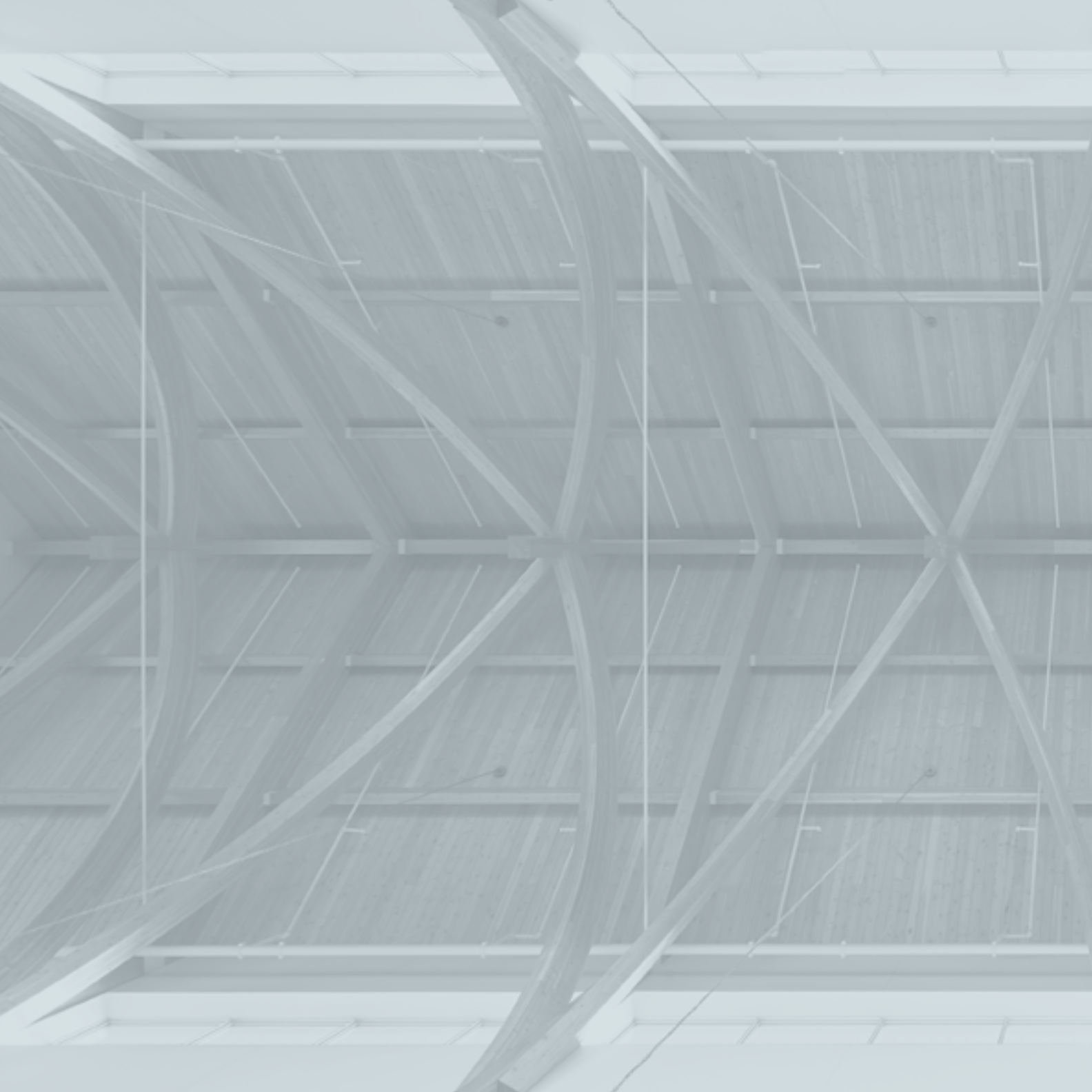
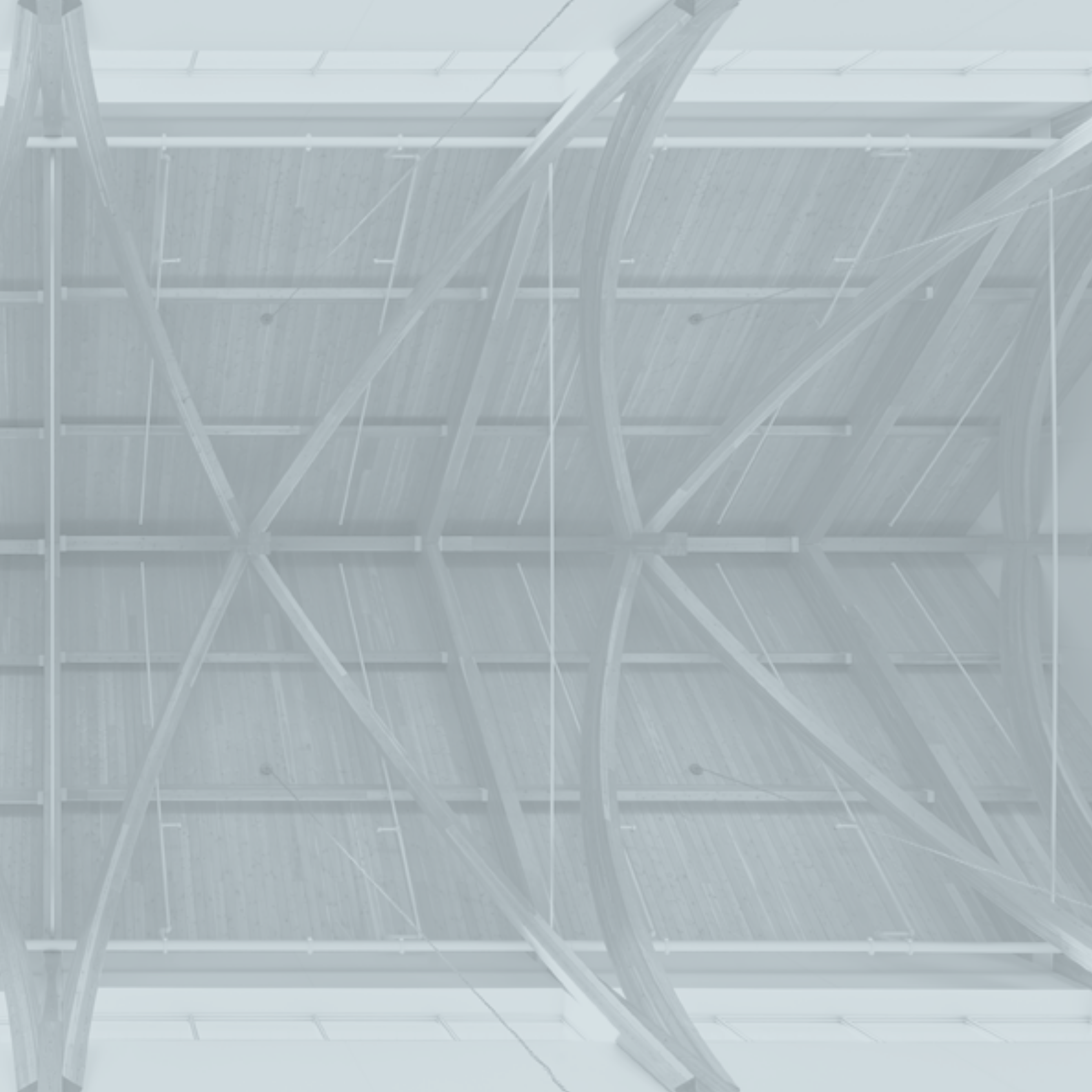
CELEBRATING EXCELLENCE IN WOOD STRUCTURES

2013-14 NORTH AMERICAN WOOD DESIGN AWARD WINNERS





CELEBRATING EXCELLENCE IN WOOD STRUCTURES

2013-14 NORTH AMERICAN WOOD DESIGN AWARD WINNERS

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Celebrating Excellence in Wood Structures
2013-14 North American Wood Design Award Winners

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Photo: Robert Creamer Photography/Courtesy: GWWO, Inc./Architects

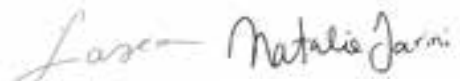
INSPIRING an evolution

This year's submissions to the Wood Design Awards helped bridge a gap between the contemporary applications of wood in construction and the modern implementation of new techniques and technologies. With attention to detail and a clear execution for the final outcome, project submissions demonstrated wood's structural, aesthetic and functional attributes – while appreciating the project's surrounding environment and occupancy needs.

In order to celebrate the evolution of wood product applications, the 2013/2014 awards book features recipients from the *Wood Design & Building* Awards program, Canadian Wood *WORKS!* Awards (British Columbia, Prairie, Ontario and Quebec), as well as the U.S. WoodWorks Wood Design Awards. As you explore the projects throughout these colorful pages, we hope that you too are inspired to push the boundaries of wood innovation beyond conventional applications, because it is only when we think outside the box that we are truly 'creating'.

A special thank you to our program sponsors and judges, the U.S. and Canadian Wood *WORKS!* teams for their ongoing support, and congratulations to all of our recipients for daring to dream big!

Etienne Lalonde
Publisher
Wood Design & Building



Ioana Lazea & Natalie Tarini
Coordinators
Wood Design & Building Awards

CONT

WOOD DESIGN & BUILDING AWARDS

2013 NORTH AMERICA

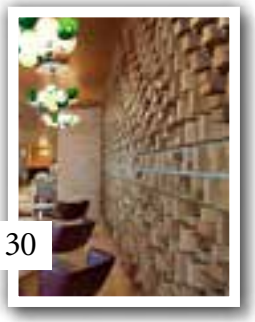
Ron Thom Award

Tsingtao Pearl Visitor Centre

Honor Award

Pond House

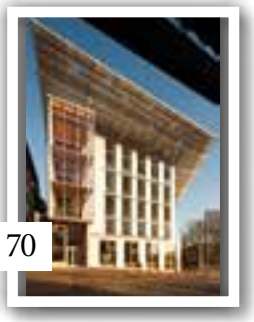
Merit Awards



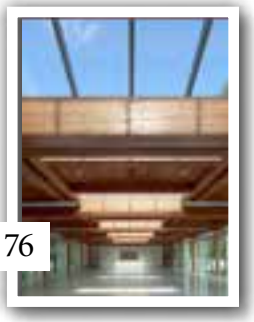
Bosk

Halls Ridge Knoll Guest House

Citation Awards



Bullitt Center



Environmental Learning Centre, Northern Vancouver Outdoor School

Grizzly Paw Brewing Company

JC Raulston Arboretum Lath House

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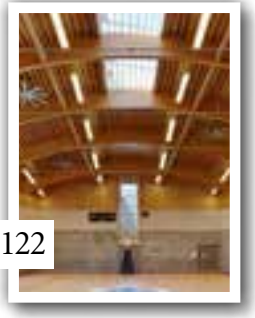
CANADIAN WOOD *WORKS!* AWARDS

2014 BRITISH COLUMBIA

Salmon Arm Savings and Credit Union – Uptown Branch



T'it'q'et Community Hall and Health Centre

Yunesit'in Health Centre

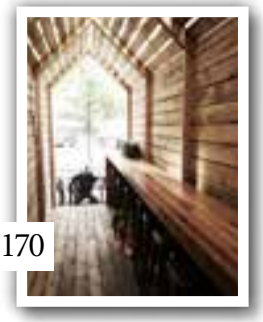
Forest House

2013 PRAIRIE

ISL Engineering and Land Services Ltd.

Mid Century Canadiana Condo Renovation

Beverly Heights House



Fiskaoist

2013 ONTARIO

Algonquin College – Perth Campus

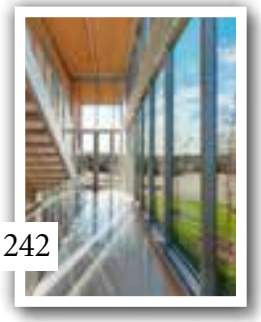
Holy Spirit Church

Oak Ridges Community Centre

Lululemon Yorkdale

CANADIAN WOOD *WORKS!* AWARDS

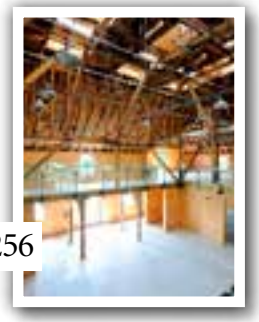
Gestion 3 dans 1 Expansion



Groupe AGF Head Office

Parc linéaire du Lac Saint-Charles Visitors Centre

Grande-Pointe Train Station



Restoration of the Moore Farm Estate

Sainte-Agathe-des-Monts Terminal

Masson-Mascouche Drinking Water Reservoir

Maicasagi Bridge

The Parc national Lac-Témiscouata Discovery and Visitors Centre

The Université du Québec à Chicoutimi Arena and Service Pavilion

Complan Building, 5th floor

Éco Attitude Home Improvement Stores

GlaxoSmithKline Inc. Administration Building

U.S. WOODWORKS WOOD DESIGN AWARDS

2013-14 UNITED STATES

2013-14 OTHER

WOOD DESIGN & BUILDING AWARDS

Jurors

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Creating Communities

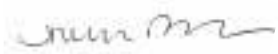
It's no surprise that people want to live in walkable neighborhoods and that those who do experience greater health and happiness than those who must rely on a vehicle to get around. At least one new study confirms this. The study, conducted in Vancouver, says nearly two-thirds of residents prefer neighborhoods where they can walk to shops, services, green space and transit. Researchers found that while many people prefer to walk, neighborhood design influences their choice of transportation.

"Well-planned built environments are integral to sustainable communities," says Jack Wong, CEO, Real Estate Foundation of BC and one of the study sponsors. "These findings will be useful for planners, developers and others involved in designing the places we live, aligning consumer demand with principles of good neighborhood design."

In B.C., where wood is a choice material for all kinds of buildings from residences to public to private institutions, this research is self-affirming, but it can also be applied to most other cities in North America. Wood is accessible, affordable, and most of all, desirable.

Projects submitted to the 2013 awards program pushed the boundaries of wood use in construction and demonstrated this understanding of the distinctive qualities of wood. Of the 125 project entries, 17 submissions were selected to acknowledge efforts made to celebrate wood innovation throughout North America.

We are honored to showcase these examples of leading-edge wood architecture in our *Celebrating Excellence in Wood Structures* awards book and pleased to welcome the Quebec award program. It is our hope that these projects will inspire you to think creatively and challenge yourself to be unconventional in your designs and engaging in your communities.



Theresa Rogers
Editor
Wood Design & Building

RON THOM Award

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

Tsingtao Pearl Visitor Centre

Bohlin Cywinski Jackson

"What I really love about this project is it's like they lifted a piece of the ground plane up, propped it up with as little structure as they could so it feels like it's just hovering over the landscape, and then they put a ribbon of glass around it. It is so connected to the landscape and so rooted to the landscape, it's beautiful."

– Jury

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.

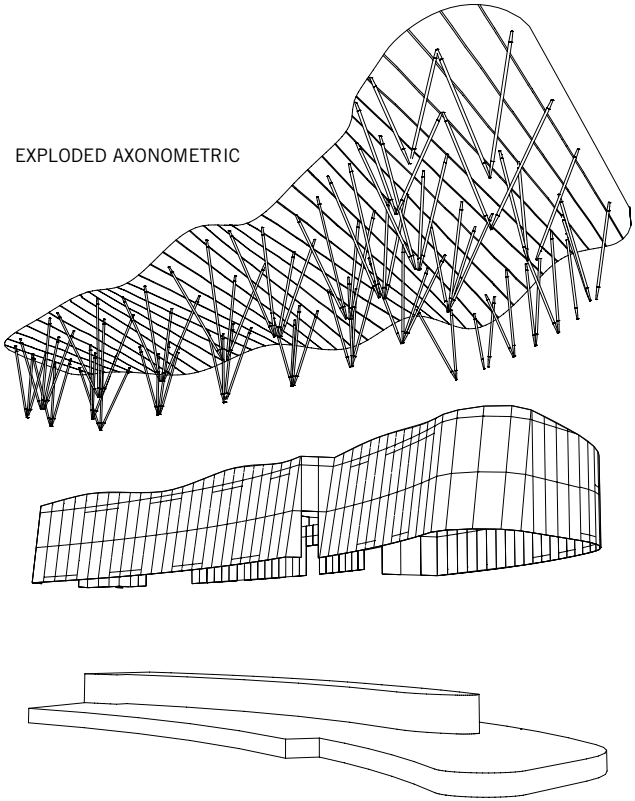
As all of the supporting columns lean in different directions, the slopes of each of the columns were established by iteration to achieve a net balance of forces in the roof in both lateral directions, and in torsion, with the roof diaphragm used to resolve the resulting internal forces.

Parametric 3-D 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 3-D 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.

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.

EXPLODED AXONOMETRIC



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
Nic Lehoux
StructureCraft Builders

Federal Center South Building 1202

Seattle, WA

ZGF Architects LLP

Please see page 294

HONOR **Awards**

Simple seaside cottages inspired by local fishing villages

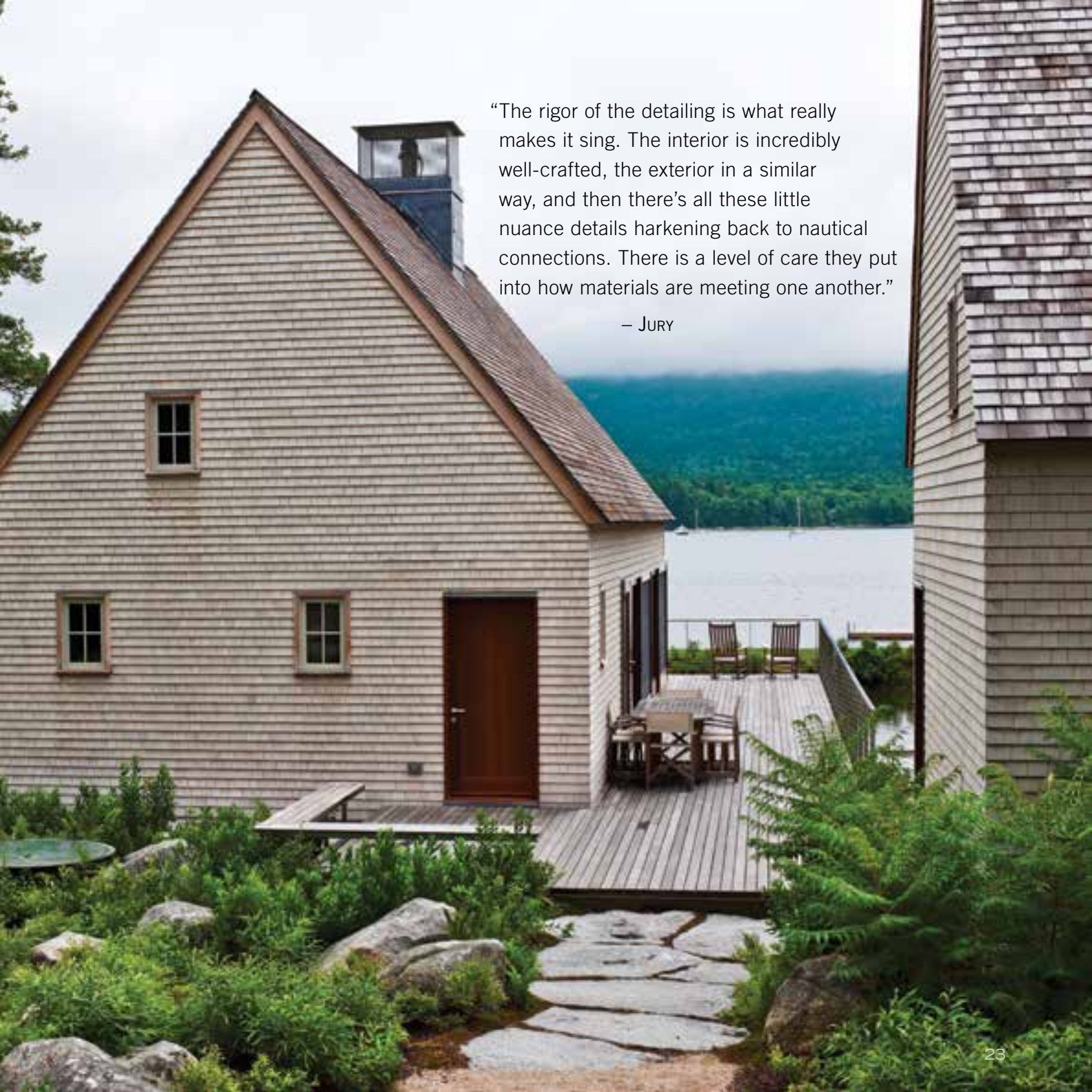
Pond House

Elliott + Elliott Architecture

Located at the edge of a harsh sea environment, this collection of buildings marries the familiar with the unexpected. Three simple cottages linked by a series of decks make up this summer compound, which extends over a tidal salt pond. Inspired by local fishing shacks and wharf buildings that dot the coast of Maine, this retreat weaves large glazed openings into the modest, shingled New England cottage forms. Reflective of their vernacular precedents, the buildings are clad in cedar shingles left to gray over time (eastern white cedar on the walls, western red cedar on the roofs), requiring minimal maintenance and allowing the forms to merge with the landscape, discreet and unassuming.

Access to the house is along a winding sylvan lane that provides filtered glimpses of the ocean, foreshadowing the expansive view at the end of the journey. Upon arrival, the traditional forms and fenestration of the cottages suggest tight, divided interiors. When entering the buildings, however, the contrast of the old with the surprise of the new is revealed. The small punched windows on the landward side give way to an open floor plan and the water-facing walls are cut open in large swaths of glass exposing views to the sea beyond. Progression toward the waterfront begins on a grounded granite outcropping and descends to the wharf cottage perched directly over the salt pond.

The interior space is a reflection of the exterior form, with a modern treatment of the traditional massing. Traditional wood panelling has been exchanged for a more refined Douglas fir boarding with precise reveals and alignments.

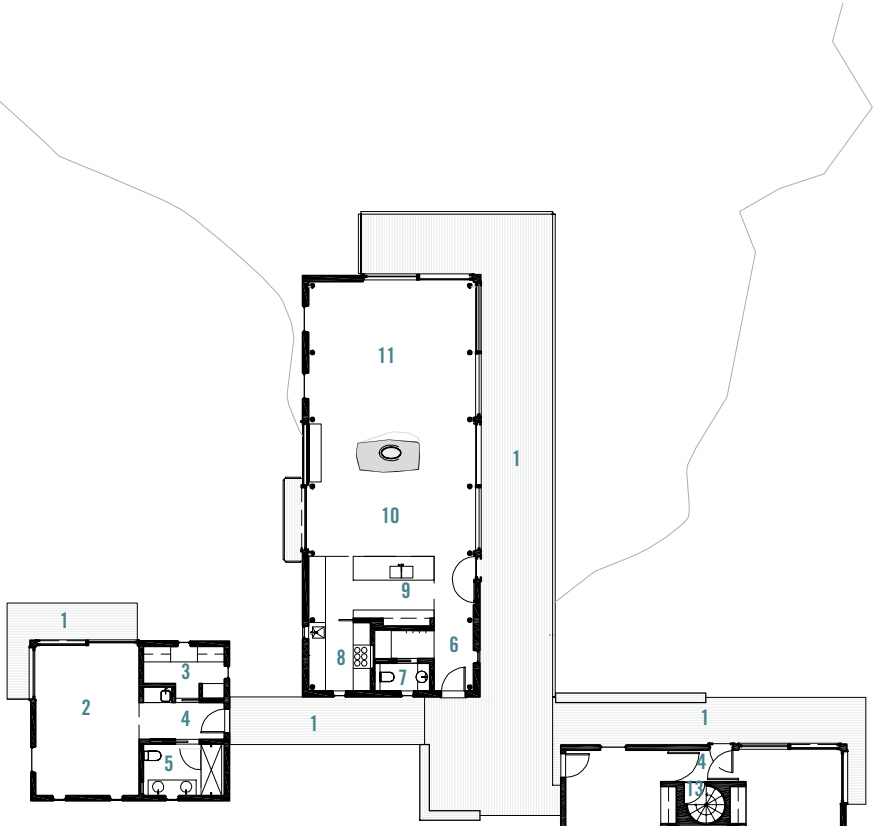


"The rigor of the detailing is what really makes it sing. The interior is incredibly well-crafted, the exterior in a similar way, and then there's all these little nuance details harkening back to nautical connections. There is a level of care they put into how materials are meeting one another."

– Jury

Reclaimed Douglas fir flooring continues the theme, completing the wood skin, and contributes to the warmth of the space. Stainless steel columns and tie rods allow the space to expand unimpeded to the ridge, maintaining the purity of the wood membrane. The interior columns transfer the load to a steel frame anchored in the pond's granite basin, updating the wood pile wharf precedent while keeping it very much present. A large boulder provides a base for the fireplace and the stainless steel-clad flue, suspended from the structure above, which contributes to the lightness of the space.

The main wharf cottage contains communal living spaces: kitchen, dining, and living rooms in an open plan. A cantilevered deck that appears to float above the water connects the interior space to the environment beyond. The flanking cottages contain private sleeping quarters and frame views to the moss-covered forest. At the heart of this project, and further tying the group of buildings to each other and their site, is a sense of craft. Attention to detail and materiality, from the alignment of reveals around the windows to the incision of mahogany frames in shingled walls, allows the house to merge with the landscape without sacrificing its rigorous integrity. Though huddled together apparently against the harsh elements, the group of buildings turns its seemingly most vulnerable surfaces outward, confident in its construction and emphatically linking itself as strongly with the surrounding environment as with its own interconnected pieces.



1. deck
2. master bedroom
3. dressing room
4. entry
5. master bathroom
6. main entry
7. powder room
8. cooking
9. kitchen
10. dining room
11. living room
12. bedroom
13. stair
14. bathroom

GROUND FLOOR PLAN

ARCHITECT
Elliott + Elliott Architecture
Blue Hill, ME

GENERAL CONTRACTOR
Mike Temple, Inc.
Hampden, ME

STRUCTURAL ENGINEER
Becker Structural Engineers, Inc.
Portland, ME

PHOTOGRAPHY
Tom Crane Photography
Bryn Mawr, PA

MERIT **Awards**

"This is an immersion experience in wood. It's a delight to look at in the photographs and I can imagine being in the space as even more delightful."

– Jury

Oak panels and screens create an experience of textures, color and form

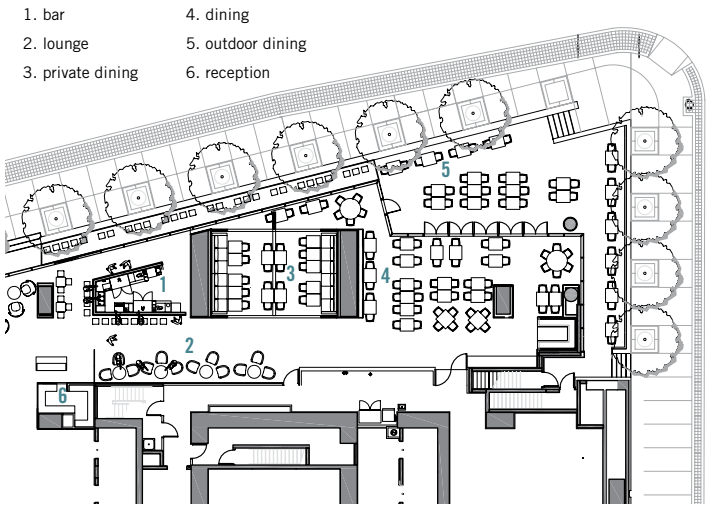
Bosk

office of mcfarlane biggar architects + designers

Opened in the summer of 2012, the Bosk restaurant in the base of Toronto's Shangri-La Hotel was conceived as a luxurious and elegant space to complement the hotel lobby while also establishing its own identity as the hotel restaurant and bar. Its design expresses the Shangri-La's timeless and understated aesthetic and its subtle Asian-inspired theme. The project's scope extended beyond the interior design to also include Bosk's branding and graphics, as well as custom furniture and commissioned art selection.

'Bosk', meaning 'a small wooded area', was conceived as the restaurant name to establish the design direction. The conceptual interpretation of the theme is manifested by the oak panels and screens that envelope the space, ensuring a harmonious aesthetic throughout. The panels and sliders define dining, lounge and bar areas, offering flexibility in the room configurations. Each panel features a repeated graphic pattern used in an array of forms – embossed, impressed and perforated, highlighting the remarkable and transformative qualities of the space. Perforated panels create translucent screens to give privacy while also filtering light. Impressed ceiling panels add texture while hiding mechanical and electrical features. An embossed feature wall in the lounge explodes the pattern in extreme relief.

The architect's approach to design always has roots in some basic principles of sustainability including building simply rather than with unnecessary adornment and choosing quality materials that will have longevity. Wood is often the material of choice for so many reasons including, it is versatile; it is strong, lightweight and flexible; and wood is beautiful. A materiality approach to using wood was taken for



FLOOR PLAN

this project that created a warm inviting space that is more intimate than the adjacent lobby. The use of fewer high quality materials has a stronger impact than many different materials or lots of small elements.

The density of the wood is complemented by cream travertine walls and floors, white solid surfaces, bronze detailing, and tones of warm taupes and deep purples in the furniture. A sea of hand-blown glass pendant lights in varying shades of green and amber, and commissioned large-scale photographs of local forest areas, bring the interior to life. Some of Bosk 's palette is shared with the hotel lobby to establish the continuity required as the hotel restaurant. However, the proportions and applications of the materials were adjusted to allow Bosk to also maintain its own brand. While the lobby heavily features the travertine stone on all surfaces with only accents of the oak, Bosk uses the wood to define the restaurant with a dramatic and dense application.

The restaurant bar was positioned at the entry to Bosk to service both the lobby and the restaurant and adjacent to the full height glazing to display animated views of the interior to the street. As the restaurant is open from breakfast through to dinner, there was a desire to downplay the bar during the morning sittings. To provide this transformation the bar was designed with large sliding bronze panels that can conceal or expose the bar liquor.

ARCHITECT
Project by office of mcfarlane biggar architects + designers (omb)

Design completed by omb's predecessor firm mcfarlane green biggar Architecture + Design
Vancouver, BC

STRUCTURAL ENGINEER
JKK Consulting Structural Engineers
Vancouver, BC

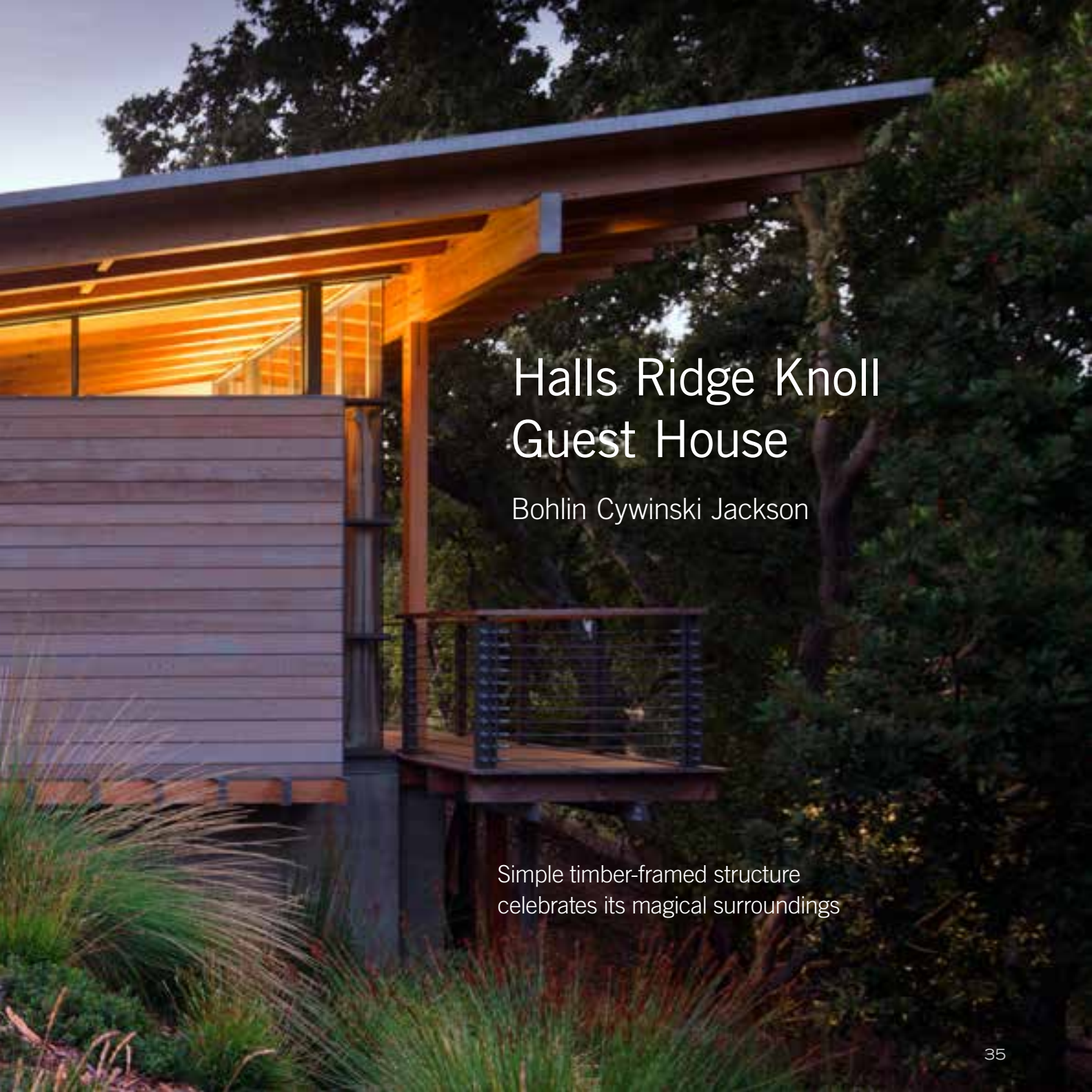
GENERAL CONTRACTOR
180 University Management Inc.
Toronto, ON

PHOTOGRAPHY
Ema Peter Photography
Vancouver, BC

office of mcfarlane biggar architects + designers (omb)

SECTION

1. lounge
2. dining
3. reception



Halls Ridge Knoll Guest House

Bohlin Cywinski Jackson

Simple timber-framed structure celebrates its magical surroundings

"Here they've taken wood and used it in a way to create warmth and intimacy that's a perfect foil for the openness to the exterior and the expansive landscape."

– Jury

Halls Ridge Knoll Guest House is located in the Santa Lucia Preserve – a remarkably beautiful, vast landscape that was previously a historic cattle ranch. The rugged and pristine site has a rolling topography, a forest of ancient live oaks and Manzanita, and offers panoramic views of the San Clemente Mountains and the Los Padres National Forest beyond.

The master plan for this vacation retreat puts forth a series of buildings that relate to its ridge-top setting. These buildings include a workshop, guest house, and main residence, each anchored to the land with a series of massive stone walls and fireplace chimneys, marking the passage along the ridge and culminating in a stone court at the future main residence.

The first building constructed on-site is the guesthouse, which flanks the winding entry drive and is anchored to the sloping site with a massive stone wall, screening the house and pool. A simple timber-framed shed roof springs from the stone wall, supporting naturally weathered zinc roofing over cedar-clad volumes.

The guesthouse is sited to take advantage of passive design elements of the temperate California climate. Expansive windows provide natural lighting throughout the house, while a broad overhanging roof shades from the intensity of the summer sun. Sliding doors and operable hopper windows throughout the house use the prevailing winds for natural ventilation, while also providing expansive views of the mountain range. Wood flooring in the living space of the house is reclaimed from an old barn structure.

The Halls Ridge Knoll Guest House is a thoughtful, modernist intervention, carefully detailed in stone, timber and glass. Designed to choreograph movement along the extraordinary ridge-top site, the guesthouse celebrates its magical surroundings.

ARCHITECT
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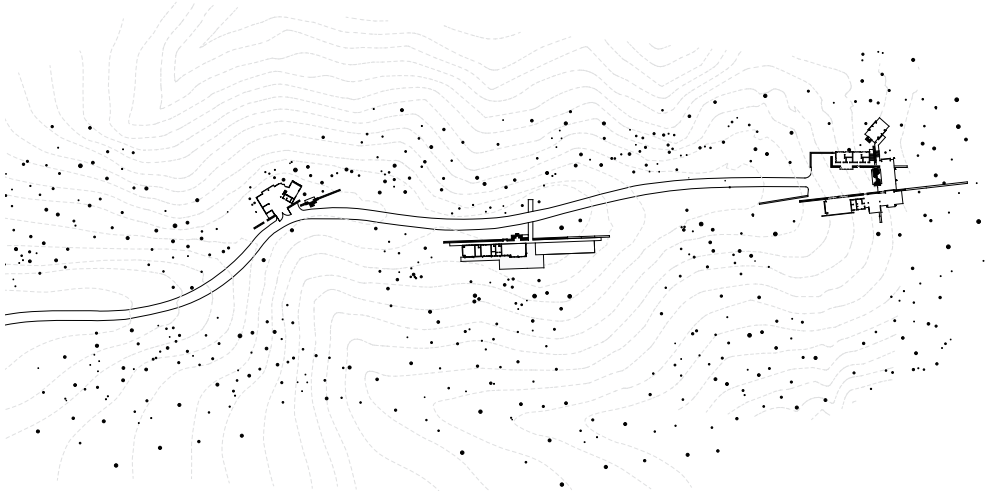
San Francisco, CA

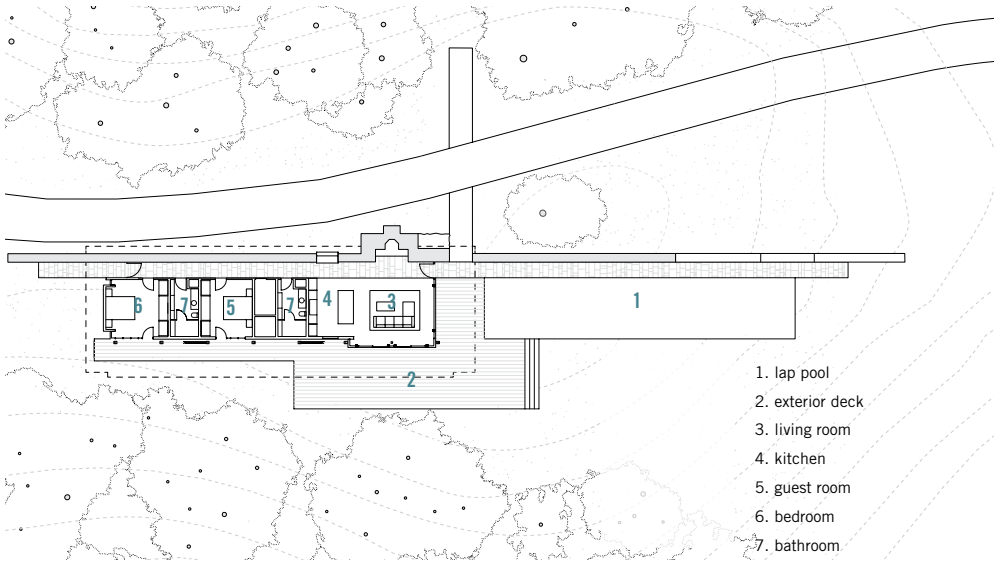
STRUCTURAL ENGINEER
Jon Brody Structural Engineers
San Francisco, CA

GENERAL CONTRACTOR
Stocker & Allaire General Contractors
Monterey, CA

PHOTOGRAPHY
Nic Lehoux
Vancouver, BC



SITE PLAN



FLOOR PLAN

Wood contributes warmth and a Scandinavian aesthetic to downtown shop house

Mjolk House

studio junction inc.

"It's easy to imagine a comfortable familiarity moving through this space; the simple palette of materials, the wide plank flooring with the natural finishes. Really, just lovely."

– Jury

Inspired by a traditional shop house typology of commercial on the ground floor with residential above, Mjolk House speaks about an alternative to the single-family residence in Toronto's urban fabric. The specific challenges pertaining to this mixed use property include: a long narrow lot, noise and privacy issues to the street and rear laneway, lack of light to the middle of the building, and lack of connection to the outdoors.

Mjolk House shows how a landmark building can be renovated in a contemporary manner while still being respectful and in keeping with the physical character of the street. Courtyards and light wells are used to provide privacy, outdoor space, natural light and air, and allow Mjolk House to successfully adapt to an urban mid-block siting where there is no traditional front or rear yard. Through innovative design, this urban shop house exemplifies how an individual building and proprietor can contribute to a vibrant street life and neighborhood rejuvenation.

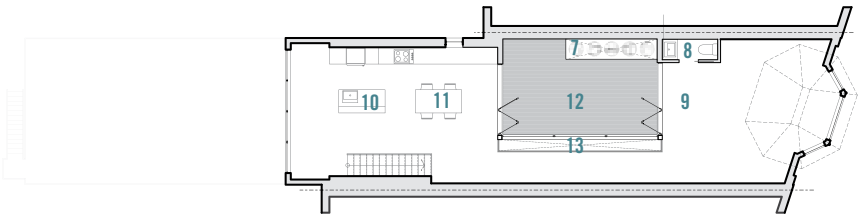
Mjolk is an independent design store and gallery which represents classic and current Scandinavian and Japanese designers, artists and artisans. Offering a carefully curated selection of beautifully designed pieces, Mjolk focuses on functionality, craftsmanship and timeless simplicity. In Mjolk House, both Mjolk and the dwelling above are inspired by a northern aesthetic where the material palette is selective and restrained. With owners that value handcrafted items, wood is used throughout this shop house for its incomparable warmth and connection to nature. In this manner, the individuality of wood is celebrated.

Black and white elements are highlighted with moments of wood. Wood was chosen for its natural warmth, versatility, ease of portability and prefabrication. There was a condensed time frame for design, construction and installation. Computer modeling and CNC cutting were used for the complex curves of the plywood elements of the feature wall, floating c-shelf and storage cabinets. This worked in conjunction with traditional hands-on woodworking techniques, such as the crafting of the reception desk of reclaimed lumber, and the white oak sliding screen doors. Sustainable features include the exterior cladding of charred wood with a natural oil finish. For the interior, the main feature wall is re-purposed from a previous installation, with the addition of new storage units. Cladding material

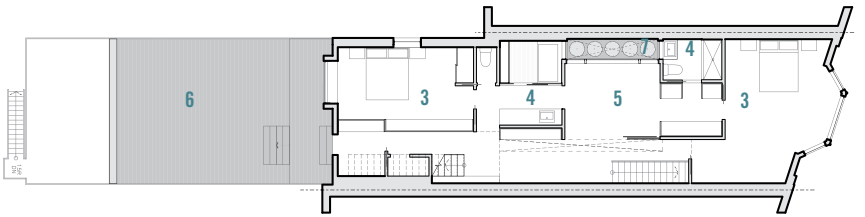
is comprised of offcuts: leftover wood often relegated to the waste bin and landfill. The reception desk is reclaimed Douglas fir from a local Toronto factory. The screen wall frame is FSC-approved white oak, with the glass re-purposed from existing structural glass partitions.

In Mjolk House, the design elements used to organize and enhance the dwelling are the courtyards, natural light and woodwork. White oak is used throughout for the kitchen, island, cabinetry and bathrooms, stairs, guards, and trim. The slatted doors, bi-fold doors and fixed windows that wrap the inner courtyard and light well are also FSC-approved white oak. Wide plank Douglas fir from British Columbia is used for the flooring and living room shelving units.

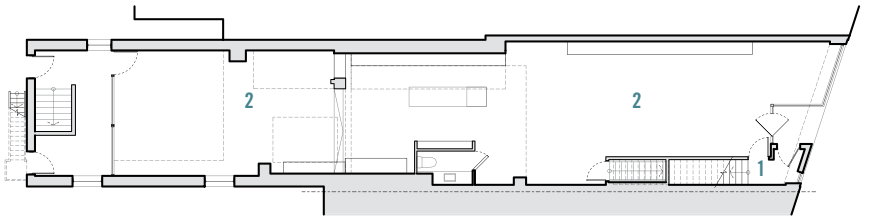
Efforts have been made throughout the design and construction to thoughtfully and efficiently use materials and technology. The courtyard and light well design allows a large amount of natural daylight. The bi-fold doors, awning windows, and interior light well take advantage of a natural cross-ventilation system in the summer. Heating and cooling is organized by zones with adjustable radiators and ductless air-conditioning. In this contemporary space, there has been much experimentation with hand crafted wood and traditional finishes. Millwork is often finished with soap flakes, lye or a water-based varnish. Exterior finishes at the courtyard include Falun paint on rough pine and a lime wash on the brick wall.



