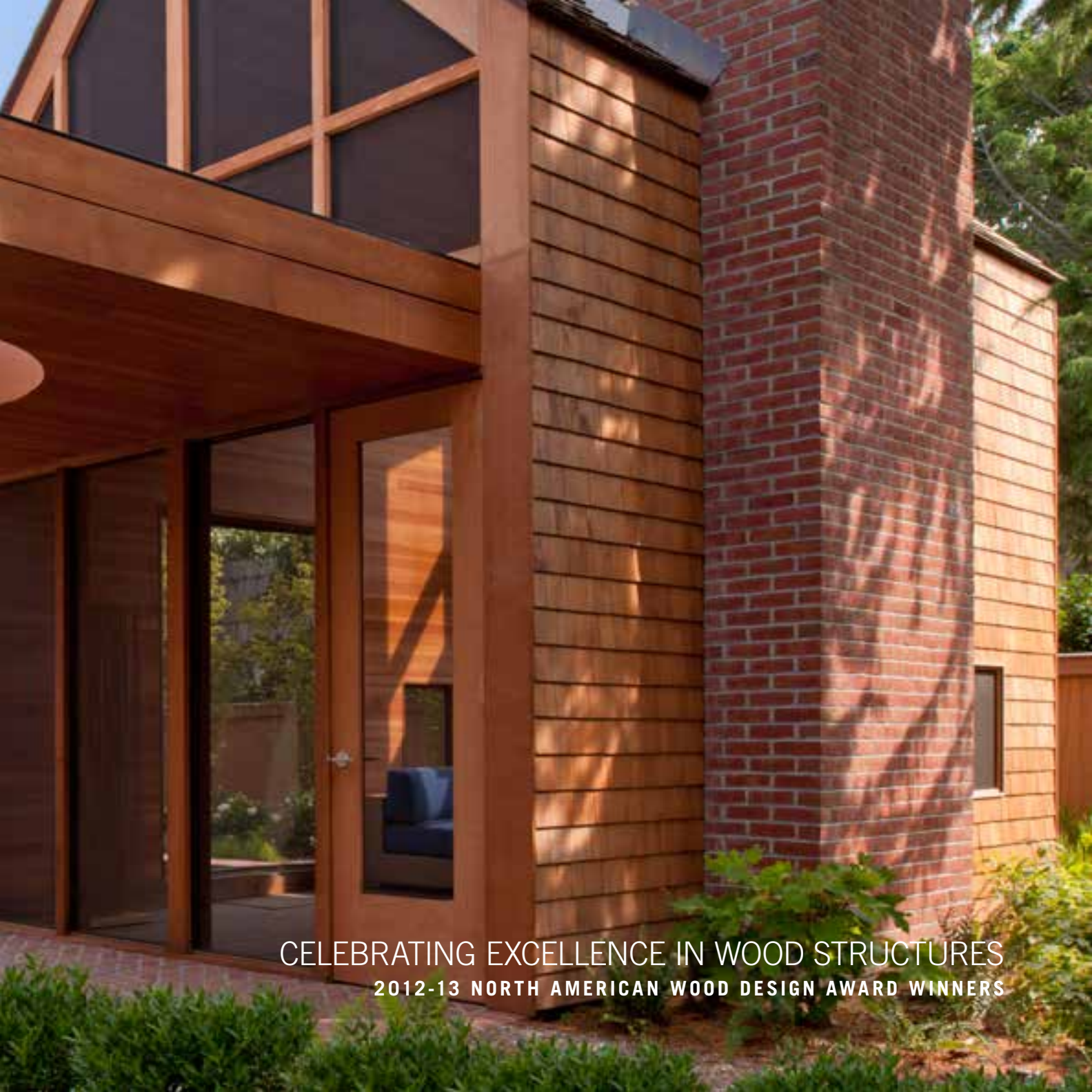
CELEBRATING EXCELLENCE IN WOOD STRUCTURES

2012-13 NORTH AMERICAN WOOD DESIGN AWARD WINNERS



CELEBRATING EXCELLENCE IN WOOD STRUCTURES

2012-13 NORTH AMERICAN WOOD DESIGN AWARD WINNERS

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Celebrating Excellence in Wood Structures
2012-13 North American Wood Design Award Winners

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Photo: Martin Tessler / Courtesy: Perkins+Will

WOOD – an evolving building material

I would like to thank everyone who submitted their projects to our Wood Design Awards program for 2012/2013, as well as to congratulate all of our award recipients. One very omnipresent theme displayed throughout the projects this year was the evolving application of wood products used in construction, showcasing wood's ability to meet clients' ever-changing needs.

