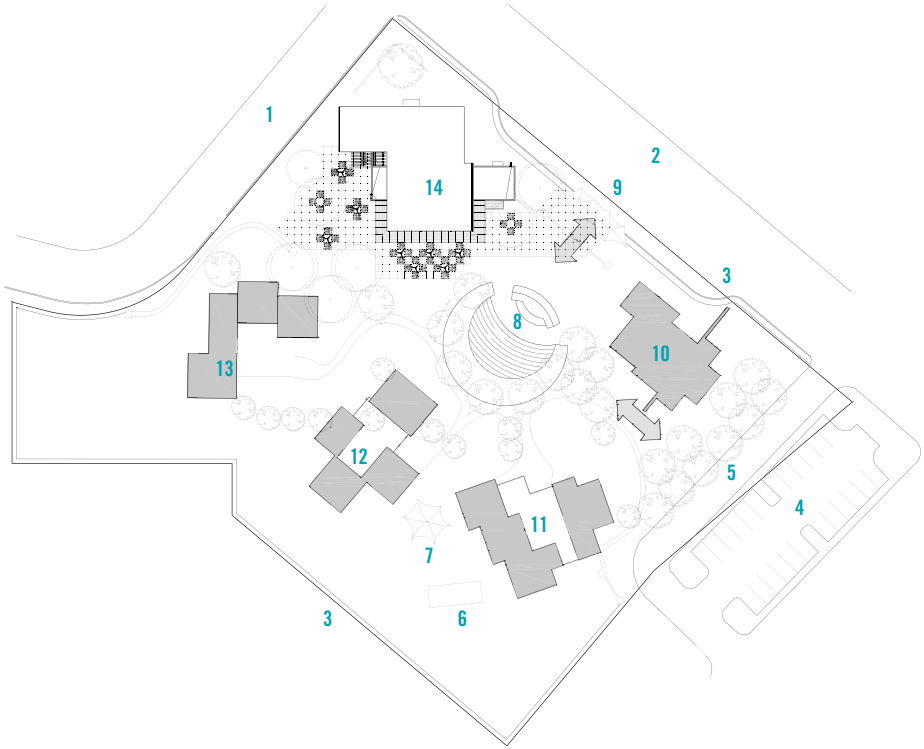
1. foyer
2. multipurpose room
3. art room
4. library
5. admin
6. boys restroom
7. girls restroom
8. director office
9. janitor closet
10. storage
11. kitchen
12. art storage
13. mechanical
14. electrical
15. fire riser room
16. glass garage doors
17. reading area
18. trombe wall
19. shade trellis
20. clerestory windows
21. sun plaza
22. art courtyard
23. multi-purpose plaza

FLOOR PLAN

The wedge-shaped building features a fully-glazed southern exposure that opens to the center of the campus, designed to let low-angle winter sun deep into the space to warm the rubber-clad concrete slab floor. Strategically integrated louvers along the facade block the steeper angle sun during the rest of year controlling direct solar gain into the building.

The southern facade of the central multi-purpose area is comprised of an aluminum storefront and large overhead aluminum garage doors, all of which are supported by a tectonic assembly of engineered wood products. An array of columns each comprised of a cluster of four slender 4 x 4 parallel strand lumber (PSL) members are unified as a vertical, load-bearing element that is interlaced with horizontal beams and curtainwall-supporting outriggers.

Engineered wood products were also specified as the component elements of the large, custom-designed roof trusses which are integrated into each of the column assemblies. These elements and their connections were left exposed to celebrate their aesthetic qualities and educate students. The configuration of the exposed structural members and their placement allows them to catch and scatter light and shadow throughout the day and night. The effect enhances the voluminous nature of the space with a series of ever-changing patterns and intrigue. The space is enhanced with a lightly-finished tongue and groove wood ceiling which continues to bounce and diffuse natural light, creating even,



1. Western Avenue
2. Neel Avenue
3. property line
4. parking
5. student dropoff
6. green house
7. farm pavillion
8. assembly
9. covered bus drop off
10. A pod
11. B pod
12. C pod
13. D pod
14. E pod

N

SITE PLAN

ambient light punctuated by splashes of sun and shadow throughout the space.