THIRD FLOOR – RESIDENTIAL

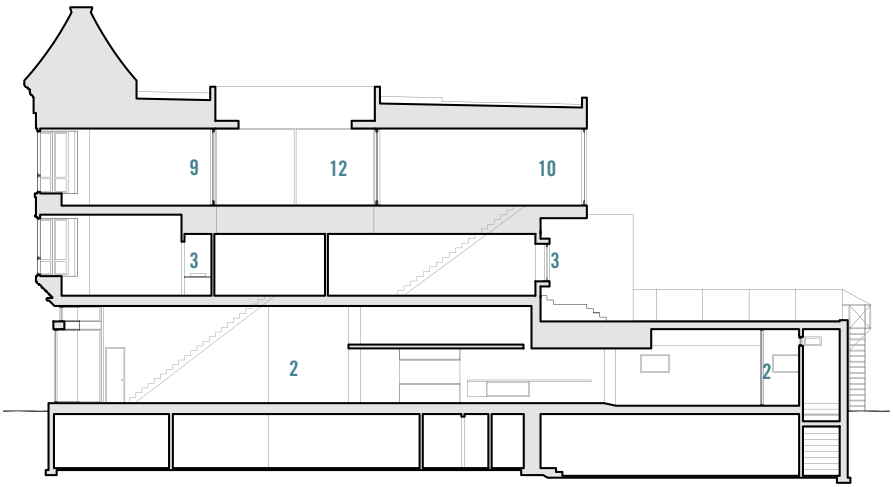


SECOND FLOOR – RESIDENTIAL



GROUND FLOOR PLAN – RETAIL SPACE

1. entry
2. Mjölk shop
3. bedroom
4. bathroom
5. nursery
6. outdoor area
7. exterior lightwell
8. powder room
9. living room
10. kitchen
11. dining room
12. outdoor courtyard
13. indoor light well



CROSS SECTION

ARCHITECT
studio junction inc.
Toronto, ON

STRUCTURAL ENGINEER
Gulf Engineering
Toronto, ON

GENERAL CONTRACTOR
studio junction inc.
Toronto, ON

PHOTOGRAPHY
Joe Lin/studio junction inc.
Toronto, ON

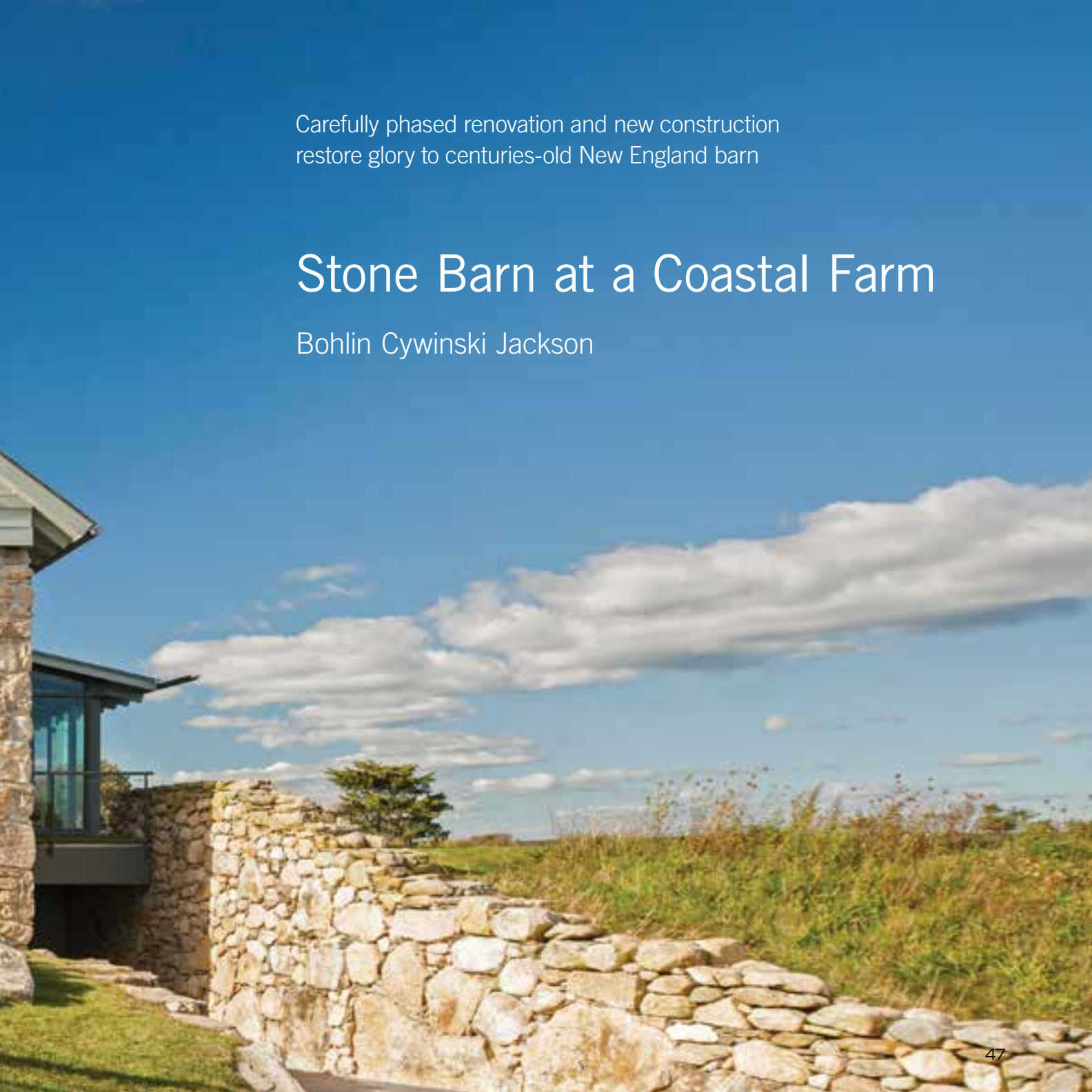
"The warmth and the softness of the wood interior is a wonderful foil to the historic stone walls of the original barn, especially at night when you see it glowing through the windows."

– Jury

Carefully phased renovation and new construction restore glory to centuries-old New England barn

Stone Barn at a Coastal Farm

Bohlin Cywinski Jackson

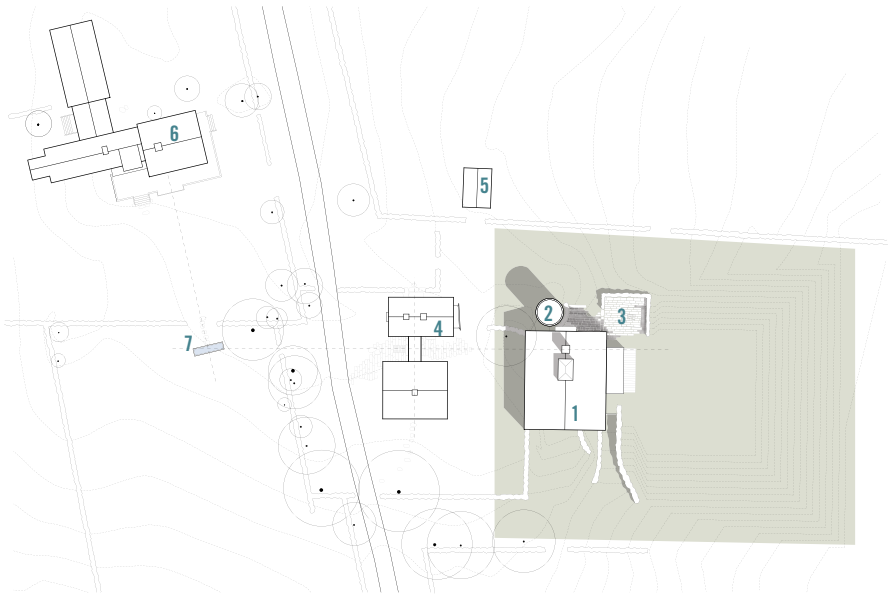


The essence of this remodeled barn rests in the synergy created between the peripheral stone walls that embrace a new wood heart. The architects have enjoyed a long-term collaboration with a family whose vision of creating a home for several generations has been realized through phased renovation, restoration and new construction that melds seamlessly with the extant structures and landscape of a centuries-old coastal New England farm.

Working closely with the landscape architect and structural engineer, the repurposing of the barn into a three-season gathering room represents the fourth phase of co-operative interventions on the property. Built in the early 1800s the stone barn has withstood the ferocity of nature, most notably, the New England Hurricane of 1938, which destroyed the original gable roof. Over the course of several generations of deferred maintenance, none of the original wood framing was salvageable. To address this, the appropriate grade of Douglas fir heavy timber was selected for its architectural warmth and structural integrity.

The interior of the barn is finished with a combination of familiar and new materials: Douglas fir heavy timber members and heart pine plank flooring salvaged from an old mill building, and a pair of new steel trusses. The trusses span the width of the barn and create an expansive space unimpeded by columns. The timber cross members are deftly interlaced with the trusses. The new wood framing and mended stone walls, though reminiscent of this bank barn's former utilitarian character, creates a rich place for social interaction.

The barn remains an unconditioned space where comfort relies on cross ventilation in summer and a large fireplace and insulated roof in early spring and late fall. Weathered cedar shingles in the barn's south gable end have been replaced with 'shingled' glazing and an operable central window. This large expanse of glass, in conjunction with a venting clerestory/monitor and a glazed sun porch provide an abundance of natural light and air circulation to the main level.



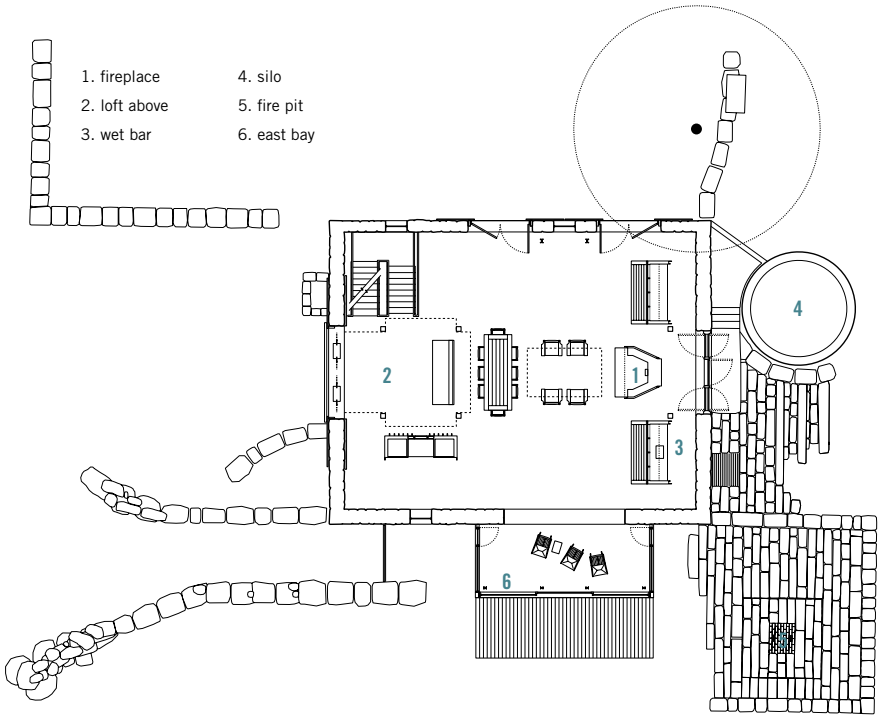
SITE PLAN

1. restored barn
2. silo
3. fire pit
4. kitchen addition to historic cape
5. existing corn crib
6. main house
7. cow trough

The barn has been transformed into a warm, vibrant space for events large and small. Finely crafted Douglas fir boxes are both functional (they house kitchen and A/V equipment) and architectonic (their placement defines different zones within the barn). The nearby main and guest houses have modestly scaled living spaces and rely heavily on the barn to provide a common place where family and friends can share meals, watch movies, gather by the fire or simply enjoy the extraordinary views.

The 40 x 50-ft. barn is the heart of the farm both physically and emotionally. It sits juxtaposed with a historic cape, its 2008 addition and a utilitarian corn crib. This cluster of buildings lies at the crest of the farm and define comfortably proportioned outdoor rooms that provide the right amount of social connectivity desired by the family.

The architects responded to the region's material palette, simple geometric proportions and details through all phases of design and construction. From a distance, the renovated stone barn is in harmony with the architectural vernacular. It is only upon closer inspection that modern interventions, such as the glazed sun porch and shingled glass gable end, reveal themselves. These interventions are at ease with the details of the existing farm buildings. The warmth of the wood coupled with the assembly of intimate and expansive spaces inside and outside reinforce that this is the heart of the farm.



FLOOR PLAN

ARCHITECT
Bohlin Cywinski Jackson
Wilkes-Barre, PA

STRUCTURAL ENGINEER
Robert Silman Associates, PC
New York, NY

GENERAL CONTRACTOR
Rosewood Construction
Little Compton, RI

PHOTOGRAPHY – EXISTING CONDITIONS
M. Thomas Architectural Photography
Exeter, PA

PHOTOGRAPHY – RENOVATION
Nic Lehoux
Vancouver, BC

Innovative heavy timber displays advancements in bioenergy and CLT technologies

UBC Bioenergy Research & Demonstration Facility

McFarland Marceau Architects

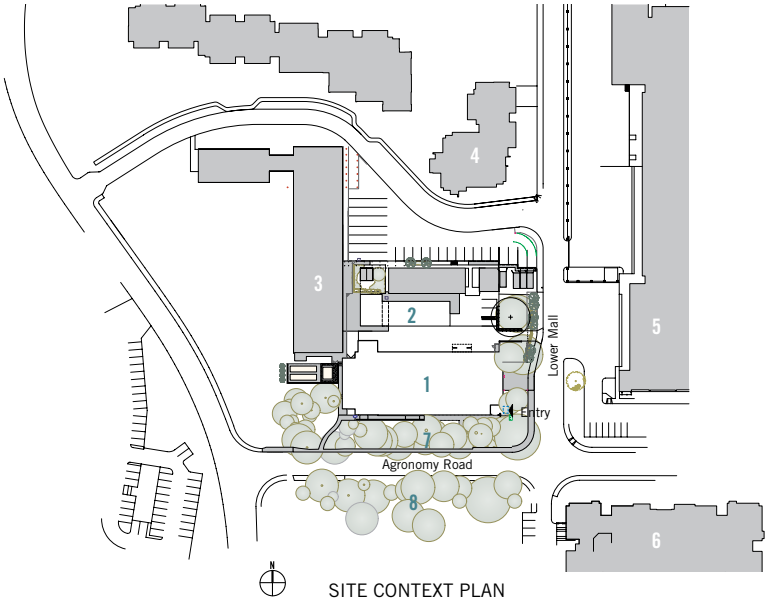
"It's wonderful when a truly utilitarian building like this is celebrated architecturally and to have used wood, particularly cross-laminated timber, is very exciting."

– Jury

The Bioenergy Research & Demonstration Facility (BRDF), at UBC's Vancouver campus, tells a story of growth, transformation and renewal. Set against the backdrop of an impressive stand of trees, the innovative heavy timber facility displays advancements in bioenergy and cross-laminated timber (CLT) technologies facilitated by the transformation of wood products into renewed components for energy and construction. From the shade on the wooden boardwalk, the facility reveals to the curious passersby its use of massive wood as a major commercial building material and its use of wood waste as a renewable fuel source for combined heat and power (CHP) generation. By being the first North American cogeneration plant of its kind to produce heat and power for a university campus, the BRDF breaks ground for other models to follow from both energy and building precedents.

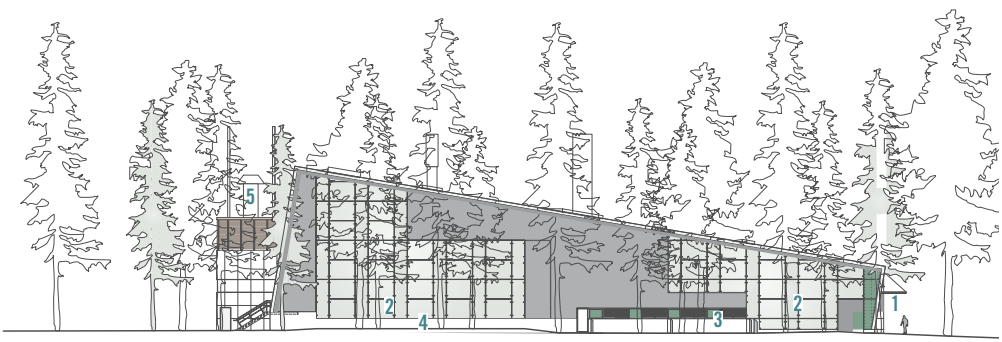
The shape of the building is generally a simple rectangular volume with a gently sloping roof plane rising from eight to 17 meters, east to west. The windward tilting roof plane forms an air foil, encouraging negative air pressure at the leeward high ridge to naturally draw untempered exterior air through the main process equipment area from low-level intake vents. The western two-thirds of the building contains the bioenergy CHP equipment in a single high-volume space. The eastern third encloses public and non-public spaces in a two-story arrangement, including an entry hall, fuel bays, upper floor viewing areas, control room and research lab. Generous south glazing affords views in and out of the building, while flooding interior spaces with tree-filtered natural daylight. The proximity of the mature stand of trees enhances the wood demonstration experience of the building, particularly in the upper lobby area where visitors can walk at the level of the forest canopy.

The primary superstructure is comprised of two major elements: glulam moment frames and CLT panels. Derived from traditional post and beam technology, glulam moment frames use steel box connectors at the post base and capital to connect the three parts rigidly enough to enable long spans while minimizing beam dimension. The glulam frames were assembled in situ, placing the columns first and then bridging them with the clear span beam. This method of installation was critical as the CHP equipment was installed prior to the building envelope. CLT panels were used extensively throughout the structure as roof plane, floor plane, bearing and non-bearing walls and sheathing as secondary support for the extensive glazing. CLTs for architectural woodwork included a suspended staircase stringer wall, bench seating and acoustic air-guiding fins. CLT use provided two major benefits: shorter construction time, and provision of both structure and finish in a single material well suited to a medium hazard industrial occupancy. Both the CLT and moment frame components were lifted over process equipment and into place by overhead cranes, eliminating any scaffolding that would have interfered with equipment installation.



SITE CONTEXT PLAN

1. BRDF
2. landscape operations
3. Lower Mall Research Station
4. Marine Tower residences
5. UBC project services
6. Ritsumeikan House residences
7. mature grove of trees
8. Totem Park



1. CLT entry canopy
2. glazing over heavy timber + CLT structure
3. air intakes
4. elevated boardwalk for viewing
5. cedar screen for equipment

SOUTH ELEVATION SITE PLAN

From a sustainability perspective, the choice of wood for superstructure was clearly advantageous when compared to steel or concrete. The wood for the CLT was sourced and milled locally, using 90 per cent beetle-killed pine whose harvest made way for new forest growth and carbon sinks. Fabrication was done locally. Other sustainable aspects include shaping the building for natural ventilation, unorthodox for a medium hazard industrial occupancy, and rainwater collection for sewage conveyance and maintenance use. The project is expecting LEED Gold certification.

CLIENT
University of British Columbia
Vancouver, BC

ARCHITECT
McFarland Marceau Architects
Vancouver, BC

STRUCTURAL ENGINEER
Equilibrium Consulting Inc.
Vancouver, BC

GENERAL CONTRACTOR
Ledcor Construction
Vancouver, BC

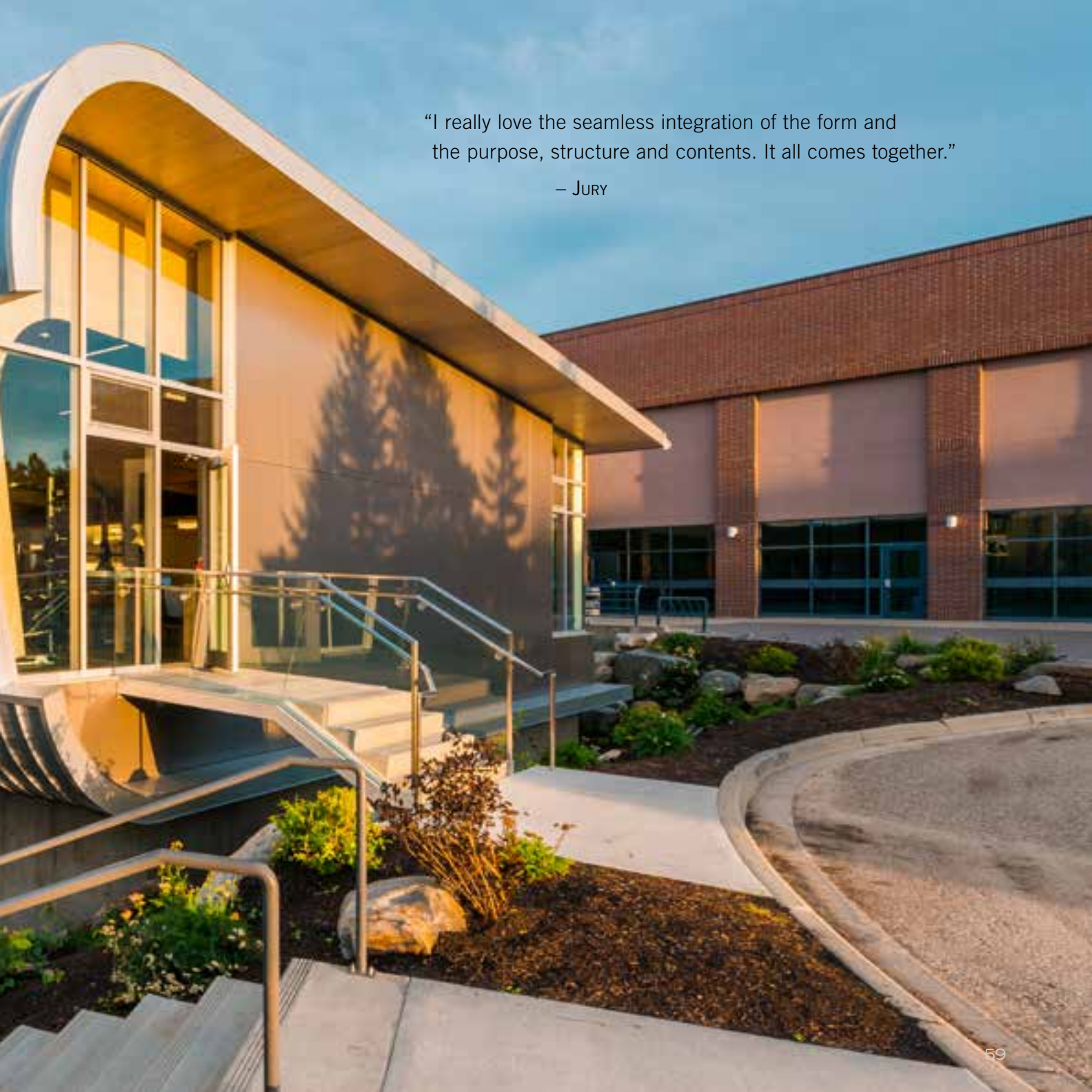
PHOTOGRAPHY
Don Erhardt Photography
Vancouver, BC

McFarland Marceau Architects
Vancouver, BC

Structural performance and aesthetic potential of CLT is explored in sustainable wellness center

UBCO Fitness and Wellness Centre

McFarland Marceau Architects



"I really love the seamless integration of the form and the purpose, structure and contents. It all comes together."

– Jury

The new Fitness and Wellness Centre for the University of British Columbia's Okanagan campus is an athletic training facility that pushes the structural performance and aesthetic potential of mass timber construction. The design explores innovative approaches to cross-laminated timber (CLT), using jointing and detailing techniques to render mass timber in a curvaceous, lightweight and efficient manner – befitting a building for athletes.

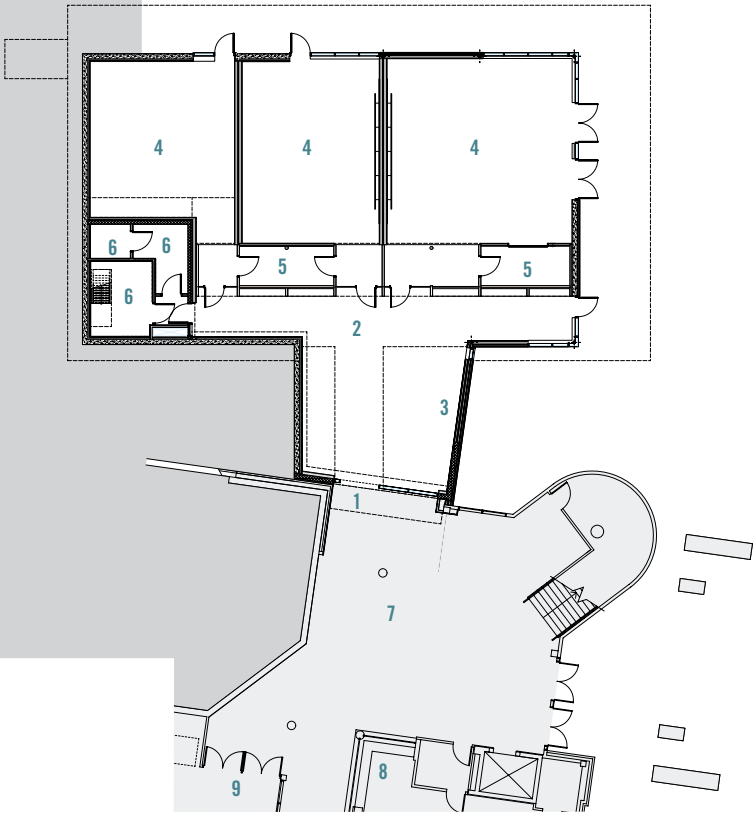
Located in Kelowna, BC, the two-story 8,825-sq.ft. building is an addition to an existing gymnasium complex and provides new space for cardio training, strength training, yoga, dance, spin classes, and martial arts, and will eventually accommodate an interior climbing wall. The addition shifts away from the existing gym to frame a small park to the north and preserve views along the main pedestrian spine of the campus. Tethered to the existing building by a narrow link, the new structure is freed to find its own expression. An alternative building code solution permits the new building to be constructed of wood, in contrast to the existing steel and concrete gym.

The athleticism of the human body finds shape in the dynamic form of the second story, which is poised over a quiet base. In the exploration of a lithe structure of significant span, CLT panels (normally used for walls and decks) are repurposed as deep, slender beams – slotted together with simple stainless steel tight-fit tab connections to form a structural grid. This cellular strategy is the basis of some of the lightest, most efficient structures created by nature or society; light materials made stronger by their honeycomb geometry.

The structural forces reach their crux in the moment joint that connects the CLT members at the north edge of the roof. This athletic joint links the forces of column and beam together, allowing each to be lighter weight and more efficient. Moment joints are notoriously difficult to achieve in wood and no other instance is known where a column-to-beam moment joint has been done with CLT.

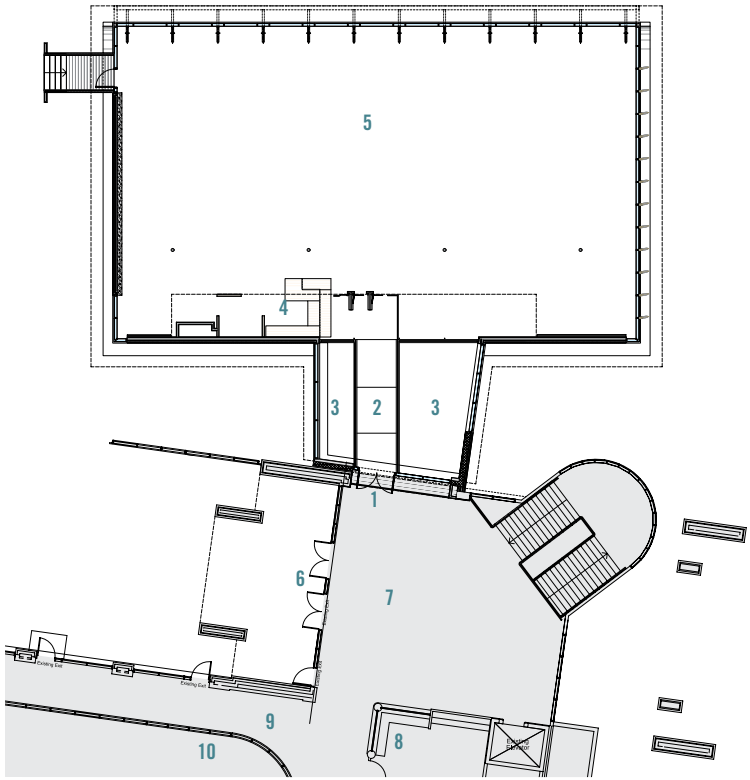
The project also explores the efficiency of achieving complex shapes from CLT panels. Components have been calibrated – like the pieces of a balsa wood aircraft model – to be stamped from larger sheets of cross-laminated SPF lumber with minimal waste.

Roof and floor decks exploit CLT's two-way spanning ability to facilitate cantilevers and shallow structure. Where added strength is required, CLT is detailed as a composite system in concert with concrete topping. This permits large beam-free areas of floor and roof, highlighted by the slender interior bridge



LOWER FLOOR PLAN

1. entry from existing lobby
2. corridor
3. link space with space for future climbing wall
4. fitness studio
5. storage
6. mechanical
7. existing gym lobby (lower)
8. existing gym reception
9. existing gym

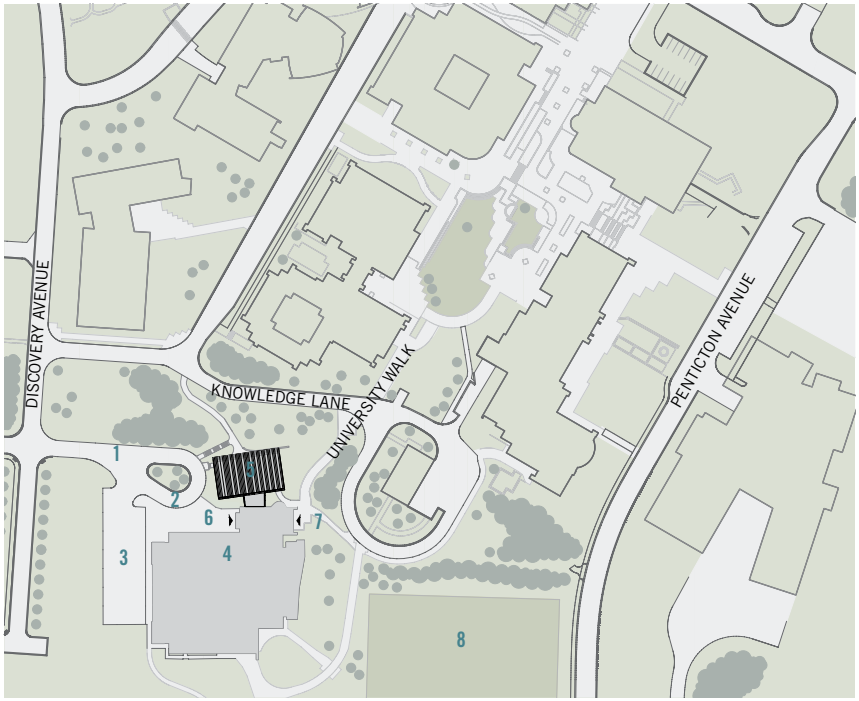


UPPER FLOOR PLAN

1. entry from existing lobby
2. entry bridge
3. open to below
4. staff area
5. fitness room
6. existing gym main entry
7. existing gym lobby (upper)
8. existing gym reception
9. existing indoor track
10. open to existing gym below

and the roof above, both of which span over 20 feet. CLT is also explored at a smaller scale as benches, partitions and even a reception desk – demonstrating its ease of assembly.

The low ecological footprint of CLT and its carbon sequestering properties mesh with the sustainable ethos of the university. Coupled with green elements such as a campus geo-exchange heating system, natural light and ventilation, passive sun shading, and recycled and low-emitting materials, it creates a healthy environment. The resultant architecture is light-filled, efficient, warm and inviting – providing flexible space and added motivation for users of the fitness centre to train.



SITE PLAN

1. athletics court
2. drop off
3. parking
4. existing gymnasium
5. new fitness + wellness centre
6. upper existing gym entry
7. lower existing gym
8. sports field

OWNER
University of British Columbia, Okanagan Campus
Kelowna, BC

ARCHITECT
McFarland Marceau Architects
Vancouver, BC

STRUCTURAL ENGINEER
Equilibrium Consulting Inc.
Vancouver, BC

GENERAL CONTRACTOR
Kindred Construction Ltd.
Vancouver, BC

HEAVY TIMBER SUB-CONTRACTOR
Nicola Logworks Ltd.
Merritt, BC

PHOTOGRAPHY
Don Erhardt Photography
Vancouver, BC

Photography West (Stephanie Whiting)
Kelowna, BC

Transit shelters mimic campus tree canopy

University Boulevard Transit Shelters

Public: Architecture Interiors Communication

The UBC campus is full of holes. Some are below ground where construction sites pepper nearly every corner of the campus. Some are at grade where the historic grounds are a mixed bag of building forms, dead-ends and disjointed academic neighborhoods. Some are higher up still, off the ground, floating in the tree canopy.

The university has been hard at work to address these gaps in its fabric, spearheading a massive public realm overhaul and myriad improvements to student life. One of the most prominent undertakings is at the main entrance of the campus along Vancouver's University Boulevard. Small, but integral to the boulevard's redevelopment are two strategic insertions into the transit infrastructure that provide covered shelter for a trolley-bus loop. The transit shelters act as a conceptual extension of the nearby line of Katsura trees. Slender steel columns are arranged in a staggered line and hold up an oversized cellular wood structure clad in glass.

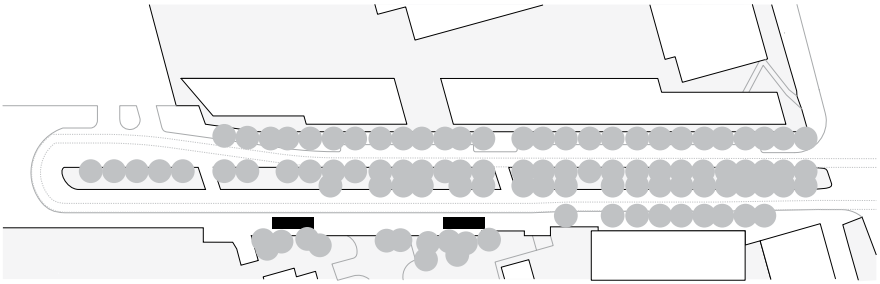
From a distance, the glass reflects and fills gaps in the surrounding trees, but as one approaches, the wood is revealed and creates the effect of walking underneath branches. The shelters help create a long, covered space, continuing the canopies of adjacent buildings down the boulevard into the heart of the campus while the sidewalk remains largely uninterrupted by vertical structure, reducing impediments to heavy pedestrian traffic.

"I see a sculptural piece of architecture that's totally in the public domain that I can imagine inspiring curiosity and conversations between children and adults, enlightening people as to how materials create space and sense of enclosure even when they're totally in the open."

– Jury

The shelters aim to create the kind of visual balance between random and regular pattern that one finds in nature. With the tree canopy as a starting point, the structural exploration began as a series of beams, then the beams connect to hold up glass. The architects sought to imbue that structural grid with movement and above all, create a design that performs both visually and structurally.

After a series of pattern explorations, structural analyses and fabrication scenarios, the form that emerged was a single, repeated pentagon rotated and flipped along its edges. This produced a regular module for ease of fabrication and a random arrangement for visual movement. It repeats without becoming repetitive. In order to keep the shelters light and streamlined, and to give the canopy a floating quality, structural elements take on multiple tasks; columns act as rainwater leaders, the precast duc-



SITE PLAN

tile benches support steel map cases and both fit between the spacing of the columns to provide a windbreak.

Glulam beams of laminated Douglas fir were cut, shaped and predrilled by a CNC saw – a channel was saw-cut down one edge of each beam to receive a steel plate. A self-tapping screw system made the construction possible whereby 12,000 screws drill directly into the steel plates creating a moment connection and eliminating the potential for deflection or buckling that might have occurred with a typical bolted connection. The shelter is more about wood craft than wood tectonics, hidden rather than expressed connections to achieve a tight fit between segments and maintain the monolithic appearance of the cellular wood structure.

CLIENT
UBC Properties Trust
Vancouver, BC

ARCHITECT
Public: Architecture Interiors Communication
Vancouver, BC

STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

CONSTRUCTION MANAGER
Joe Ross
Vancouver, BC

WOODWORK SUBCONTRACTOR
Structurlam Products LP
Penticton, BC

PHOTOGRAPHY
Krista Jahnke
Vancouver, BC

CITATION **Awards**

World's greenest office building draws on generous and visible use of wood

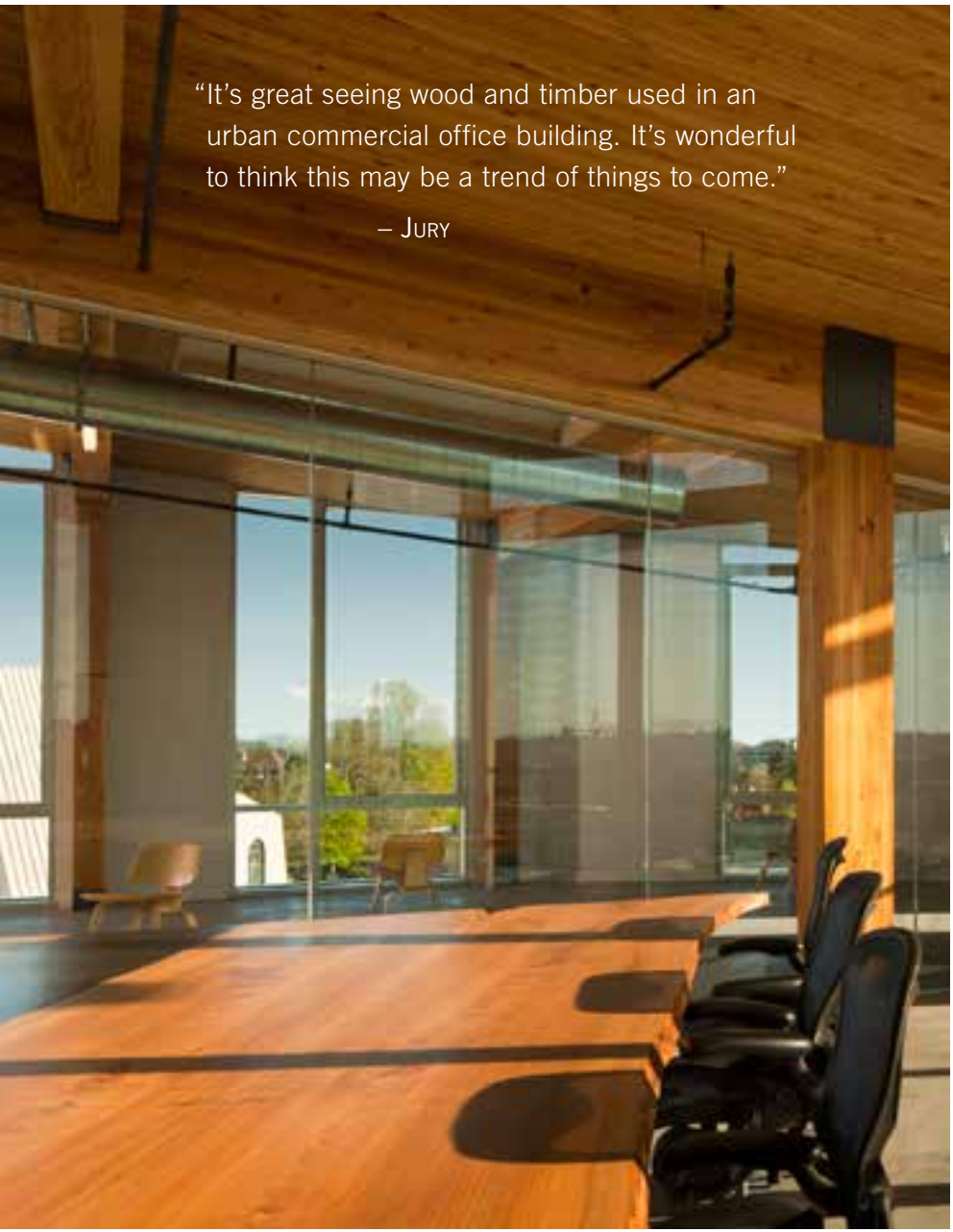
Bullitt Center

The Miller Hull Partnership

The six-story, 52,000-sq.ft. Bullitt Center is the first urban building to pursue the ambitious Living Building Challenge (LBC), the highest benchmark of performance-based design addressing aspects of site, water, energy, health, materials, equity and beauty.

Commissioned by the environmentally oriented Bullitt Foundation to serve as the organization's headquarters and to offer rentable office space for other tenants, this innovative prototype building sets a high bar for the design and construction of energy-efficient commercial structures. The building is designed to achieve net-zero energy use with 100 per cent on-site renewable energy generation. The first floor lobby is a combined exhibition center and event space where people can gather and learn about the building's landmark elements and broader themes of urban sustainability.

A unique request from the client was for a building with essentially no environmental footprint built to last 250 years. The integrated design team of architects, engineers and contractors considered how to compose a high-performance building in keeping with the LBC guiding principles – which includes the selection of materials and structural systems based on toxicity, sourced within a set distance from the project, relative carbon footprint and regional context. Research and lifecycle assessments of various structural systems pointed the way to heavy-timber framing from old-growth Douglas fir trees. Wood emerged as the compelling structural choice for the Bullitt Center offering strength, beauty and carbon sequestration derived from a renewable regional material.

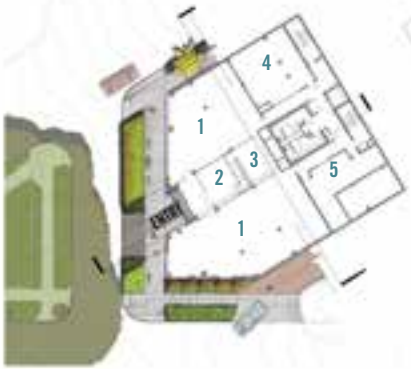


"It's great seeing wood and timber used in an urban commercial office building. It's wonderful to think this may be a trend of things to come."

– Jury

SECTION FACING NORTHWEST

SECTION FACING NORTHEAST



1. commercial tenant
2. lobby
3. kitchen
4. mechanical
5. electrical

LEVEL 1 PLAN

1. commercial tenant
2. lobby
3. meeting room
4. garage

LEVEL 2 PLAN

1. office tenant
2. green roof
3. terrace
4. sun room

LEVEL 3 PLAN

The Bullitt Center's timber structure is fully expressed and constructed with regionally sourced and sustainably grown FSC-certified wood combined into glue-laminated (glulam) beams, columns and floor decks that double as ceilings below. Solid 2 x 6 dimension lumber wood deck forms the floors, 2 x 6 No.2 Douglas fir members are set on edge then nailed to one another to form a solid panel, 5 1/2" deep. The roof deck is made from 2 x 4 dimension lumber nailed together. CDX plywood is used for both roof and floor diaphragms and a number of wall panels. Industrial-grade glulams were used to minimize waste of the FSC material. Reclaimed lagging was salvaged from the demolition of a local car dealership.