As you browse these colorful pages of award winners from the *Wood Design & Building* Awards Program, Canadian Wood *WORKS!* Awards (British Columbia, Ontario and Prairie), as well as the U.S. WoodWorks Wood Design Awards, I hope that these magnificent projects inspire you to consider wood for your next project, or perhaps, reaffirm your commitment for a building material that has stood the test of time in a competitive and ever-diverse construction industry.

I would like to extend a sincere thank you to our program sponsors and judges, as well as the U.S. and Canadian Wood *WORKS!* teams for their ongoing support.

Etienne Lalonde
Publisher
Wood Design & Building

Cont

WOOD DESIGN & BUILDING AWARDS

2012 North America

CANADIAN WOOD *WORKS!* AWARDS

2013 British Columbia

2012 Ontario

ents

U.S. WOODWORKS WOOD DESIGN AWARDS

2012 Prairie

OTHER AWARDS

WOOD DESIGN & BUILDING AWARDS

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2012/2013 North American Wood Design & Building Awards Program

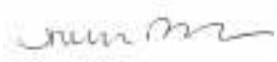
Ode Naturel

It seems like everything is going au naturel these days. Turn the pages of any magazine or read any trendsetting report – natural is now. From food to furnishings, hair to homes, the products we buy and the lives we live, the words on the street are fresh, local and sustainable.

This trend is well-reflected in the winning projects in this book. As you read the profiles of all of the wonderful structures built of wood, you will notice that most of them use locally harvested wood. Many have reclaimed pieces from other projects, giving the old material new life while saving them from the landfill and adding a multi-layered narrative to the new structures. Many again have looked at wood's natural ability to remove greenhouse gases from the atmosphere and calculated the amount of carbon captured and stored by using wood in the structure versus other non-renewable, polluting materials.

There is no doubt today's generation of wood buildings are ultra-sustainable. This is good for the environment and even better for human health. Some of the projects in this book have taken it to the next level and even documented a drop in worker absenteeism since the employees moved into their happy, healthy new office. It doesn't get any better than that.

With all of the exciting new wood products coming to market and with clients and architects and builders embracing this trend, it is a movement that continues to grow and is sure to endure.



Theresa Rogers
Editor
Wood Design & Building

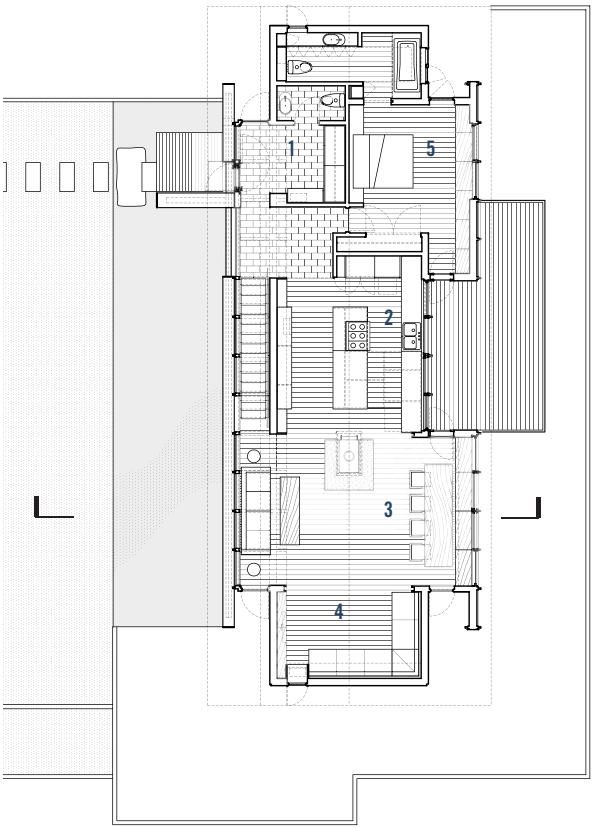
HONOR **Awards**

A stacked wood wall greets visitors and is an icon of the region

House on Henry's Meadow

Shim-Sutcliffe Architects

The House on Henry's Meadow is located on the west shore of Lake Memphremagog, a long, deep lake straddling the border between Quebec and Vermont. The house is built on a property with several existing buildings, including a 1920s log cabin which has served as a family meeting place for decades. In this region, harvesting lumber immediately followed the creation of family farms and the subsequent development of small French and English settlements has resulted in a rich and diverse cultural landscape. In this particular landscape, farm house complexes are often surrounded by walls of stacked firewood. This local tradition serves as a starting point for weaving a new residence into an existing tapestry of structures and continues the ongoing dialogue between building and landscape which has taken place for generations in this region of Quebec.