The form of the building contributes to passive ventilation when needed. During the cooling season, as hot air rises up the sloping ceiling, automatic louvers integrated at the apex of the roof open, allowing the heat to vent. This is driven by a natural convection and stack effect. Supplemental evaporative cooling can be employed on particularly hot days to push the hot air out faster, allowing the cool air to take its place.

The remainder of the building's spaces, located on the north, east and west sides, are intended to minimize its profile to the wind and thermal losses from those difficult-to-control exposures. The SIP slab roof and walls are clear sealed with non-toxic urethane and left exposed in the art room and library spaces to demonstrate the construction methodology.

CLIENT
Cottonwood Valley Charter School
Socorro, NM

ARCHITECT
Environmental Dynamics, Inc.
Albuquerque, NM

STRUCTURAL ENGINEER
Walla Engineering
Albuquerque, NM

GENERAL CONTRACTOR
Janstar Builders, Inc.
Albuquerque, NM

PHOTOGRAPHY
Patrick Coulie Photography
Albuquerque, NM

Regional Excellence

Structural wood rising high above exterior glass curtainwalls give the community light and landscape

Olney Branch Library

Lukmire Partnership Inc.

Olney Branch Library demonstrates a new approach to an old problem in suburbia: how to create an urban environment without losing the qualities of nature and scale that drew people from the city in the first place. This project is a LEED Gold-certified, 20,000-sq.ft. expansion and renovation of a library originally built in 1982 in Olney, MD.

An internally focused (and out of date) library was transformed into a series of light-filled spaces and a signature gateway to the village of Olney. The library joins the adjacent residential neighborhood to the village center. It is a model for the village center's redevelopment, helping to create a walking, livable community, which was lacking, without compromising the native vegetation. The new library keeps its natural setting close, wrapping it on all sides, and introducing a public garden in the guise of a rain basin at the building's core. The project's goals included re-conceptualizing the library as a welcoming destination, encouraging pedestrians and cyclists, helping to reduce vehicular trips, and creating a place for cultural and educational programs and social networking.

The principal design cues for the new library were found in the original building's use of wood and brick, two of the oldest, most enduring building materials. Finding a way to reintroduce these materials in a modern setting was the challenge. What had been a number of dark, closed rooms have become a series of linked and flowing spaces, with daylighting as a primary form giver and the warmth of wood omnipresent. The building's exterior expression is derived from a wood vernacular common to the mid-Atlantic, while the long, sweeping overhangs mark the path from street to front door.

The building's aesthetics are drawn from its structural expression, telling the history of a particular place and how it has evolved. The design organizes circulation along a tall gallery spine in view of the rain garden. The adult area and staff offices occupy the original building, while the curvilinear form of the children's area and a separate young adult's area reorients the building to the street. From the exterior, the curving glass wall draws the eye from the street around to the entrance facing a restored parking area. The design employs glulam beams and a structural wood deck, a refinishing of the existing wood beams and deck, and a reinterpretation of the vernacular geometry with two wings over glass. The tactile and visual impact of the wood structure offers the community's future architects, engineers and builders indelible images that may carry them in pursuit of similar creations.

The use of wood is a natural expression leading to benefits beyond aesthetics. For such tall volumes, wood is a natural acoustic dampener. Lighting is as much directed up toward the

wood ceilings as toward the reading desks; in this way, the lighting is balanced and the interior volumes are well defined. As a renewable resource that is locally sourced, using wood as a building material contributes to a reduction in greenhouse gases.