Wood is a prominent feature in the "irresistible stair" – an exit stair reimagined as a transparent glass stairwell located on an outside wall of the building offering impressive views to the Seattle city skyline, Puget Sound and Olympic Mountains. The dramatic stair also offers building occupants and visitors an enticing alternative to the energy-drawing elevator, with added health benefits of climbing stairs between floors.

A combination of materials is used in the structure but it is the wood in the Bullitt Center that fully contributes to the reduction of the building's carbon footprint while leveraging a beautiful natural regional material as a dramatic interior component. And while the aesthetic benefits of wood are apparent, it's the environmental and other virtues that are often overlooked. Unlike steel, heavy timber doesn't need to

be finished or wrapped in additional material as a tenant improvement and maintains its strength longer in a fire. To address regional seismic requirements, steel is used as reinforcement in concrete to connect timber frame members, and as moment frames to carry lateral wind and earthquake forces along the building's core. An additional moment frame runs vertically near the west end of the building. Using regionally sourced heavy timber also reduced the construction time required to build the superstructure, and minimized construction waste as glulams were manufactured offsite then installed without cutting at the construction site.

The use of wood materials in the Bullitt Center in keeping with LBC guidelines proved challenging. As with all building materials, wood was limited to sources within 600 miles and to only those materials avoiding the use of toxic "Red List" materials and chemicals commonly found in building components. All wood was required to come from FSC-certified forests, for which the supply-chain is still being developed. The Bullitt Center project is credited with growing awareness about the benefits of sustainable certified building material that has already led to transformative change in how manufacturers and processors will supply consumers with a choice of the wood products on a broad scale going forward.

Much of the challenge, beauty and success of the Bullitt Center is that the structure – largely of wood – is also the finish material. The generous and very visible use of wood in the Bullitt Center revives an important aspect of Pacific Northwest architectural vernacular in a striking example of efficient design with beautiful, practical, economically viable and environmentally favorable results that is changing perceptions about the importance of wood in today's built environment.

OWNER
Bullitt Foundation
Seattle, WA

ARCHITECT
The Miller Hull Partnership
Seattle, WA

STRUCTURAL ENGINEER
DCI Engineers
Seattle, WA

GENERAL CONTRACTOR
Schuchart Construction
Seattle, WA

PHOTOGRAPHY
Nic Lehoux
Vancouver, BC

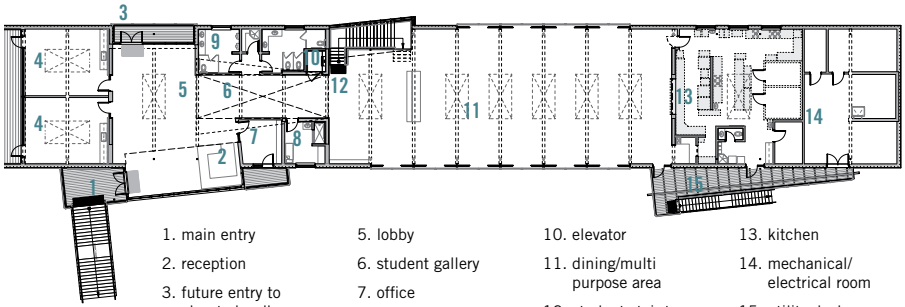
Environmental education center floats in the tree canopy, allowing students of nature to be surrounded by it

"The building itself will be a part of the education experience; how it's put together, how it works is so clear and apparent. There is wonderful balance and discipline in the management of the form and detailing."

– Jury

Environmental Learning Centre, Northern Vancouver Outdoor School

McFarland Marceau Architects



1. main entry
2. reception
3. future entry to elevated walkway
4. classroom
5. lobby
6. student gallery
7. office
8. medical room
9. restroom
10. elevator
11. dining/multi purpose area
12. student stair to lower entry
13. kitchen
14. mechanical/ electrical room
15. utility deck

LEVEL ONE FLOOR PLAN

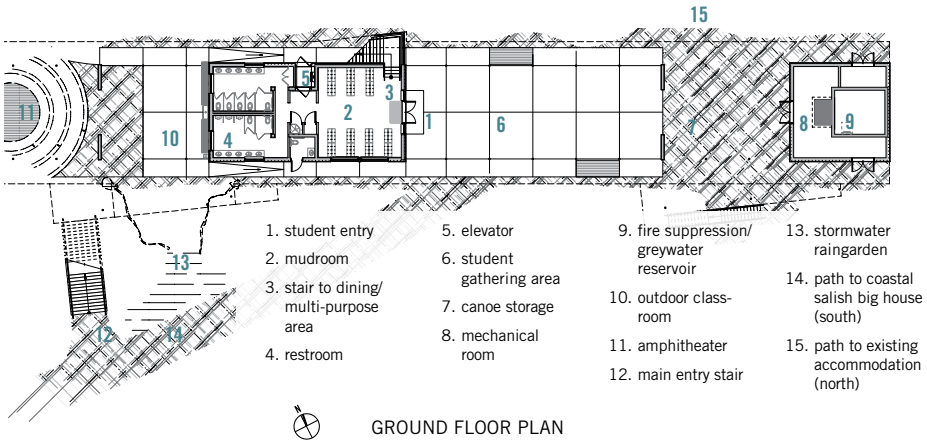
The North Vancouver Outdoor School is unique amongst a handful of environmental education centers in Canada. Its diverse biological landscape includes stands of old growth forest, wild salmon streams, amphibian ponds, and the largest recorded concentration of wintering bald eagles in North America. A federally designated salmon reserve located on the property – one of the most prolific on the west coast – includes spawning channels for all five species of Pacific salmon. Set on the western bank of the Cheakamus River 85 km north of Vancouver, within an ecological reserve in the Coast Mountains of British Columbia, the Environmental Learning Centre (ELC) was designed to provide a sensitive and critical context for learning about these environments.

In response to the linearity of both valley and river, the building assumes a narrow linear form, offering the least possible resistance to incoming flood waters. The main floor is raised above the forest floor, on slender "pilotis", scribing the level of the 200-year floodplain and giving users the feel of an extended house in the trees. The carefully proportioned form is slotted between stands of mature conifers – preserving trees and forest floor. Users occupy the unexpected raised vantage within the forest canopy while the area beneath the building becomes a found program space, provid-

ing generous cover for outdoor activities in wet weather. This direct response to the character of the site aligns the building within the larger river valley, lifts the users into an intimate position within the canopy, preserves the integrity of local habitat, and renders the floodplain both evident and moot.

The use of wood was in keeping with the sensitive nature of the site and the sustainable mandate of the school. The floor structure consists of glulam struts spanning between glulam beams above which are cross-laminated timber (CLT) floor panels that transfer shear forces and limit the horizontal deflection of the diaphragm. The wood floor system is topped with a vapor barrier and polished concrete slab with in-slab heating pipes. Concrete shear walls connect the floor with both the roof and the raft slab at ground level below. The roof structure consists of glulam beams and exposed reclaimed Douglas fir decking over the beams. Purlins, columns, and siding include both reclaimed and new timbers sourced and milled locally. Wood was chosen as a cladding material to suit the forest context and was applied with an environmental treatment aimed to weather naturally on site.

The facility includes a welcome area with a nature gallery and exhibition space, a multi-purpose space and dining hall, a commercial kitchen, administrative offices, washrooms and



GROUND FLOOR PLAN

two multi-purpose learning spaces. Extensive covered outdoor teaching areas support the school's goal of immersing students in outdoor learning and further blending the natural, human and building ecologies at play on the site.

The ELC represents the first building of a master plan for the North Vancouver Outdoor School at its rural campus site. The overarching goals were to advance an immersive environmental curriculum, repair an important ecosystem and provide a new model for infrastructure compromised by years of inappropriate development. Being shaped by the ethos of the school and the unique character of the site, the ELC provides a convincing educational tool for the teaching program at the North Vancouver Outdoor School and offers a sensitive response to a flood-prone and ecologically rich terrain.

OWNER
North Vancouver School District 44
North Vancouver, BC

ARCHITECT
McFarland Marceau Architects
Vancouver, BC

STRUCTURAL ENGINEER
Equilibrium Consulting Inc.
Vancouver, BC

GENERAL CONTRACTOR
D.G.S Construction
Surrey, BC

PHOTOGRAPHY
Michael Elkan
Vancouver, BC

Post and beam structure and vaulted alpine rooflines give craft brewery pride of place in new location

Grizzly Paw Brewing Company

Lloyd R. McLean Architect with russell and russell design studios

The Grizzly Paw Brewing Company was looking to expand its brewing capacity from its successful micro-brew-pub operations to an additional dedicated production facility within the town of Canmore, AB. A one-acre parcel of land was required for an 8,000 to 12,000-sq.ft. building with room for future expansion.

Industrial land is hard to obtain in the mountain community of Canmore and after considering five possible locations, the architectural team recommended that the high visibility of an un-subdivided lot next to the Trans-Canada Highway had the most potential. The high cost of land in the mountains and the height of the adjacent road and on-ramp made a single-story building out of the question. A three-story building was conceived in order to maximize visibility from the highway. The land purchased was in a Commercial and Landmark Zone, not industrial in nature, so a higher standard of articulation and finishing was required.

The design concept was to create an eye catching building that would draw travelers off the road and promote a better brand awareness of the craft beer inside. The brewery's mountain location made an alpine roofline essential and the large, single-volume space made a sculptural approach possible. The strong, solid, dark steel-clad base alludes to the industrial nature of the

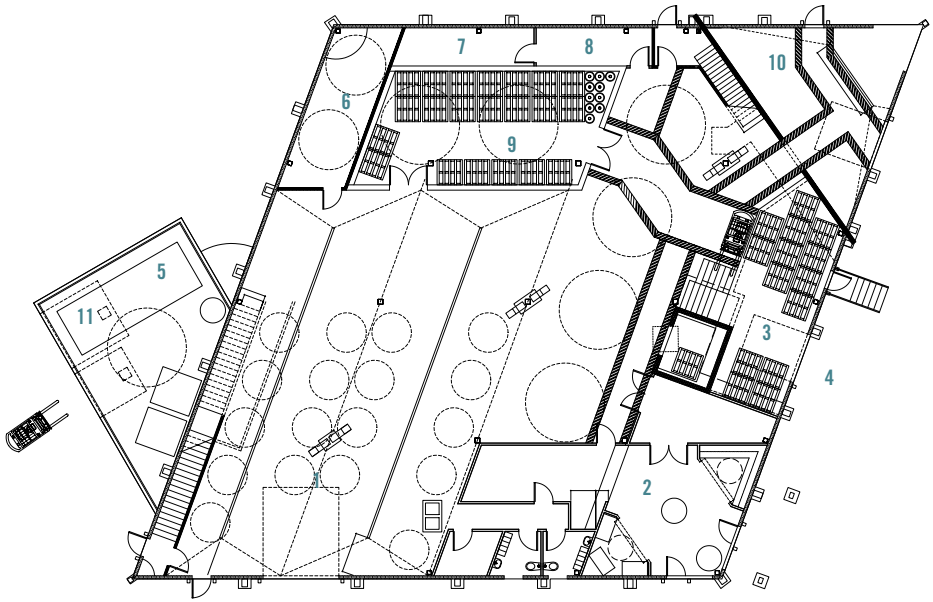
"It's a wonderful building to be around and enjoy whether you are involved in the brewery or not."

– Jury

building while the dynamic roofline over the glazed brewing floor speaks to the company's stunning location and the transparent nature of the craft brewing process. The vaulted alpine rooflines float over the industrial base of the building on sets of V-posts allowing the mountain views and the sun in, while accommodating HVAC and brewing equipment at the highest points in the vaulted ceiling, prompting some to refer to the building as a "cathedral" of beer-making. The warm natural tones of the Douglas fir timbers and plywood contrast and provide warmth against the shining stainless steel vessels and processing equipment.

Design work on an industrial building using steel frame and a dynamic alpine roofline started at the onset of the project. Subdivision and servicing took longer than anticipated and during that time, steel quadrupled in price while timber costs remained constant. After consultation with the builder, timber framers and engineers, it was decided that heavy timber construction would be preferable.

Preliminary modelling showed heavy timber construction would cost approximately 25 per cent less than the original steel frame design with a significantly shorter order and production time. Originally conceived as an internal steel frame with decorative log accents, it was decided that a more contemporary exoskeleton would remove the requirement for decorative logs and massively improve the aesthetics of the structure. In addition to the aesthetic

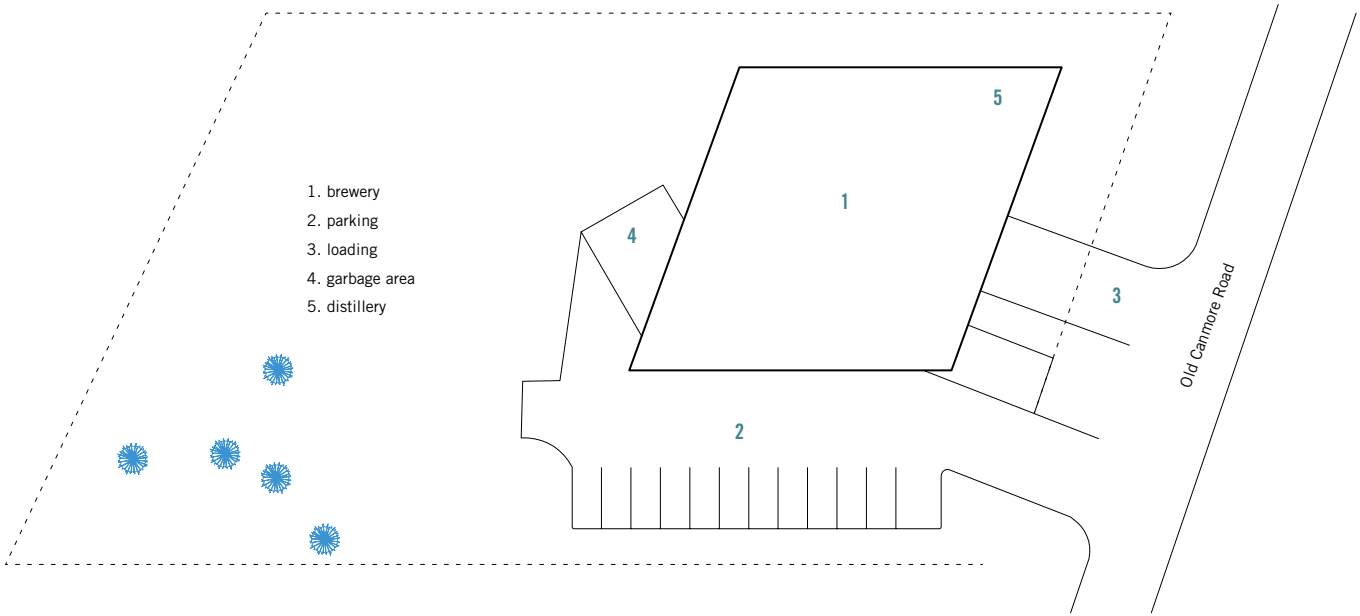


1. maturation floor
2. entry and shop
3. shipping area
4. silo
5. garbage building
6. boiler room
7. electrical room
8. data room
9. cold room
10. distillery
11. grain waste

GROUND FLOOR PLAN

benefits, the heavy timbers do not require additional fire protection and were a simple one-step solution, even in an industrial environment. All of the structure, including timbers, had to meet a 45-minute fire resistance rating. The simplest, most cost-effective solution for the roof system was 1 1/8-in. fire retardant-treated (FRT) plywood over the heavy timber frame and rafters. All heavy timbers and custom FRT plywood was grown and processed locally, as were the glulam beams and glulam window framing.

The Grizzly Paw Brewing Company was originally designed as a steel building. Wood construction resulted in cost savings and a building that better suits the Rocky Mountain style typical of Canmore. It provides a highly functional accommodation for the brewing and manufacturing processes, and a superior ambiance for future special functions.



SITE PLAN

CLIENT
Grizzly Paw Brewing Company
Canmore, AB

ARCHITECTS
Lloyd R. McLean Architect
Airdrie, AB
WITH
russell and russell design studios
Canmore, AB

STRUCTURAL ENGINEER
ISL Engineering and Land Services Ltd.
(FORMERLY CASCADE ENGINEERING GROUP)
Canmore, AB

GENERAL CONTRACTOR
Allweather Builders
Canmore, AB

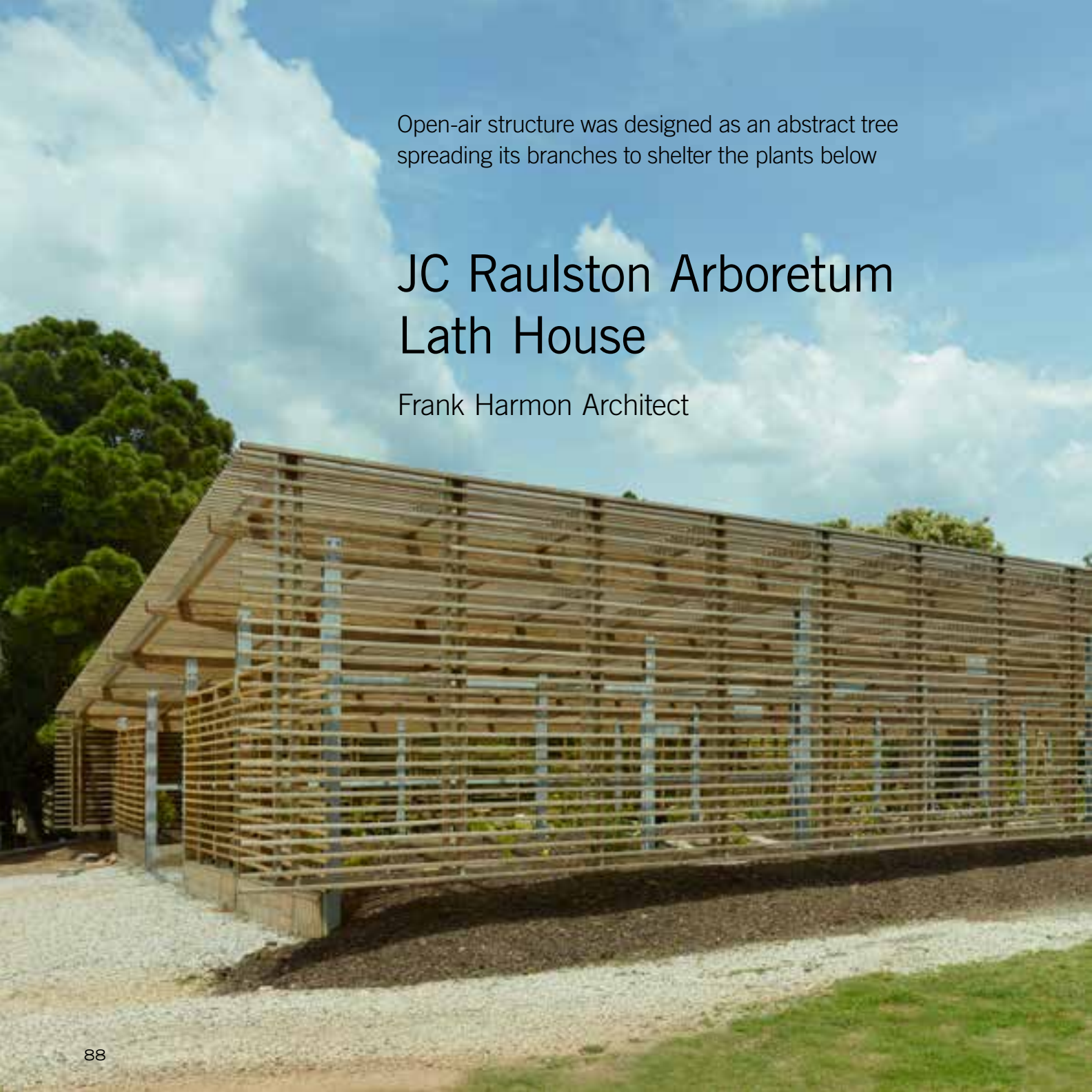
TIMBER SUPPLIER
Canadian Timberframes Limited
Golden, BC

PHOTOGRAPHY
Steve Nagy Photography
Spruce Grove, AB

Open-air structure was designed as an abstract tree spreading its branches to shelter the plants below

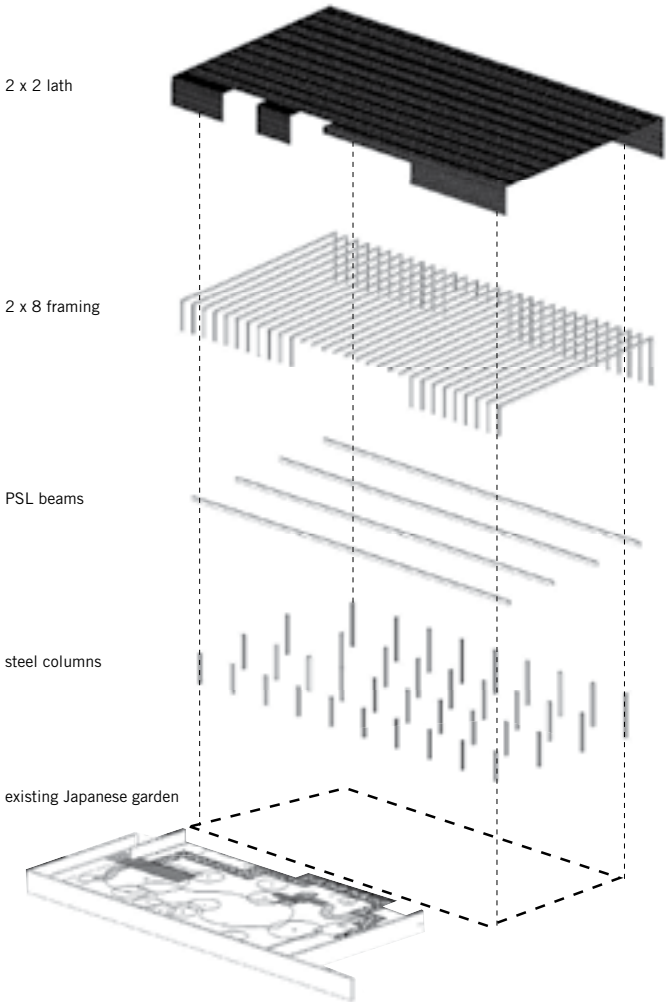
JC Raulston Arboretum Lath House

Frank Harmon Architect



"It's easy to see this building as a perfect backdrop for the Japanese gardens that are adjacent to it. The dappled light and the ephemeral distinction between being inside and outside at the same time. I can't wait to visit it."

– Jury

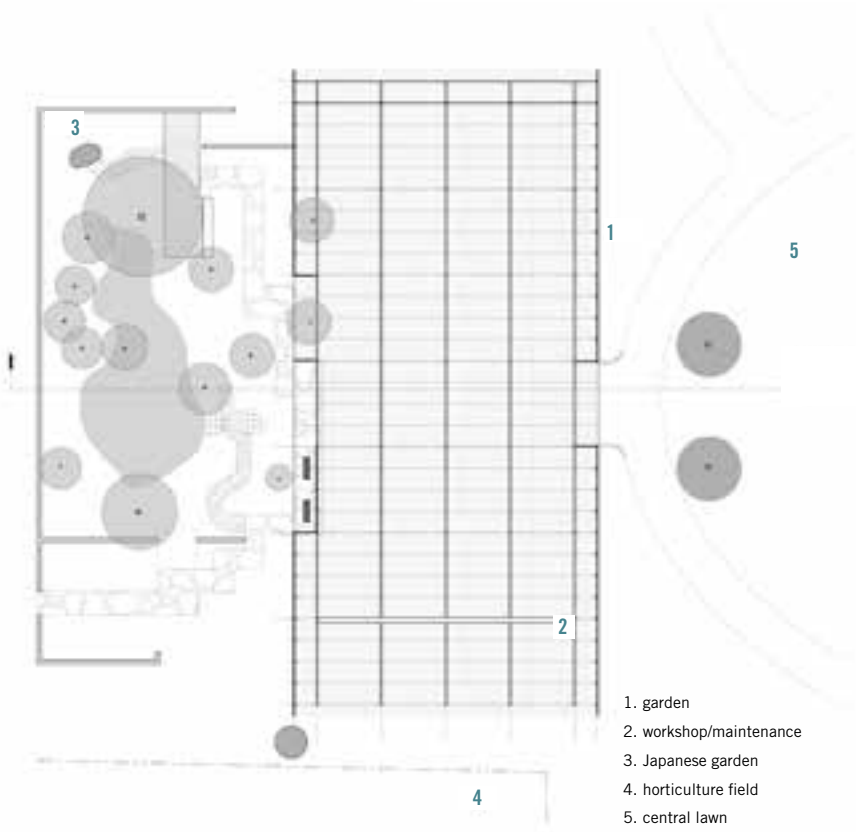


EXPLODED AXONOMETRIC

The eight-acre JC Raulston Arboretum is a nationally acclaimed garden with the most diverse collection of cold-hardy temperate zone plants in the southeastern United States. As part of North Carolina State University's Department of Horticultural Science, the Arboretum is primarily a working research and teaching garden that focuses on the evaluation, selection and display of plant material gathered from around the world. Plants especially adapted to conditions in the Piedmont region of North Carolina are identified in an effort to find better plants for southern landscapes.

The Arboretum needed a new open-air lath structure to replace the existing dilapidated shade house adjacent to its Japanese garden. The solution was conceived of as an open-air laboratory for experimental horticultural techniques and methods. Because the Lath House also shelters infant plants, it was designed as an abstract of a tree that is spreading its branches to protect the plants. Through its screen of carefully placed wooden 2 x 2s with steel support, the new pro bono structure will fulfill the specific light-to-shade ratio needed for the plants in the spring. It will shelter infant plants as they transition into larger gardens within the arboretum grounds. It will provide an accessible community garden for the city of Raleigh and serve as an educational asset to the state of North Carolina.

Thermal performance was an important factor in choosing wood to build the lath house. Wood was chosen for its low thermal mass, economy and appearance. The pressure treated wood structure was constructed of Parallam beams, Southern yellow pine joists, purlins and 2 x 2 lath with stainless steel connectors. The structure was designed on a 24-inch module to keep material waste to a minimum.



1. garden
2. workshop/maintenance
3. Japanese garden
4. horticulture field
5. central lawn

FLOOR PLAN

ARCHITECT
Frank Harmon Architect
Raleigh, NC

STRUCTURAL ENGINEER
Tim Martin
Raleigh, NC

GENERAL CONTRACTOR
LT Bennett, Inc
Garner, NC

PHOTOGRAPHY
Timothy Hursley
Little Rock, AR

Frank Harmon Architect
Raleigh, NC

SPECIAL **Awards**

Structural glulam piles, extending continuously from the ground through the roof, are unique to home's function and architecture

Non-Residental – Institutional

Northwest Harbor

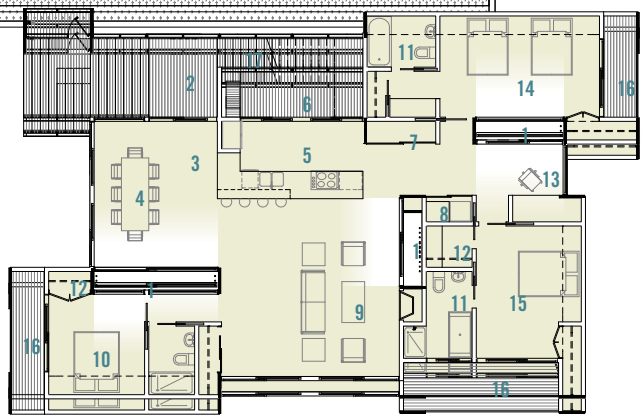
Bates + Masi Architects

Straddling freshwater wetlands and a tidal estuary just six feet above sea level, the house's site demands extraordinary sensitivity to environmental concerns. Local zoning restricts the structure's maximum coverage and proximity to wetland areas, while Federal Emergency Management Agency (FEMA) requirements set the first floor structure above the base flood elevation. The house's basic massing is therefore predetermined, limited to a one-story, 1,900-sq.ft. design, raised eight feet above the ground. The spaces within this envelope are arranged, articulated, and fenestrated based on an innovative structural system that infuses the house's inner areas with light and circulating air.

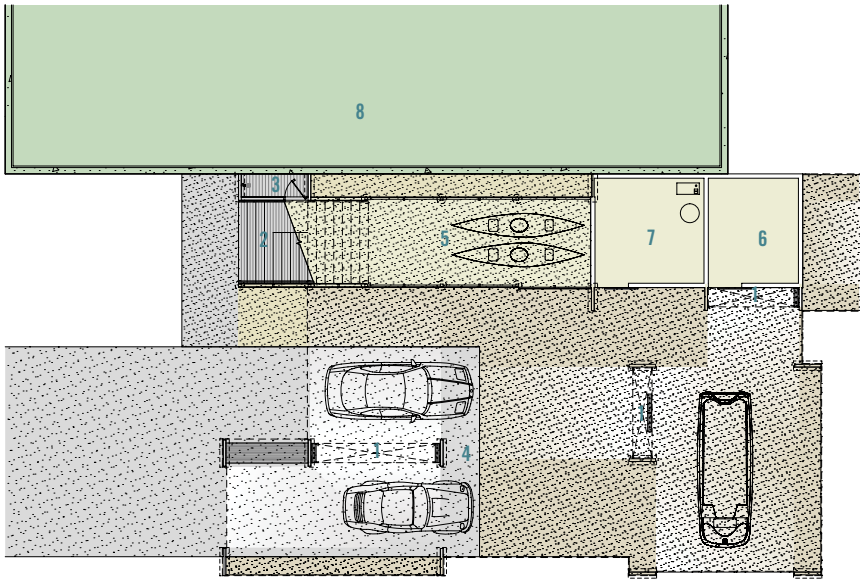
Whereas most waterfront construction uses pilings to establish an artificial ground plane upon which a conventional house is built, in this project these structural members are integral: 16 exposed, rough sawn architectural grade Western red cedar glue-laminated piles stake out the enclosing walls for each of the three bedrooms and extend continuously from the ground through the roof. The spaces between these piles house utility functions: closet, desk, laundry, pantry, and shower compartment. In addition to these conventional utilities, three vertical voids are opened between the piles to serve the spaces around them. Vertical 1 x 4 rough sawn, tongue and groove centermatch Western red cedar wraps these volumes.

Without occupying any of the limited allowed coverage, these open areas add considerable value by improving the house's interior environmental quality and diminishing its impact on the local environment. The benefit is threefold: each opening draws light through the interior spaces to the carport below, conducts rainwater from the roof deck to the

1. light well
2. entry stairs & landing
3. entry
4. dining
5. kitchen
6. grill area
7. pantry
8. laundry
9. living room
10. guest room
11. bath
12. closet
13. office alcove
14. kids room
15. master bedroom
16. balcony
17. stair to roof



UPPER LEVEL FLOOR PLAN



1. light well above
2. entry stair
3. outdoor shower
4. carport
5. storage 1
6. storage 2
7. elevated mechanical
8. sanitary field

LOWER LEVEL FLOOR PLAN

ground via integral downspouts carved into the piles, and ventilates by siphoning air through the middle of the structure.

At the roof, the projecting piles divide the space between a deck directly coinciding with the living areas below and a modular planting system installed above each bedroom to reduce runoff. The projecting piles also serve as supports for photovoltaics that power geothermal pumps, utilizing the abundance of high ground water to heat and cool the house. At the ground level, the space below the house is utilized for parking and storage to minimize the footprint on the site clad in rough sawn Western red cedar and finished with bleaching oil.

By allowing voids to permeate through the house, the owners have multiple visual connections to the landscape from below, within and above the house, encouraging a sense of place.

ARCHITECT
Bates + Masi Architects
Sag Harbor, NY

STRUCTURAL ENGINEER
Steven L. Maresca
Hampton Bays, NY

GENERAL CONTRACTOR
Mannix Custom Builders
Amagansett, NY

PHOTOGRAPHY
Bates + Masi Architects
Sag Harbor, NY

Wood takes center stage in six-story west coast modern residence

Remodeled Residential

SAIL

Rositch Hemphill Architects

SAIL is the first six-story wood-frame residential project at the University of British Columbia in Vancouver. It is located on the southern part of the campus in a new neighborhood of commercial and residential developments. The design style exemplifies clean lines, the use of warm and natural materials, and extensive indoor/outdoor living.

The development consists of 172 condominium apartments in two buildings totaling 166,660 sq.ft. Each building is six stories tall, and sits on two levels of underground parking. Expansive private roof gardens are provided for each of the top floor units where residents are rewarded with impressive views of forest, community and the Georgia Strait/Salish Sea.

A significant feature of the buildings is the dramatic entry design. Glulam columns and beams create a strong, soaring entry pavilion, flanked on either side by flowing water. The pavilion marks the principal entrance to the development and leads to the front doors and lobbies of the buildings.

The two buildings are separated by a courtyard that is open at one end to the entry pavilion and the other end to an adjacent park. The courtyard provides outdoor space for the ground floor apartments and a large common area with seating, a gazebo, running water and extensive landscaping for all residents to enjoy.

Cedar, finished to accentuate its natural color and smooth surface, is used on all soffits and undersides of balconies and adds to the warmth of the building. Exterior columns and trim are stained Douglas fir. Fiber cement siding and brick contrast the wood elements.

Six-story architecture is new to this neighborhood and relatively new to British Columbia. The approach was to celebrate the height of the building with brick and cedar cladding that draw the eye upward, beyond the roof line. Strong horizontal elements on the upper levels, particularly the fifth floor cornice and dramatic roof overhangs on the sixth floor, further accentuate the building's height.

Inside, wood can be found in multiple applications: engineered joists, beams and LSL rimboard for the floor system. The walls are constructed of 2 x 6 double kiln-dried Douglas fir. The elevator shafts are constructed with laminated 2 x 6 studs to meet fire code performance requirements.

The project meets the highest standards for sustainability established by the university: REAP (Residential Environmental Assessment Program) Platinum, which is similar to a designation of LEED Platinum.

OWNER/DEVELOPER
Adera Development Corporation
Vancouver, BC

ARCHITECT
Rositch Hemphill Architects (RHA)
Vancouver, BC

STRUCTURAL ENGINEER
Weiler Smith Bowers (WSB) Consulting Structural Engineers
Burnaby, BC

GENERAL CONTRACTOR
Adera Development Corporation
Vancouver, BC

PHOTOGRAPHY
Raef Grohne
Vancouver, BC

Residence draws on wood's ability to create a life-affirming environment for cancer patients

SFI Sponsorship Award

Canadian Cancer Society Kordyban Lodge

NSDA Architects

The Canadian Cancer Society Kordyban Lodge provides 36-bed accommodations for out-of-town patients receiving medical treatment at the Regional Cancer Centre in Prince George, B.C.

People living with cancer and undergoing medical treatment are often overwhelmed by feelings of fear and anxiety and fighting cancer requires courage and support. The primary intention of the lodge was to provide a life-affirming residential environment that contributes to the physical, emotional and psychological well-being of patients and their families with an architecture rooted in the context and culture of its place.

The economy of the region is driven by the forest sector and wood products are used extensively in structural and architectural applications, for both the building's interior and exterior. The project was seen as an opportunity to showcase the beauty of wood, as well as its durability, versatility, cost-effectiveness and sustainability. Of utmost importance was wood's ability to create a positive home-like environment.

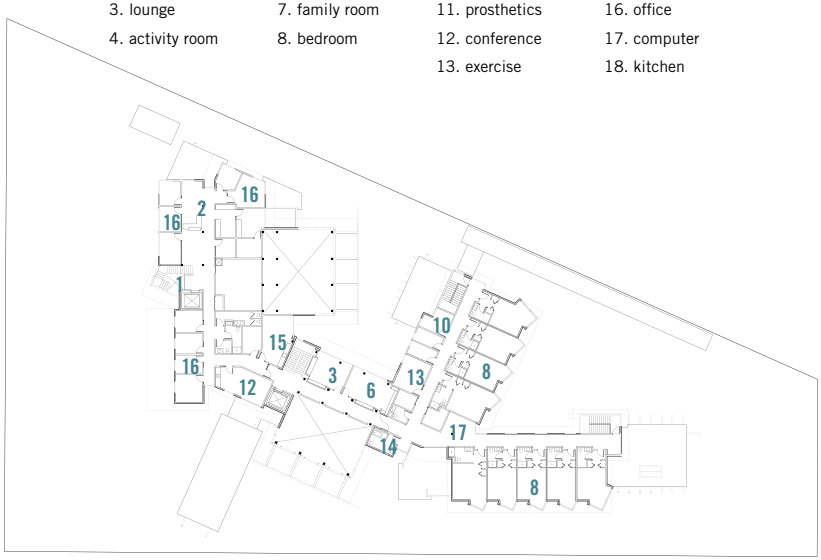
The hybrid structure consists of engineered Douglas fir timber frame for all major spaces with long spans, conventional light wood framing, factory-built prefabricated wall panels and engineered roof trusses. The expressed wood structure, spatial organization and natural light gives definition to a coherent yet varied building with finely crafted public rooms, circulation spaces and private areas. The social spaces are two-story shed volumes showcasing Douglas fir timber structures with Western red cedar ceilings and floor-to-ceiling glazing.

A robust entrance canopy constructed of glulam columns and beams, paired purlins and exposed wood decking welcomes residents to the lodge. On the north elevation, a covered walkway entrance to the Canadian Cancer Society's offices is defined by the glulam columns supporting a large roof overhang.

The exceptional natural beauty of Western red cedar, its richness of grain, tactile texture and lustrous color, along with its natural durability, dimensional stability and performance characteristics made it the material of choice for the exterior and interior finish. The cedar has visual warmth and is especially striking in combination with the Douglas fir post and beam structure.

GROUND FLOOR PLAN

1. entrance
2. reception
3. lounge
4. activity room
5. dining room
6. library
7. family room
8. bedroom
9. meditation
10. massage
11. prosthetics
12. conference
13. exercise
14. tub room
15. staff
16. office
17. computer
18. kitchen



SECOND FLOOR PLAN

On the interior, Western red cedar ceilings and panelling combined with solid maple slats and trim, maple veneer panels and wood cabinetry give the spaces a warm natural character and distinctiveness. For its sound suppression and absorption qualities, the walls in the meditation space and family room are also finished with Western red cedar to create a quiet, serene space.

Wood products are used with intent and crisp, clean details establish a modern, materially expressive aesthetic rooted in the north. Most importantly, for patients and their families, the use of wood creates a special residential environment that contributes to their physical, emotional and psychological well-being.

CLIENT
Canadian Cancer Society,
BC & Yukon Division
Vancouver, BC

ARCHITECT
NSDA Architects
Vancouver, BC

STRUCTURAL ENGINEER
Krahn Engineering
Vancouver, BC

GENERAL CONTRACTOR
Wayne Watson Construction Ltd.
Prince George, BC

PHOTOGRAPHY
Derek Lepper
Vancouver, BC

Canadian Wood *WORKS!* Awards

Canadian Wood *WORKS!* Awards

In Canada we have a long tradition of building with wood. It is a fundamental part of our architectural heritage, embraced for its warmth, beauty and availability. Yet, as significant as wood is to our past, it is going to play an even more important role in our future.

The pursuit of design solutions that incorporate sustainably sourced wood products helps reduce the carbon footprint of our built environment. As we face the reality of climate change and the impact of human development, it is clear that building with wood isn't just a more responsible choice, it is a necessary one. Using wood in the new ways made possible through scientific research, advanced manufacturing and computer-aided design has ensured that today's wood buildings are not only sustainable, they're also smarter, stronger and more versatile.

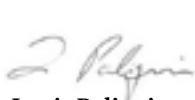
Wood, today, is a technologically advanced building material that offers almost unlimited opportunities for innovation, and project teams across Canada are actively exploring wood's potential, advancing the science and art of wood design. This remarkable collection of structures showcases excellence and creativity, and the innovation expressed exceeds anything we could have imagined even a decade ago.

We congratulate all the winners of the regional award programs, this year welcoming Québec, as we celebrate our wood building heritage and continue to document the remarkable evolution of wood design in Canada.

Mary Tracey*
Executive Director
Wood *WORKS!*
British Columbia

Rory Koska
Executive Director
Wood *WORKS!*
Alberta

Marianne Berube
Executive Director
Wood *WORKS!*
Ontario



Louis Poliquin
Executive Director
Cecobois
Québec

*Mary Tracey retired in March 2014 and Lynn Embury-Williams has been appointed Executive Director of Wood *WORKS!* BC.

Jurors

(From left to right): Rick Jeffery, Laura Hartman, C Y Loh and Wesley Wollin

RICK JEFFERY
President and CEO
COAST FOREST PRODUCTS ASSOCIATION
www.coastforest.org

LAURA HARTMAN
Architect AIA, LEED accredited
FERNAU & HARTMAN ARCHITECTS
www.fernauhartman.com

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WESLEY WOLLIN
Architect AIBC, M.Arch
BCIT STUDIO INSTRUCTOR – ARCHITECTURAL SCIENCE
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West Fraser

WFP Western Forest Products Inc.

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Weyerhaeuser

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SUSTAINABLE FORESTRY INITIATIVE AWARD (SFI)

Canadian Cancer Society
Kordyban Lodge

Prince George, BC

NSDA Architects

Please see page 104

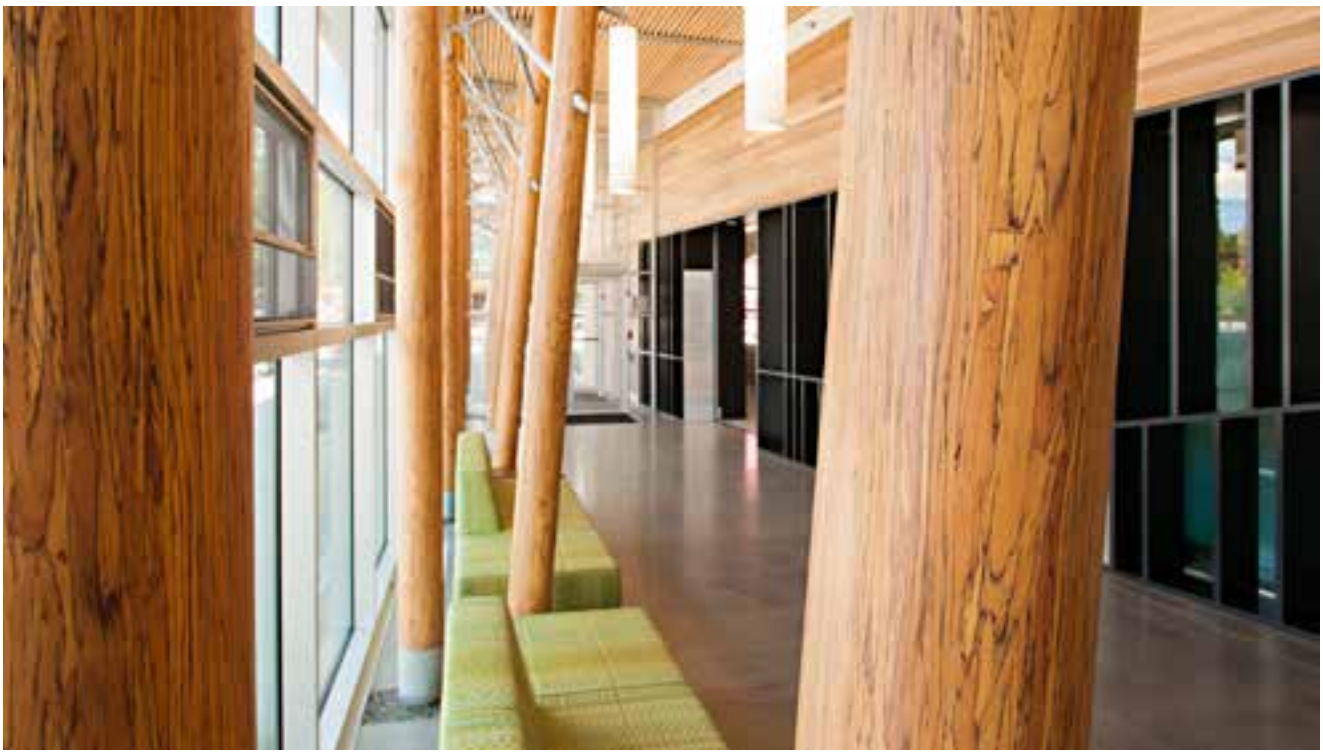
BRITISH COLUMBIA

COMMERCIAL

Complex roof geometry required innovative structural solutions

Salmon Arm Savings and Credit Union – Uptown Branch

RATIO Architecture. Interior Design. Planning.