GROUND FLOOR PLAN

LOWER FLOOR PLAN

The journey to the House on Henry's Meadow necessitates passing through several layers of changing landscape: from cultivated farm fields, through a verdant existing forest, before arriving at the meadow landscape, then a green lawn adjacent to a reflecting pool, and beyond – a steep, densely planted slope that meets the lake's edge. Addressing the particular site conditions, the building's west and east elevations are necessarily distinct.

Wood is a key component of many aspects of the project from structure to finishes to light modulation. The historical structures of this region were shaped by the pragmatic concerns of local builders and the availability of lumber. The use of wood frame construction in the project continues in this tradition, valuing simplicity, economy and reflecting a deep understanding of the vernacular.

Arriving at the house, visitors are immediately presented with a wooden palette that dominates the exterior expression. At the western entrance to the house, the first view provides an iconic image of a stacked log wall, reflecting the ubiquitous firewood stacks of the region. To the north and south, wood siding is used as cladding and its black stain acts as a background to the stacked wood in front.

Passing through the stacked log threshold, one enters the residence to view a vertical sky-lit slot above wooden light

coffers. This not only provides deep views of the house and of the stair to the lower level, but also modulates the warmth of light when reflected by the natural tones of wood. A clerestory window bringing light to the lower level also allows the seemingly heavy stacked wood wall to float above the reflecting pool.

The main living space is lined with local, white pine boards and provides glimpses of Henry's Meadow through the stacked wood walls on one side and panoramic views of Lake Memphremagog on the other. West light, passing through the stacked log wall in the late afternoon, creates a warm glow from the outside-in. At night, light from inside the residence interior creates a glowing elevation which illuminates the gaps between the stacked logs from the inside-out.

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LANDSCAPE ARCHITECT
Susan Lowry

PHOTOGRAPHY
James Dow assisted by Sam Sutcliffe

Family retreat uses powerful forms and evocative materials to embrace the natural world

Kicking Horse Residence

Bohlin Cywinski Jackson
IN ASSOCIATION WITH Bohlin Grauman Miller Architects

Situated at the base of the Kicking Horse ski resort in the Canadian Rocky Mountains, this 3,500-sq. ft. residence is a gathering place for an active family of five. The clients desired a space that would provide a direct connection to the landscape for seasonal recreation, the flexibility to accommodate larger groups of family and friends, and wished to utilize local materials to the greatest extent possible.

Wood is a primary natural resource in this region. The local Louisiana Pacific Mill is a lifeline for the town of Golden, B.C., and a project goal was to express the natural diversity of wood in the architecture.

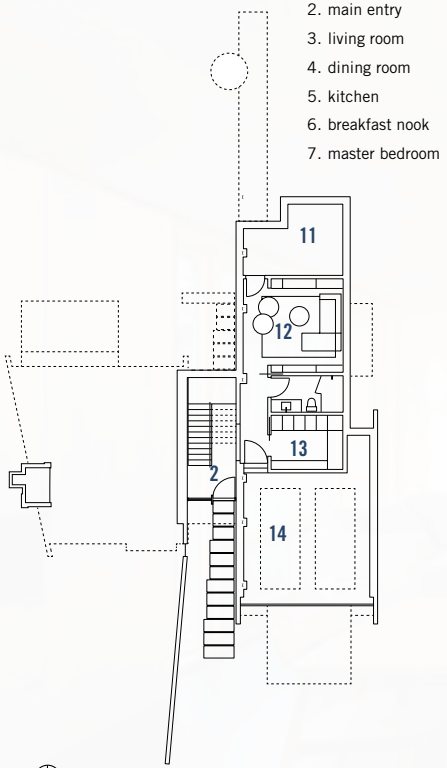
The sloping site is adjacent to a ski trail and surrounded by an alpine forest of spruce and aspen. The house is arranged as two elements on the site: a dense bar along the northern edge containing the sleeping and bath spaces, and an open shell with living and dining spaces oriented toward the extraordinary mountain views. A glass volume links these forms, with the main entrance at the lower level and an upper landing for ski access on the west side. Careful layout enables a sense of openness and transparency while screening the neighboring homes from view.

"Simple, bold forms. This is a really refined, mature piece of work."