Libraries are widely recognized as economic generators, drawing people to the greater commercial area. By supporting communities with critical educational and cultural opportunities, they strengthen them. Libraries also serve as important expressions of egalitarian community values. The Olney community asked for a library visible from the street, one with light and views of landscapes. The library's soaring wood spaces, flying above the glass curtainwalls achieve that, particularly at night. Olney cherishes its rural roots and has embraced this newest tradition with enthusiasm.

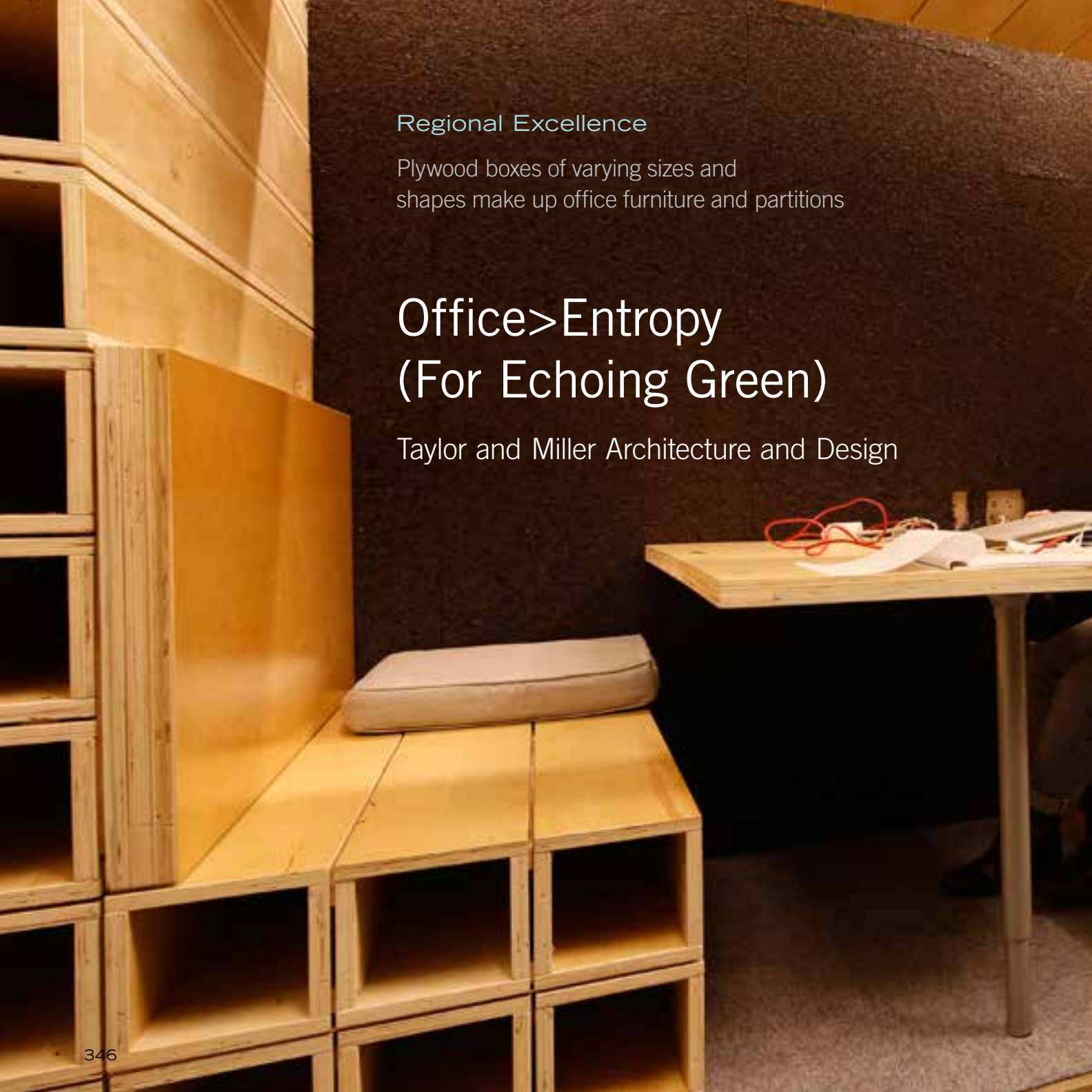
CLIENT
Montgomery County Council
Columbia, MD