SASCU

This 22,604-sq.ft. purpose-built financial institution is located in Salmon Arm, British Columbia and is designed as a flagship branch for enhanced community banking services throughout the greater Shuswap region. The design concept sought to connect the building and its function to the greater community through subtle references to the natural and man-made context of Salmon Arm and introduce realistic sustainable design goals and targets. A large, sweeping atrium space and angular roof are direct references to the famous pier in Salmon Arm and surrounding topography, and provide a unifying design element across the north elevation. The main atrium roof structure is composed of parallel strand lumber columns and a timber roof that included pine beetle wood.

The building's east end is rooted by a neutral brick masonry form, housing the back-of-house financial institution services. The south elevation facing the Trans-Canada Highway is a clean and simple form of glazing that is framed by rectilinear zinc panels that reflect the highland topography of the project's setting along a predominantly vehicular route. The west facade is open and transparent, connecting a neighboring grocery store and lively public plaza to the facility.


SASCU

1. teller area
2. member area
3. atrium
4. offices
5. wealth management
6. insurance services

GROUND FLOOR PLAN

The project's predominant use of wood and wood-building systems was primarily devised as a means of offsetting the carbon footprint of the project and allowed the project to utilize a local labor pool of carpenters, trades and skill. The main atrium is a 2,368-sq. ft. nail-laminated timber roof made of pine beetle reclaimed wood, supported by a system of PSL columns. The entire second floor and roof structural framing utilizes innovative wood structural systems of glulam columns and beams, and I-joists systems. All interior framing of walls, partitions, soffits, and parapets were composed of 100 per cent wood framing.

Challenges arose through the complex geometries of the main atrium roof and innovative structural requirements it presented. Collaboration with local authorities to ensure all seismic and fire code challenges were met, as well as integration with other building systems, was essential.

Wood as a sustainable resource and its contribution in offsetting the carbon footprint of this project was a key design strategy focused on the life cycle of the building and part of a broader design strategy to maximize energy efficiency achieved through the integration of building systems, including passive earth tubes and a green roof. The use of wood as both a structural and finish material expressed vividly in the most public component of the building relate to how traditional materials can exist within contemporary architectural expression.

CLIENT
Salmon Arm Savings and Credit Union
Salmon Arm, BC

ARCHITECT
RATIO Architecture.
Interior Design. Planning.
Vancouver, BC

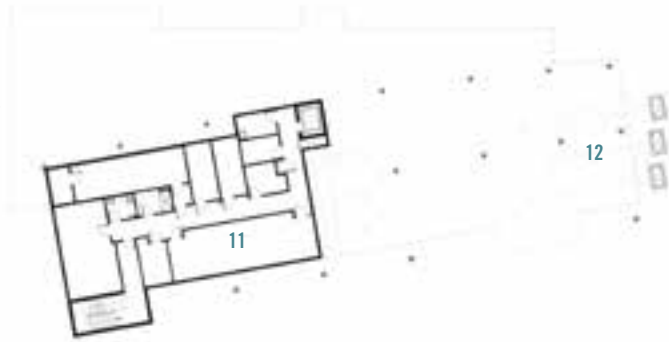
STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

GENERAL CONTRACTOR
Sawchuk Developments Co. Ltd
Kelowna, BC

PHOTOGRAPHY
Michael Hintringer Photography
Kelowna, BC

UPPER FLOOR PLAN

7. support offices
8. leasable space
9. roof deck
10. green roof
11. storage
12. earth tubes



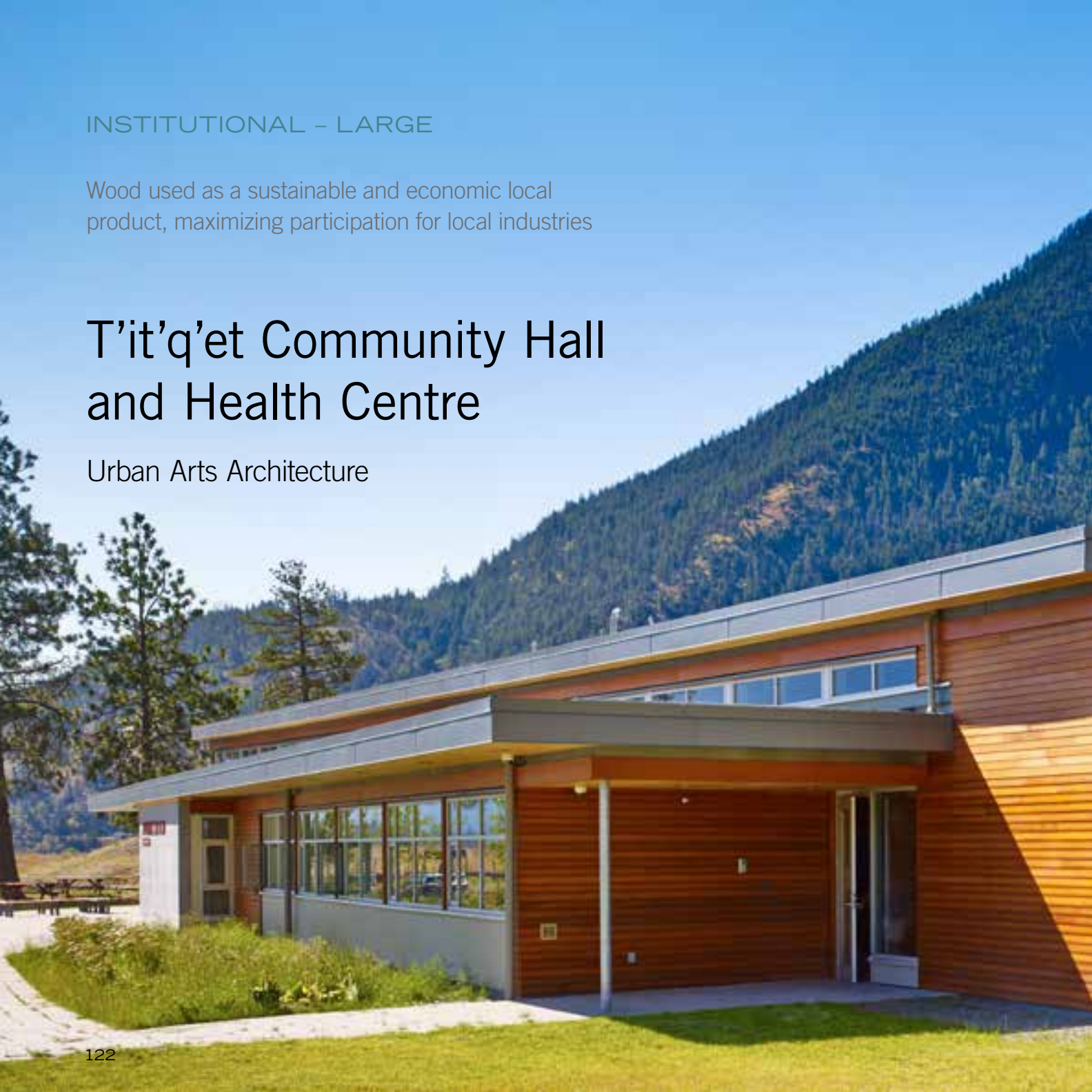
BASEMENT FLOOR PLAN

INSTITUTIONAL – LARGE

Wood used as a sustainable and economic local product, maximizing participation for local industries

T’it’q’et Community Hall and Health Centre

Urban Arts Architecture



This combined-use building is designed to evoke St'at'imc culture and references the community's building traditions of pit-house and summer arbor shelters. The community hall is designed to support the community's hosting role. The main gathering space can accommodate 500 or more people for powwows. The health center is designed to capitalize on the synergy of integration with the community hall, maximizing exposure to health education and recreation opportunities.

Sustainable design practices and traditional First Nation building wisdom heavily influenced and informed the design, including sinking the building mass into the ground to shelter from weather extremes, the extensive use of wood, and opening the building to capitalize on daylighting and natural ventilation. The community was involved in the design process and local tradespeople aided in the construction of the project.

The pit dwelling and the arbor are two of the St'at'imc traditional building forms. The climate-responsive construction of pit dwellings forms the major inspiration for the design of the hall. Nestled into the ground, the hall utilizes the community's traditional wisdom of using the earth to shelter from extreme climate. The community hall is the heart of the community and has been designed as a flexible, multipurpose space that can support a wide variety of functions. This space has direct connections to the exterior for indoor and outdoor functions. The space is curved along both of its long sides to reinforce the sense of center and gathering, and has been designed as an expressive, light-filled space with good acoustics.

The surrounding support spaces reflect the arbor lean-to form, providing offices and other occupied spaces a strong connection to views while being sheltered from direct sunlight. The ceiling of the health center wing is constructed of pine to match the soffit, bringing the outside in and proving a warm environment for patients. The health center has a dramatic roof form that integrates with the surrounding mountainous topography. It was created by a simple dropping of one corner of the structure so that the I-joists along this line step down to create a torqued form.

Wood was used extensively as a sustainable and economical local product and to maximize community participation for local industries and businesses. Pine was used for the soffits, ceilings and cross-laminated timber panels. Fir was used for the glulams and Western red cedar for the exterior cladding and interior woven wall elements. Birch was used for the wainscoting, doors, millwork and other interior elements. The St'at'imc have a rich tradition of basket weaving which inspired many of the interior details and finishes.

This project makes extensive use of wood and engineered wood products, lowering the building's carbon footprint through carbon sequestration and allowing it to be readily down-cycled at end of life.

CLIENT
T’it’q’et First Nation
Lillooet, BC

ARCHITECT
Urban Arts Architecture
Vancouver, BC

STRUCTURAL ENGINEER
Equilibrium Consulting Inc.
Vancouver, BC

CONSTRUCTION MANAGER
Heatherbrae Builders
Richmond, BC

PHOTOGRAPHY
Martin Knowles Photo/Media
Vancouver, BC

INSTITUTIONAL – SMALL

Health center echoes the simple frames and
Douglas fir constructions of a traditional Yunesit'in village

Yunesit'in Health Centre

David Nairne + Associates Ltd.

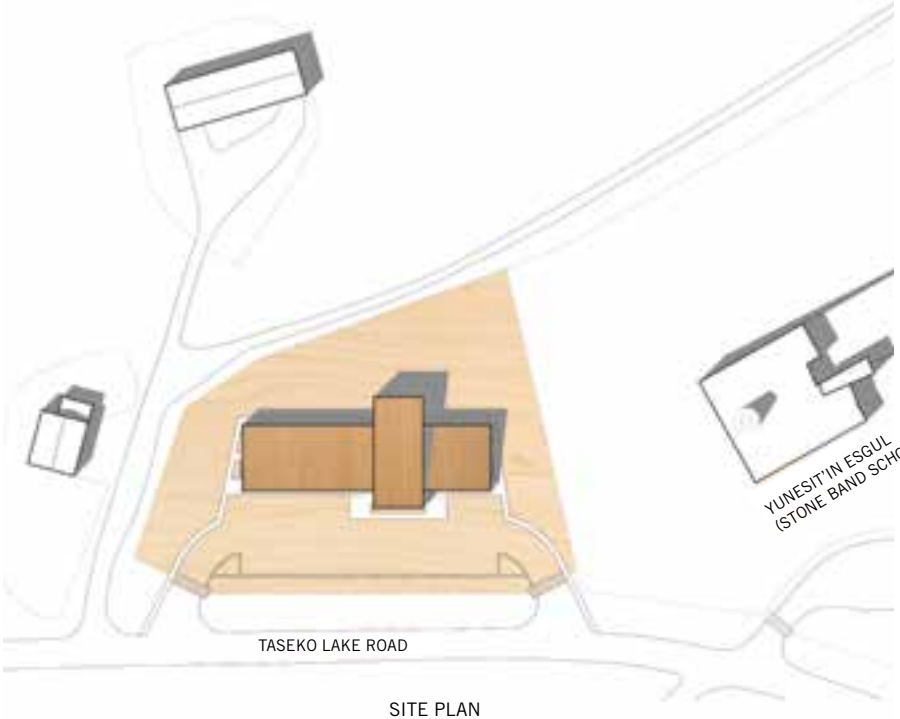
The new 4,553-sq.ft. health center developed by the Yunesit'in of British Columbia's Cariboo Chilcotin (known to them as the "Land without Limits") is a contemporary interpretation of the Yunesit'in dwelling and draws on the Yunesit'in tradition of using wood to create structure.

The Yunesit'in were traditionally a nomadic people moving through the land to sustain their community by following naturally occurring migratory and vegetation food sources. In time and with the seasons, the Yunesit'in would stop and establish temporary villages.

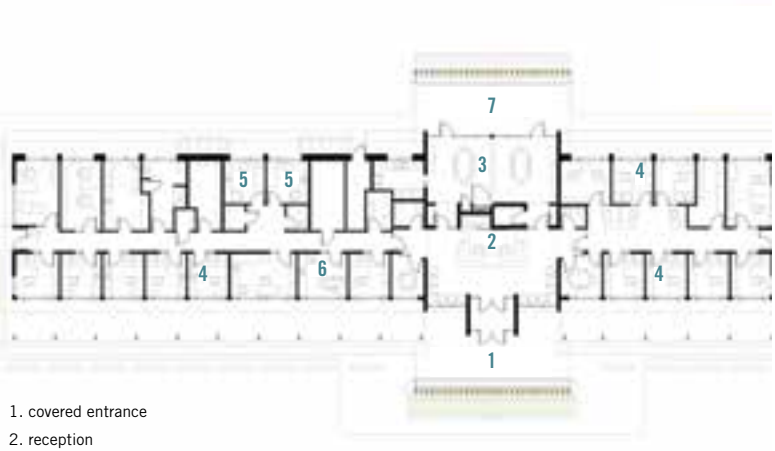
Yunesit'in villages were by defined by simple wood constructions of Douglas fir, a tree characteristic of the Chilcotin River Valley. The constructions were characterized by a central gathering area with a simple frame and protected by two wood walls constructed of poles placed side by side.

The main feature of the health center is the Community Gathering Space which, like its traditional counterpart, is defined by closely spaced Douglas fir glulam timbers supporting a large-scale sheltering roof. The underside of the roof is clad in Douglas fir both indoors and outdoors. The clinical wing of the building is wood frame construction with prefabricated wood trusses. Millwork and doors throughout the facility are edge grain Douglas fir.

In keeping with Yunesit'in values, the Yunesit'in Health Centre was designed with sustainability, integrity and respect



SITE PLAN



1. covered entrance
2. reception
3. community room
4. offices
5. exam room
6. optometrist
7. covered gathering

FLOOR PLAN

for the Yunesit'in traditional lifestyle. The climate in the Chilcotin River Valley is mainly cool but also has months of hot, dry spells. In response to the local climate, offices in the health center are placed on the south facade to allow natural daylight in. To reduce solar heat gain in the summer, the roof extends to create a covered walkway along the south facade. Energy-efficient LED lights were used throughout the building to supplement natural daylighting when required. The mechanical system is an economical, energy-efficient hybrid heating and cooling air-to-air heat pump system with supplemental high-efficiency furnaces for the winter. When compared to conventional building systems, it is estimated that the insulated wood structure of the health center will be 60 per cent more energy efficient and annually reduce greenhouse gas emissions by an estimated 28 tons of CO^2.

ARCHITECT
David Nairne + Associates Ltd.
North Vancouver, BC

STRUCTURAL ENGINEER
David Nairne + Associates Ltd.
North Vancouver, BC

GENERAL CONTRACTOR
Preview Builders International Inc.
Chilliwack, BC

PHOTOGRAPHY
Martin Knowles Photo/Media
Vancouver, BC

INTERIOR BEAUTY DESIGN

Exposed framing and floor to ceiling windows mean home is all about the views, inside and out

Forest House

JWT Architecture and Planning

Built on a rock outcropping next to a small stream and several trout ponds, this house finds a slice of light within a forest setting. A low pitch roof follows the grade of the bedrock, while a simple rectangular floor plan is articulated with various bays, canopies and decks. The clients, just back from six years overseas in Africa, wanted a three-bedroom plus guest room home on Bowen Island to raise their two young children. Floor to ceiling windows bring the outdoors inside and two sliding doors open the dining area up to the stream.

The wooden canopy over the dining area opening is supported by steel brackets and tension rods and is fashioned from 3 x 6 tongue and groove Douglas fir decking (required by the large span). The east-facing wall is punctuated by wood windows in a seemingly random pattern that creates character and intrigue when viewed from the ponds. On the interior, the wood windows become the main features of the bedrooms.

Minimal clearing and careful site planning place this house in harmony with its natural rainforest surroundings. The floor plan sets up a dramatic experience of arrival, entry and discovery, and allows the children their own retreat space adjacent to their small but cozy bedrooms. Gray steel siding, bevelled cedar siding and a red screen at the entry speak to the owners' Scandinavian heritage and love of natural and modern materials. Boxed windows punctuate a simple exterior cladding scheme.

In the main space, strategic use of post and beam construction (6 x 6 and 6 x 10s in Douglas fir) supports smooth four sides (S4S) second growth Douglas fir floor joists. Simple details like substituting 2 x 8s for 2 x 10s on the lesser spans come to life when integrated with the exposed blocking and shimmed with 2 x 4 fir material laid on its side. The main boxed window functions as a window seat on the interior, clad with a fir liner integrated with the Douglas fir wood window frames. The living room cantilever consists of floor to ceiling windows and the corner posts are slender 4 x 4s, allowing for the wood frames of the windows to meet one another without the need for casement trim. This cantilever supports a glass bay for the contemporary wood burning stove. The chimney becomes free of the structure as it passes through a lower roof accented by a restrained use of drywall, wood framing and the main transfer beam which supports the clerestory windows above the floor to ceiling window bay.

1. deck
2. guest suite
3. kitchen
4. dining room
5. living room
6. office
7. arrival
8. entry deck

GROUND FLOOR PLAN

1. ensuite
2. master bedroom
3. kid's bedroom #1
4. kid's bedroom #2
5. bathroom
6. open to below
7. laundry
8. kid's retreat

UPPER FLOOR PLAN

Given the sloped nature of the site, the main space (living room/dining area/kitchen) has three main levels which are sympathetic to the fall of the land. Each level drops two steps, just the right amount for casual seating. The stepped floor platform sets up an unobstructed view across the space from the kitchen and island area. The ceiling consists of exposed joists over the kitchen and opens up above the living room. The upper wall adjacent to the living area is washed with natural daylight by two skylights. A vertical interior opening is introduced into this high wall, creating a visual and acoustical connection between the main living area and the children's shared space above.

The main stair is the focal point of the house. Set next to a large two-story window, and adjacent to the main arrival area, the open treads and 6 x 6 posts weave their way into the overall framework of the home's wooden assembly. The result is an exposed framing package that is crafted like a fine piece of furniture.

ARCHITECT
JWT Architecture and Planning
Bowen Island, BC

STRUCTURAL ENGINEER
Ennova Structural Engineers
Vancouver, BC

GENERAL CONTRACTOR
Wood Brothers Construction
West Vancouver, BC

PHOTOGRAPHY
Debra Stringfellow
Vancouver, BC

MULTI-UNIT RESIDENTIAL

Floor to ceiling windows offer a panoramic view of mountains

Red Sky Townhomes

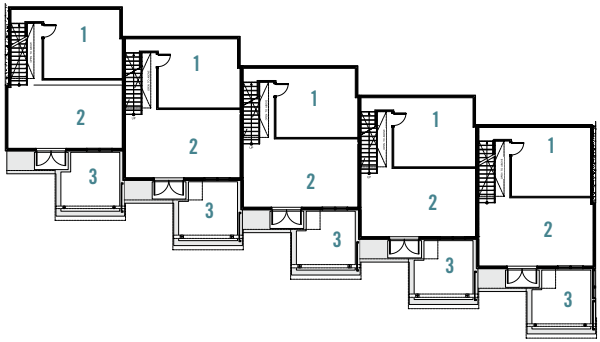
a | k | a architecture + design inc.

Red Sky Townhomes are situated in a mountainside neighborhood at the popular ski resort destination of Whistler, British Columbia. The spacious 2,000-sq.ft. homes are designed to accommodate year-round residents as well as seasonal vacationers and their guests. The homes are compact in footprint and utilize every opportunity to open toward the views of Whistler Mountain and Blackcomb Peak.

The use of wood as a primary structural and finish material continues the well-known vernacular building tradition of this established mountain community. The structural demands of a heavy snow load were met through the combined use of typical wood framing, engineered wood and heavy timber construction. An open floor plan, with expansive floor to ceiling windows, was made possible by engineered floor joists and simple wood trusses. This effective system also offset construction costs and helped achieve sustainability objectives.

Exposed wood structural elements are used strategically for maximum visual effect. The entry into each townhome unit is articulated by an exposed Douglas fir post, beam and rafter roof structure. This identifies each home as a separate entity and creates an inviting presence on the street. The upper roofs and exterior decks are also supported by exposed wood structure, further expressing the identity of each townhome.

The exterior facades are a balanced composition of natural materials. The horizontal clear cedar plank siding has a simple appearance, harmonizing with its forested and mountainous natural context. Basalt stone and fiber cement panels complement the cedar siding and enhance the texture of the cedar soffits and Douglas fir timbers.



1. mechanical
2. recreation
3. covered patio

LEVEL 1 FLOOR PLAN

1. entry
2. garage
3. powder room
4. cooking
5. socializing
6. dining room
7. living room
8. deck

LEVEL 2 FLOOR PLAN

1. walk-in closet
2. bathroom
3. bedroom
4. walk-in closet
5. master bedroom
6. ensuite

LEVEL 3 FLOOR PLAN

The interior is composed from a carefully selected palette of wood species in a variety of grains, colors and applications. Panoramic views of Whistler and Blackcomb are framed by expansive floor to ceiling Douglas fir wood windows. Wood veneer wall panels provide an appealing backdrop to the custom solid wood stair treads of the open staircase. The finely grained walnut veneers of the kitchen cabinets and the oak floors throughout complement the other wood features and the overall character of the interior.

OWNER
Squamish Nation and
the Lil'wat Nation
Whistler, BC

ARCHITECT
a | k | a architecture + design inc.
Squamish, BC

STRUCTURAL ENGINEER
Read Jones Christoffersen
Consulting Engineers
Victoria, BC

GENERAL CONTRACTOR
Baxter Creek Limited
Whistler, BC

PHOTOGRAPHY
Amanda Oster/Provoke Studios
Vancouver, BC

Silver Lake House

Hewitt + Company Architecture Inc.

RESIDENTIAL

Locally sourced Western red cedar and maple increase sustainability of lakefront residence

This small lakefront vacation home is located on Silver Lake, Washington, just south of the British Columbia border, and about 80 minutes from the owner's Vancouver home. The 1,320-sq. ft. lakefront house is situated on a mountainous one-and-a-half-acre woodland property. The low profile linear design of the house nestled into the hillside takes advantage of a natural plateau in an otherwise steeply sloped site and responds to the mountain topography to minimize the imposition on the landscape. The cross-hill linear design blends into the natural terrain and allows maximum views of the lake from every room with minimal impact on the natural site.

Nestled in the foothills of Mount Baker, the site is subjected to potentially heavy snow loads and cold temperatures. The use of glulam beams permits large expanses of glass to capture the lake view while the 2 x 6 framing provides the structural requirements for both heavy snow loads and extra insulation. The glulam beams also allowed the master bedroom to be cantilevered out, showcasing a treehouse view of the lake and mountains beyond. The sloped metal roof parallels the natural hillside and appears as a flat roof sloping away from view and is a response to the high snow load design criteria.

The indigenous rainforest is comprised primarily of red cedar and maple trees and the extensive use of these natural materials is evident in the Western red cedar siding, decking and soffits on the exterior, all of which are sourced locally. Used in combination with charcoal-colored fiber cement panels, the wood siding exterior blends into the natural hillside landscape when viewed from the lake. All natural vegetation has been allowed to re-establish on the site to minimize the impact on the landscape.

The second floor brise soleil is also made of Western red cedar stained a honey color to contrast with the charcoal panels. The brise soleil has been extended the full height of the windows to provide natural shade from the western summer sun both directly and indirectly from reflected sunlight off the lake surface.

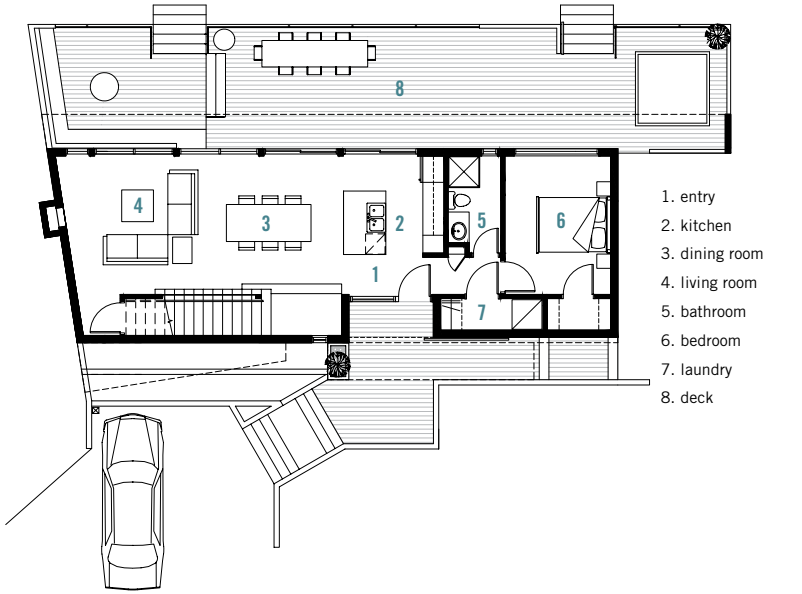
A cedar slat sliding wall panel at the front entrance allows natural ventilation through the wall on summer nights while keeping the local wildlife from wandering into the house. Constructed to blend seamlessly with the siding when closed, it provides additional security when the owners are away.

Maple was used exclusively on the interior for floors, kitchen cabinetry, wall finishes and heavy timber stair treads cut and milled from windfall trees on the site. The feature staircase is evocative of an interlocking puzzle using clear, natural-finish slats, milled in one piece, and heavy timber solid maple beams projecting through the wall slats. All were cut, milled and finished on-site.

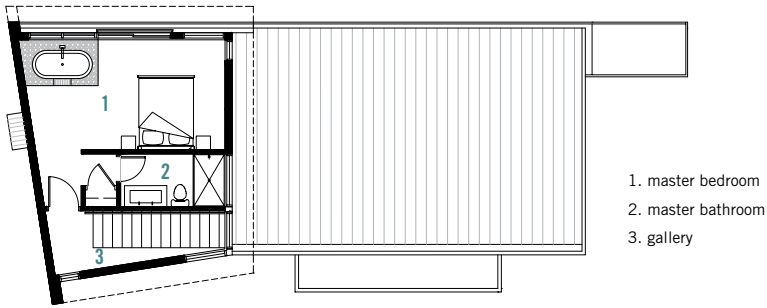
Designed to exceed energy requirements, the project has thick walls enabling increased insulation and energy-efficient windows to maximize glazing area while exceeding energy codes.

The construction schedule was modified and careful monitoring exercised due to an eagle nesting tree located just south of the property to ensure no disruption of the birds was caused by the construction during nesting season.


MAN RAY



GROUND FLOOR PLAN



SECOND FLOOR PLAN

ARCHITECT
Hewitt + Company Architecture Inc.
Vancouver, BC

STRUCTURAL ENGINEER
Bradley Engineering
Bellingham, WA

GENERAL CONTRACTOR
Clark Construction
Bellingham, WA

PHOTOGRAPHY
Revival Arts
Abbotsford, BC

Aromatic Western red cedar contributes to therapeutic hot springs experience

Liard River Hot Springs Facility

Formline Architecture + Urbanism

This 3,335-sq.ft. structure, at the site of Canada's second-largest hot springs, is tucked deep within the thick boreal forest along the Alaskan Highway of northern Canada. Upon entering the grounds, one begins an enchanting journey through the forest down a quarter-mile cedar walkway stretching over a rich marshland ecosystem. The entranceway is marked by a gateway leading to a semi-circular deck with steps gently ushering into the pool.

The design addresses the needs of the rugged northern climate while creating a welcoming environment for the hot springs bathers. The project consists of new separate men's and women's changerooms, an expanded and upgraded deck, hot springs amenities and an upgraded path network. The deck has a semi-circular layout, centered on the hot springs. Stepped levels of canal-salvaged ipe provide generous space for descent into the springs. During the material research, mock-ups of proposed materials were delivered to the site and set out over the winter to be tested for durability, maintenance and climate exposure.

The site construction process was specifically sensitive as there was a red-listed snail that lived along the shoreline of the hot springs. Helical screw piles were installed while the old facility deck was in place to minimize damage to the ground.

Western red cedar was a natural first choice in building material for a number of reasons. It co-exists harmoniously with the surrounding natural

and cultural landscape and the properties of the wood allow for a durable structure that withstands the environment, particularly in its resistance to insect attack by way of its thujic acid component. The air surrounding the hot springs is particularly damp and moist, creating humid streams of mineral-rich mist. Western red cedar is able to withstand a lot of sweat and heat. It also has a very low shrinkage factor and a resistance to warping, twisting and checking, making it able to withstand the harsh environment without compromising its aesthetic integrity. The presence of phenolic oils in the wood makes it resistant to weathering, mold and fungus.

Because it is a very soft wood, Western red cedar allows people to be in comfortable contact with the wood even though the surrounding elements are very hot. Lastly, the aromatic quality of Western red cedar produces a calming and relaxing feeling as the aromatic oils are released, contributing to the total therapeutic hot springs experience.

ARCHITECT
Formline Architecture + Urbanism
West Vancouver, BC

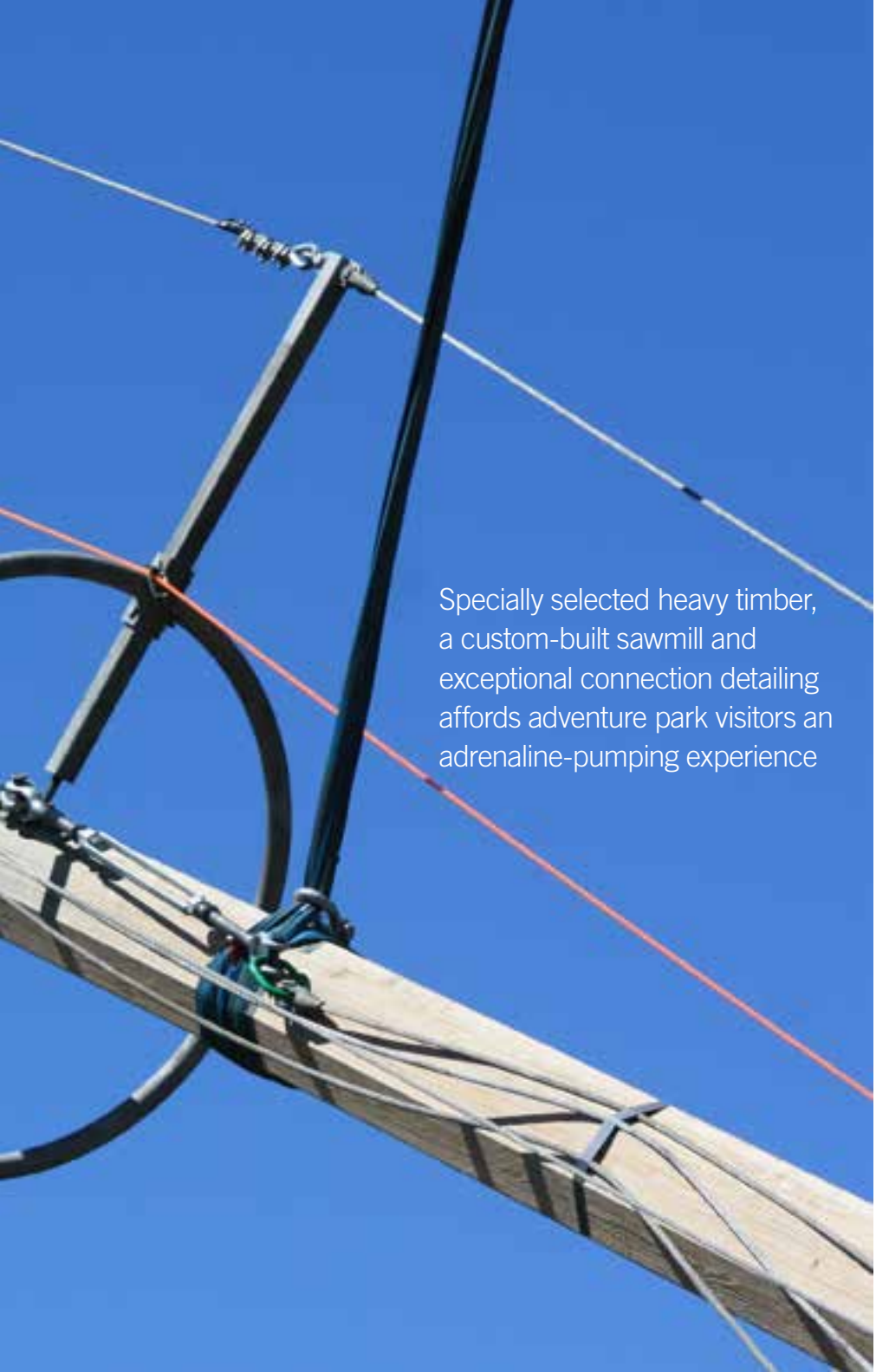
STRUCTURAL ENGINEER
Equilibrium Consulting
Vancouver, BC

GENERAL CONTRACTOR
Bear Mountain Construction
Centreville, NS

PHOTOGRAPHY
Alfred Waugh
West Vancouver, BC

WildPlay

Macdonald & Lawrence
Timber Framing Ltd.



Specially selected heavy timber, a custom-built sawmill and exceptional connection detailing affords adventure park visitors an adrenaline-pumping experience

WildPlay Kelowna features a high ropes adventure course, 10 ziplines, five suspension bridges, and a large swing for a thrilling pendulum ride above a canyon. The project partners provided design and build services from conceptual planning and design through to construction and administration.

The adventure park was designed to fit into the natural setting, making use of the existing forest and using heavy timber as the main construction material. The longest zipline is 640 ft. (195 m.), and the longest canopy bridge is 118 ft. (36 m.) at up to 49 ft. (15 m.) off the ground. The swing is one of the largest timber swings in the world with a 98-ft. (30 m.) swing line and a 121-ft. long (37 m.) timber structure.

One of the main challenges of this project was the use of timber in the swing design. The aim was to build a large two-person swing using the maximum length of timber that it was possible to transport, and with an extremely slender diameter. The design of the swing involved the configuration of the 121-ft., eight-sided, tapered coastal Douglas fir timbers into three-dimensional trusses to maximize the efficiency of the slender timber members. For additional strength, the whole structure was reinforced with steel and cable trusses.

Two second-growth trees were specially selected and logged by helicopter from a location in the Port Alberni Valley on Vancouver Island. These were then milled using a custom-built sawmill that was made to create the octagonal and tapered spars. The octagonal profile and the alignment of the taper on the logs with respect to the diameter of the trees was an important part of the engineering of the swing. The precise milling and the quality of timber selected was an integral part of achieving a successful design.

The assembly and erection of the swing presented a number of challenging logistical considerations. In total, four cranes were in operation simultaneously with a team of more than 10 on the ground and working in man baskets from cranes. The individual trussed spars were prepared on the ground and then assembled in lifts: main-frame (shear legs) first, followed by the two triangulated trussed spars and the rigging from which the swing is hung.

The collaborative design and engineering of this project created an impressive tall and slender structure that explores the limits of the structural potential of the timber used. Good connection detailing was essential and was carefully coordinated in order to situate the structure very close to the edge of the bank. The end result is a playful structure that demonstrates the capacity and quality of local wood.

OWNER
WildPlay Element Park
Kelowna, BC

STRUCTURAL ENGINEERING
ISL Engineering and Land Services
Canmore, AB

TIMBER SPECIALIST
Macdonald & Lawrence
Timber Framing Ltd.
Cobble Hill, BC

PHOTOGRAPHY
Macdonald & Lawrence
Timber Framing Ltd.
Cobble Hill, BC

Jurors

J. DAVID BOWICK, P.ENG
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www.blackwell.ca

BRIAN COURT, AIA, LEED AP
Associate
THE MILLER HULL PARTNERSHIP, LLP
www.millerhull.com

STEVEN RAIKE, AIA, NCARB, LEED BD+C
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www.lakeflato.com

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Vanderwell
Contractors (1971) Ltd.

COMMERCIAL/INSTITUTIONAL

Grizzly Paw Brewing Company

Canmore, AB

Lloyd R. McLean Architect WITH
russell and russell design studios

Please see page 82

PRAIRIE

ENGINEER WOOD ADVOCATE

The recipient of the Engineer Wood Advocate Design Award is selected for a commitment to pushing perceived limits of building with wood.

ISL Engineering and Land Services Ltd. is the 2013 recipient of this award. The jury selected ISL Engineering and Land Services Ltd. for its contribution to the award-winning Grizzly Paw Brewery as well as several other nominated projects.

Elevation Place, Canmore, AB | Gibbs Gage Architecture | Photo by Caminus

House on the Ridge, Calgary, AB | Shugarman Architecture | Photo by Ovatio

Contemporary Timber Frame in the City, Calgary, AB
Dejong Design and Associates Ltd. | Photo by Barb Bronson

Mountain House, Alberta | Sturgess Architecture
Photo by Kai Mushens Photography

Trout Wrangler Lodge, Crowsnest Pass, AB | Sticks and Stones Design Group
Photo by Lipsett Photography Group

ISL Engineering and Land Services Ltd.

Roundhouse Daycare and Preschool, Canmore, AB
Lloyd R McLean Architect with russell and russell design studios | Photo by Alasdair Russell

Live-edge slab of Siberian elm sets tone for condo makeover

Mid Century Canadiana Condo Renovation

Sheri Krug Designs

In the heart of downtown Edmonton is a two-story condo, with rooftop patio that acts as an oasis for an extremely busy young professional. With a head office in Edmonton and satellite offices in both Toronto and Vancouver, the client spends a fair bit of time in all three city centers. With a passion for mid-century modern design and all things "Canadiana," a design was created to satisfy his preference for a modern aesthetic that was warmed with the use of various species of wood. What began with a call to the designer to assist in refinishing his water-damaged powder room, ended in a complete redesign of the entire condo to better suit his needs and aesthetic.

A live-edge slab of Siberian elm the client fell in love with on one trip to Toronto provided inspiration for the entire project. While the main floor living space remains cooler in feel with a polished concrete floor, the second floor takes on the warmth that only natural wood, in natural finishes, can elicit. Wooden reclaimed or vintage pieces of furniture inhabit both levels, making the two floors cohesive.

A reclaimed table in the main floor lounge/informal office acts as a boardroom table or a formal dining area. In the client's bedroom, which opens to the adjacent lounge, is a paint by numbers mural created by local Edmonton artist, Sonesay Bouphasiry. The piece was inspired by a photo the client provided. The art wall will evolve with time, though if guests don't feel comfortable venturing into in the homeowner's bedroom to paint, they can always make their mark on the chalkboard wall that acts as a backdrop in the office and lounge.

Much like Edmonton is sandwiched between Toronto and Vancouver, the volume of the kitchen and living area is sandwiched between the planed white oak flooring reclaimed from various buildings in Ontario, and the vaulted ceiling clad in B.C. cedar. The kitchen is comprised of mostly high gloss poly in both white and electric orange (a custom color to match the client's beloved Vespa scooter) and softened with gunmetal-stained wenge gables and accents. The inspirational live-edge Siberian elm eating bar acts as the transition between the distinctive kitchen and living area.

A feature wall composed of end growth cedar is a backdrop to the stairwell and creates another area of interest in the condo. The pattern repeat of three predetermined standard sizes of timber for the feature wall creates texture and adds depth as well as acoustic control. The precision required for installation, to lay out the individual pieces and to ensure variation in pieces adjacent to each other, required great patience and attention to detail.

The original stair railing was maintained while stair treads were custom milled out of the same reclaimed white oak as was used on the second floor. The risers were customized with back-painted glass to match the custom glass backsplash in the kitchen and add contrast.

Interior furnishings throughout the two stories encompass various species of wood such as the door hardware (cherry handles), custom walnut dishwasher pull, custom resin and reclaimed stump end table, interlocking ash-framed Truss Chair and various vintage and reclaimed furnishings found by the client while antiquing across the country. With sensitivity to the right balance and proportion of wood used, no details were overlooked. Even a custom bench and white concrete coffee table were designed with dimensions to house the client's ever-growing vinyl record collection.

The aesthetic continues to flow onto the rooftop patio that encompasses cedar bench seats and privacy screens, custom hemlock stump coffee tables and custom metal fabricated "trees" finished with automotive paint to match the interior colors. The trees and all patio furnishings can endure the diverse seasons of the prairies and are maintenance-free for an ever-travelling resident.

INTERIOR DESIGN
Sheri Krug Designs
Edmonton, AB

GENERAL CONTRACTOR
All Urban Renovations
Edmonton, AB

TIMBER CONTRACTORS
Canadian Salvaged Timber (reclaimed flooring and live-edge slab)
Toronto, ON

W G Chanin Hardwoods Ltd.
(end grain cedar)
Edmonton, AB

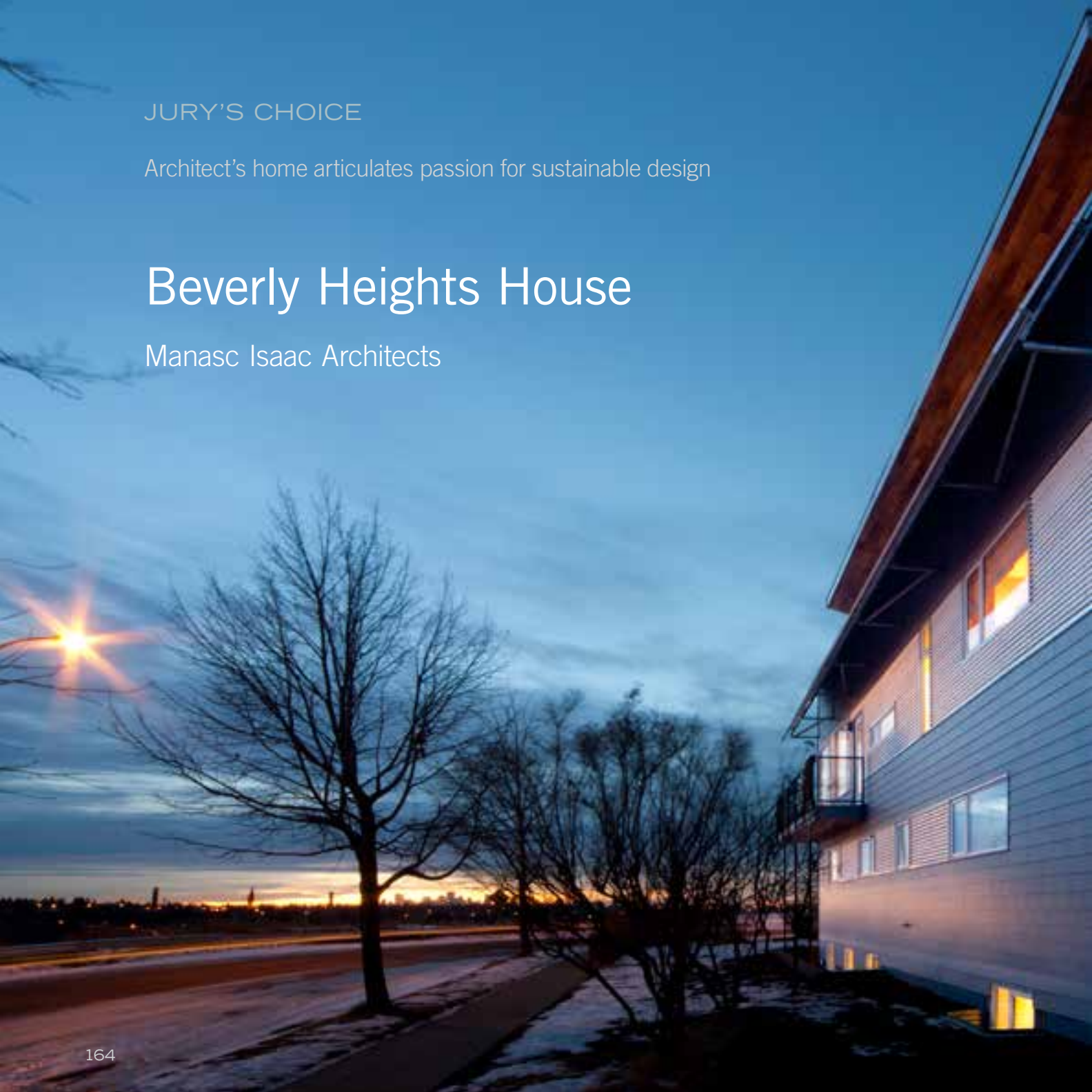
PHOTOGRAPHY
Joshua Kehler Photography
Edmonton, AB

JURY'S CHOICE

Architect's home articulates passion for sustainable design

Beverly Heights House

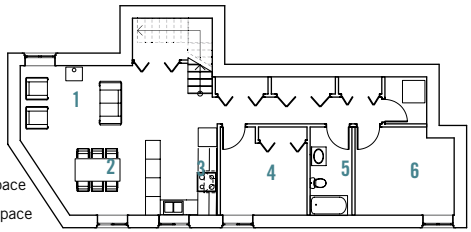
Manasc Isaac Architects



This residential project seeks to achieve net zero living in a northern Alberta environment. The south-facing lot perched atop Edmonton's picturesque river valley provides stunning views and an ideal orientation for solar exposure.