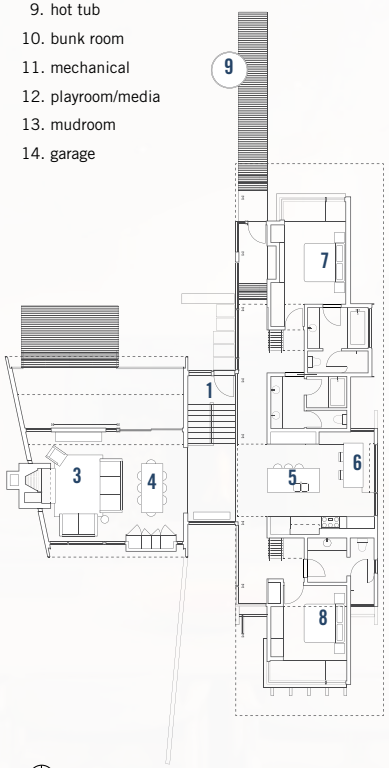
– Jury

The linear form of the sleeping spaces clad in black-stained rough-sawn cedar cantilevers over a board-formed concrete base containing the garage, mudroom, and playroom. The exposed Douglas fir laminated beams and deep roof overhangs express the tectonic qualities of a mountain cabin. The primary entry is located between two concrete walls, with a mahogany and steel staircase leading to the living spaces above. The space below the staircase is enclosed with maple drawers and open shelving to provide additional storage. A single line of steel columns extends along the main hallway, emphasizing the angle of the bedroom roof plane, which folds over the peak to become an articulated metal wall with operable vents, bringing light and air into the loft spaces. The lofts contain maple bunk beds designed for this project that allow flexible sleeping arrangements for children or guests. Maple ladders leading to the sleeping lofts contain shelves for books and toys.

1. ski entry
2. main entry
3. living room
4. dining room
5. kitchen
6. breakfast nook
7. master bedroom
8. guest bedroom
9. hot tub
10. bunk room
11. mechanical
12. playroom/media
13. mudroom
14. garage



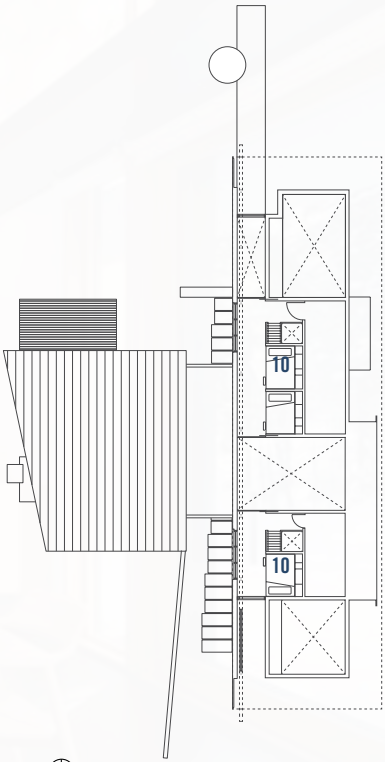
LOWER FLOOR PLAN



GROUND FLOOR PLAN

Anchored by a tall fireplace, the geometric form containing the living and dining spaces floats above the forest floor, allowing natural drainage to flow uninterrupted through the site. Smooth ACX Douglas fir plywood panels with concealed fasteners clad the interior walls and ceiling, framing alpine views and sheltering an outdoor deck. The exterior is clad in a combination of black-stained and clear rough sawn cedar siding that contrasts with the landscape. Bold colors accent the natural wood finishes of the elevations.

This family retreat uses powerful forms and evocative materials to embrace the natural world.