ARCHITECT
Lukmire Partnership Inc.
Arlington, VA

STRUCTURAL ENGINEER
Columbia Engineering Inc.
Columbia, MD

GENERAL CONTRACTOR
Milestone Construction Services Inc.
Sterling, VA

PHOTOGRAPHY
Eric Taylor
Arlington, VA



Regional Excellence

Plywood boxes of varying sizes and
shapes make up office furniture and partitions

Office>Entropy (For Echoing Green)

Taylor and Miller Architecture and Design

An office space for Echoing Green, a non-profit organization based in New York, was envisioned as a kind of benevolent virus where the custom furniture is allowed to adjust over time.

It is a study of very basic, accessible, ubiquitous materials that are universally recognized, using artistic intervention and assembly to elevate those materials. The architects' design trajectories often focus on mining materials and ideas from contexts that are most accessible, both physically and conceptually. Physically, they are active participants in their projects' fabrication and this participation often starts with a seemingly mundane material. In the case of the Echoing Green offices, this was a plywood box.

At first, the design was a 3,200-sq. ft. office space, developed as a modular system of office partitions and furniture comprised of basic plywood boxes of different sizes and rectilinear shapes. In this original space, the boxes that made up the partitions were arranged in a more random way, allowing visual connectivity through the space. When moved to a new space of approx. 6,000 sq.ft., the original boxes were reorganized, literally and figuratively, creating entire wall partitions of single box types, a simplification of texture that helps combat the complexity of the much more densely populated office environment.

1. shared office space
2. conference room
3. private office space
4. event space
5. reception
6. entrance
7. restroom

FLOOR PLAN

For the designers, the idea was that, as the office expanded and added more workforce in the new space, there was a certain level of disorder associated with the increased density of people and overlapping tasks. The architectural system was designed to offset this with repetitive and textural screens dividing one workspace from the next, providing a quiet layering of space and privacy.

CLIENT
Echoing Green
New York, NY

ARCHITECT
Taylor and Miller
Architecture and Design
Brooklyn, NY

GENERAL CONTRACTOR
Taylor and Miller Fabrications
New York, NY

PHOTOGRAPHY
Studio Dubuisson
New York, NY

Regional Excellence

Curved glulam roof expresses museum's playful character

Scott Family Amazeum

Haizlip Studio, PLLC

The Scott Family Amazeum is a 50,000-sq.ft. discovery museum dedicated to family learning experiences. Located in Bentonville, AR, the museum is the latest addition in a growing number of cultural institutions in the area. The project had two main objectives. One was to sensitively graft the museum and its five-acre site onto the Crystal Bridges Museum of American Art's campus entrance. The other was to create a signature new work of architecture that responds to the community's aspirations of design excellence.

The museum is a one-story building with a sweeping curved roof that includes glulam and conventional steel-frame construction clad in zinc metal panels, vertical tongue and groove wood, and both clear and colored glazing. The building features four community faces: the expansive south facade utilizes cedar boxes and a pergola structure to soften the transition between indoor and outdoor discovery play areas; the east facade faces a busy thoroughfare and introduces the building to the community; the north facade greets church visitors; and the west facade is punctuated by an oval, wood-clad conference space, configured to funnel arriving visitors through the front door and into a relaxed courtyard. Each of these facades has different design attributes drawing from a uniform material palette inspired by the modern commercial vernacular of the town, as well as the refined elegance of neighboring Crystal Bridges.