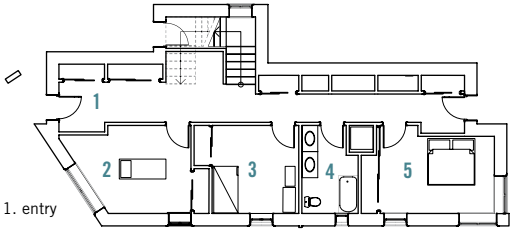
The Beverly Heights House is a showcase of sustainable building, with an EnerGuide rating of 88. Solar panels generate much of the home's power, and a super-insulated double-stud exterior wall system keeps the house warm in Edmonton's cold climate. The narrow house ensures the living spaces are all daylit, reducing the need for electric light.

Interior and exterior trim are largely comprised of experimental torrefied wood – a cutting-edge initiative by Alberta Innovates Technology Futures that reclaims wood damaged by mountain pine beetle infestations. In the chemical free process, the beetle-killed wood is heat-treated in a kiln fed by logging residue. The result is harder, naturally water- and fungal-resistant material.



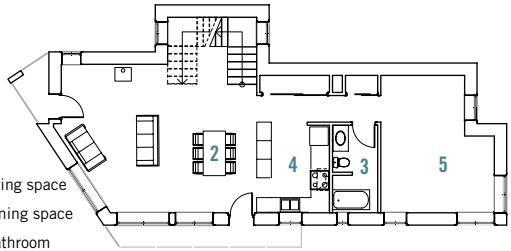
1. living space
2. dining space
3. kitchen
4. bedroom
5. bathroom
6. bedroom

BASEMENT FLOOR PLAN



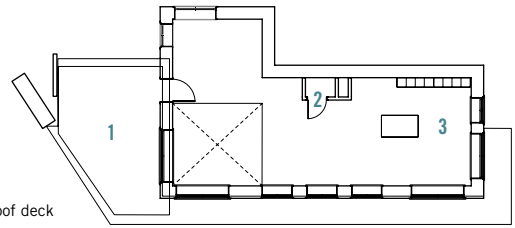
1. entry
2. bedroom
3. bedroom
4. bathroom
5. bedroom

GROUND FLOOR PLAN



1. living space
2. dining space
3. bathroom
4. study/library

UPPER FLOOR PLAN



1. roof deck
2. bathroom
3. family room

LOFT FLOOR PLAN

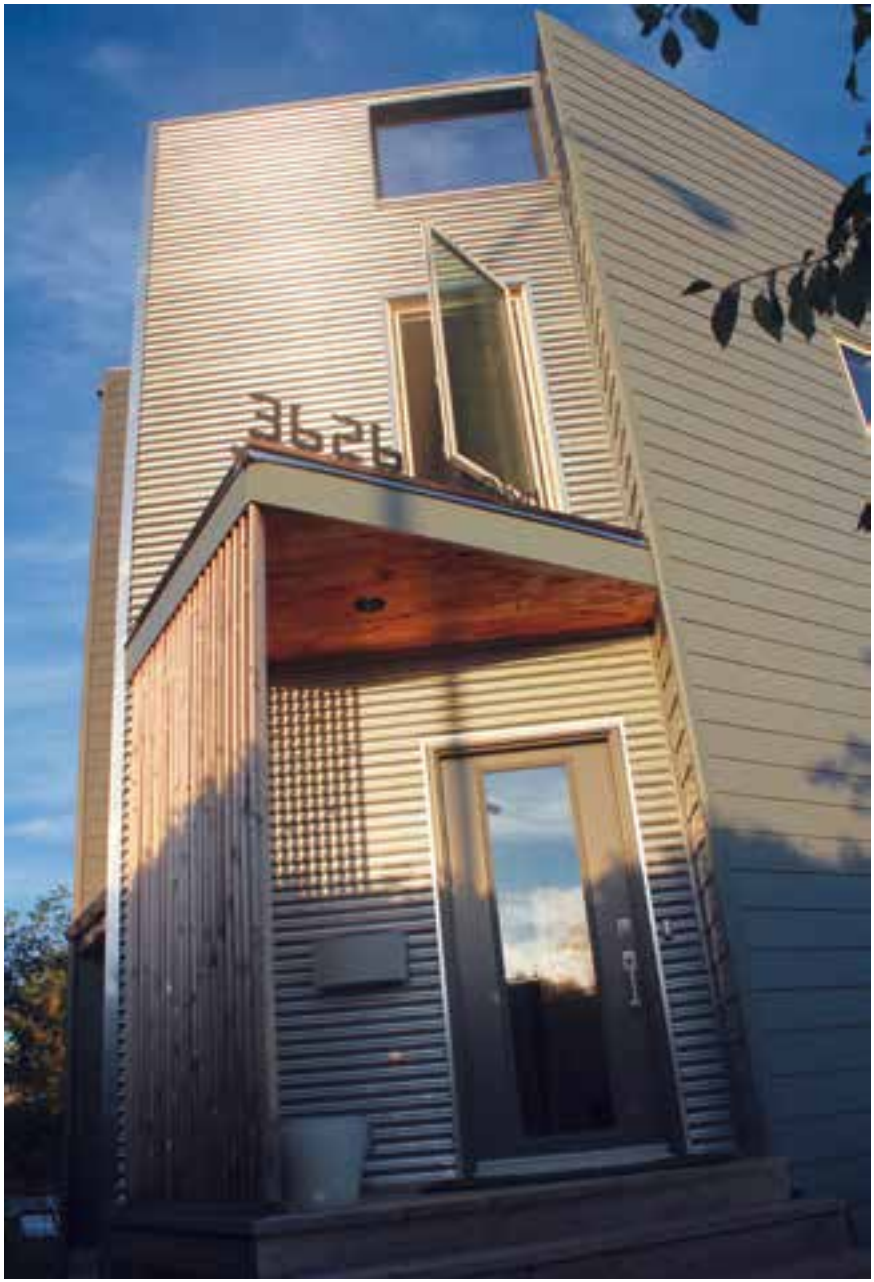
By putting torrefied wood to practical use, the Beverly Heights House will test its exterior durability as decking, soffits and fascia, as well as its interior aesthetic appeal and performance on handrails, landings and trim work.

Where the wood itself wasn't experimental and inventive, the design was. Optimally sized, double stud 2 x 4 framing reduced the volume of timber required to build the home, while laminated veneer lumber (LVL) off-cuts were used for the stair treads and bathroom vanity countertop.

Much of the interior wood was reclaimed or salvaged, such as the maple gym flooring and Douglas fir doors. Old church pews sourced from the Edmonton area were deconstructed to create door casings and window seats. Similarly, HardiePlank exterior off-cuts mounted on old wood doors were used as closet doors.

The home's high insulation value enables its occupants to live without a natural gas line. Heating is primarily solar which is supplemented by a wood-burning stove on cloudy days.

Unlike typical Edmonton residential developments typified by sprawling, cavernous spaces, the Beverly Heights House is only 20 feet wide. This allows for daylighting and facilitates cross-ventilation from the home's numerous and strategically placed operable windows.



Likewise, the layout is cleverly designed to maximize how light is used. Closets and storage spaces that don't require much lighting are stacked on the home's north side. The house also shirks tradition by placing bedrooms on the main floor, leaving the better lighting and more spectacular top-floor views of the river valley for living areas.

By using reclaimed wood and leading-edge forestry technology, the home redefines cold climate building.

ARCHITECT
Manasc Isaac Architects
Edmonton, AB

STRUCTURAL ENGINEER
Five Star Engineering Ltd.
Sherwood Park, AB

GENERAL CONTRACTOR
Footprint Homes
Edmonton, AB

TIMBER CONTRACTORS
Nelson Lumber
Edmonton, AB

Winterburn Truss
Spruce Grove, AB

PHOTOGRAPHY
Darren Greenwood Photography
Edmonton, AB

Shafraaz Kaba/Manasc Isaac Architects
Edmonton, AB


LAKE WINNIPEG
PUSH

JURY'S CHOICE

Semi-covered dining area, made entirely of reclaimed wood and located in a formerly unused space, results in small environmental footprint

Fiskaoist

WORK/SHOP

Directly inspired by traditional Icelandic fishing shacks, the project used simple construction methods and materials to create an inviting outdoor seating area, offering a unique extension to the main pedestrian street.

Located in Gimli, Manitoba, this design build project, entitled "Fiskaoist," the Icelandic term for "fish hut," was in response to the town's rich Icelandic history and local fishing community.

The project site is located within a space between two existing buildings, offering an area of more than five feet wide and 23 feet deep. The challenge was to design a semi-covered outdoor area that offered an extension to the existing patio and provided seating for 12 people. Given the size constraints of the site, a linear seating layout was used, offering the most efficient use of the narrow space. A custom-built bar counter, running the entire length of the space, was designed to accommodate a variety of seating options.

The project was constructed entirely of reclaimed wood. The walls and roof were clad with reclaimed 1 x 6 spruce boards, while the floor consisted of reclaimed 2 x 6 spruce boards. The bar counter was built by laminating reclaimed fir beams, cut and planed to size. At the roof, the 1 x 6 boards, used to envelope the structure, were pulled apart to allow the sun to penetrate the space, allowing the light to dance along the walls throughout the day while still providing shade and shelter from the summer heat.

Wood was chosen for this project for a variety of reasons. One reason was to allow the design team to build the structure using methods inspired by the nearby harbor and traditional boat


Kris
Fish & Chips
Fres
Seafoo
Ice Cre

building techniques. In addition, using wood as a building material offered flexibility, which allowed the design build team to accommodate design changes throughout the construction process.

The choice to clad the entire structure in wood was made because of the rich tactile quality and presence wood offers, bringing a natural warmth and familiarity to the intimate scale of the space.

In response to the thousands of tourists that travel to Gimli each summer, a bathymetry map of Lake Winnipeg was custom-built and installed. Using several layers of laminated plywood, the three-dimensional map situates the site and identifies 'place' within the larger context of the region.

Over time, the reclaimed spruce structure will age naturally, while the treated reclaimed fir bar counter will remain its natural color, offering a subtle temporal shift in the experience of the space.

ARCHITECT
WORK/SHOP
Winnipeg, MB

STRUCTURAL ENGINEER
WORK/SHOP
Winnipeg, MB

GENERAL CONTRACTOR
WORK/SHOP
Winnipeg, MB

TIMBER SUPPLIER
Benco Sales
Winnipeg, MB

PHOTOGRAPHY
WORK/SHOP
Winnipeg, MB

JURY'S CHOICE

Wood is the key ingredient at wholesome cafe

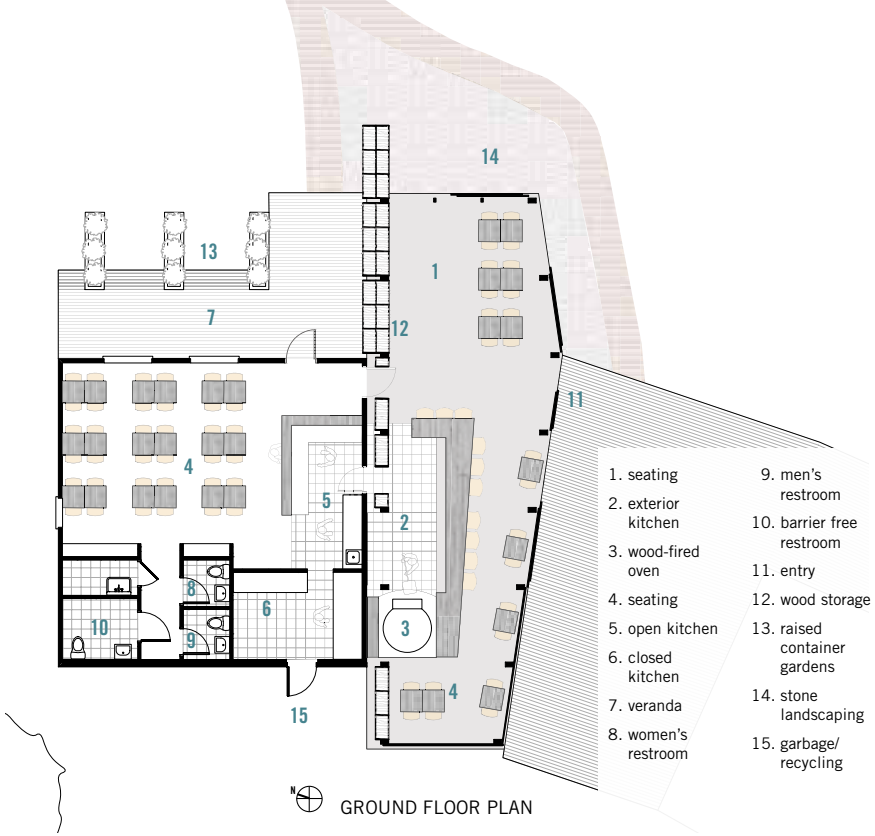
Foxtail Cafe

Peter Sampson Architecture Studio Inc.

The design of the Foxtail Cafe follows the ethic of both the chef and client to use simple and natural ingredients in extraordinary ways. Located in Onanole, Manitoba, just south of Riding Mountain National Park on Provincial Highway #10, the cafe is designed and constructed with wood as the key ingredient. Selected for its versatility and beauty, wood is fuel, structure and finish to this project.

The 2,000-sq.ft. restaurant is split between two volumes. The first is an existing 900-sq.ft. commercial space that was renovated into a year-round cafe with kitchen and dining areas open to one another, and service spaces stacked against the back wall. The building is directly connected to a 1,000-sq. ft., three-season screened-in dining hall and outdoor kitchen that operate during the late spring, summer, and early fall seasons, when the area is most active. Two distinct spatial and dining experiences are mirrored one against the other, bonded by both food, and material.

The versatility of wood is demonstrated most directly in a stacked wood wall. Stockpiles of local oak and poplar fill raw plywood boxes that line the interior walls. As orders travel from table to kitchen, the deposits of wood recede to sustain the operation of a centrally located wood-fired pizza oven. This active and raw interior finish fluctuates throughout the season in rhythm with the use of the kitchen and the broader availability of the natural resource.



GROUND FLOOR PLAN

The dining hall is modeled on the communal campground "cookshacks" found within the park. The structure draws from the rich log and timber frame heritage of the park, while modernizing its deployment by creating a flexible and light structural system. Hybrid frames were developed through the combined application of 6 x 10 solid red pine timbers as beams and columns, steel connection plates, and a kingpost/ tension rod truss. This allowed for variation in the frame height and depth along the length of the building, without modifying the size of the timbers. This offered the design team a 'kit of parts' with standardized components and connections, while allowing for an irregular footprint and dynamic spatial quality.

Wood decking offered a versatility of use as both an interior and exterior finish. Natural 2 x 6 tongue and groove lodgepole pine decking was applied to interior wall and ceiling structures. Used as the primary diaphragm for the bracing of the timber frames, the amount of roof framing required could be greatly reduced. The stained decking also functions as the exterior cladding of the three-season building, affording the building simplicity in its finishes. The existing building's vinyl siding was removed and replaced with 1 x 6 re-sawn beveled cedar siding. The resulting two volumes are stitched together through the use of a common material.

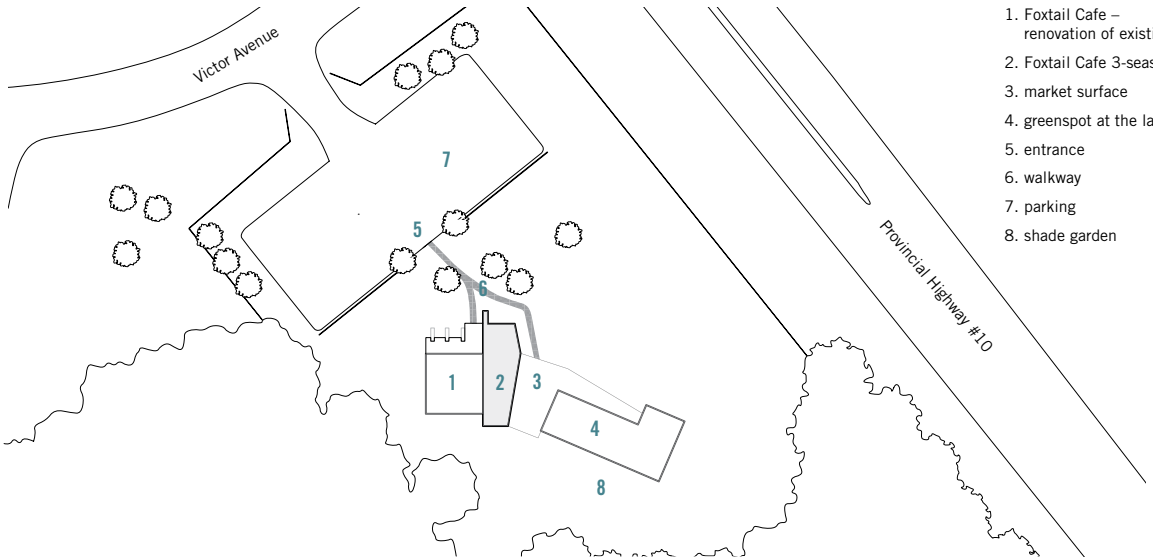
ARCHITECT
Peter Sampson Architecture Studio Inc.
Winnipeg, MB

STRUCTURAL ENGINEER
Wolfrom Engineering Ltd.
Winnipeg, MB

GENERAL CONTRACTOR
Collyer Construction Ltd.
Onanole, MB

TIMBER SUPPLIER
Northern Edge Logworks
Dauphin, MB

PHOTOGRAPHY
Mathew Piller



1. Foxtail Cafe – renovation of existing building
2. Foxtail Cafe 3-season addition
3. market surface
4. greenspot at the lake
5. entrance
6. walkway
7. parking
8. shade garden

SITE PLAN

Wood helps center achieve goals of connecting family and community, while creating a warm, humane environment

The Salvation Army Barbara Mitchell Family Resource Centre

Richard R. Prins Architect and Marek Musil, Affinity Architecture Inc.

The Barbara Mitchell Family Centre, an 18,245-sq.ft., $4.5-million center, is a building with a social mission. It serves a multicultural and multilingual inner city community of a predominant aboriginal and immigrant population base. Through this building, The Salvation Army provides social support and training programs for families, children, at-risk youth and war-affected refugees.

The guiding project design concepts were transparency, community and context. With a public housing townhouse complex on the west side of the site and a city park on the east boundary, the team chose to utilize all the contextual site conditions to generate a community building that demonstrated transparency, reaffirmed local community pedestrian-based activities and established a design concept that would integrate the building as part of the public park through careful consideration of the site boundaries on both sides. The pedestrian activities are enhanced by the center's respect for the existing townhouse pathways and the recreational and natural amenities provided by Ducharme Park. These qualities served another objective: integrating the center visually and programmatically with an adjacent park, an important community resource.

Along with carefully placed fenestration, a mediating courtyard and the inclusion of a 50-person private daycare space designed to link with the park and public housing, wood was central to softening the line between indoor and outdoor, while maintaining its protective enclosure. The overall effect is of a conversation between wood in its natural and architectural forms. This supports the wider conversation between building and park, and between center and community.

Wood was chosen as the ideal material to serve this mission. It is natural and humane, warm and tactile. As a material it is comprehensible – users understand instinctively where it comes from and how it is made. It has a clear structural logic but offers opportunities for flexibility in design. The Douglas fir glulam structure, chosen for strength and durability, allowed expansive and soaring spaces, as well as more private, intimate spaces within the center. Exposed tongue and groove Douglas fir 2 1/4" x 5 1/4" decking was used for the floors and roof assembly in order to reinforce the visibility and inherent beauty of the wood structure. This strategy allowed interplay of enclosure and transparency on the interior while creating community safety and security through visibility. In the main circulation areas, the glulam beams are doubled up around steel columns, with straightforward but articulated bolted connections. In transition areas, wood, because of its tactility and the opportunity it offers to explore fine connections between elements, helps mediate between public and more intimate spaces. These interior elements include Baltic birch railings, millwork, casework and solid maple handrails. On the exterior of the building, there is variety in uses and treatments of wood, choreographed with other materials. The exterior Douglas fir cladding was designed so that its texture and profile, stained a warm gold, catch the light and glow in the sun. Shadows from the park foliage play over this surface. Wood was not just a material choice for this project, but integral to the center's goals of promoting family and community life, and creating a warm and humane environment that dignifies its users.

OWNER
The Salvation Army
Toronto, ON

ARCHITECT
Richard R. Prins Architect
Winnipeg, MB

Marek Musil, Affinity Architecture Inc.
Winnipeg, MB

STRUCTURAL ENGINEER
Wolfrom Engineering
Winnipeg, MB

GENERAL CONTRACTOR
Crystal Construction
St. Paul, MB

TIMBER SUPPLIER
Western Archrib
Edmonton, AB

PHOTOGRAPHY
Gerry Kopelow/Photographics Inc.
Winnipeg, MB

MUNICIPAL WOOD DESIGN

Reclaimed Douglas fir features prominently in first stage of zoo's transformation

Edmonton Valley Zoo Arctic Shores Exhibit

Group2 Architecture Interior Design Ltd.

Located just north of the North Saskatchewan River at the Edmonton Valley Zoo, The Arctic Shores Exhibit involves the complete transformation of the physical landscape into one that resembles the Arctic. Not only is this unique winter environment home to various species including seals, sea lions, arctic foxes, and arctic ground squirrels, it locally transports each visitor into the world and home of Arctic animals. The Arctic facility includes indoor and outdoor pools, extensive rock and sculptural work, exhibit space and an ice cave/hill referencing the mounds of earth called pingos, formed by the process of frost heaves. Each feature provides multiple opportunities for visitors to interact and experience each species in their habitat.

The visitor is initially drawn down into the unique landscape, reaching various exhibits and sculptural work that guide them toward the outdoor pool. Once here, the Winter Quarters building presents its strong sloping roof and wooden structure. This modest form includes an indoor pool which is home to many seals and sea lions. The pools have a salinity content of approximately three per cent, which replicates the animals' natural environment. Careful selection of the interior finishes was required to withstand the high humidity and salinity content that create a corrosive environment.

The indoor pool also houses staff and service spaces and is an opportunity for visitors to watch the animals swim, play and interact with one another. The insertion of this building into the richly crafted landscape was carefully considered and was primarily designed to become an extension of the landscape. The built form utilizes natural materials and is physically inserted into the earth, allowing the surrounding landscape to flow onto the building in the form of a green roof.

The roof design is derived from a language of simple folds and cuts, emulating natural geological formations. A large clerestory window is created through this process of cutting and folding that allows natural light to reach deeper into the building. The cantilevered roof over the viewing area provides shading from summer sun and shelters visitors from rain and snow. The green roof is planted with material native to the Arctic landscape further reducing the scale of intervention.

The structure of the indoor pool, floors and walls are cast in place concrete. Glue-laminated beams and a wood roof deck are utilized to add a sense of warmth and emphasize a relationship to the natural landscape. Wood members are also used to support the exterior glazing and remain exposed on both sides of the envelope. The facade further emphasizes the natural landscape through reclaimed wood siding. This rough, less-refined material choice uses color and texture similar to the exhibit's earth banks and pool rock work, helping the building blend seamlessly into the landscape.

CLIENT
City of Edmonton Building & Landscape Services
Edmonton, AB

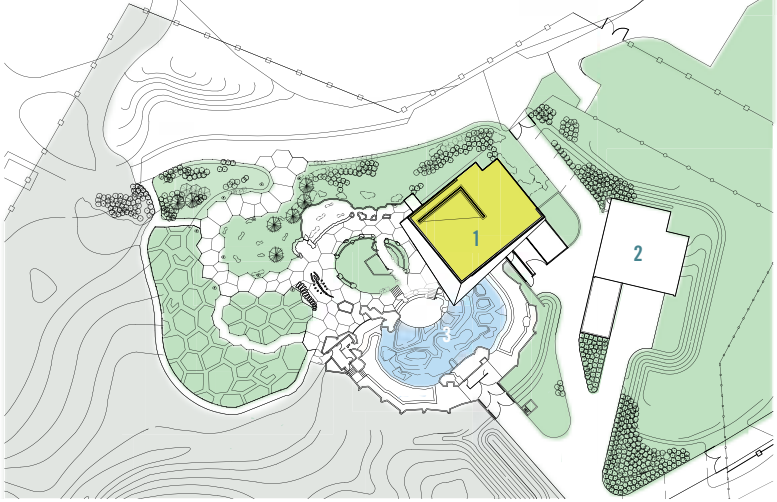
ARCHITECT
Group2 Architecture Interior Design Ltd.
Edmonton, AB

STRUCTURAL ENGINEER
Group2 Architecture Interior Design Ltd.
Edmonton, AB

GENERAL CONTRACTOR
PCL Construction Management
Edmonton, AB

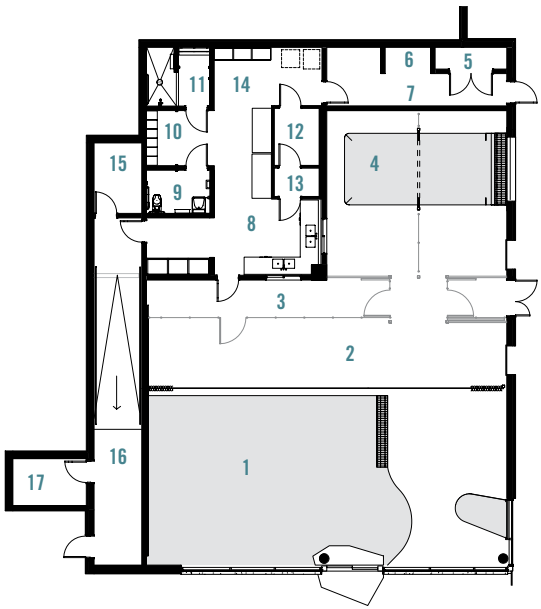
TIMBER SUPPLIER
Structurlam Products LP
Penticton, BC

PHOTOGRAPHY
Jim Dobie Photography
Edmonton, AB



1. winter quarters
2. filtration building
3. outdoor pool

SITE PLAN



1. indoor pool
2. training area
3. staff corridor
4. isolation pool
5. mechanical room
6. electrical room
7. north corridor
8. preparation kitchen
9. washroom
10. change room
11. shower
12. walk in freezer
13. walk in fridge
14. equipment area
15. storage
16. corridor
17. research cabin

FLOOR PLAN

RESIDENTIAL

Simple retreat
echoes prairie spirit

Prairie Lake Retreat

NSDA Architects

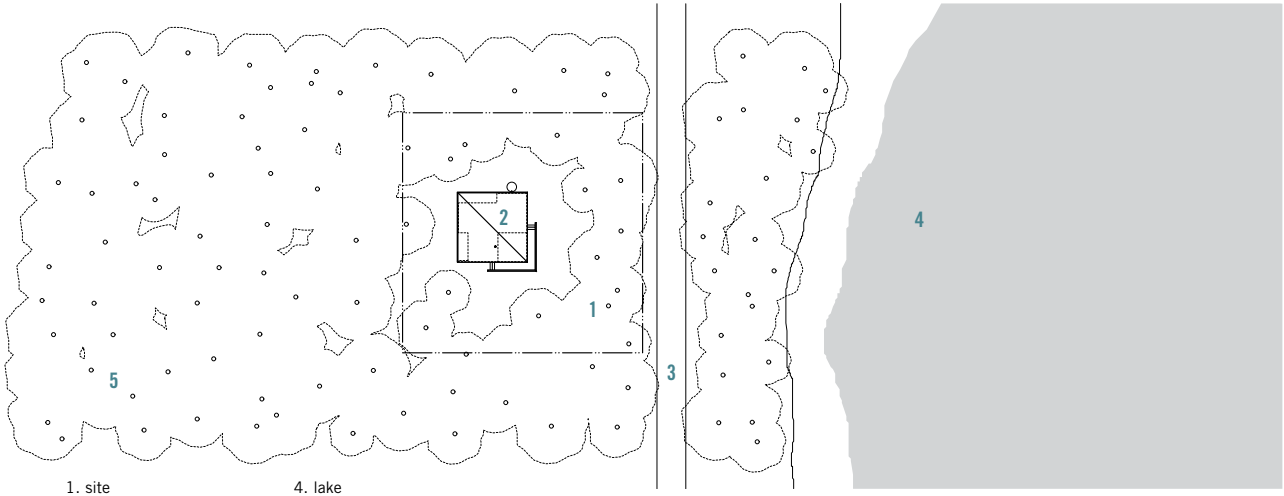
A couple with three children chose a small lake, 90 miles from Saskatoon near the Village of St. Brieux, for a weekend and vacation retreat. They desired a small shelter of 675 sq.ft. easily constructed by two people that cost $40,000 for materials. Most importantly, they wanted the architecture to reflect the uniqueness of the Canadian prairies and particularity of the site.

The success of the project depended on the use of wood both structurally and architecturally, and on wood's many other unique qualities. The cost-effectiveness of wood to meet a modest budget was of paramount importance, as well as its ease of construction enabling the client to tackle the DIY project with confidence.

Mature poplar trees, thick underbrush and native grasses are the dominant features of the site. The shelter touches the land lightly, nestled in a natural clearing amongst the trees. The structure is raised on concrete piers leaving the site drainage to tree roots unaffected. All the construction materials were carried to the building site by hand. The orientation of the shelter and articulation are conceived in relation to the harsh prairie climate where temperatures can reach 104 F in the summer and -40 F in the winter. It is solid and closed where it needs to be (on the colder, windy north side) and open and permeable where it's best suited (on the warmer, sunny south side). The building faces southeast to the view of the lake and to the prevailing cool summer breezes.

The plan takes inspiration from the Dominion Land Survey (where most of western Canada was divided into land parcels of one square mile) and was conceived as a simple square, notionally divided into quarters, in which one of the sub-squares is a south-facing deck that can be closed off by two sliding barn doors.

The living spaces are organized in an open plan around the deck, a sheltered outdoor space offering shade in the summer, refuge from rain and a snow-free area in the winter. A continuous band of floor-to-ceiling glass wraps along the deck dissolving the boundary between the interior and exterior. A ridge beam runs diagonally across the plan to a single high point forming an upper loft children's sleeping area.



1. site
2. cabin
3. gravel road
4. lake
5. forest

N

SITE PLAN

Despite its diminutive size, the interior has a big barn feeling with plenty of openness and a spacious quality. The interior walls are clad with the warmth of fir-faced plywood left with a natural finish to contrast the exterior skin of galvanized sheet metal, a commonplace inexpensive material used extensively on agricultural buildings. On the exterior, the fir-faced plywood soffits, wood trims, boards and beams were stained a gray color to match the dark furrowed bark of the poplar trees. Western red cedar was used for the decking was left unfinished and natural, to weather a silver-gray color.

The structure stands as a strong form in the landscape. It is an elegant response to the landscape, climate and site considerations and exhibits the principle of doing more with less. The project gains its elegance from simplicity and a straightforward handling of wood to create an architecture that resonates the prairie spirit and the particularity of the site.

ARCHITECT
NSDA Architects
Vancouver, BC

PHOTOGRAPHY
Brian Dust
Vancouver, BC

Jurors

(From left to right) Matthew S. Reid, Andre Sherman and Michelle Gibson

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Project Engineer
READ JONES CHRISTOFFERSEN LTD.
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ANDRE SHERMAN, OAA
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Partner
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GREEN BUILDING

New Algonquin College campus in Perth uses wood to tap into a rich history and tradition

Algonquin College – Perth Campus

GRC Architects Inc.

The town of Perth has a rich history that is reflected in the 19th-century mills and stone factory buildings along the Tay River and in the Victorian storefronts and century-old timber-frame buildings still in use today. Algonquin College's new campus building in Perth continues the building traditions of the past by using local materials, labor and wood-frame construction to offer an intimate and friendly facility for learning and hands-on experience.

The new 45,000-sq.ft. LEED Gold facility is comprised of two wings. The academic wing includes state-of-the-art classrooms, a resource center and offices. Two large workshops and trades laboratories for heritage carpentry, masonry and advanced housing make up the construction wing. Linking them is a student commons with a lounge and study as well as food service and fitness spaces.

Selected for its low embodied energy, the wood structure came from FSC-certified sources. Careful selection of other materials yielded more than 17 per cent total recycled content. The negative impacts of transporting materials to the site were reduced by sourcing more than 55 per cent of all building materials (by cost) regionally.

The feature columns and rough sawn white pine wood siding on the building's exterior were milled within a few kilometers of the site. Cladding the exterior walls and soffits in wood achieved a warm and welcoming aesthetic that integrates with the landscape. In addition to the exposed elements, wood trusses and wood framing were used for all exterior walls, interior partitions, the roof of the academic wing and student amenity spaces.

FLOOR PLAN

Wood slat ceilings in the cafeteria, entrance lobby and resource centre reduce noise levels and create a cozy atmosphere in these cleanly finished, durable spaces. Solid-core wood doors, built-in benches, wood framed glazed partitions, and millwork are found throughout. Together, these natural wood elements form a simple language within and around the building, tying everything together.

This building is easy to maintain and operate and is very energy efficient. It has R30 walls, an R40 roof, triple-glazed windows on the north facade, deep eave overhangs and a reflective roof cover to limit the summer heat gains. The structure has also been designed to support the load of photovoltaic panels which are planned for the future.

The mechanical systems consist of centralized condensing boilers, a high-efficiency frictionless centrifugal chiller, and a dedicated outdoor air system with 85 per cent efficient reverse flow heat recovery. Throughout the building, a combination of T8 linear fluorescent lighting and T5 high output lighting complement natural daylight. These strategies resulted in a facility that costs 51 per cent less to heat, cool and power than the Model National Energy Code. Greenhouse gas emission savings are estimated at 216 tons per year.

Daylight, views and fresh air are provided to all regularly occupied spaces of the building. The narrow floorplate allows programmed spaces to be located along the perimeter of the building. Operable windows provide natural ven-

tilation, daylight, and cooling during the shoulder seasons. Clerestories bring daylight into the corridor and main lobby space. The ends of the corridors are glazed to enhance the connection to the outdoors. All of the materials used in the construction contained very low or no VOCs. To help maintain a high level of indoor air quality throughout the life of the building, a comprehensive green housekeeping policy has been adopted.

The success of the project is the result of extensive collaboration between the design team, client, stakeholders and community. A plan with vision, principles and objectives was developed early on, establishing a set of well-defined environmental and social goals. Charrettes and workshops were held to validate end-user requirements, explore trade-offs and synergies, and prioritize investments. The stakeholders then evaluated the design during the design review process and ultimately confirmed the success of the project post-occupancy.

CLIENT
Algonquin College
Perth, ON

ARCHITECT
GRC Architects Inc.
Ottawa, ON

STRUCTURAL ENGINEER
Adjeleian Allen Rubeli Limited
Toronto, ON

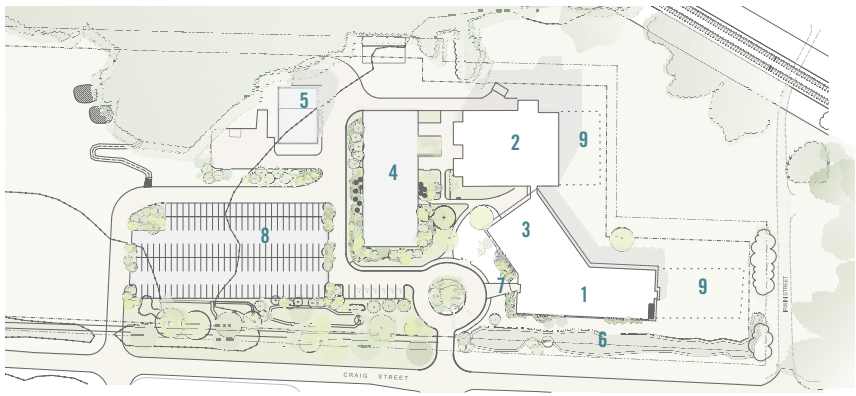
GENERAL CONTRACTOR
Frecon Construction Ltd.
Kingston, ON

TIMBER SUPPLIERS
Kott Lumber
Nepean, ON

McVeigh's Lumber
Perth, ON

PHOTOGRAPHY
Doublespace Photography
Ottawa, ON

1. classrooms, lab & offices
2. workshops
3. student commons
4. outdoor construction pad
5. existing outdoor construction shop
6. bioswale
7. accessible entrance
8. granular parking lot
9. future expansion



SITE PLAN

INSTITUTIONAL COMMERCIAL <$10 M

From humble temporary spaces, Holy Spirit Parish rises to its own place of worship

Holy Spirit Church

Larkin Architect Limited

Founded in 2001, Holy Spirit Parish in Barrie, ON, held its first worship service in a local elementary school. Three years later the parish graduated to a high school cafeteria. By 2009, the community had grown to the point where it could support the construction of its own permanent church facility. They sought to build a new church that would capture the sacred essence of traditional Catholic Church architecture in the context of more modern user requirements that included the incorporation of sustainable design strategies.

In response to the client's desire for a building that would reflect a simple Gothic style, exposed wood was immediately selected as the most logical material choice. Only wood could offer the flexibility and range of products needed to meet the design objectives. Choosing wood enabled the

1. church
2. main entry
3. chapel entry
4. chapel parking
5. barrier-free parking
6. general parking
7. storm-water pond
8. landscaping

SITE PLAN

design team to provide a cost-effective, contemporary interpretation of Gothic-style vaulted ceilings through the use of glulam beams, curving cross arches, custom-shaped king posts and exposed wood roof decking in the narthex and nave areas. Exposed wood arches and decorative hammer beams, along with the exposed wood roof decking in the chapel, enhance the sacred dimension of the new worship space and pay homage to a rich tradition of Catholic Church architecture. Despite being new construction, the church was immediately warm, familiar and comforting to parishioners, particularly the nave which has solid, red oak curved pews that are finished in a stain that complements the FSC-harvested Douglas fir structure and decking whose rich patina will naturally darken over time.

All elements of the wood roof structure and deck are left exposed, creating a consistent architectural vocabulary. The architecture reinforces the east-west axial relationship that defines the pilgrim's journey toward inner peace. Oversized, ceremonial oak entrance doors with custom bronze handles emphasize a solid and dignified threshold to this sacred realm.

Only wood offered the combined benefits of structural elegance and economy while effectively meeting building code requirements and the client's requirements for a sustainable and low-maintenance facility.

OWNER
Roman Catholic Episcopal Corporation for the Diocese of Toronto in Canada
Toronto, ON

ARCHITECT
Larkin Architect Limited
Toronto, ON

STRUCTURAL ENGINEER
Stantec Inc.
Mississauga, ON

GENERAL CONTRACTOR
Kembic Construction Inc.
Richmond Hill, ON

TIMBER SUPPLIER
Timber Systems Ltd.
Markham, ON

PHOTOGRAPHY
Shai Gil
Toronto, ON

1. vestibule
2. narthex
3. worship space
4. sanctuary
5. tabernacle
6. chapel
7. parish offices
8. parish hall
9. kitchen
10. meeting rooms
11. main entry
12. chapel entry

GROUND FLOOR PLAN

INSTITUTIONAL
COMMERCIAL
>$10 M

Covered deck is a meeting point and favorite spot for visitors to new community center

Oak Ridges Community Centre

Perkins+Will

Situated on an uninterrupted green space, the design for the Oak Ridges Community Centre sought to create an architectural threshold at the crest of the hill. The Oak Ridges Community Centre houses a variety of recreational activities for the city of Richmond Hill, ON, including a six-lane swimming pool, leisure pool, gymnasium, fitness centre, eco centre and multi-purpose rooms. Wood, and its seamless flow throughout the design, has helped contribute to the overwhelming success of the facility in creating a new hub for community life and in leveraging significant growth in recreation and leisure with the city.

Inspiration for the overall design and material choices of the Oak Ridges Community Centre were found in the surrounding natural landscape and panoramic views of nearby Lake Wilcox. The team was inspired to draw upon personal memories of lodges, cabins and cottages to inform the design. These collective memories and rustic palettes became the guiding principle for the structural systems, material selection, lighting and color of the community center. Wood construction with stone walls and wood paneling set the overall tone.

The building integrates itself with the surrounding landscape through a series of linear terraces running in a north-south direction that descends from the site entry toward the shores of the lake. These terraces, constructed of maple tongue and groove decking, create a series of spaces that are both interior and exterior to facilitate the enjoyment of the long vista over Lake Wilcox and that integrate it into the key public and programmatic spaces.

These design elements create an architectural base rooted in the site's topography, above which floats the glulam heavy timber roof that is articulated as a series of broad folded planes. Structurally, a series of key beams follows the lines of the terraces while timber purlins and maple tongue and groove decking cantilever beyond the building envelope, creating sun shading. The signature feature that integrates exterior and interior is a generous westerly facing wood deck under a sloping wood-framed green roof canopy. The deck has become a place for wellness activities, a meeting point for nature tours as well as a stage for other innovative programming and community uses.

SITE PLAN

Wood plays an important role in achieving the project's overall sustainability goals and LEED Silver target. A balanced set of initiatives have been employed in an effort to maximize conservation of water, energy and resources in the construction and operation of the building. Wood was chosen as the primary building material for its renewable properties and its ability to be regionally sourced. It also holds clear benefits from a lifecycle assessment perspective and its ability to sequester carbon as a means of reducing and offsetting harmful CO^2 emissions.

Finally, wood was selected for its clear advantages as both a structural and architectural system. In this respect, wood was central to the overall concept in addressing many of the technical challenges of this building type. In the roof, wood enabled greater freedom, allowing the large cantilevered overhangs to be expressed without the thermal bridging associated with other materials. This created a greater between indoors and outdoors, and ultimately, a stronger connection between the building and its natural setting.