LOFT FLOOR PLAN

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GENERAL CONTRACTOR
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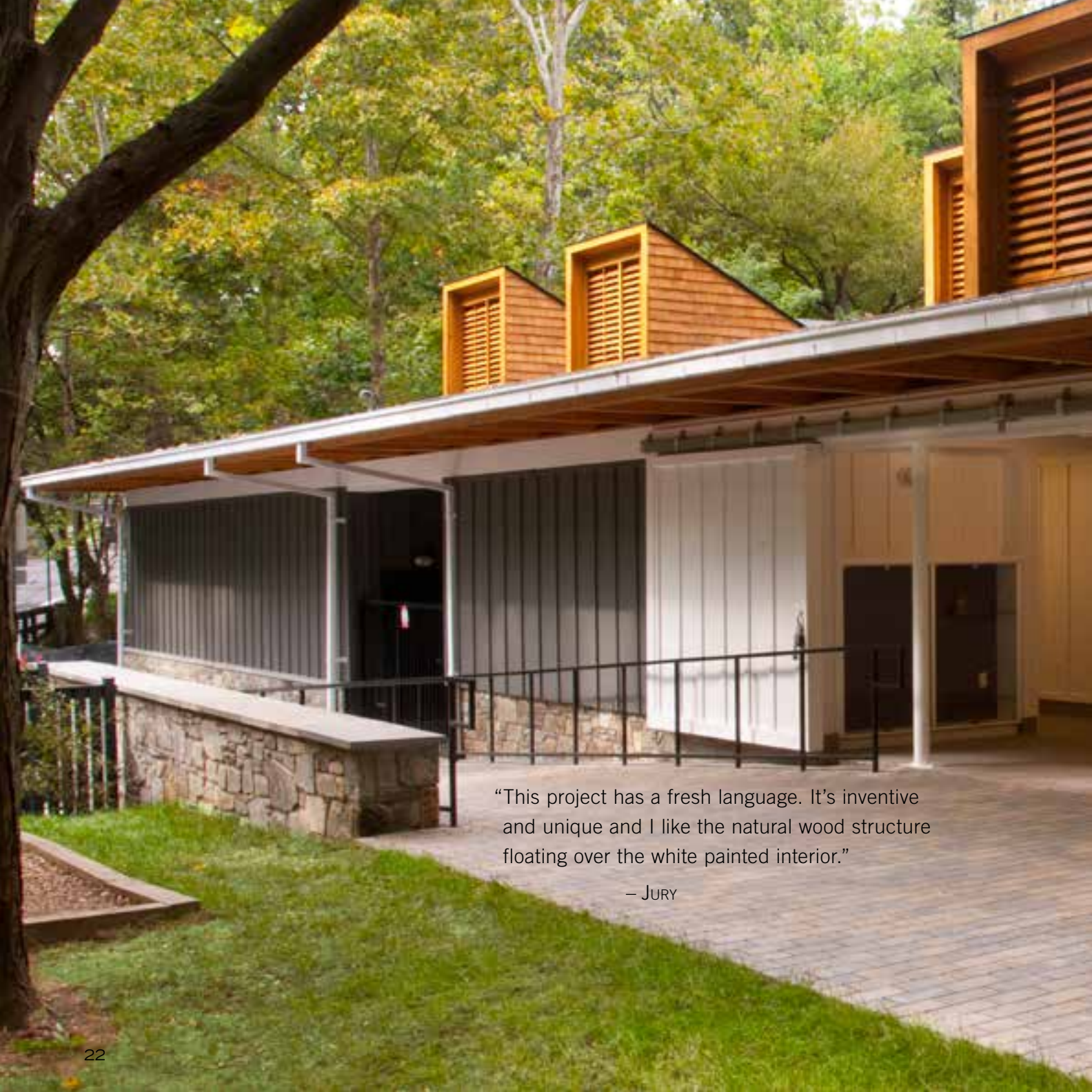
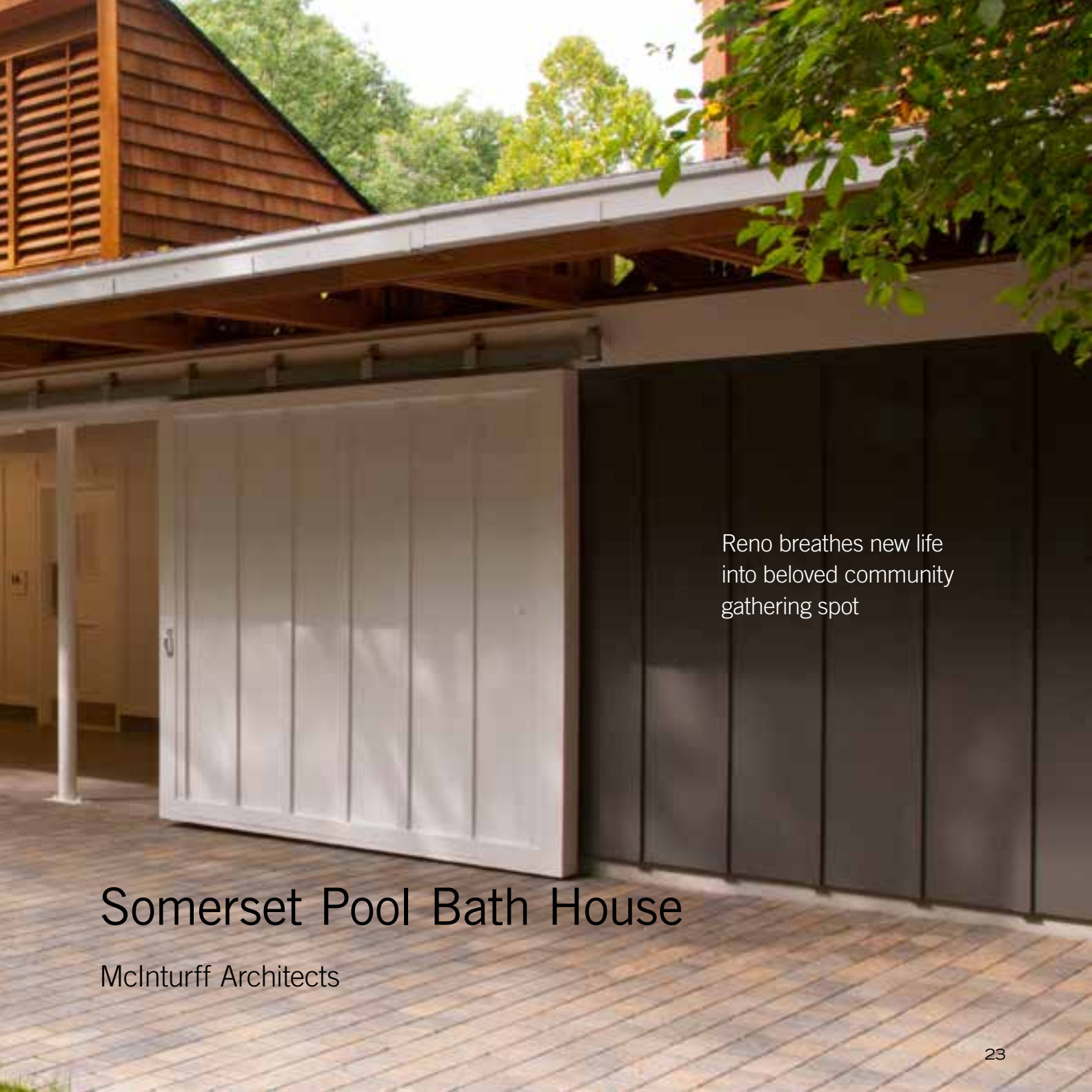
PHOTOGRAPHY
Nic Lehoux
Matthew Millman
Best Impressions