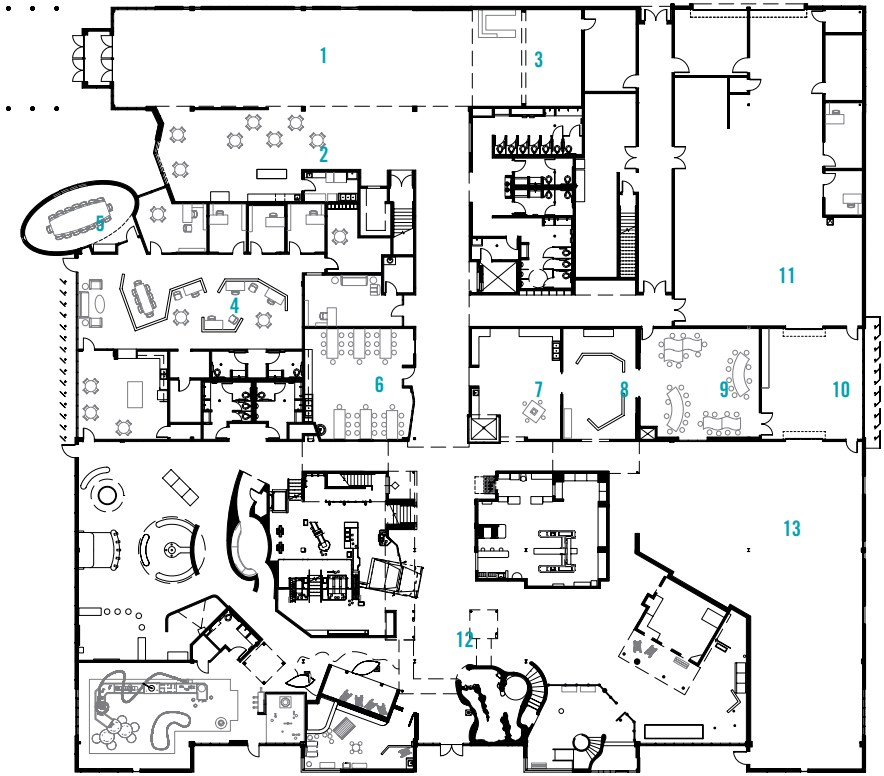
The design was conceived with an ever-present awareness that whatever was built should not detract from, but rather heighten, the Crystal Bridges Museum visitor experience. The use of curved laminated wood, exposed steel and concrete, glass curtain wall and zinc metal cladding were adopted to place the Scott Family Amazeum in the Crystal Bridges design family while looking for ways to express the informality and play-oriented character of the discovery museum.

The use of wood helped create a unified, attractive and warm color field upon which the needs of modern building functionality, such as accessibility and seismic compliance, mechanical, electrical, and plumbing penetrations, can be placed. Southern pine glulam timber was used for an exposed structural deck that covers the museum in a

curved form, and for structural beams. Cedar beams were used for the pergola on the southern exterior.

The lobby is a tall, welcoming space that hints at the wood featured in the expansive main exhibit hall. Maple wood grilles are installed in the ceiling and turn 90 degrees down the wall to provide excellent sound absorption for the lobby and cafe areas. The grilles are a natural, clear-sealed panelized maple product in keeping with the rest of the interior material palette. The wood grille design allows sound energy to pass through the openings and be absorbed by black, fiberglass acoustic backing, which slows reverberation time and provides noise reduction.

The expansive exhibit hall features curved glulam timber beams and a structural wood deck on steel columns. The attachment between these two systems highlights the connection between the two materials and is a synthesis of refined engineered utility and the warm aesthetic of wood. Visitors take part in fun learning experiences built around regional technology and industry, STEM initiatives (science, technology, engineering and math), nature play and outdoor recreation, environmental stewardship, and history. One of many playful exhibits offered by the Amazeum, the canopy climber, is a beautifully complex tree climbing experience made of formed plywood platforms mounted on a large steel structure. A wooden nest ornaments the installation in a multi-colored matchstick fashion.