CLIENT
Town of Richmond Hill
Richmond Hill, ON

ARCHITECT
Perkins+Will Canada
Toronto, ON

STRUCTURAL ENGINEER
Halcrow Yolles
Toronto, ON

GENERAL CONTRACTOR
Aquicon Construction
Brampton, ON

TIMBER SUPPLIER
Timber Systems
Markham, ON

PHOTOGRAPHY
Bob Gundu
Toronto, ON

Leaf art composed from recycled wood shows off retailer's regional identity and draws customers inside

Lululemon Yorkdale

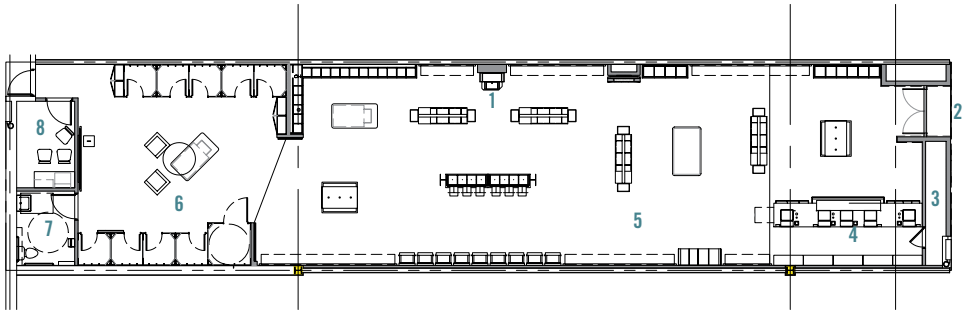
Quadrangle Architects Limited

The Lululemon store at Yorkdale Shopping Centre in Toronto, ON used more than 35,000 blocks of wood that came from more than 20 tree species, to compose a 23-foot pixelated image of a leaf. The leaf establishes a unique and iconic image for the yoga and athletic wear store.

In contrast to the mall's conventional glass or stone storefronts, Lululemon announces itself with this public artwork, comprised entirely from reclaimed woods in their natural pigmentations. From a distance, the leaf image is clearly distinguishable, while up close it is an abstract relief of color and texture.

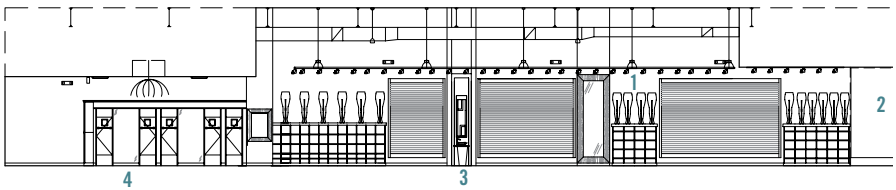
The facade entices shoppers with its originality, tactility and even its natural scent. Wood was chosen because its warm and welcoming qualities underscore Lululemon's brand affiliation with yoga, harmony and balance. The maple leaf image and the local wood varieties that compose it help to give the store its unique and regionally specific identity. The wood blocks that make up the leaf are remnants from The Brothers Dressler's furniture workshop and include the staves of a tanning barrel, shipping pallets, a demolished school and submerged wharf beams, as well as off-cuts from countless furniture pieces. Blocks of Douglas fir, white pine, cherry, black walnut, maple, elm, ash, beech, white oak, red oak, mahogany, hemlock, Osage orange and red cedar are united in the mosaic with a new chapter and purpose.

The facade's unusual richness and texture invite shoppers to touch its surface, and as the blocks wrap around the entry, shoppers are drawn into the store. Inside, the store adheres to Lululemon's familiar interior design



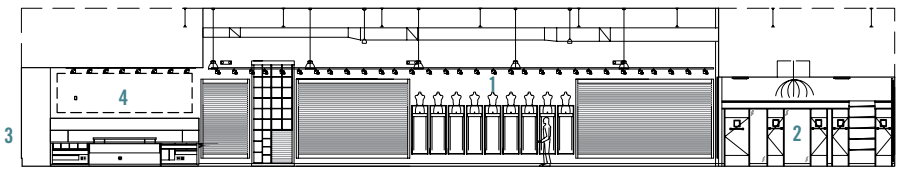
1. water feature
2. mall common
3. storage
4. cash desk
5. sales floor
6. fitting room
7. restroom
8. office

FLOOR PLAN



1. sales floor
2. mall common
3. water feature
4. fitting room

ELEVATION 1



1. sales floor
2. fitting room
3. mall common
4. cash area

ELEVATION 2

aesthetic but with custom-made wood accent pieces that continue the artistry of the exterior. There is a chandelier made from steam-bent hardwoods mixed with beaver-gnawed sticks from Lake Manitouwabing, combined with Swarovski crystals, that adds opulence and sparkle to the dressing area. A hydration station made from veneer mill ends of a walnut tree offers water from a mirrored crevice. Hanging elegantly above the white oak veneer cash desk, a museum artifact-style sculpture of an uprooted tree is recreated out of limbs and sections of locally salvaged elm and cherry trees. The sculpture is divided into seven parts to represent the chakras of the body. It "breathes" with softly pulsing LEDs, glowing through cast glass sections of bark, exploring the relationship between natural growth, our bodies and the calming nature of trees.

ARCHITECT
Quadrangle Architects Limited
Toronto, ON

GENERAL CONTRACTOR
Summit Brooke Construction
Abbotsford, BC

INTERIOR DESIGN
Brothers Dressler
Toronto, ON

Lululemon Interiors Department
Vancouver, BC

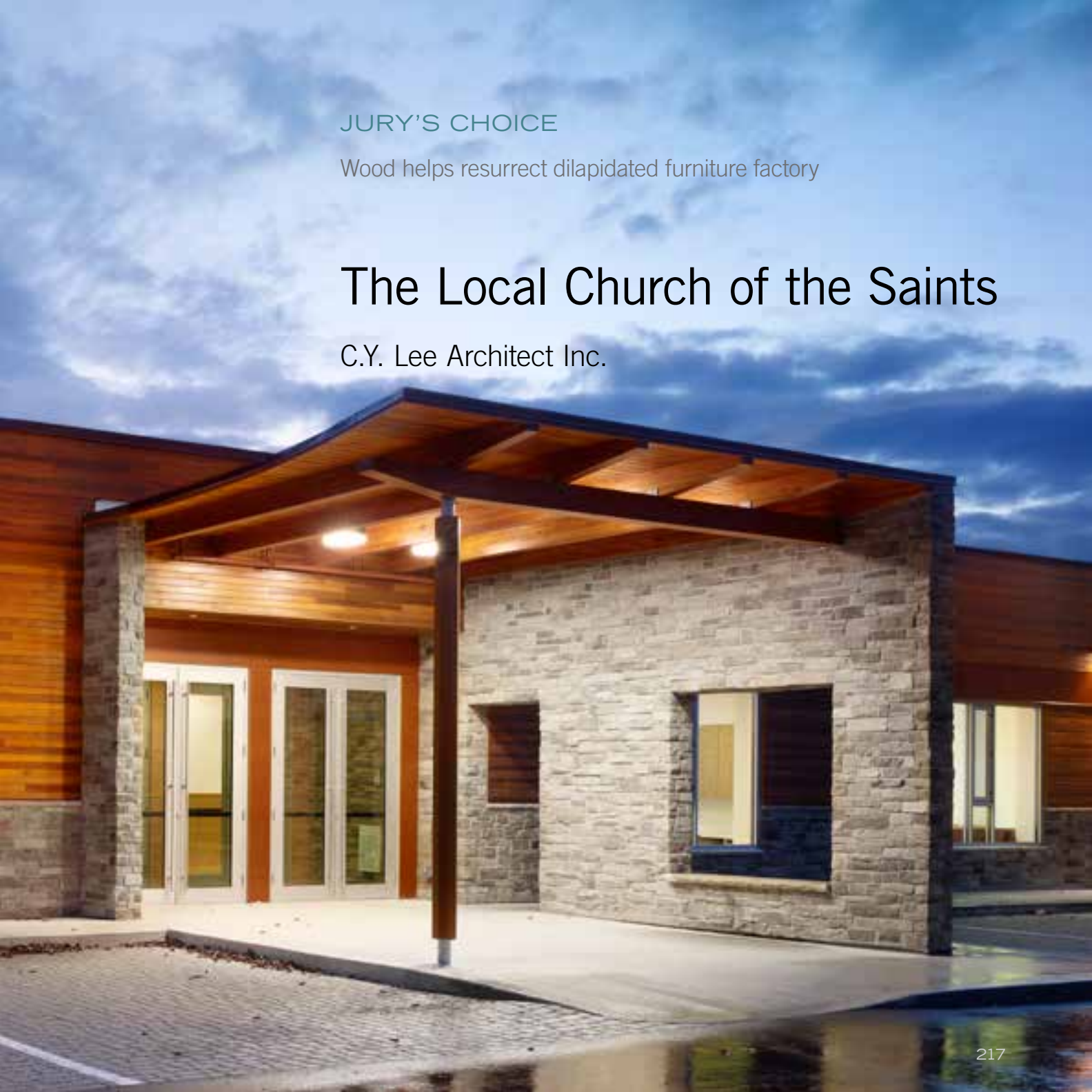
PHOTOGRAPHY
Bob Gundu
Toronto, ON

JURY'S CHOICE

Wood helps resurrect dilapidated furniture factory

The Local Church of the Saints

C.Y. Lee Architect Inc.



The Local Church of the Saints in Toronto is the culmination of a major renovation project to a 50-year-old vacant 37,000-sq. ft. industrial building that previously functioned as a furniture factory. The existing building wasn't insulated and was made of steel-frame construction with a brick masonry exterior.

With the design focused on sustainability, reprogramming the existing building was pursued instead of new construction. The project retained most of the existing structure and used new renewable materials in the form of heavy timber structural systems, cedar siding, wood paneling and bamboo flooring for the renovations.

The project had three major design requirements. First, because the existing building had no major entrance, a new entry was needed to accommodate hundreds of people attending Sunday worship services. The existing building was partially carved out to create a new main entrance. The entrance canopy was curved and constructed of glulam beams, cedar decking and a steel reinforced cedar column.

Second, because the existing brick exterior had seriously deteriorated, it needed to be replaced or upgraded. Cedar siding was proposed to cover the main facades in lieu of repairing or replacing the brick wall. The wood gives the building a new, natural, inviting look.

Third, because of the church's unique programmatic requirements, a main worship space with a higher ceiling

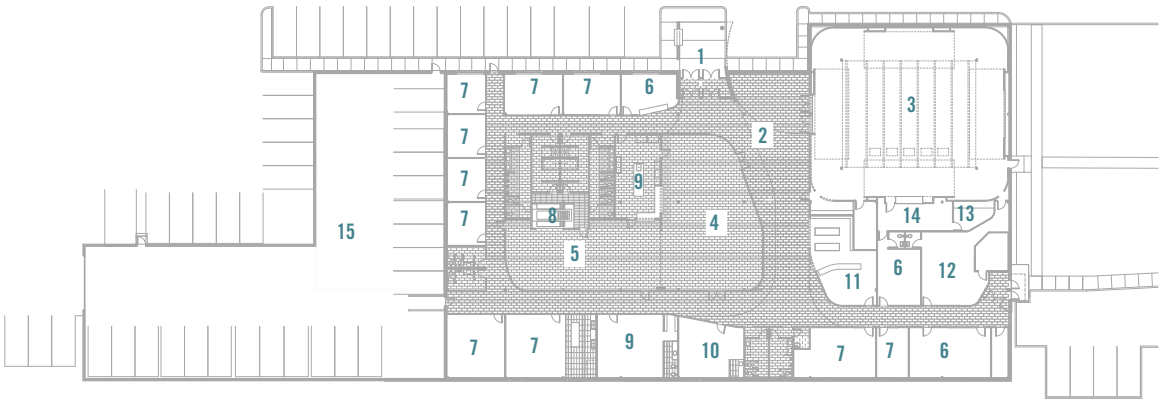
and excellent acoustics had to be created. The main sanctuary was designed not only to meet these requirements but also to accommodate a roundtable-style service unique to the client's denomination.

In order to create the main sanctuary, the existing steel columns, steel joists and metal roof deck were removed and an engineered heavy timber system was introduced. The curved roof structure was constructed with Douglas fir glulam beams, steel double king posts, stainless steel criss-cross tension rods, and wood decking. The curved roof has five remote-controlled, operable skylights with shades and rain sensors to allow natural light and ventilation into the space.

Wood is the principal material used in the sanctuary. In order to control sound in the sanctuary, the curved ceiling and walls were constructed of birch veneer plywood slats fastened with color-matching screws to sound-absorbing fleece on plywood. The sound travels between the gaps of the slats and is absorbed by the fleece.

The sanctuary floor is an extremely strong, pre-finished, carbonized composite bamboo that is manufactured with wood chips.

The Local Church of the Saints is a beautiful example of what can be achieved by thoughtfully converting a vacant industrial building to a new use. This place of worship proves that wood is an aesthetically beautiful and sustainable material that can be used in many different applications.



1. entrance
2. lobby
3. sanctuary
4. fellowship hall
5. multi-purpose
6. office
7. meeting room
8. baptismal pool
9. preschool
10. infant
11. book service
12. preparation
13. translation
14. sound control
15. parking garage

FLOOR PLAN

CLIENT
The Local Church of
the Saints in Toronto
Toronto, ON

ARCHITECT
C.Y. Lee Architect Inc.
Toronto, ON

STRUCTURAL ENGINEER
Blackwell Engineering
Toronto, ON

GENERAL CONTRACTOR
Berkim Construction Inc.
Toronto, ON

TIMBER SUPPLIER
Timber Systems Ltd.
Markham, ON

PHOTOGRAPHY
Shai Gil
Toronto, ON

Woodland Village townhomes find timber framing economical and sustainable

MULTI-UNIT

Woodland Village Stacked Townhomes

GB Architect Inc.

Woodland Village Stacked Townhomes sit at the edge of a flat site flanked by an arterial road to the south, open space to the west, and two-story townhomes and single-family houses to the north and east. This four-story raised building in London, ON, has two rows of five identical bays placed back to back. The development addressed site constraints and was responsive to the immediate build spaces and the adjacent street.

As one of the most environmentally conscious, economical and efficient structural systems available, timber frame construction was a natural choice for the development. Reliable sourcing and availability ensured tight schedules could be met and the use of a Canadian product ensured the investment would help sustain the Canadian economy.

The 21-ft.-wide footprint of each bay is recessed at the basement level allowing for a half-level sunken patio at the front. On the top of the bay, the volume is carved, creating a private terrace and captivating roof lines.

Each bay contains two stacked dwellings which are accessed by wide concrete stairs at half-level above the grade. A three-story cantilevered volume above each pair of entrance doors provides protected access and enhances the "stacked" expression of the structure.

The design of the internal volume creates links between floors through overlapping runs of stairs. Right from the entrance, the main floor presents an open concept space that combines living, dining and kitchen areas. The utility room and the washroom are adjacent to the party wall at the rear of the unit. A run of stairs located under the stairs leading to the upper unit, connects the main floor of the lower unit to the two bedrooms, bathroom, and partially covered patio in the basement. The second floor of the building is the open concept first floor of the upper unit. This space saving design still allowed a narrow opening in the ceiling at the front of the unit for a visual connection with the upper floor where the two bedrooms and bathroom are located. The fourth and top story has a roof terrace that is accentuated at the facade by a large, round dormer for the interior units.

The lower and upper units are visually tied together from the outside by the use of materials in a mixture of vertical and horizontal siding on top of a continuous stone veneer main floor.

The thoughtful design of these row homes resulted in a simple, proportioned building that adds aesthetic value to the local urban composition. Although the project was challenging due to tight timelines, aggressive budgetary goals and the developer's desire to produce environmentally responsible buildings, the project proves that efficient buildings that are responsive to urban needs can be built on-time and on-budget by building with wood.

CLIENT
Domus Developments
London, ON

ARCHITECT
GB Architect Inc.
Stratford, ON

ASSOCIATE ARCHITECT
Orchard Design Studio Inc.
London, ON

STRUCTURAL ENGINEER
Strik Baldinelli and Associates
(NOW STRIK BALDINELLI MONIZ)
London, ON

GENERAL CONTRACTOR
Domus Developments
London, ON

TIMBER SUPPLIER
Copps' Buildall
London, ON

PHOTOGRAPHY
Shutter Fotos
London, ON

NORTHERN ONTARIO EXCELLENCE

Timber construction ties into architectural heritage of First Nation community

Batchewana First Nation Health Centre

EPOH Inc.

The Batchewana health center is an important addition to the Batchewana First Nation of Ojibways Community. Its architecture reflects the rich customs and heritage of the Ojibway people. The building's natural palette incorporates materials characteristic of the area and uses earth colors of cultural and geographical significance.

The timber construction lends the project a hand-built aesthetic that ties into the architectural heritage of the community. A traditional longhouse formed the conceptual framework for this project. The atrium is a dominant, linear feature of the building. Like a longhouse, it has entries at each end. The primary structure in the atrium consists of a repetition of angled glue-laminated timber columns and beams. This atrium is the primary circulation space, providing access to the rest of the building. Clerestory glazing brings light into this space and adds a natural warmth and richness to the cedar ceiling and wood structure.

The primary wood structure of the atrium extends through the building envelope to the exterior at both entrances. The exposed structural members and connections provide an architectural character reminiscent of the Nation's building heritage. Concepts for the exterior cladding were inspired by the sapling and woven bark construction of the longhouse. Multiple wall constructions and natural materials emphasize the separation of structure and membrane and hint at the idea of a cedar palisade. The horizontal cedar siding provides the base structure, with alternating projecting forms in clay masonry and cultured stone.

Forestry is a major local industry with a rich history in Sault Ste. Marie. The city is home to the Great Lakes Forestry Centre, a major research and development facility, and Sault Ste. Marie, like many northern Ontario communities, relies on the forest industry for many of its locally available building products.

The First Nations communities that surround Sault Ste. Marie, however, can trace their history with the forest industry even further back. Their architecture has depended on forest products for thousands of years. With this building and many others, the Batchewana First Nation has demonstrated a commitment to keeping their wood building tradition alive. The celebration of natural materials in First Nation projects has recently added to the interest in developing architecture that is more characteristic of the rich materials that are native to northern Ontario. This use of natural, local materials also supports projects with an emphasis on sustainability.

FLOOR PLAN

1. outdoor plaza canopy/entry
2. outdoor plaza waiting
3. atrium/gallery corridor
4. reception
5. Batchewana First Nations Health Centre
6. Baawaating family health team
7. Nog-da-win-da-min family and community services
8. public restrooms
9. mechanical room

CLIENT
Batchewana First Nation of Ojibways
Sault Ste. Marie, ON

ARCHITECT
EPOH Inc.
Sault Ste. Marie, ON

STRUCTURAL ENGINEER
STEM Engineering Group Inc
Sault Ste. Marie, ON

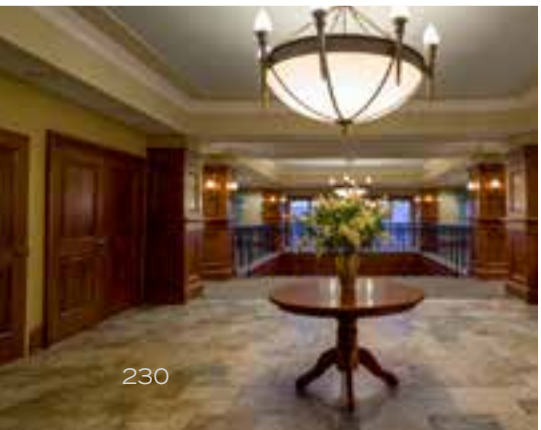
GENERAL CONTRACTOR
Ruscio Developments Inc.
Sault Ste. Marie, ON

PHOTOGRAPHY
Travis Favretto Photography
Sault Ste. Marie, ON

Wood brings seniors complex to life and creates a healthy home

The Westhill

Robert J Dyck Architect & Engineer Inc.



Sifton Properties, owners of The Westhill retirement residence, purchased a parcel of land in the west end of Waterloo, ON, adjacent to two arterial roads, Erb Street West and Ira Needles Boulevard. The original project was conceived as a two-phase seniors' accommodation development, with the retirement residence being phase one.

The design grew out of the caring concern that the owner and design group had for the well-being of the approximately 120 seniors that would eventually call The Westhill home. Focus group meetings were held with the

owner, stakeholders and design group to develop the project to meet the needs, dreams and ideas of the demographic they were serving. Thoughts flowed freely and the result was a common desire to use wood, both structurally and in the architectural woodwork, to create a healthy, beautiful environment that would evoke a classic sense of home for the residents.

The owner's requirement for a landmark exterior appearance that included a large pitched roof with wide overhangs and detailed balconies, was possible because of the cost-effectiveness and design simplicity of a wooden structure on four wood-framed floors.

The building was designed to provide a respectful, gentle transition for seniors leaving their private homes to become residents at The Westhill. A set of broad, welcoming, custom-designed wooden entrance doors invite the residents to a central, interior, two-story courtyard which provides a sense of connection between the upper and lower lobby areas, a place to view the central comings and goings of the building. On the lower floor of the courtyard are a number of social gathering areas, the most dramatic being a six-meter-wide bar adorned with sumptuous-looking, yet cost-effective, cherry-stained poplar detailing. Behind the bar and extending its full breadth is a stunning backlit photograph, by local photographer, Renato Foti, of the beautiful lake in Victoria Park, a place and view familiar to everyone in the region.

The four-story wood structure consists of dimension lumber prefabricated walls, I-joist floors, dimension lumber balconies and a prefabricated wood truss roof. The use of structural wood components allowed upgraded architectural features that would not have been possible within the budget using other structural framing methods. It also reduced capital cost for owners, reduced site overhead costs due to the shortened construction time, afforded significant savings on the winter weather protection and construction site heating that would have been required with alternate framing methods (structural framing occurred over the winter and early spring months), and reduced financing costs for owners due to the shortened construction schedule.

The architect prefers to use wood both structurally and aesthetically whenever possible. It is what mankind has used as a basic building material since first tying branches together for shelter. He believes there is a strong physical and psychological health benefit for seniors residing in a wooden building, that there is a naturally calming effect on the mind and sense of warmth and coziness produced by living in an environment where one is surrounded by something organic that connects to nature.

ARCHITECT
Robert J Dyck Architect
& Engineer Inc.
Kitchener, ON

STRUCTURAL ENGINEER
Robert J Dyck Architect
& Engineer Inc.
Kitchener, ON

GENERAL CONTRACTOR
D Grant Construction Ltd.
London, ON

WOOD FRAMING
Tampa Hall Ltd.
Ayr, ON

PHOTOGRAPHY
Vincenzo Cherubino Photography
Cambridge, ON

RESIDENTIAL

Voluminous gathering spaces and intimate private spaces converge under one roof

Kennisis Lake Cottage

Altius Architecture Inc.

Located in the Haliburton Highlands area of Ontario, this cottage takes into account interior comfort, local materials, sustainability, and an aesthetic approach to the use of wood. The clients' desire for a sculptural form, highly tuned to the nuances of their site as well as their specific programmatic needs, drove the project's organic architecture.

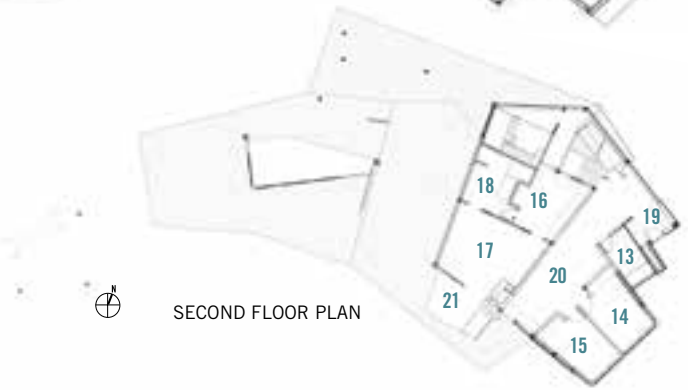
The collection of voluminous gathering spaces and intimate, private spaces are pulled together under a series of folding roof planes that float up and down over the contours of the site. A rich interaction of interior spaces is achieved through subtle and dramatic level changes, and through the use of millwork and screens. The complex and expansive building program was derived from the clients' desire to create a place where an extended family living in different countries could gather together. Separate, intimate spaces accommodating multiple families are connected by voluminous gathering spots, providing challenges and opportunities for acoustic and visual relationships between spaces. The program was refined to optimize the transition of materiality at the site so that the interior spaces would bring a sense of calm and harmony to the dynamic site conditions.

Kennisis Lake Cottage's use of natural materials and locally sourced products such as granite, heavy timber, cedar shingles and wood siding allows the structure to appear like it has grown out of the forest and rock that it hovers over. These materials and finishes were chosen for their renewable and recyclable properties as well as their low-embodied energy to minimize the building's environmental footprint. The project incorporates solid Douglas fir, Douglas fir glulam, 2 × 6 and 3 × 6 Douglas fir decking, pre-finished pine siding, cedar siding, cedar roof shakes, stained oak floors, and walnut cabinets.

Engineered lumber was selected to provide the backbone of this structure as an economical approach to span and cantilever long distances while also providing a connection to the surrounding woodlands. The folding, wing-like roof planes are stretched out over a heavy timber skeleton, appearing to hover over the rock. These series of roofs are pinned down to the site by the mass of three stone fireplaces. The use of exposed wood helps maintain a strong connection to the cottage's surroundings.

A well-considered solar orientation, high transom and clerestory windows wash the interior with ample natural daylighting. Large roof overhangs provide excellent summertime shading to great expanses of thermal glazing – ideal for passive solar heating in the winter. The thermal mass in the concrete slab-on-grade construction, as well as the stone fireplaces mediate the temperature changes from day to night. The building's heating is delivered by a geothermal lake-loop powering an in-floor radiant system in the winter. The system is reversed to cool the building in the hot weather. In addition, a passive cooling strategy takes advantage of the natural breezes from the lake to cross-ventilate, and by creating opportunities for stack effect with high south-facing clerestory windows, air is drawn through the building on still days.

GROUND FLOOR PLAN



SECOND FLOOR PLAN

1. entry
2. kitchen
3. dining room
4. living room
5. screened porch
6. pantry
7. laundry
8. dinette
9. powder room
10. deck
11. patio
12. unexcavated
13. restroom
14. bedroom
15. bedroom
16. dressing room
17. master bedroom
18. ensuite
19. mudroom
20. play area
21. deck

ARCHITECT
Altius Architecture Inc.
Toronto, ON

STRUCTURAL ENGINEER
Cucco Engineering + Design
Toronto, ON

CONSTRUCTION MANAGER
Altius Construction
Toronto, ON

GENERAL CONTRACTOR
Orchard Contracting
Bracebridge, ON

TIMBER SUPPLIER
Timber Systems Ltd.
Markham, ON

PHOTOGRAPHY
Jonathan Savoie
Tokyo, Japan

Jurors

ANDRÉ BOURASSA
Architect and President
ORDRE DES ARCHITECTES DU QUÉBEC (2008-2013)
www.oaq.com

GILLES BRASSARD
Engineer and President
GROUPE GEYSER
www.groupegeyser.com

MARIKA FRENETTE
Architect and Founder
WIGWAM CONSEIL ENVIRONNEMENT ET SANTÉ DU BÂTIMENT
www.wigwam-conseil.com

CLAUDE PAQUIN
Publisher
MAGAZINE FORMES
www.formes.ca

CAROLINE FRENETTE
Engineer and Technical Adviser
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Québec Forest Industry Council

QUÉBEC

COMMERCIAL PROJECT <1,000M^2

Wood frame expansion enhances aesthetics of new structure and matches existing structure

Gestion 3 dans 1 Expansion

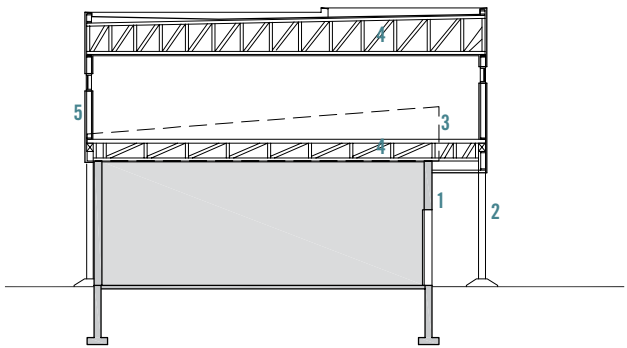
BGLA

Commissioned to double the size of a small commercial building on Ormière Boulevard in Québec City, the architects created an efficient and sustainable solution with the addition of a light wood-framed floor supported by a peripheral glulam structure. This solution breathes new life into the existing building while limiting the impact to the ground and respecting the building's current use.

V-shaped glulam columns support the structure of the expansion and contribute to the architectural design of the building. The choice of wood for these elements means the team could both enhance the aesthetics of the new structure and build the expansion using the same materials as those used in the existing structural system. The lightness of the wood makes it the material of choice for this type of expansion.

Tailored construction details, a well-designed building envelope and the conscientious management of natural light are just some of the project's main qualities. The choice to proceed with the expansion of an existing building instead of constructing a new one is also one of the assets of the project, helping to pave the way to a better use of the existing built environment.

1. existing structure
2. new independent structure for second floor
3. outline of original roof structure
4. new floor and roof structure
5. new prefabricated wall sections



BUILDING SECTION

CLIENT
Gestion 3 dans 1
Québec, QC

ARCHITECT
BGLA
Québec, QC

STRUCTURAL ENGINEER
Yves Gilbert
Québec, QC

GENERAL CONTRACTOR
Construction HGB Inc.
Québec, QC

PHOTOGRAPHY
BGLA
Québec, QC

COMMERCIAL PROJECT >1,000M²

CLT offers new possibilities for wood construction in Québec

Groupe AGF Head Office

Daoust Lestage Inc. architecture design urbain

With a structure made entirely of cross-laminated timber panels (CLT), and serving as a connection between two existing buildings, the project for the Groupe AGF head office is one of the first in Québec to use this type of building system. The building, located in a metropolitan area, serves as a fantastic model, demonstrating the multiple possibilities of this type of structural system.

The CLT panels are beautifully showcased in this project where they are used as structural components, both horizontally and vertically. Left exposed, this material is used as facing for the walls as well as for the custom-designed furniture, conferring the site with a warm atmosphere. The ambiance is also enhanced thanks to the huge windows on the façade which allow an abundance of natural light to filter into the building. This use of wood contributes to the pleasant, user-focused working environment for the company's employees.

Aside from the pleasing results, the use of CLT makes the Groupe AGF headquarters an innovative building, paving the way for the design of sustainable tall wooden buildings in the future.

CLIENT
Groupe AGF
Longueuil, QC

ARCHITECT
Daoust Lestage Inc.
architecture design urbain
Montréal, QC

ENGINEERS
Pasquin St-Jean et associés
Montréal, QC

Shellex Groupe Conseil Inc.
Salaberry-De-Valleyfield, QC

GENERAL CONTRACTOR
Les Entreprises QMD Inc.
Montréal, QC

TIMBER SUPPLIER
KLH
London, England

PHOTOGRAPHY
Daoust Lestage Inc.
architecture design urbain
Montréal, QC

Marc Cramer
Montréal, QC

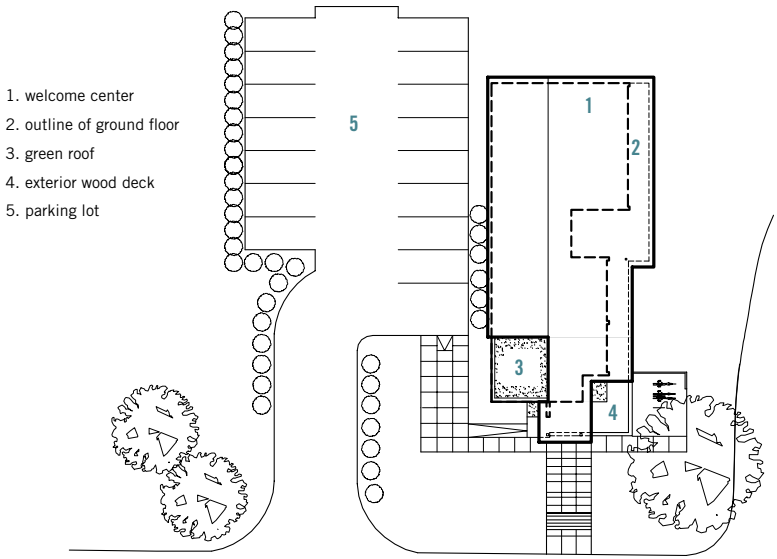
EXTERIOR CLADDING

Local white pine cladding integrates structure with the surrounding environment

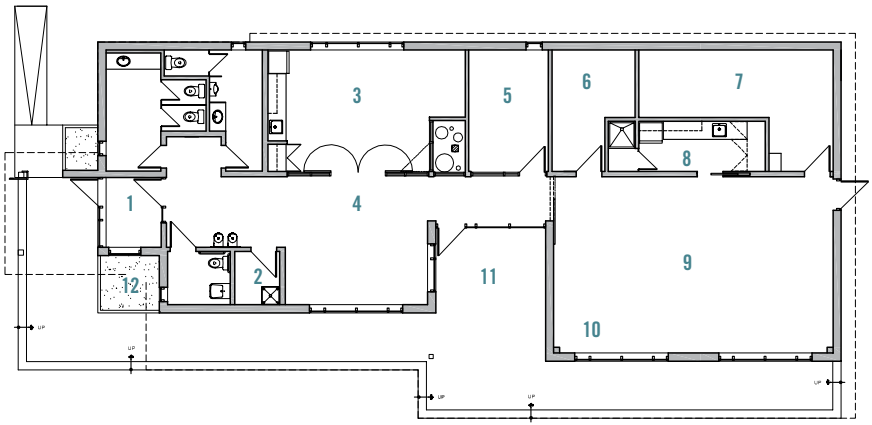
Parc linéaire du Lac Saint-Charles Visitors Centre

BGLA and Escaléra

Housing an organization dedicated to the promotion of the ecology and natural environment of Lac Saint-Charles, this building, located at the mouth of the lake, is a tribute to the nature that surrounds it. The project cleverly takes inspiration from its environment and expresses a close connection with the surrounding landscape. The natural beauty of the wood helped to ensure this respectful integration without compromising the



SITE PLAN



1. hall
2. janitor
3. meeting/kitchen
4. reception
5. office
6. office supply
7. mechanical room
8. lab/shower
9. offices
10. ground floor
11. exterior wood deck
12. outline of roof

GROUND FLOOR PLAN

creativity of the project. The building notably exhibits a very distinctive exterior cladding that contributes to the enrichment of the visitors' experience.

Composed of horizontal elements in white pine, the siding of the building is rich and varied. The different textures and varying tones blend harmoniously with the natural textures and tones found on the site. The siding is designed in an almost rhythmic fashion, adding a dynamic element to the overall appearance. The choice of wood for the exterior siding was also the ideal solution for the environmentally conscious organization occupying the building, especially considering that white pine is a local species.

CLIENT
City of Québec

ARCHITECTS
BGLA
Québec, QC

Escaléra
Québec, QC

STRUCTURAL ENGINEER
BPR
Québec, QC

GENERAL CONTRACTOR
Escaléra
Québec, QC

TIMBER SUPPLIER
Structures Ultratec
Laurier-Station, QC

PHOTOGRAPHY
BGLA
Québec, QC

EXTERIOR DESIGN

Wood offers distinctive character to mountain train station

Grande-Pointe Train Station

STGM architectes

Located at the foot of the Massif de Charlevoix Mountain, bordering the St. Lawrence, the Grande-Pointe train station charms onlookers through the simplicity of its architectural details. Integrating harmoniously with the landscape, the station allows the beauty of the surrounding nature to take center stage. It is through the careful design of the volume and scale of the building, its open communication with the river as well as through the use of wood that the architects were able to achieve this marriage between inside and outside, enhancing the railway experience for travelers.

The choice of unfinished wood lends a distinctive character to the project. Left in its raw state, larch wood becomes covered with a silver patina over time, taking on a natural look that blends in perfectly with the surroundings. The slatted boards, arranged to let the light filter in, is an interesting design detail reminiscent of the rural architecture of the region. Contrasting with the rustic look of the building, metal is used in strategic places, which helps to showcase the wood as well as provide a contemporary feel to the overall building.

CLIENT
Groupe Le Massif
Québec, QC

ARCHITECT
STGM architectes
Québec, QC

ENGINEERS
BPR – Tetra Tech
Québec, QC

SNC-Lavalin
Québec, QC

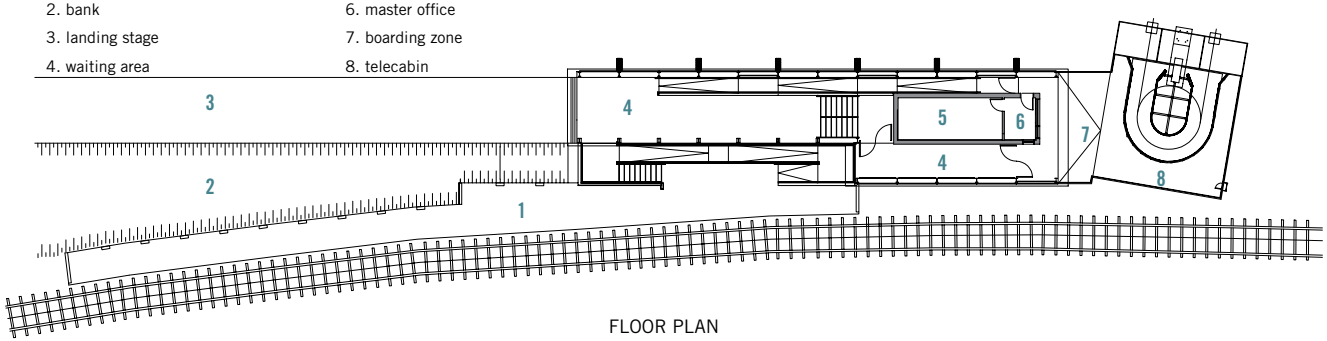
GENERAL CONTRACTOR
Qualité Construction (CDN)
St-Augustin-de-Desmaures, QC

TIMBER SUPPLIER
Nordic Engineered Wood
Chibougamau, QC

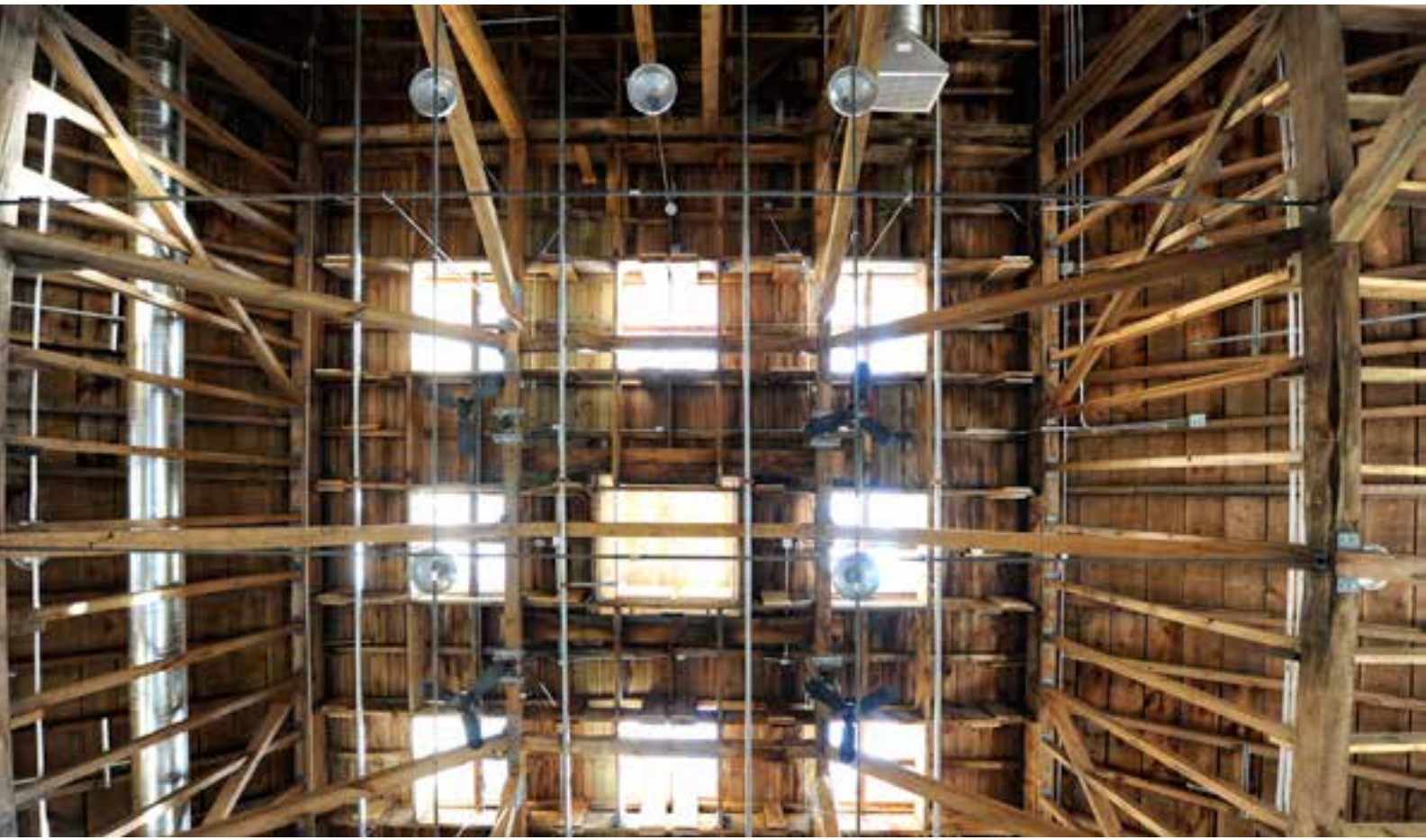
PHOTOGRAPHY
Stéphane Groleau
Québec, QC

Stéphan Langevin
STGM architectes
Québec, QC

1. wooden dock
2. bank
3. landing stage
4. waiting area
5. controllers office
6. master office
7. boarding zone
8. telecabin

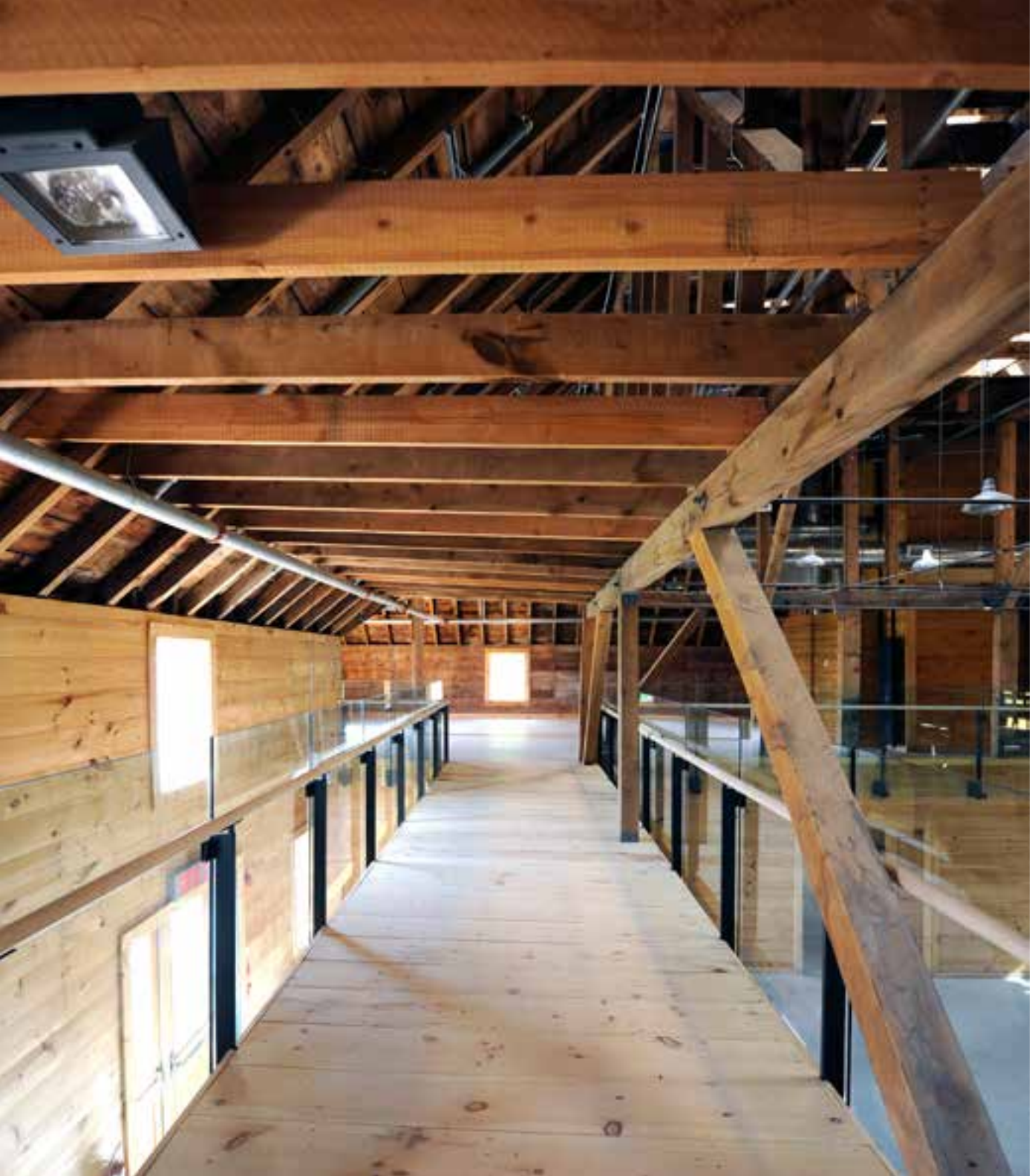


FLOOR PLAN



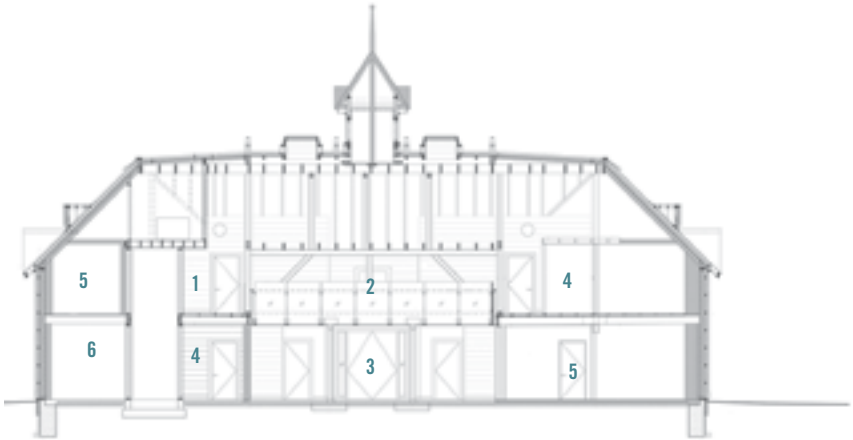
Restoration of the Moore Farm Estate

Isabelle Bradbury architecture Inc. and KWC Architects Inc.