"This project has a fresh language. It's inventive and unique and I like the natural wood structure floating over the white painted interior."

– Jury



Reno breathes new life into beloved community gathering spot

Somerset Pool Bath House

McInturff Architects

Somerset is a small town on the border of Washington, DC where the residents are committed to fostering a strong neighborhood and the charming small-town character is enhanced by community amenities including a town hall, tennis courts, playing fields, picnic area, and community swimming pool, all within walking distance of the town inhabitants.

The pool and original bath house were built in 1968 in a park where a stream runs along the side of the pool terrace. But the bath house was failing structurally, the facilities were neither adequate for current demands nor disability-compliant, and the pool site itself has been designated as part of a protected flood plain and stream buffer. The community wished to bring the building up to current accessibility standards and to reduce the impact of the facility on the environmental quality of the stream valley.

Somerset Pool Bath House now sits lightly on its woodland valley site, due to a number of sustainable strategies that were pursued throughout its design and construction. First and foremost, to keep earth disturbance to a minimum in the critical watershed area, the design team reused the original bath house location, foundations and the perimeter steel frame superstructure on three sides of the old bath house as the base of the new building.

While the footprint was retained, the interior layout has been reconfigured. The bath house was extended to provide for a new kitchen and pantry, office space, storage, and a large porch, which will serve as shelter, shade and gathering place.

Where the original roof was low, heavy and oppressive, the new one is high, light and airy, forming a giant porch that extends beyond the old walls to provide

protected shady areas. The framing of the roof provides much of the character of the new space. Typical gang-nailed builder's trusses, not usually meant to be seen, were the most economical way to span the 50-ft. space. These were slightly upgraded and used to create a cloud of small-dimensioned wood members floating overhead. On the pool side where the roof is highest, sliding wood louvers provide additional protection to the spaces below, and add to the sense that the entire building is a giant porch. The airy and open configuration of the section promotes natural ventilation and abundant daylighting, and results in a building with no active heating and cooling systems.

The existing 6 x 12 timber roof frame members were salvaged during demolition and reused on-site for an entry sign and new shade pavilion. Two newly constructed wetlands capture surface runoff proximate to Little Falls Stream, and a bioretention area manages surface runoff from the parking area. Most of the new hardscaped areas use either open decking or porous pavers, reducing the amount of impervious surfaces found on the site before the renovation.