1. lobby
2. cafe
3. museum store
4. admin
5. conference room
6. lab
7. art
8. studio space
9. maker lab
10. graphic lab
11. workshop
12. exhibit hall
13. temporary gallery

FLOOR PLAN

From the raw, exposed state of the building construction, visitors have a sense of how different materials work together to form a new composite whole.

CLIENT
The Scott Family Amazeum
Bentonville, AR

ARCHITECT
Haizlip Studio, PLLC
Memphis, TN

ASSOCIATE ARCHITECT
Crafton Tull
Russellville, AR

STRUCTURAL ENGINEER
Crafton Tull
Russellville, AR

GENERAL CONTRACTOR
Nabholz Corporation
Rogers, AR

PHOTOGRAPHY
Kenneth Petersen
Rapid City, SD

Regional Excellence

Wood structure and finishes provide simplicity and richness

Terry Trueblood Boathouse

ASK Studio

The project is part of a new city park developed on a former quarry site in Iowa City, IA. One of the major goals was to create an area where residents and university students could come to exercise, interact with nature and recharge. Centered around a lake created from the old quarry activities, new walking trails, biking trails, fishing piers, enhanced landscaping, and shelters were designed. The boathouse was an integral part of this development and contains rental boat storage, restrooms and concessions. Situated on the edge of the converted quarry, the structure functions as the park's marina.

The language of the structure is intended to be familiar with the materials of wood and stone common and easily interpreted as congruent with the natural setting. The shed roof form speaks simply of shelter in nature, but a more complex dialect reinforces the familiar and the vernacular. The expression of the components, economy of the frame, and articulation of edges are perceived but not readily defined.

Concessions and restrooms are sheltered under the lower roof, while boat display and storage is in the large, light-filled space beneath the rising roof. Simplicity is reinforced through hinged walls that can be opened and closed. The two hinged walls, 14 ft. in width, completely open the space to the outdoors, framing the view to the lake and signaling "open" to visitors as they enter the park. The structure is used primarily in summer and the hinged walls provide the interior with plentiful light and ventilation, promoting comfort in an unconditioned, fully passive building. A simple system of screen vents harnesses convection to stimulate cooling of the concession space.

The use of wood for the primary construction components and finishes provides simplicity and richness. Simple, cut geometries on the ends of the roof joists give the impression of lightness. Variations in color and knots in the wood provide a texture that entertains the eye. Wood construction was chosen for its versatility and economy, and ability to provide the desired composition and finish application. It was also used to reflect the natural environment and create a warm and embracing aesthetic that would allow visitors to relax, unwind and rediscover nature.