A majestic estate established in the 19th century, the Moore farm was bequeathed to the federal government by Virginia Parker Moore in 1973. The structure is of great heritage value and testifies to the durability of wooden buildings. The work to convert the estate into an institutional space was carried out while showing great respect for the original spirit of the structure, highlighting the Queen Anne style architecture and emphasizing the beautiful aesthetics of the building.

The endeavor to salvage and showcase the original structure and period architectural details represented the primary challenge for the project team. Successful pairing of the original wooden structural elements with the new wood elements is obvious. The addition of a modern wood structure on the ground floor, left exposed on the inside of the building, made it possible to enhance the aesthetics of the original structure which serves as an important part of the building's charm. The decision to restore the envelope from the outside also demonstrated the effort to preserve and enhance the wooden structure. This restoration project serves as an excellent example of the versatility and adaptability of wood.



1. stable west
2. stable north
3. stable center
4. barrier-free washroom
5. electrical room
6. machine room

LONGITUDINAL SECTION

CLIENT
National Capital Commission
Ottawa, ON

ARCHITECTS
Isabelle Bradbury architecture Inc.
Gatineau, QC

KWC Architects Inc.
Ottawa, ON

STRUCTURAL ENGINEER
Genivar (NOW WSP CANADA INC.)
Ottawa, ON

GENERAL CONTRACTOR
Ed Brunet et Associés Canada Inc.
Gatineau, QC

PHOTOGRAPHY
Gordon King
Ottawa, ON

HERITAGE

Careful restoration and period details delight travellers

Sainte-Agathe-des-Monts Terminal

Atelier IDEA, architecture+design

Built by Canadian Pacific Railway in 1902, the Sainte-Agathe-des-Monts terminal is a charming little building that takes inspiration from the ornamental Tudor style. Architectural details such as a corner tower, a conical roof, slightly flared overhangs, multiple pane windows, and ornate brackets have helped the building earn its designation as a heritage railway station. It is distinguished by an abundance of wood, which was used for the structure, the exterior siding, the roofing and the hung windows as well as for the inside paneling and built-in furniture.

Damaged by fire in 2009, today the building is a reflection of the perseverance of the project team, which made every effort to carefully restore the building and return it to its former glory. The project team also managed to preserve several elements of the original structure out of respect for the great historical value of the building and its original architectural details. The building is now used as a bus station and a tourist information office.

CLIENT
The City of Sainte-Agathe-des-Monts
Sainte-Agathe-des-Monts, QC

ARCHITECT
Atelier IDEA, architecture+design
Sainte-Adèle, QC

STRUCTURAL ENGINEER
François Goulet Expert-conseil Inc.
Montréal, QC

GENERAL CONTRACTOR
Équipe Landco, Master Builder
Piedmont, QC

PHOTOGRAPHY
Denis Désilets/Atelier IDEA, architecture+design
Sainte-Adèle, QC

Sébastien Chalut
Laval, QC

INDUSTRIAL PROJECT

Wood construction means even industrial can be beautiful

Masson-Mascouche Drinking Water Reservoir

Viau Bastien Gosselin Architectes

Observing the Masson-Mascouche Drinking Water Reservoir, one can hardly believe that it is actually an industrial building. The wood used for the exterior immediately gives the project a human touch that distinguishes it from other buildings with a similar occupation.

Special attention was paid to the experience of the public and to the environment throughout the design of the project. Made aesthetically appealing through the use of wood, the building blends harmoniously with the surrounding landscape. As a natural and stimulating material, the use of wood contributed to the creation of a dynamic and inviting outdoor space for users and visitors who can rest or even eat a meal outside, or simply enjoy the view.

The exterior wood structure resembles a pergola connecting the two separate wings of the building, which in turn is a reflection of the interior structure. The result is a unified whole which exhibits construction details that emphasize the commitment to design a sustainable building in the heart of the city.

ELEVATION PLAN

SITE PLAN

CLIENT
Régie Aqueduc
Inter-Municipale des Moulins
Terrebonne, QC

ARCHITECT
Viau Bastien Gosselin Architectes
Laval, QC

STRUCTURAL ENGINEER
DPHV
Beloeil, QC

GENERAL CONTRACTOR
Bernard Malo
Joliette, QC

TIMBER SUPPLIER
Goodfellow
Delson, QC

PHOTOGRAPHY
Viau Bastien Gosselin Architectes
Laval, QC

INNOVATIVE SOLUTIONS

Prefab wooden structural elements facilitated schedule and on-site assembly

Maicasagi Bridge

Nordic Engineered Wood

Located in the Nord-du-Québec region, Maicasagi Bridge is the longest straight single-span wooden bridge in the world. Its designers developed a bold structural system that combined cross-laminated timber (CLT) and glue-laminated wood to form two huge box girders. This innovative structure ensures that even 180-ton forestry vehicles can safely cross the more than 223-ft. clear span.

In order to minimize the bridge's environmental impact, a decision was made to avoid installing a support in the river itself. This presented a technical challenge for the designers. Although initially the intention was to use steel for the project, the tight schedule favored the use of a structure made entirely of engineered wood. In fact, the prefabrication of the wooden structural elements enabled the team to meet all the time requirements, in addition to greatly facilitating the on-site assembly.

The wood cladding judiciously used in order to protect the main structure of the bridge will help to ensure the longevity of the construction. This project will surely be a source of inspiration for many other roadwork projects in the future, in Canada and abroad.

ARCHITECT
Nordic Engineered Wood
Chibougamau, QC

STRUCTURAL ENGINEER
Stavibel
Chibougamau, QC

TIMBER SUPPLIER
Nordic Engineered Wood
Chibougamau, QC

PHOTOGRAPHY
Nordic Engineered Wood
Chibougamau, QC

INSTITUTIONAL PROJECT <1,000M^2, ARCHITECTURAL DETAIL DESIGN AND "PEOPLE'S CHOICE" AWARD

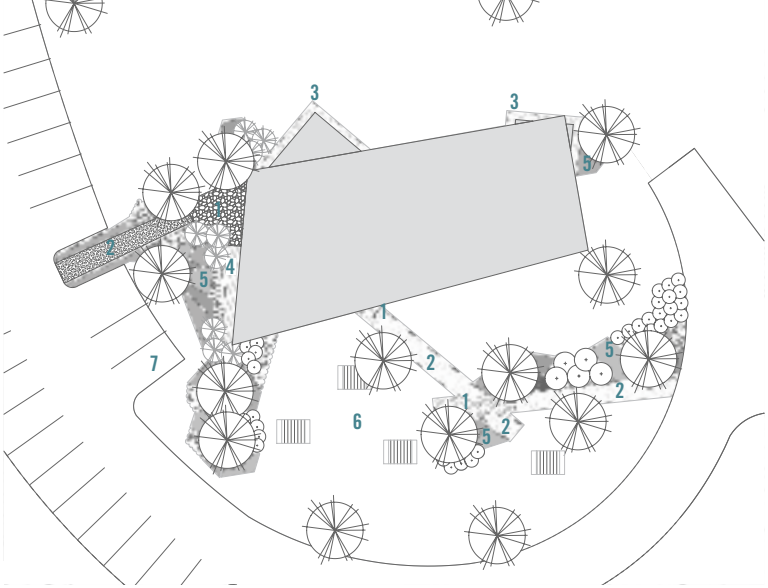
Cedar columns, peeled by hand, live alongside other woods in an artful creation of patterns

The Parc national Lac-Témiscouata Discovery and Visitors Centre

Carl Charron Architecte

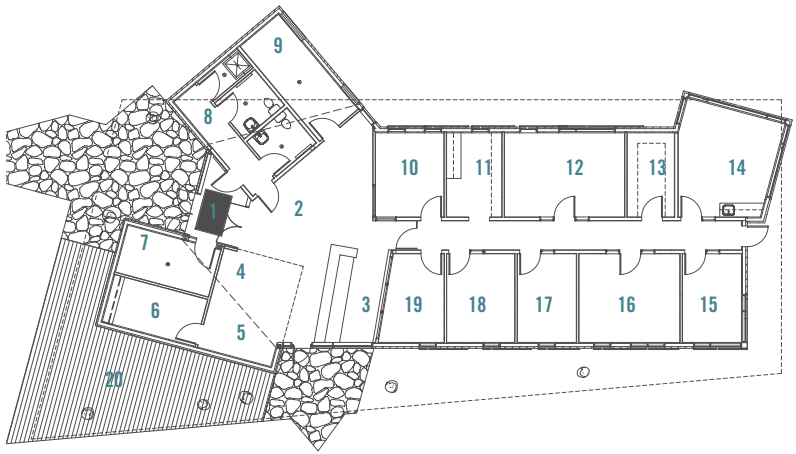
Located in the park most recently added to the SÉPAQ's (Society of outdoor recreation establishments of Québec) roster of establishments, the Discovery and Visitors Centre of the Parc national Lac-Témiscouata is a perfect example of a building that integrates harmoniously with its environment. This is possible due to the judicious use of wood both inside and out, and especially the combination of several different species of wood native to Québec, notably poplar, cedar and birch.

It is the careful attention to detail and the conscientious arrangement of the various wooden elements that help enhance the natural material. On the outside, the roof takes its inspiration from the wing of the bald eagle, an emblematic animal of the park, spreading over and protecting the large wood columns beneath. The columns were made from whole cedar tree trunks, handcrafted according to an age-old technique of wood peeling by knife. The choice to alternate between natural unfinished wood and stained wood elements helps to create an inspiring relief across the different surfaces. Inside, it is the delicate marriage of the different wood species that impresses. The feature wall behind the reception desk is a work of art. Composed of rustic cherry, African mahogany, aspen and cedar, all of different dimensions and deliberately interspersed with empty spaces, this installation proves once again that the use of wood allows for the creation of stunning and unique patterns.



1. slate paving
2. stone dust paving
3. drainage
4. wood deck
5. planting area
6. picnic area
7. parking

SITE PLAN



1. entrance
2. hall
3. reception kiosk
4. shop area
5. convenience
6. storage
7. snowshoe storage
8. sanitary bloc
9. mechanical and electrical room
10. administration office
11. reprographics
12. park partrol room
13. archives
14. conference room
15. workstation
16. naturalists room
17. education and preservation office
18. director office
19. customer service
20. covered rest area

FLOOR PLAN

CLIENT
SÉPAQ
Squatec, QC

ARCHITECT
Carl Charron Architecte
Rivière-du-Loup, QC

STRUCTURAL ENGINEER
BPR
Québec, QC

GENERAL CONTRACTOR
Construction Marcel Charest
Saint-Pascal, QC

TIMBER SUPPLIER
Art Massif Structure de bois
Saint-Jean-Port-Joli, QC

PHOTOGRAPHY
Stéphane Groleau
Québec, QC

Exposed wood structure creates an inviting atmosphere for athletes

The Université du Québec à Chicoutimi Arena and Service Pavilion

Lemay and Les Architectes Associés

Thanks to its singular shape and the perfect marriage of wood and aluminium on its façades, the building that houses the arena and service pavilion for the Université du Québec à Chicoutimi (UQAC) is impressive and compelling, a true symbol of the north. Its distinctive use of wood constitutes a unique signature for an arena and makes it an exemplary model for other buildings of the same type.

The architects were sensitive to the users' experience. The project demonstrates a keen understanding of sports, making it a distinctive building in this respect. The impressive curved shape of the building helped to reduce its overall volume while allowing for the incorporation of an open space between the stands and the ice. Furthermore, the choice to use wood decking helped to enhance the building's acoustic performance. The abundance of natural light that filters in gives the interior a more welcoming atmosphere while beautifully showcasing the exposed wood structure lofted high above the skaters' heads. The successful integration of these elements creates a warm, inviting environment for the athletes who use it.

CLIENT
Université du Québec à Chicoutimi (UQAC)

ARCHITECTS
Lemay
Montréal, QC

Les Architectes Associés
Chicoutimi, QC

ENGINEERS
Pasquin St-Jean & Associates
Montréal, QC

Conception Habitat 2000
Laval, QC

TIMBER SUPPLIER
Nordic Engineered Wood
Chibougamau, QC

PHOTOGRAPHY
Stéphane Groleau
Québec, QC

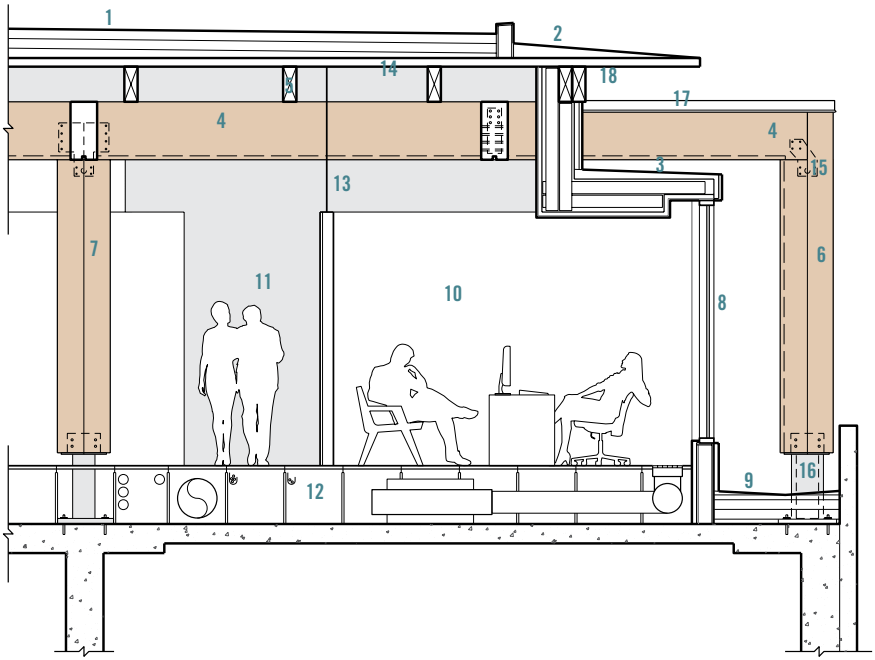
INTERIOR DESIGN

Exposed wood structure adds cachet to fifth-floor office addition

Complan Building, 5th floor

CGBW STUDIO


EC



1. main roof
2. main roof projection
3. perimeter secondary roof
4. main glulam timber beam exterior treatment: ecological dyeing that repels water
5. secondary glulam timber beam
6. exterior glulam timber column (diamond shaped, ecological dyeing)
7. interior glulam timber column (diamond shaped)
8. building rain screen facade with phenolic laminated veneer panels
9. service access for facade maintenance
10. office space
11. open corridor (full height)
12. pressurized plenum (fresh air, 14 ventilation zones) technical raised access flooring for mech./ elec./ comm. services ceiling is free of services cluttering
13. acoustic double glass interior window
14. 89 mm wood decking for fire performance
15. integrated galvanized steel connection plate
16. insulated and recessed galvanized steel connection base
17. copper flashing
18. treated wood soffit

BUILDING SECTION

The addition of a fifth floor with a glulam structure, built on top of an existing concrete building, is a first in Canada and constitutes a distinctive project that impresses visitors from the outside and the inside. The architects were able to effectively exploit the benefits of this type of structure in order to create a working environment that allies both aesthetics and comfort for the occupants.

Providing a unique cachet to the offices on this floor, the exposed wooden structure is the key element of the design. The wood structure creates a contrast within the context of a conventional office space, and within the interior design of the building as a whole. After entering a concrete building, visitors arriving on the fifth floor are amazed by the warmth and natural beauty of the wood as well as by the breathtaking views over the river and bridges of Québec City. Left exposed, the glulam ceiling contributes to the aesthetics of the space. The slatted wood, which serves as facing for the interior partition walls, the bathroom ceilings, and elsewhere on the floor, is an interesting reflection of the wooden structure.

CLIENT
Société de Gestion
Complan (1980) Inc.
Québec, QC

ARCHITECT
CGBW STUDIO
(NOW CARGO ARCHITECTURE INC.)
Québec, QC

STRUCTURAL ENGINEER
Laplante Saucier Ingénieurs Conseils
Québec, QC

GENERAL CONTRACTOR
Construction Citadelle Inc.
Québec, QC

TIMBER SUPPLIER
Nordic Engineered Wood
Chibougamau, QC

PHOTOGRAPHY
Stéphane Groleau
Québec, QC

Project's simplicity of design and cost control make it a model for large retailers

Éco Attitude Home Improvement Stores

Sophie Tétreault Architecte

Already established in three branches of the BMR retail home improvement centers, the concept of the Eco Attitude stores is a veritable tribute to wood. Creating a warm and welcoming environment for customers, the glulam structure not only contributes to the distinctive aesthetic beauty, but it is also at the heart of an environmentally conscious approach that is reflected in several design details meticulously selected by BMR.

In fact, aside from the large amount of CO^2 that the structure is able to sequester, the concept also provides solutions that help to achieve a 40 per cent savings in the energy consumption of the stores. This project notably includes efficient skylights and windows that increase the supply of natural light, a geothermal system as well as a green wall covered in vegetation. These elements also contribute to the enhancement of the customer experience by providing a pleasant atmosphere.

The design team went beyond the conventional uses of wood in order to find a different way of building a big box store. The project demonstrates that wood is a logical choice when it comes to designing more eco-responsible buildings.

CLIENT
Groupe BMR Inc.
Boucherville, QC

ARCHITECT
Sophie Tétreault Architecte
Saint-Jean-Sur-Richelieu, QC

STRUCTURAL ENGINEERS
Rochon Experts-Conseils Inc.
Sainte-Julie, QC

S.I.M. Experts-Conseils
Saint-Jean-Sur-Richelieu, QC

AP Consultant
Saint-Jean-Sur-Richelieu, QC

TIMBER SUPPLIER
Nordic Engineered Wood
Chibougamau, QC

PHOTOGRAPHY
Danny Wade, Groupe BMR Inc.
Boucherville, QC

Nordic Engineered Wood
Chibougamau, QC

SUSTAINABLE DEVELOPMENT AND STRUCTURAL DESIGN

Wood has environmental and health appeal for employees of major biotech firm

GlaxoSmithKline Inc. Administration Building

Coarchitecture

With its unique signature oblong shape, the GlaxoSmithKline administration building stands apart in Québec City's Techno Park. However, the unique geometry of its structure is not the only source of its appeal. The building houses spectacular interior spaces with exposed glulam structures and variably tapered round timber columns that descend from the ceiling with an almost theatrical flair. The transparent façade allows the natural light to highlight the wood structure.

Behind the impressive aesthetics of this structure lies a remarkable feat of engineering, which is enhanced by the curved shape of the roof. The wood structure features arched rectangular beams with double inflection points that curve in one direction and then the other. This technical achievement is a first in Québec. The choice of wood as the structural material was ideal for this unique design.

This use of wood in the building's design reflects a particular concern for the environment as well as for the comfort of the building's occupants. In addition to the inviting, comfortable spaces, the building features natural ventilation, a geothermal system and several other technologies aimed at helping to reduce the building's overall impact on the environment. The team also took an environmentally conscious approach throughout construction, which helped to divert nearly 92 per cent of the construction waste away from the landfill.

CLIENT
GlaxoSmithKline Biologicals Inc.
Québec, QC

ARCHITECT
Coarchitecture
Québec, QC

STRUCTURAL ENGINEER
SDK
Montréal, QC

GENERAL CONTRACTOR
Verreault Construction
Québec, QC

TIMBER SUPPLIER
Nordic Engineered Wood
Chibougamau, QC

PHOTOGRAPHY
Stéphane Groleau
Québec, QC

MULTI-STORY WOOD DESIGN

Bullitt Center

Seattle, WA

The Miller Hull Partnership

Please see page 70

U.S. WoodWorks Wood Design Awards

Jurors

TIMOTHY BROWN, AIA ALA CSI
Principal, Tim Brown Architecture
STUDIO ASSOCIATE PROFESSOR, COLLEGE OF ARCHITECTURE, ILLINOIS INSTITUTE OF TECHNOLOGY
www.tbaarch.com

BRIAN MOSKOW, CWI, PE
President
RED ENGINEERING & DESIGN
http://redengineeringdesign.com

RICO QUIRINDONGO, AIA
Architect
DLR GROUP
www.dlrgroup.com

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WOODWAY®

U.S. WoodWorks Wood Design Awards

Celebrating innovative wood buildings is an essential part of the U.S. WoodWorks program, and a natural complement to our core role of supporting architects, engineers and other professionals in the design of wood structures. Our award program has evolved over time to reflect WoodWorks' own evolution from pilot to mature national initiative – and we were rewarded this year with a record number of nominations.

As always, the winning projects are a testament to wood's design flexibility, but this year was also noteworthy for the many ways wood contributed to sustainability. The Bullitt Center, which includes five stories of heavy timber-frame construction, was designed to meet the requirements of the Living Building Challenge – considered the step beyond LEED Platinum. For the James and Anne Robinson Nature Center, wood contributed seven points toward LEED Platinum certification. The LEED Gold Federal Center South building includes 300,000 board feet of wood salvaged from a 1940s-era warehouse. And the Reed College Performing Arts Building is seeking gold certification under the Earth Advantage program.

More and more, wood's sustainability attributes – including its light carbon footprint – are being valued by design professionals alongside traditional drivers for wood use such as cost, warmth and beauty. These attributes are also playing a significant role in the development and use of innovative wood products such as cross-laminated timber, as seen in the award-winning Promega Feynman Center.

I'm honored that, through its work promoting greater use of wood in buildings, WoodWorks is contributing to a changing building landscape in which sustainability is a dominant concern. In that spirit, I'm also honored to share with you this year's winners of U.S. WoodWorks Wood Design Awards.

Jennifer Cover, PE
Executive Director
U.S. WoodWorks

COMMERCIAL

Army headquarters meets environmental targets with salvaged lumber that also provides character and connection to the site

Federal Center South Building 1202

ZGF Architects LLP

Inside the stainless steel exterior of the Federal Center South Building 1202, lumber salvaged from a timber-framed warehouse that once stood on the site provides structure and rustic northwest character for the new regional headquarters of the United States Army Corps of Engineers (USACE) in Seattle, Washington. An indoor campus environment enhances the concept of community and collective identity within the building and supports the notion of biophilia – the natural bond between human beings and living systems.

With aggressive mandates for reuse and energy-performance set by the U.S. General Services Administration (GSA), Building 1202 transforms a 4.6-acre brownfield site into a highly flexible and sustainable 209,000-sq.ft. regional headquarters. The integrated design solution sets a new standard for high-performance, cost-effective and sustainable workplace environments.

The building's form, affectionately termed the "oxbow," facilitates an open, collaborative workplace environment for the USACE, emblematic of its "Building Strong" mission. The design reflects the natural oxbows in the adjacent Duwamish Waterway while providing measurable energy-performance benefits. The space is both functional and flexible to accommodate the USACE's nearly constantly changing team-based work. Interior space planning enhances the concept of a collective community and identity by centralizing all common services and conferencing within the "commons" – the social heart of the building.

The project is partially funded through the U.S. GSA's Design Excellence Program, established to procure the nation's best engineers and architects in order to achieve the most innovative and high-performance design in federal government buildings. All of the wood used in the project was salvaged from a 1940s-era warehouse that previously occupied the site – a total of 200,000 board feet of heavy timber and 100,000 board feet of 2 x 6 tongue and groove roof decking. The team used an inventory-based approach to sort and catalogue each piece of salvaged timber. Once inventoried, the available material was thoughtfully incorporated into the design, eliminating the need to purchase off-site timber. In addition to cost considerations, this was important because all of the framing was exposed as part of the structural and architectural expression. Use of reclaimed timber reduces the overall environmental impact, preserves the rich history of the building site, and reflects the GSA's commitment to environmental protection and preservation.

The warm, rough-hewn timber is the focal point of the commons and is used in various ways to assist in wayfinding throughout the building. Reinforcing the building's connection to the site, the signage system is organized into four quadrants named for the four tributaries of the Duwamish River watershed – the White River, Green River, Black River and Cedar River. Timber throughout the commons is etched with geographic information relevant to the site and USACE's mission. Near gathering spaces at the west end of the building, graphics routed onto reclaimed wood chart the river's historic and current paths physically connected to the Army Corps' work. These graphics enhance the gathering spaces and encourage people to engage with the organization's history and the natural environment just outside the windows. Reclaimed timber bridges and stairs throughout the atrium connect people across the building and are strategically located adjacent to informal seating and touchdown work surfaces to encourage communication and collaboration. The shared communal space has become the important connective tissue between departments that were previously dispersed.

The building is designed to meet aggressive sustainable design, energy and water performance requirements. The design solution integrates active and passive systems, materials and


24km
18km
83km

FLOOR PLAN – LEVEL 1

1. lobby/secured entry
2. elevators
3. atrium landscaping
4. open office
5. private office
6. private office suite
7. conference rooms
8. multi-purpose room
9. focus room
10. kitchenette
11. high-density shelving
12. exit stair
13. plaza
14. loading dock
15. utility rooms
16. locker room

strategies. A one-year measurement and verification phase built into the contract has proven that the building is meeting high standards for energy efficiency, performing in the top one per cent of energy-efficient office buildings in the U.S. without sacrificing comfort, amenities or innovative design.

Every major aspect of the building supports a high-performance built environment that establishes a new modern and sustainable workplace standard. At the same time, the project regenerates a blighted site, breathing new life into the Federal Center South campus. An appropriate building footprint and an environmentally responsible approach to siting and materials makes strides toward repairing and restoring the fabric of the Duwamish shoreline.

OWNER
U.S. General Services Administration

ARCHITECT
ZGF Architects LLP
Seattle, WA

STRUCTURAL/CIVIL ENGINEER
KPFF Consulting Engineers
Seattle, WA

GENERAL CONTRACTOR
Sellen Construction
Seattle, WA

ARCHITECTURAL MILLWORK
G.R. Plume Company
Ferndale, WA

PHOTOGRAPHY
Benjamin Benschneider
Seattle, WA

ENGINEERING

CLT roof deck creates a warm aesthetic; represents the first large-scale commercial use of North American CLT

Promega Feynman Center, "The Crossroads"

EwingCole

Promega, a leading biotechnology firm headquartered in Madison, Wisconsin, bills itself as a company of discovery. The client allowed the design team to design its new client and staff reception area, called The Crossroads, through a process of discovery and the decision to use wood was one of those discoveries. Glulam beams and cross-laminated timber (CLT) make a statement that this is a special and unusual space.

The 52,000-sq.ft. space is part of a 300,000-sq.ft. Good Manufacturing Practices (GMP) facility, which is a highly regulated and specialized building used for manufacturing medical device products. GMPs can


EXIT

be relatively sterile spaces but Promega wanted The Crossroads to give clients and staff a completely different environment from the GMP. They liked the idea of a tree-lined indoor colonnade. They also wanted high design and high-quality materials.

The team knew The Crossroads needed to be a unique space. CLT was suggested because it's new to North America and innovative; because of that, CLT intrigued Promega. Together with glulam, it was a natural fit for the warm aesthetic the team wanted to create. They also wanted a high-quality, exposed roof deck with long spans and minimum on-site construction complexity. CLT met the criteria.

The Crossroads has a fairly complex footprint, forming a sinuous S-curve which wraps around one corner of the rectangular GMP facility. The unique geometry, with almost no parallel lines in the infrastructure, meant CLT didn't make sense at first glance. The team developed a method to lay these rectangular panels down while only having to shave a few degrees from each to form curves. Each panel was labeled so the construction team was able to piece the puzzle together quickly and efficiently with little waste.

In addition, with virtually no square angles in the structure, beam-to-column connections created a challenge. To avoid the need for more than 100 different configurations, a steel pin connector was designed which allowed most joints to have elegant and typical connections. The single connector enables as much as 10 degrees rotation in either direction, giving it the required swivel to fit nearly all column and beam connections. The contractor built a full-scale mockup, allowing the team to test the connections and identify constructability issues before installation began.

Accommodating Wisconsin snow loads was also a challenge. CLT permitted the team to develop a diaphragm scenario to maximize the decking spans and minimize the number of structural members. The CLT panels allowed beam spacing of about 10 feet.

The group also carefully evaluated seismic and lateral loads before selecting CLT. To achieve a sense of openness, the design needed to incorporate a lateral support system within the building that was also elegant. CLT panel properties allowed the lateral frames to be widely spaced while maintaining load distribution without additional structural elements.

While CLT and glulam can be easily used for more straightforward building projects, The Crossroads was anything but ordinary. With discovery comes challenge, and the innovative use of wood in The Crossroads took all involved into new territory.

OWNER
Promega Corporation
Madison, WI

ARCHITECTS
Uihlein-Wilson Architects
Milwaukee, WI

EwingCole
Philadelphia, PA

Archemy Consulting Ltd.
Vancouver, BC

STRUCTURAL ENGINEER
EwingCole
Philadelphia, PA

GENERAL CONTRACTOR
Kraemer Brothers
Plain, WI

PHOTOGRAPHY
C&N Photography
Madison, WI

Biomass Heating Plant, Hotchkiss School

Centerbrook Architects and Planners

GREEN BUILDING

Plant is an integral part of school's carbon-neutral commitment

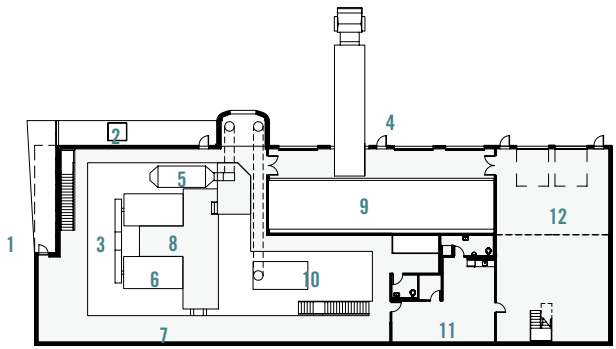
Viewed from the main campus of this independent preparatory school, down a hill and across a golf course, this peculiar looking building with its undulating green roof promises something special. Indeed, it houses a biomass heating plant that burns sustainably harvested wood-chips to heat an entire boarding school (1.2 million sq.ft. in 85 buildings) with more than 600 inhabitants.

The design meets two seemingly contradictory goals: creating an iconic presence for this seminal building while also merging into its natural setting, as befits its mission. Sited at the periphery of the school's campus, the profile of this 16,500-sq.ft. building is capped by a rolling, vegetated roof that changes color, chameleon-like, with each season.

Designated a carbon-neutral fuel by the International Panel on Climate Change, the locally sourced woodchips are replacing some 150,000 gallons of imported fuel oil per year, thus cutting overall emissions, most dramatically sulfur dioxide, by more than 90 per cent. Waste ash is collected for use as fertilizer. The plant is an integral part of the school's commitment to becoming a carbon-neutral campus by 2020.

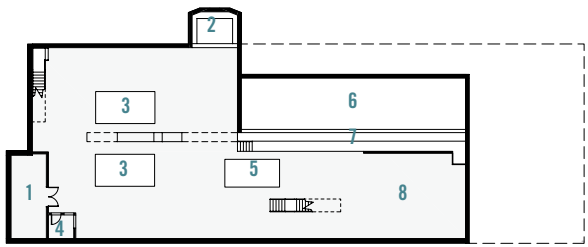
Designed as a living classroom, the heat plant exposes students and visitors to ecologically sustainable technologies and materials. The mezzanine walkway overlooks and circumnavigates the wood burning boilers, wood chip bunker and conveyers, the stoker auger, the boiler fire tubes, the electrostatic precipitator, the ash auger, and an exhibit that utilizes computer terminals to explain the plant's operation and track performance data.

Forest Stewardship Council (FSC)-certified wood or indigenous timber was used in the building's construction. The building's glulam timber trusses embody less energy than reinforced concrete or steel and can be used for long spans and complex shapes. Outside, a nature path affords views of the green roof, which absorbs and filters rainwater runoff, a rain garden, bioswales, and nearby wetlands.



1. student entrance
2. ash waste
3. wood chip hopper
4. truck bays
5. ESP
6. biomass boiler
7. display and observation mezzanine
8. platform
9. wood chip bunker
10. open
11. offices
12. maintenance workshop

GROUND FLOOR PLAN



1. electric room
2. lift
3. biomass boiler
4. control room
5. oil boiler
6. wood chip bunker
7. wood chip conveyor
8. mechanical room

LOWER FLOOR PLAN

Renewable construction materials, water-conserving plumbing fixtures, use of local materials with a high recycled content, abundant interior access to daylight, and highly efficient mechanical systems, lighting, and exterior skin, resulted in LEED Gold certification.

ARCHITECT
Centerbrook Architects and Planners
Centerbrook, CT

STRUCTURAL ENGINEER
DeStefano & Chamberlain, Inc.
Fairfield, CT

GENERAL CONTRACTOR
O&G Industries
Torrington, CT

PHOTOGRAPHY
David Sundberg/Esto
Mamaroneck, NY

INSTITUTIONAL

Nestled into a sloped site and largely below grade, nature center immerses visitors in a rich palette of wood

James and Anne Robinson Nature Center

GWWO, Inc./Architects

The Robinson Nature Center, located in Howard County, Maryland, immerses visitors in a dynamic environmental learning experience from the moment they arrive through their entire visit, both indoors and out. Nestled into the sloped site, the three-story, 26,000-sq.ft. structure is modest upon approach, appearing to be a human-scale, single story. It's only when visitors traverse the entire building they conceive its total mass. The exterior of cedar, stone and glass helps to blend the center into the natural landscaping of the site and to merge the building with its environment. The result is a facility that is both aesthetically pleasing and presents nature as the main focal point.

The center's exterior is reminiscent of the historic Simpsonville Mill, the remains of which are located nearby, and of agricultural structures similar to those found on the original Robinson homestead. The use of wood and stone continues into the building interior which features an ash acoustical slat wall, oak and cork flooring, bamboo and ash millwork, southern pine glulam beams, columns, and braces, cedar decking, tectum ceilings, and a wall treatment constructed of reused wood siding from an old barn on site.

Visitors approach the building at the level of the forest floor. Once inside, they move toward the primary exhibit, titled "Life of the Forest," transitioning to the level of the tree canopy, both inside (into the top level of the exhibit that explores the forest ecosystem) and out (at the north end of the site where views are of the tree canopy). The integration of the building with the steeply sloped site makes this possible and transparency enables visitors to see and feel the transition. Exterior terraces further merge indoor and outdoor space.

Inside the exhibit, visitors begin in the vibrant summer canopy, proceeding through the four seasons to experience a full year of change in the forest. As visitors circle the exhibit's signature sculptural tree element – rising over 30 feet and displaying more than 120 "leaves" carrying custom-painted scenes of wildlife behaviors and processes – they descend once again to the forest floor where diorama habitats and an experiential night forest exhibit awaits. Throughout the journey, exhibits use graphics, interactives, media, tactile elements, custom models, lighting effects and an audio environment to help visitors better understand and appreciate the nature in their own backyards.

On the lower level, the 50-seat NatureSphere, a state-of-the-art digital planetarium featuring a 26-foot semi-spherical dome offers immersive shows on nature, sciences, arts and high-tech topics. Designed to allow maximum flexibility, the dome is a multipurpose space that can extend the exhibit experience.

The Robinson Nature Center was designed to exist in harmony with nature, and the largest element supporting this harmony is the use of extensive green design features. Achieving the highest level of LEED

certification was of paramount importance since the facility's mission is to educate the public about environmental stewardship. Platinum certification was achieved, in part, by using wood that was either certified by the Forest Stewardship Council, or low-emitting, recycled and/or regionally produced. Additional sustainable features include geothermal heating and cooling, a green roof, pervious paving, water conservation, recycled content, daylighting and exhibit panels that showcase the sustainable design elements of the center and teach the visiting public the importance of green initiatives.

The Robinson Nature Center was the long-awaited dream of Anne Robinson who owned the property before donating it to The James and Anne Robinson Foundation, which then sold it to the county. The center was the first of its kind built in Howard County and also the first to achieve LEED Platinum certification.

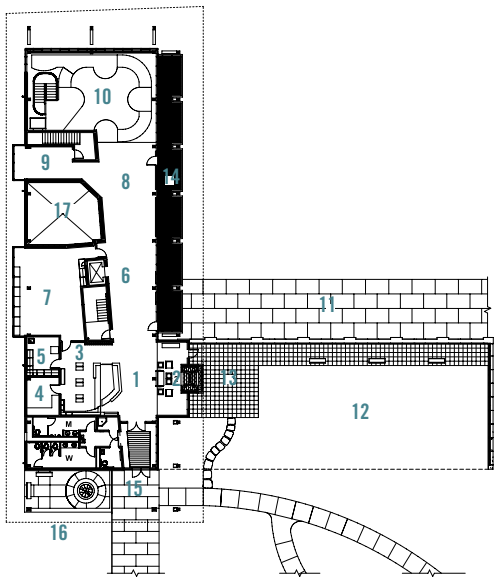
ARCHITECT
GWWO, Inc./Architects
Baltimore, MD

STRUCTURAL ENGINEER
Faisant Associates, Inc.
Baltimore, MD

GENERAL CONTRACTOR
Forrester Construction
Rockville, MD

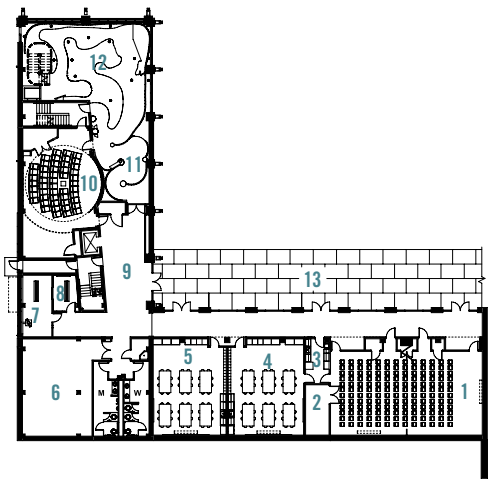
PHOTOGRAPHY
Paul Burk Photography
Baltimore, MD

Robert Creamer Photography
Baltimore, MD



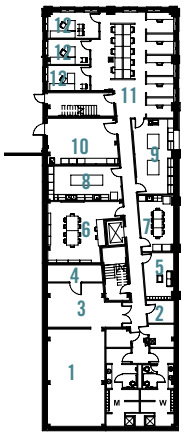
1. lobby
2. Robinson Family Legacy exhibit and LEED exhibit
3. gift/book store
4. storage
5. animal maintenance
6. changing exhibits
7. discovery room
8. Chesapeake Bay exhibit
9. Changing Lives, Changing Landscape exhibit
10. Signature Tree exhibit
11. mid-level terrace
12. green roof
13. green roof terrace
14. wood balcony
15. main entrance plaza
16. entry level
17. open to below

GROUND LEVEL



1. auditorium
2. storage
3. kitchen
4. classroom
5. classroom
6. mechanical/ electrical
7. backyard habitat viewing & beehive
8. movie clip cove
9. lobby
10. NaturerSphere
11. nocturnal exhibit
12. signature tree and forest floor exhibit
13. mid-level terrace

MID LEVEL



1. storage
2. IT equipment
3. storage
4. bird mount storage
5. volunteer break room
6. media room
7. kitchenette
8. research lab
9. copy room
10. services/ storage
11. open office
12. office

LOWER LEVEL

BEAUTY OF WOOD

New performing arts building is a rhapsody of wood

Reed College Performing Arts Building

Opsis Architecture

The Reed College Performing Arts Building consolidates theater, dance and music programs, originally scattered across the campus, into a vibrant and cross-disciplinary home for the arts. The 78,000-sq.ft. building serves as an open invitation to explore, pass through, and become immersed in the central commons where community is fostered. This architectural feat has transformed the Reed College campus into an active, dynamic, integrative performing arts community.

The beauty and diversity of wood used throughout the Performing Arts Building creates welcoming and unique spaces. The light-filled atrium, defined by a faceted, three-story wood wall creates a new public front door to the campus and terraces up the hillside, connecting to the main campus quad. The wood panel "curtain," crowned by a continuous skylight, also provides an evolving show of shadow and light.

Locally harvested vertical grain Douglas fir was used throughout the amphitheater building. In the Music Rehearsal Hall, finely scaled wood diffusion panels line the walls, resulting in a refined intimacy for a piano recital. In the Studio Theater, stained wall slats were salvaged and milled from a red oak heritage tree that fell on campus during a storm.

For a building featuring five performance spaces, acoustic design was an essential consideration. In the lobby, angled clear vertical Douglas fir wall panels diffuse sound, while select panels are perforated to absorb sound. Likewise, the fir slatted wood ceiling absorbs sound into the black insulation above. The net effect makes the large space feel intimate. In the Music Rehearsal Hall, fir wall diffusers carefully tuned by the acoustician provide an acoustic environment ideal for choir, small recitals, or lectures. The oak slats in the Studio Theater conceal the absorption materials and provide a base for theatrical rigging. The diverse qualities of varied wood species create a beautiful and highly functional home for the performing arts on campus.