Every effort was made to take advantage of, and care for, the beautiful site while providing a contemporary, naturally ventilated building composed of porches, shuttered walls and outdoor pavilions. The facility, formerly underused, now serves as a gathering place for the community. On a summer's evening, families bring dinner to the poolside seating area, with its communal grill, and parents visit with neighbors while children swim. There is often a wait for a table.

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VIKA Associates
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PHOTOGRAPHY
Julia Heine/McInturff Architects

NORTH POOL ELEVATION WITH TREES

MERIT **Awards**

Museum stuns visitors with roof
made of 19 curved glulam frames

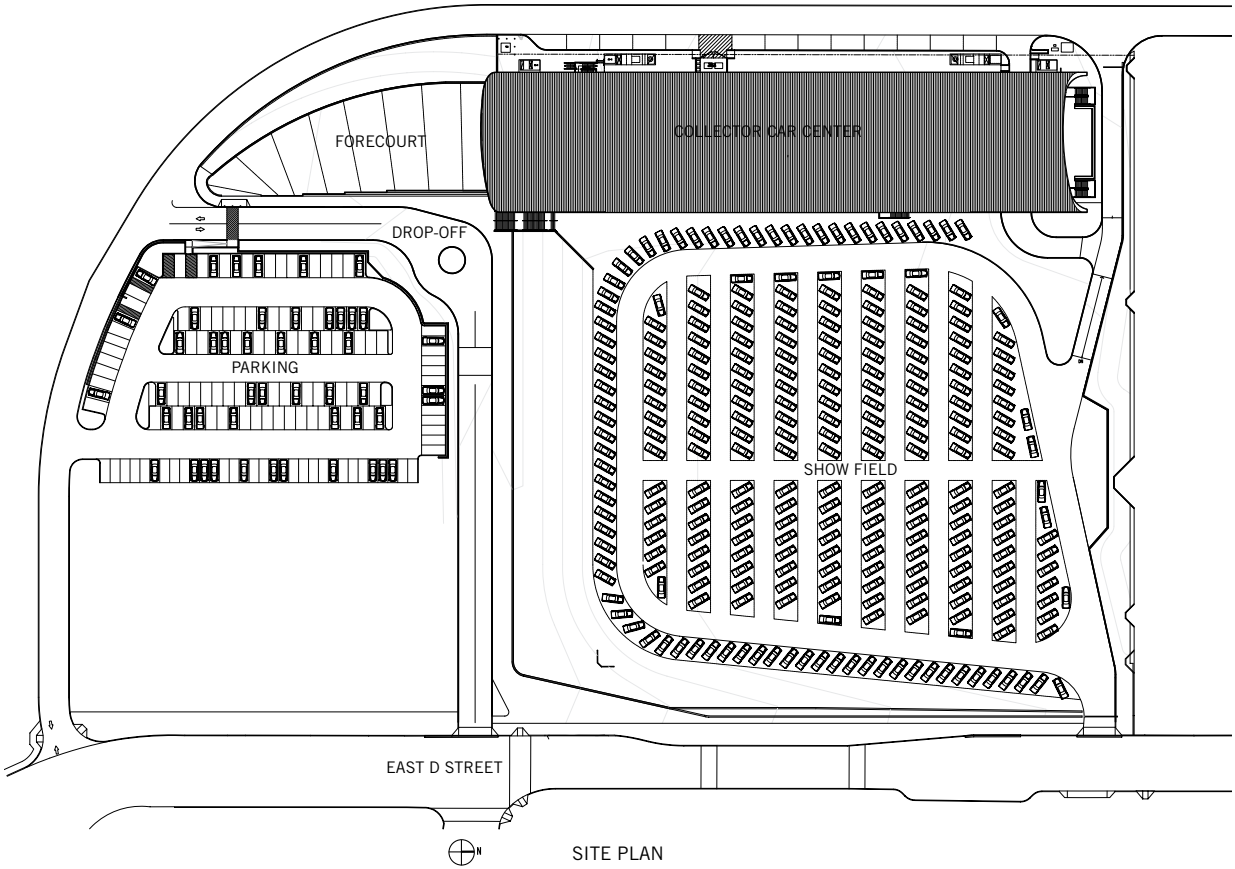
LeMay – America's Car Museum

LARGE Architecture

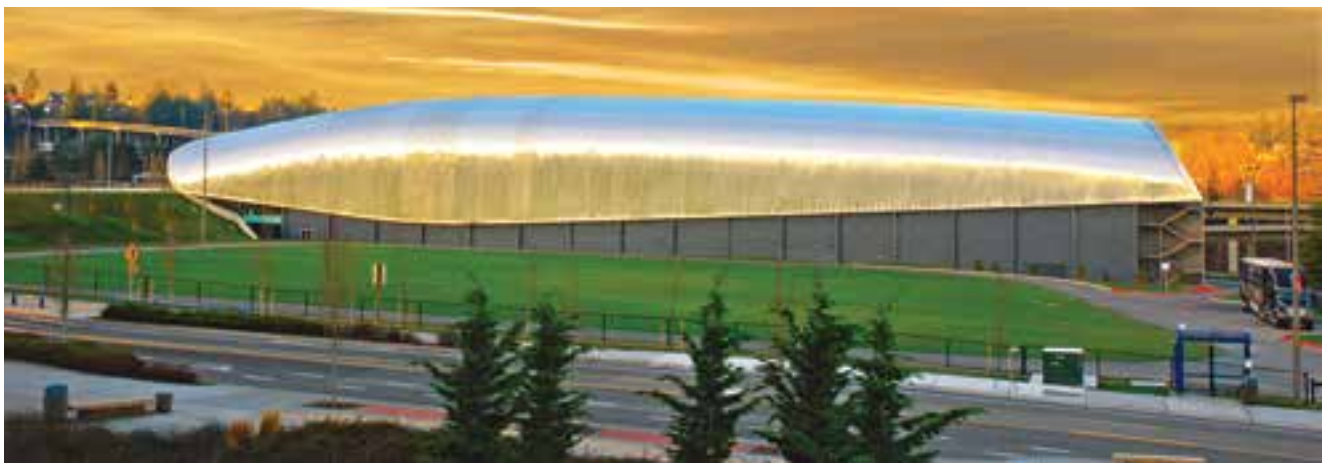
LeMay – America's Car Museum maintains more than 400 cars in its collection making it one of the largest automobile museums in the world. Close to a decade ago, the museum's board of directors initiated a process to consolidate the entire collection to one location. The project site, adjacent to the Tacoma Dome, was donated by the city of Tacoma for the sole purpose of building the LeMay Museum. Completed June of 2012, this museum represents the first phase of a multi-phase masterplan. The museum's galleries are purpose-built to efficiently house a rotating collection of 400 cars. In addition to the gallery spaces, the museum's 165,000-sq.ft. program includes administration space for the LeMay foundation, a banquet room, lecture halls, gift shop, cafe and a vehicle maintenance center. Adjacent to the museum is a 2.7-acre show field designed for hosting car collector events held throughout the year.

"There is a directness and simplicity to this one. The sculptural quality of the form is reminiscent of the cars themselves."

– Jury


FORECOURT
COLLECTOR CAR CENTER
DROP-OFF
PARKING
SHOW FIELD
EAST D STREET
N

SITE PLAN