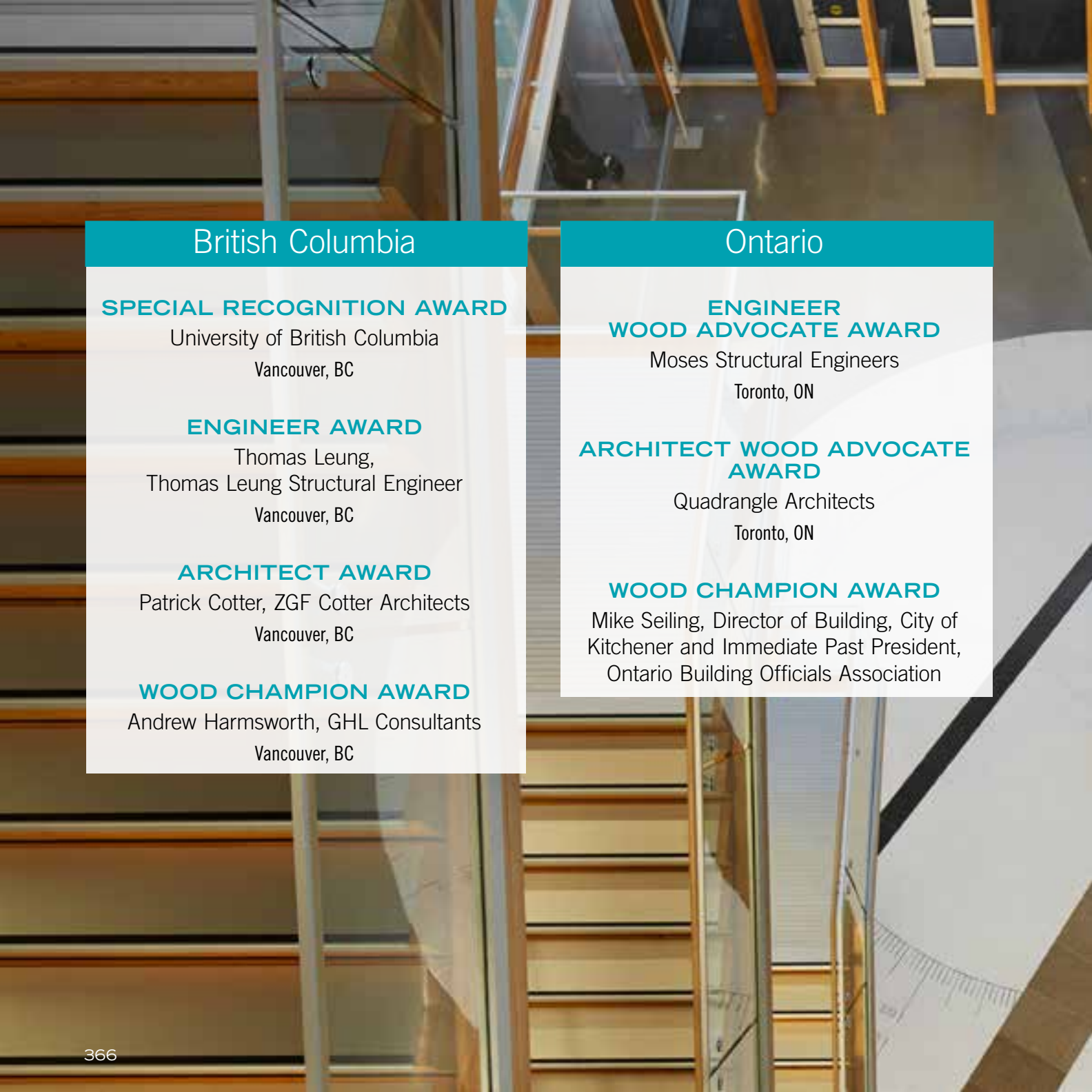
ARCHITECT
ASK Studio
Des Moines, IA

STRUCTURAL ENGINEER
Shuck-Britson, Inc.
Des Moines, IA

GENERAL CONTRACTOR
Tricon Construction Group
Cedar Rapids, IA

PHOTOGRAPHY
Cameron Campbell
Des Moines, IA

OTHER AWARDS



British Columbia

SPECIAL RECOGNITION AWARD

University of British Columbia

Vancouver, BC

ENGINEER AWARD

Thomas Leung,
Thomas Leung Structural Engineer

Vancouver, BC

ARCHITECT AWARD

Patrick Cotter, ZGF Cotter Architects

Vancouver, BC

WOOD CHAMPION AWARD

Andrew Harmsworth, GHL Consultants

Vancouver, BC

Ontario

ENGINEER WOOD ADVOCATE AWARD

Moses Structural Engineers

Toronto, ON

ARCHITECT WOOD ADVOCATE AWARD

Quadrangle Architects

Toronto, ON

WOOD CHAMPION AWARD

Mike Seiling, Director of Building, City of Kitchener and Immediate Past President, Ontario Building Officials Association

UNIVERSITY OF BRITISH COLUMBIA
EARTH SCIENCES BUILDING

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