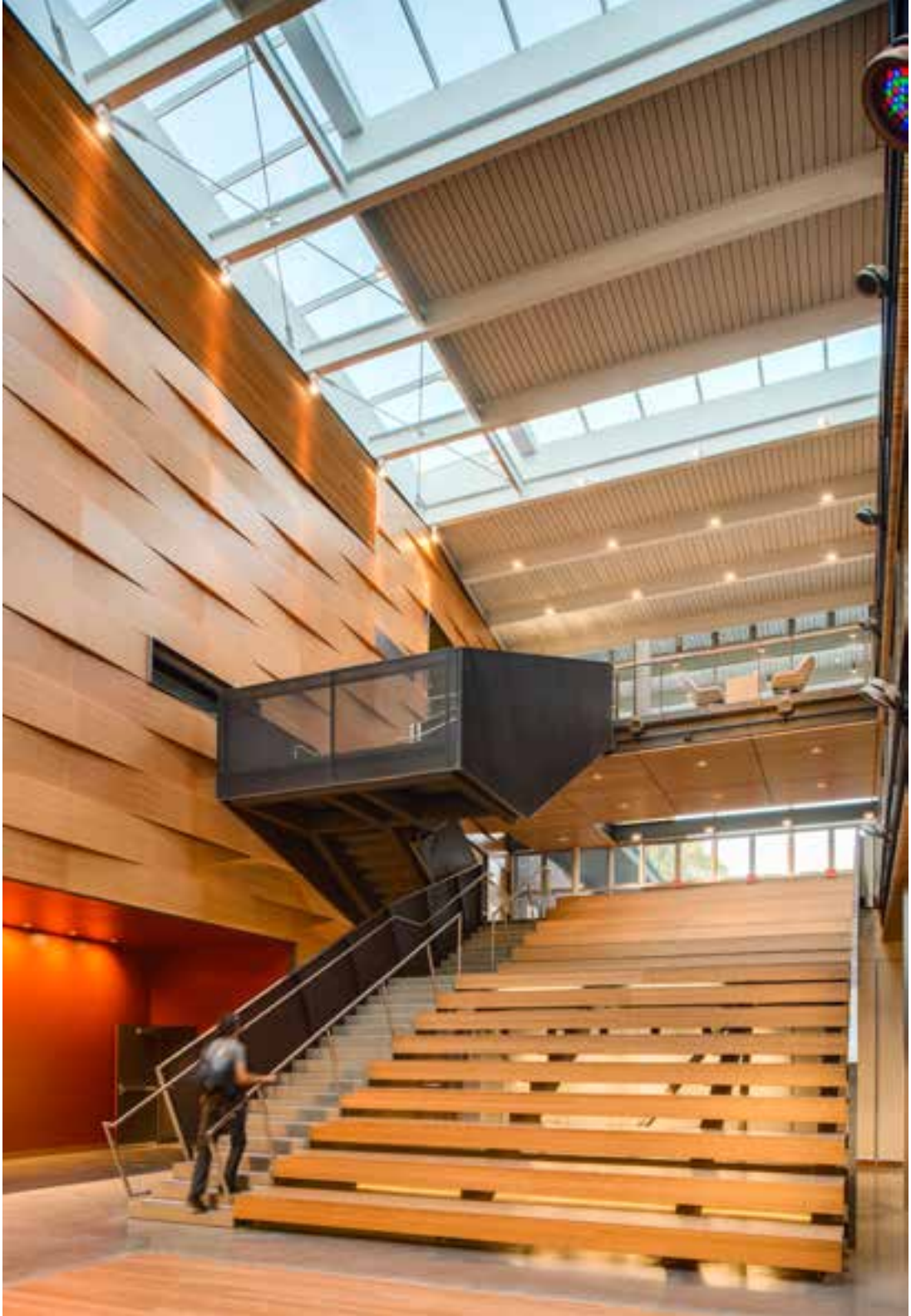
The Reed Performing Arts Building was designed to accommodate a wide range of spatial, acoustic, and light-

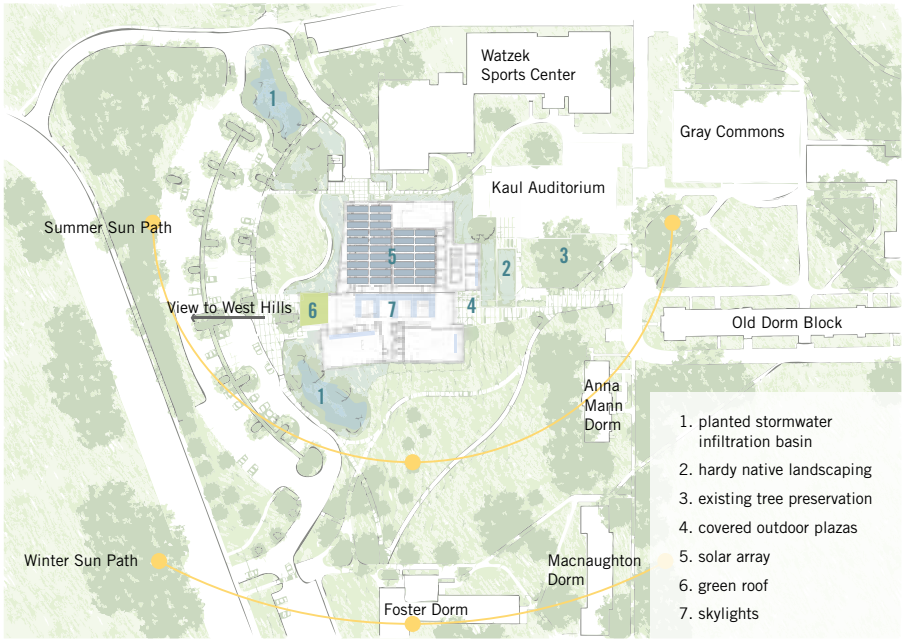
ing configurations. Accessibility was incorporated by creating spaces that open to neighboring areas through the strategic placement of sliding clear vertical grain Douglas fir veneer doors and windows. All performance and teaching spaces open to the atrium and lobby, including the 180-seat Studio Theater, as well as a 100-seat Black Box Theater, 100-seat Performance Lab, 100-seat Choral Room and two-story Dance Studio.

The Studio Theater features the custom, site-salvaged, stained red oak slat wall system, and stage flooring built from dimension lumber and 3/4-in. plywood with a top Masonite layer painted black. Fully movable seating platforms allow a wide range of seating configurations.

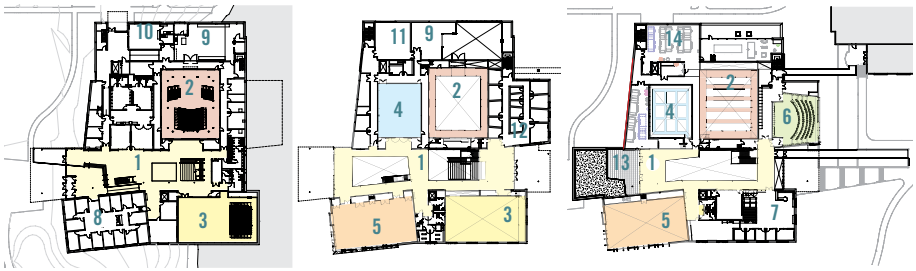
The Black Box Theater is a highly flexible and adaptable flat-floor room where students and faculty can experiment. Plywood wall paneling painted black maximizes theater adaptability and rigging opportunities. This flexible, multi-use event space is located directly off the lobby.

The Dance Studio and Performance Lab are both equipped with plywood sprung flooring, creating a state-of-the-art dance space and place for all kinds of theater rehearsals.





SITE PLAN



LEVEL ONE PLAN

LEVEL TWO PLAN

LEVEL THREE PLAN

1. atrium
2. 200-seat studio theater
3. 100-seat performance lab
4. 100-seat black box theater
5. dance studio
6. music choral rehearsal hall
7. performing arts resource library
8. faculty office suite
9. scene studio
10. costume studio
11. black box rehearsal room
12. music practice rooms suite
13. eco roof terrance
14. mechanical
15. future 350-seat proscenium theater

FLOOR PLAN

The thoughtful spatial qualities, materiality and character achieved in each room impart beneficial interactions with the performers who work in them and audiences who experience them. The Performing Arts Building was born out of a strategic vision to increase the cultural capital and social dialogue of an institution renowned for its academic rigor. In providing a new home for the performing arts, dance, music and theater, this building is a significant addition to the college.

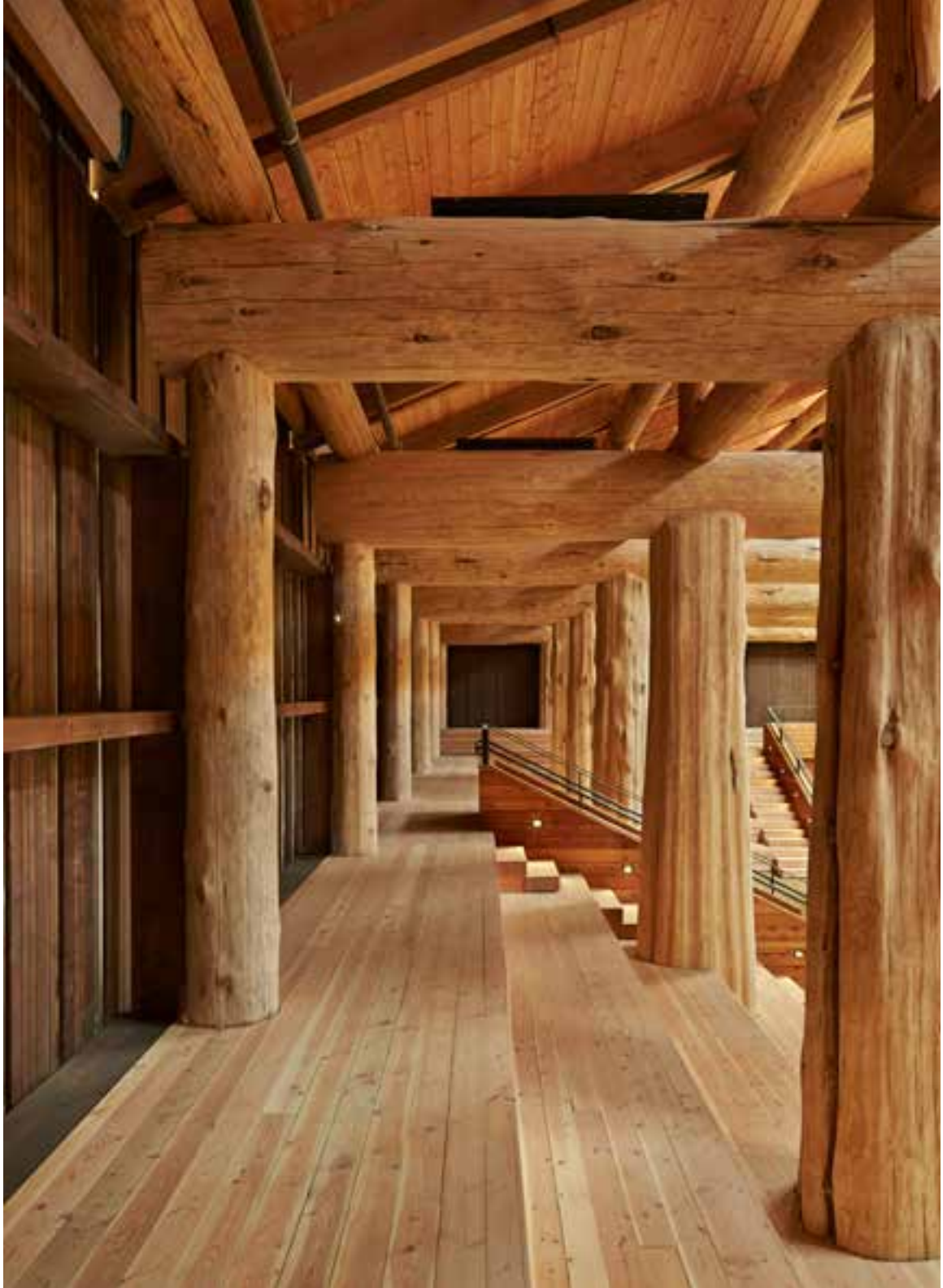
CLIENT
Reed College
Portland, OR

ARCHITECT
Opsis Architecture
Portland, OR

STRUCTURAL ENGINEER
KPFF Consulting Engineers
Portland, OR

GENERAL CONTRACTOR
Hoffman Construction
Portland, OR

PHOTOGRAPHY
Christian Columbres
Portland, OR
Opsis Architecture
Portland, OR



TRADITIONAL USE OF WOOD

Muckleshoot Smokehouse

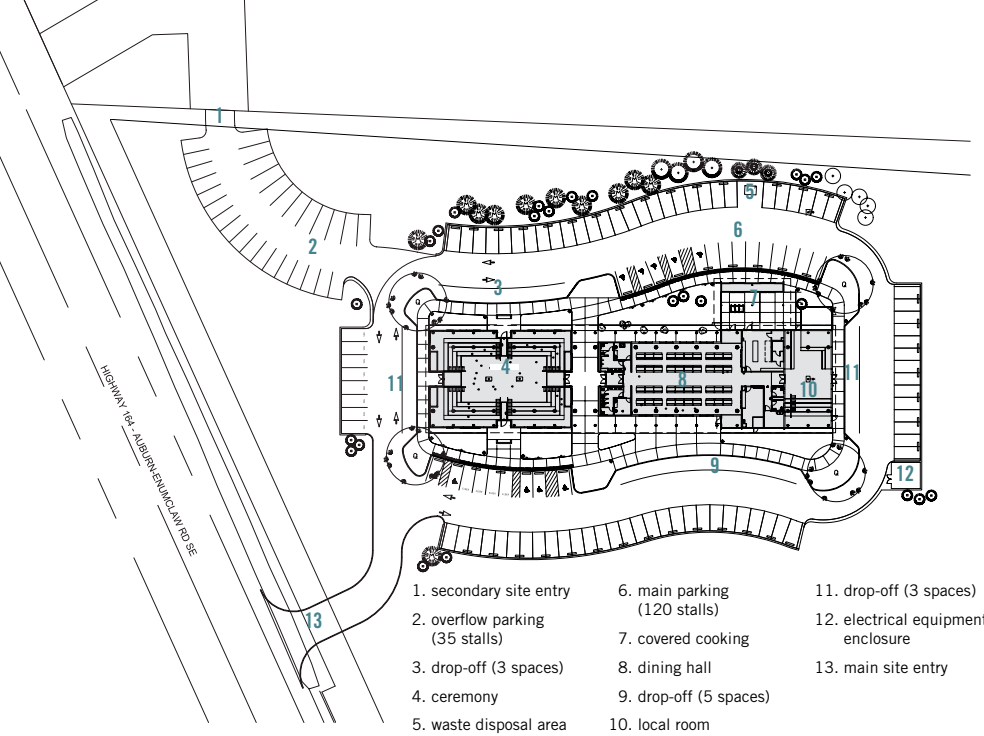
Mahlum

This project for the Muckleshoot Indian Tribe is dedicated to the practice of the Smokehouse faith, a traditional spiritualism also known as Seowyn. The Muckleshoots are descended from the Salish peoples of the Pacific Northwest, and remain tied to the same waters, mountains, prairie and rivers. There is a strong sense of communal ownership of this new longhouse among all of the followers of the faith. An elder who spoke at the ground blessing in February 2012 observed that this would be the first longhouse on the Muckleshoot prairie in more than 100 years. It is dedicated to the legacy of those who fought to preserve the culture and traditions of their Salish ancestors, and it is a legacy that this generation will leave for its children.

This project came to fruition over the course of a decade and is seen by all as a critical step in the growing revival of the tribe's traditions. The facility will house the congregation's gatherings and ceremonies and will receive guests from the region's larger Smokehouse community.

Winter is the traditional season of the longhouse. During the remainder of the year, families were dispersed over wide territories seeking resources from the sea, rivers and mountains. Winter brought everyone back together to the shelter and warmth of the longhouse, to the food stores, and to the stories, songs, and dances around the fires.

Blending with its agrarian context, the building is distinctly introspective in character. It is a private place for ceremony that does not proclaim itself, but rather reveals itself as the visitor is welcomed into the warmth of its interior. The peeled log construction and long, gabled roof is reverent to the traditional longhouse structures of the Southern Salish peoples.

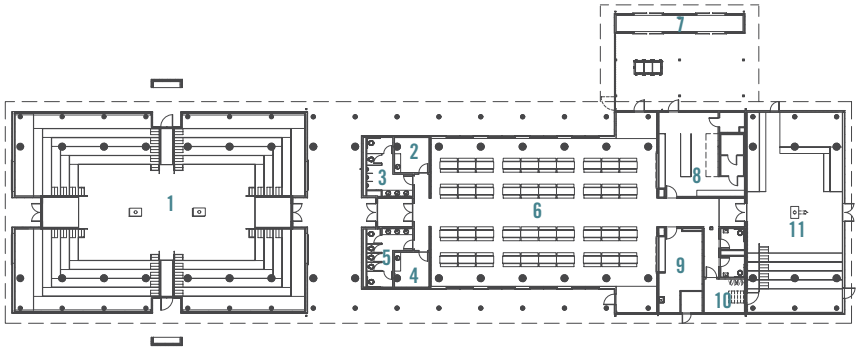


1. secondary site entry
2. overflow parking (35 stalls)
3. drop-off (3 spaces)
4. ceremony
5. waste disposal area
6. main parking (120 stalls)
7. covered cooking
8. dining hall
9. drop-off (5 spaces)
10. local room
11. drop-off (3 spaces)
12. electrical equipment enclosure
13. main site entry

SITE PLAN

Cedar is considered a gift to the ancestors because of the innumerable uses they found for it and, as such, it is used throughout the structure. Cedar columns stand sentinel in the ceremony rooms, their quiet strength connecting the congregants to this heritage. Cedar planks span between the columns sheltering occupants from the chill winds outside. Douglas fir was harvested for the logs, rafters and decking of the roof structure. The logs and timbers were gathered from the Cascade Mountains of Washington and Oregon. The structure was fabricated and pre-assembled in a log builder's yard, and brought to the site for erection. The walls breathe through the cedar plank siding and the open slats of the seating tiers.

The main ceremony space at the west end of the building will seat 500, while the smaller "local room" at the east will house more intimate services. Dirt floors keep the dancers and congregants connected to the earth, and fires in the large wood stoves keep out the cold. The dining hall forms the heart of the building. With the fully appointed kitchen and outdoor cooking area, the hosts can serve 250 guests at a time. Where the log structure in the ceremony rooms embodies the raw character of those spaces, the dining hall juxtaposes deep red tinted plywood, slender wood slats, and woven pendant lights, accentuating subtle movements in the logs encapsulated by decades of growth. Large skylights at the roof's peak fill each of the main rooms with scarce winter light.



1. ceremony
2. men's change room
3. men's rest room
4. women's change room
5. women's rest room
6. dining room
7. wood storage
8. kitchen
9. gift/storage
10. electric/mechanical
11. local room

FLOOR PLAN

OWNER
Muckleshoot Indian Tribe

ARCHITECT
Mahlum
Seattle, WA

STRUCTURAL ENGINEER
PCS Structural Solutions
Seattle, WA

GENERAL CONTRACTOR
Donovan Brothers
Auburn, WA

PHOTOGRAPHY
Benjamin Benschneider
(finished photography)
Seattle, WA

Mahlum
(construction photography)
Seattle, WA

WOOD SCHOOL DESIGN

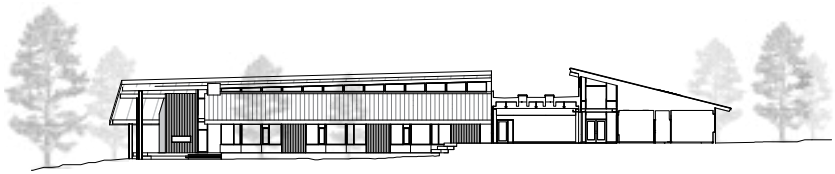
Exposed wood structure characterizes school's focus on experiential learning in the natural environment

Cascades Academy of Central Oregon

Hennebery Eddy Architects, Inc.

Nestled in junipers, ponderosa pines and volcanic boulders, on the rim of a dramatic canyon, Cascades Academy of Central Oregon houses students from pre-kindergarten through 12th grade. The 38,500-sq.ft. independent school consists of distinct wings forming a protected courtyard: the main wing with a library, science labs, and offices; the commons, upper and lower classroom wings; and a detached gymnasium.

ELEVATION



SECTION

The extensive use of wood at Cascades Academy allowed the school, architect, and contractor to realize the project within the constraints of a very limited budget and challenging schedule. Long-term thinking and retaining the character of the site were driving factors in the programming, master planning, design and construction of the campus. In completing the project at $156/sq.ft. for building construction, the designers, contractor and owner all worked together with a deep sense of ownership.

FLOOR PLAN

Exposed wood structure at select gathering spaces characterizes the school's focus on experiential learning in the natural environment. Western red cedar siding, continuous from exterior to interior, is separated by vertical strips of glazing that reflect the rhythm of scattered junipers and ponderosa pines while allowing views through the building to the high desert landscape, evoking a sense of openness and permeability. Western hemlock is featured inside the building on ceilings, cable

trays, and screen walls to create a natural, healthy, and inspiring setting for learning that reinforces the link to the natural surroundings. The use of platform wood framing and pre-engineered wood trusses kept construction costs low. Steel columns consist of double channels to allow space and glimpses of views to permeate through the structure. Knife plate connections separate beams and columns and floor to maintain a quality of lightness.

Experiential learning in the natural environment is expressed architecturally with spatial connections, terraces, porches and views to the landscape. Abundant daylight floods in from clerestories, skylights, and banks of deeply shaded glazing. Healthy, natural materials were employed throughout while careful planning avoided impacting the sensitive canyon landscape. Parking is knit into the site to retain existing trees.

Spaces flow into one another and beyond to the site. The library opens to the main corridor – connecting visually and spatially with the commons; the commons extends out to the canyon; glazed overhead doors link the gym to a generous outdoor terrace. As the Middle and Upper School corridor widens to a student commons, the Lower School corridor narrows to an intimate space scaled for younger children. Interior finishes and colors were selected and detailed to complement the building design and site. Large wood roof overhangs provide shade and shelter from summer sun and winter snow and extend inside to become interior ceilings. Cedar wall panels and fir doors provide warmth and texture. Polished concrete floors meld into the dusty high desert terrain.

A geothermal field beneath the athletic field is the primary energy source, taking advantage of the excavation required for the playing field on the rocky site. The school is heated by exposed radiant slabs, with a small window in the slab for students to see the radiant tubing. The gymnasium relies entirely on passive cooling and ventilation with large ceiling fans and air intakes with automated dampers.

The school's 21-acre wooded site offered special opportunities for the creation of an environmentally sensitive and vibrant learning environment.

ARCHITECT
Hennebery Eddy Architects, Inc.
Portland, OR

STRUCTURAL ENGINEER
Walker Structural Engineering
Bend, OR

GENERAL CONTRACTOR
CS Construction
Bend, OR

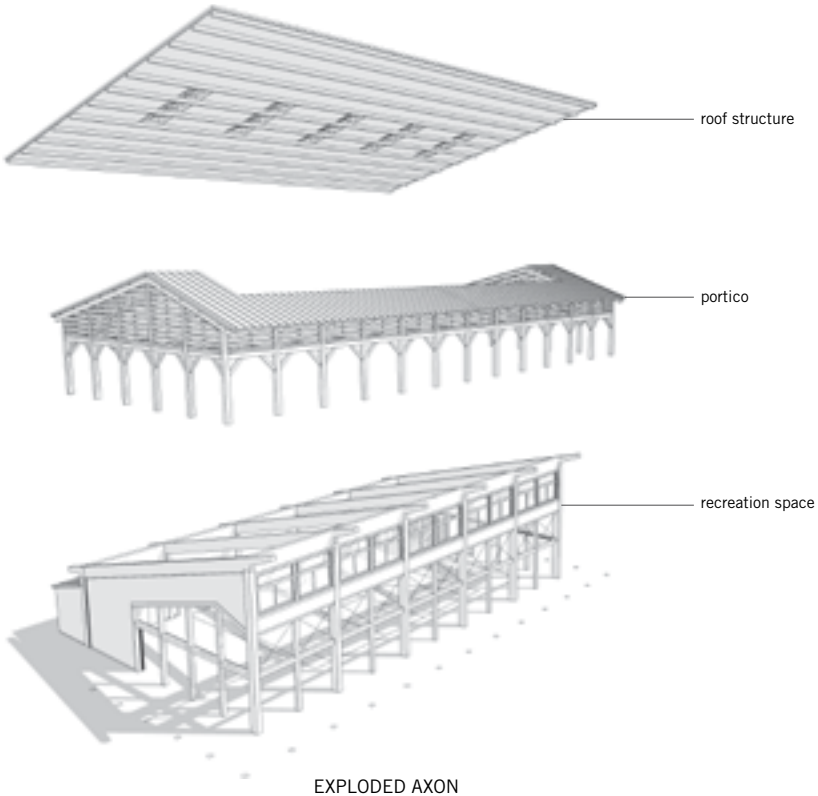
PHOTOGRAPHY
Josh Partee Photography
Portland, OR

REGIONAL EXCELLENCE

Pavilion's rolling barn doors reference local equestrian stables

YMCA Pavilion at Camp Harrison

C design Inc.



EXPLODED AXON

YMCA Camp Harrison is nestled in the foothills of the Brushy Mountains on 2,160 acres around Lake Broyhill on an isolated spur of the Blue Ridge Mountains in western North Carolina.

Serving as a much-needed central gathering venue for the camp, the program for this open-air shelter includes a covered recreational space, restrooms, storage rooms and a surrounding porch. The pavilion is the first image of the campus after passing through a wooded area from the north. This north elevation, while protected from the elements, is designed to be open, filled with natural light, inviting and comfortable.

The pavilion creates a space that strengthens and reinforces the foundation of the youth camp experience by encouraging fellowship, communion, camaraderie, competition and wellness. Sited on a raised earth "plinth," it gives clear view to and from the playing fields. The covered porch and louvered screen let light in and keep rain out, while generous overhangs, skylights, cross-ventilation and rolling barn doors all make use of the regional environment to enhance the pavilion's program. The structure also makes reference to equestrian stables seen frequently in the area.

Despite three open sides, the interior of the pavilion is designed to be completely protected from rain; two of the sides feature custom barn doors that are easily operated. The sloped roof opens to the playing fields and provides the proper height for half-court basketball.

Heavy timber was chosen as the primary construction medium to maintain the rustic camp aesthetic. Structural elements are left exposed and also serve as finish elements. Wood structures are common in this area of rural North Carolina and the camp has been diligent about making its buildings consistent with this vernacular. Wood also blends with the natural elements in the surrounding mountain landscape.

The wall systems were constructed with 2 x 6 wood framing sandwiched between 1/2-in. exterior wood sheathing and wood lap siding. All lumber is Southern pine, indigenous to North Carolina.

There is a positive visceral reaction elicited by wood structures. They are close to nature, often reminiscent of simpler times and are inherently warm. Camp Harrison is a bona fide example of this positive reaction as evidenced by campers' use and enjoyment of the new pavilion.

ARCHITECT
C design Inc.
Charlotte, NC

STRUCTURAL ENGINEER
Fitzpatrick Engineering Group
Cornelius, NC

GENERAL CONTRACTOR
David E. Looper & Company
Hickory, NC

PHOTOGRAPHY
Tim Buchman Architectural
& Fine Art Photography
Charlotte, NC

Wood interior of new fire house gives it a warm, domestic vibe

Manhattan Fire House #3

Action Pact Design


TASK FOR

In response to recent and continuing growth, the City of Manhattan and Manhattan Department of Fire Services needed to open two new fire houses to increase coverage to underserved areas. The site for Manhattan Fire House #3 is located within an industrial neighborhood, and the site itself had several setbacks and easements, greatly limiting its buildable area. The footprint of the resulting building is long and linear, which lent itself well to a bay system with wood post-and-beam construction.

From the start of the schematic design process, wood was envisioned as central to the structure because of its warmth, ease of construction and cost, and because its use aligned with the clients' desire that the project be sustainable.

The main structure is a wood post-and-beam system, while structural insulated panels (SIPs) create a tight, thermally-efficient envelope. The skin of the building is comprised primarily of a corrugated metal panel system surrounding a wood-frame entry tower. The building also incorporates efficient lighting strategies and controls and a geothermal HVAC system.

In total, Manhattan Fire House #3 consists of more than 29,600 board feet (bf) of wood products, including 6,240 bf of parallel strand lumber beams, 2,400 bf of tongue-and-groove decking, 15,700 bf of wood sheathing, 3,200 bf of dimension lumber, and 2,000 bf of trim and casework. Wood is utilized in all facets of the building including structure, envelope, skin, and finishes.

While the exterior of Fire House #3 was designed to mimic the adjacent buildings of the industrial neighborhood, the interior is warm and inviting – more like a home than a fire house or an institutional setting. For the firefighters who spend much of their time there, that is essential.

ARCHITECT
Action Pact Design
Manhattan, KS

STRUCTURAL ENGINEER
BSE Structural Engineers
Lenexa, KS

GENERAL CONTRACTOR
Murray and Sons Construction Co.
Topeka, KS

PHOTOGRAPHY
Nicholas Whitney
Manhattan, KS

REGIONAL EXCELLENCE

Wood adds warmth and context to industrial facility

Advanced Water Purification Facility

Mainstreet Architects + Planners, Inc.

The Advanced Water Purification Facility's 11,600-sq.ft. Science and Administration Center serves as the entrance for tours of five separate process-oriented facilities as well as a walk-through tour of the site's interactive demonstration wetlands. Wood offers a harmonizing counterpoint to the site's industrial buildings and brings a human scale to the project while providing warmth and texture. Western red cedar was used for the exterior rain screen assembly and entry portal, as well as an interior finish on walls, ceilings and soffits. As a natural, renewable resource, it was also the perfect backdrop for visitors learning about the importance of water conservation and resource recycling.

The project consists of two major structures. First is the process building, which houses the engineering and treatment processes. Equipped with highly sophisticated filtration systems, it is capable of generating up to 25 million gallons a day of pure water. A chemical storage farm at the back of the lot provides ingredients for the treatment process.

The process building serves as a compositional backdrop to the second structure: a visitors' facility that is part administrative office building and part brain and science center featuring a public exhibit hall for interactive educational displays, as well as an auditorium.

The combined facilities are designed to take visitors on a walking tour that meanders from the lobby to exhibit hall, to the viewing deck overlooking

the wetlands that surround the center, over a bridge and down an indoor catwalk with views of the filtering process, ending at a glass-encased conference center, before taking them back outside along a catwalk to the visitors' center.

The use of water as an extended metaphor reflects the role of the facility. The curved shape of the main volume, sheathed in pre-weathered metal panels, suggests a crustacean creature, an inspiration from the use of water as a moat around the buildings. This curve is contrasted with a second floor rectilinear volume that seems to float above the glass-encased mass below. Its exterior skin is sheathed in the same red cedar slats as the rain screen, which allows rain water to flow between the skin layers. The cedar here is unstained and will naturally wear to a silver-gray, a design choice that eliminates the need for maintenance to avoid the rust that naturally occurs on metal in marine air.

The combination of the strong aesthetics and functionality of wood was a critical design decision that helped save the client money while adding value to the facility. It complements the other materials to create a modern-looking complex, which has brought a deep sense of pride to its neighborhood.

CLIENT
City of Oxnard
Oxnard, CA

ARCHITECT
Mainstreet Architects + Planners, Inc.
Ventura, CA

GENERAL CONTRACTOR
McCarthy Building Companies Inc.

STRUCTURAL ENGINEER
CH2MHill

PHOTOGRAPHY
Michael Cabezas – City of Oxnard Public Works Department
Oxnard, CA

REGIONAL EXCELLENCE

Structure combines lightweight wood construction with heavy masonry in keeping with local building traditions

GSA Office Building

Page

There is a longstanding building tradition in the desert southwest of the United States – and in northern New Mexico in particular – that combines heavy masonry with lightweight wood construction.

The heavy masonry traditionally utilizes widely available local soil made into adobe blocks while the wood construction employs local timber to provide spanning systems and lighter weight appendages. The high thermal mass of adobe construction works well climatically to dampen the high diurnal temperature swing in the region and lighter wood porches and outbuildings are ideal for providing shade while also inviting refreshing breezes.

This dual construction approach inspired the General Services Administration (GSA), an agency of the U.S. federal government, from the inception of its new office building. To design a modern workplace in the desert, the architects sought to reinterpret this regional building technique in a way that provided shade, thermal stability, visual interest and sustainability.

The building is situated on a broad mesa in the arid desert on the outskirts of Albuquerque. It is constructed of concrete masonry to take advantage of the high diurnal temperature swing and provide blast resistance that meets the needs of the security-conscious GSA. The use of such a visually "heavy" enclosure system led to the introduction of a lighter material both to shade the windows from the desert sun and provide visual interest across the long building facades. Western red cedar was selected for the wood elements because it weathers beautifully in the dry desert climate and is dimensionally stable and economical.

A courtyard, which has a long history as a climatic control device in this region, was placed in the center of the 80,000-sq.ft. office building, offering a number of distinct benefits appropriate for the building's mission. First, it allowed the use of more glass, resulting in daylight and views deep into the interior of the building, without the need for expensive reinforcement as the glass is protected from direct exterior blast loads. It also provides a shaded, protected oasis in a harsh climate and, with the addition of trees, drought-resistant plants, and benches, introduces a human scale that encourages daily use by the building occupants. From an environmental perspective the courtyard also creates a shady microclimate

adjacent to much of the building's skin so heating and cooling systems only have to moderate the more temperate courtyard conditions for a large portion of the building's exterior wall.

The courtyard is extensively shaded by a series of cable-supported transverse wood slats that are variably spaced to provide shade only where necessary – along the east, west and north courtyard facades. The inexpensive system employed for support utilizes a simple catenary framework of 1/4-in. stainless steel wire rope supporting three lengths of 2 x 6 Grade A cedar boards.

Using FSC-certified wood for the courtyard shading and in other areas of the building helped the project achieve a LEED Silver rating. Other sustainability features include the use of locally sourced materials, and the use of slatted wood screens and other structures to reduce the heat island effect and create a more desirable microclimate on the site.

ARCHITECT
Page
Austin, TX

STRUCTURAL ENGINEER
Walter P Moore & Associates
Houston, TX

GENERAL CONTRACTOR
Enterprise Builders Corporation
Albuquerque, NM

PHOTOGRAPHY
Patrick Coulie Photography
Albuquerque, NM

JURY'S CHOICE

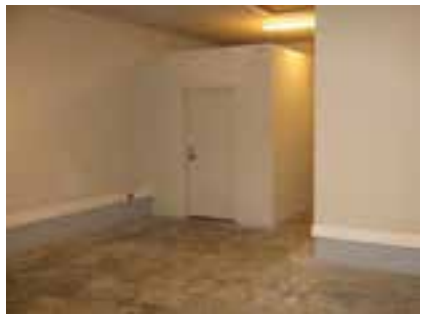
Wood's strength and versatility major advantages in shelter construction

Habiframe, Inc. Tornado Storm Shelter

HabiFrame, Inc.





The HabiFrame, Inc. Tornado Storm Shelter is a wood-framed, above-ground structure. While these shelters have been constructed in various homes located in tornado-prone regions, a St. Jude's Dream Home in Tennessee serves as a prime example of their benefits.

The structure is designed to meet the stringent requirements of the *2008 ICC/NSSA Standard for the Design and Construction of Storm Shelters* (ICC 500). These requirements include a 250-mph wind speed and missile criteria for wind-borne debris that can only be met through physical testing. A test wall was constructed at the National Wind Institute (NWI – formerly the Wind Science and Engineering [WiSE] Research Center) at Texas Tech University, where the design successfully met the requirements for debris impact testing.

Inspired by the resilience of log construction, the 10 x 10 x 10 shelter utilizes laminated strand lumber (LSL) members that are stacked and end-lapped. Three members of identical length are fastened together with ends staggered to create a "log." These logs are then stacked and interlocked to form the walls. Commercially available vertical steel rods and other connectors round out the components package. Cost-effective use of off-the-shelf products combined with existing product test data allowed the structural design to proceed quickly and efficiently.

While wood is less common than steel or concrete for tornado shelter design, the designer cited a number of advantages. In addition to a history of strength, performance and durability, wood offered ease of construction, adaptability and environmental benefits. The shelter can be taken apart and relocated, which isn't typical for shelters made from other materials. Wood also produced minimal waste and life cycle assessment studies consistently show it outperforms other materials in terms of embodied energy, air and water pollution and carbon footprint.

The project team wanted the use of wood in this project to add to the legacy of the material's strength and versatility, and overcome a skeptical public perception of the use of wood in a storm shelter.

OWNER
HabiFrame, Inc.
Nashville, TN

STRUCTURAL ENGINEERS
Structural Design Group, Inc.
Birmingham, AL

Conestoga-Rovers & Associates
Birmingham, AL

GENERAL CONTRACTOR
HabiFrame, Inc.
Nashville, TN

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Nashville, TN

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Pleasanton, CA

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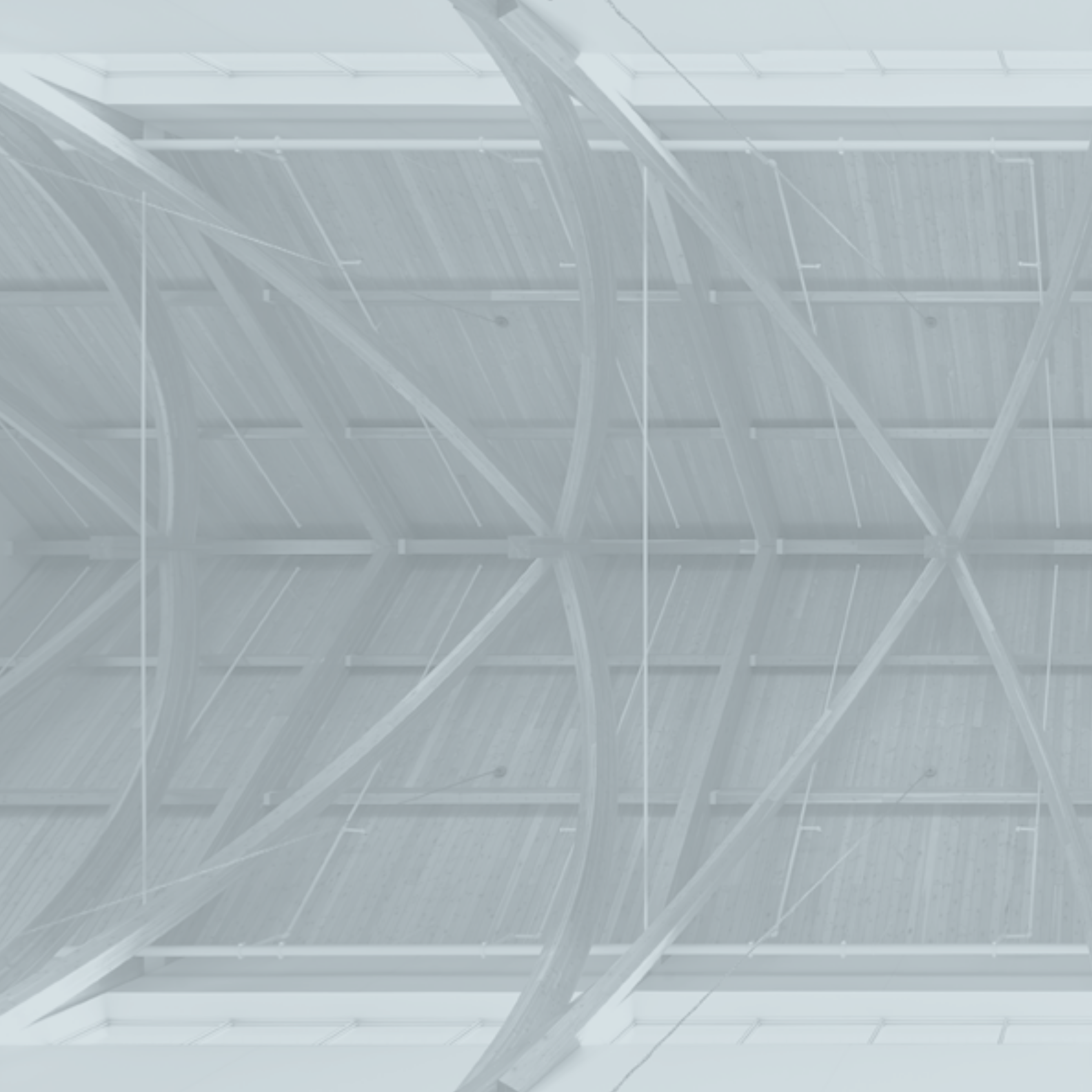

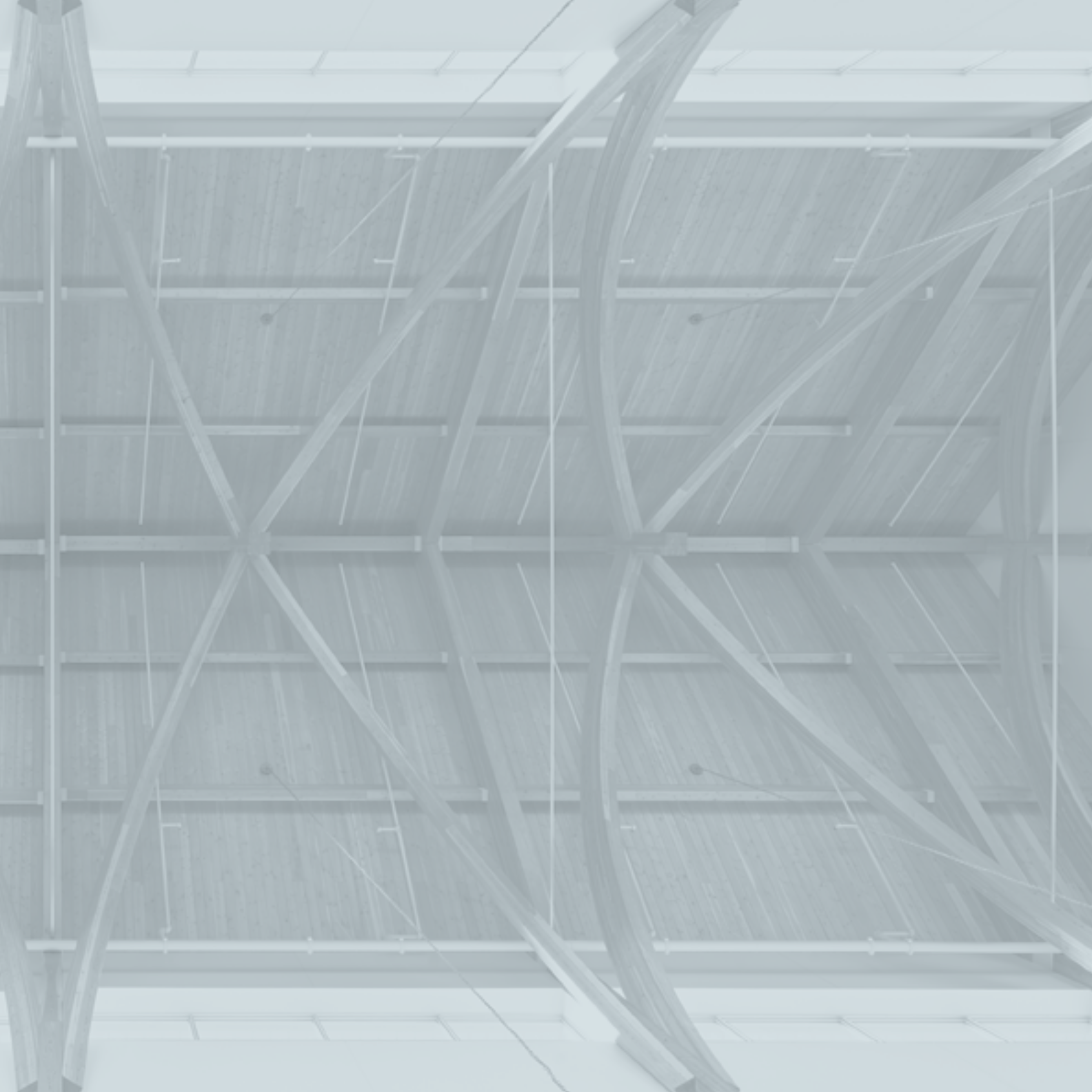

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