One of the primary requirements for this first phase was to construct the museum for $100 per sq.ft. This challenge was met through the extensive use of repetitive structural glulam members. The main entry lobby is on average more than 110 feet in width and 300 feet in length. The shape of the structure, which varies in width from 90 feet to more than 110 feet and in height between 25 feet and 45 feet, was developed from one glue laminated beam jig and trimmed at different lengths. This achieved an incredible cost savings and yet allowed the design to be very organic. Additionally, the use of glulam structures also allowed for the elimination of any fire proofing that is normally associated with structures of this size.

Central to the design of the museum are the ramp galleries built to a slope greater than 1:25. These gently sloped galleries allow patrons to have a contiguous experience without the interruption of using stairs or elevators. A circuitous path of travel, patrons can experience the entire museum in one continuous walk-through. Vehicles and exhibits can be placed level to the slope increasing the flexibility and efficiency of the exhibition spaces. Landings at each end of the museum serve as transitional nodes between the ramp galleries and the storage galleries. The storage gallery on the B3 level acts a bridge to a congruent set of ramps directing patrons back to the main gallery.

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Western Wood Structures Inc.
Tualatin, OR

GENERAL CONTRACTOR
JTM Construction
Seattle, WA

PHOTOGRAPHY
Lara Swimmer
Seattle, WA

LSL forms the mass timber atrium, a new and improved space for large public gatherings

City of North Vancouver Civic Centre Renovation

McFarlane Green Biggar Architecture + Design

The North Vancouver City Hall (NVCH) renovation and addition project expands the existing 1970s modern heritage building into a recently vacated library structure with a new bridging atrium. The design process involved a detailed programming effort to accommodate the 20-year growth projections of the facility, a fundamental office culture shift desired by staff and management, and to showcase this facility as a cultural gathering place for the community.

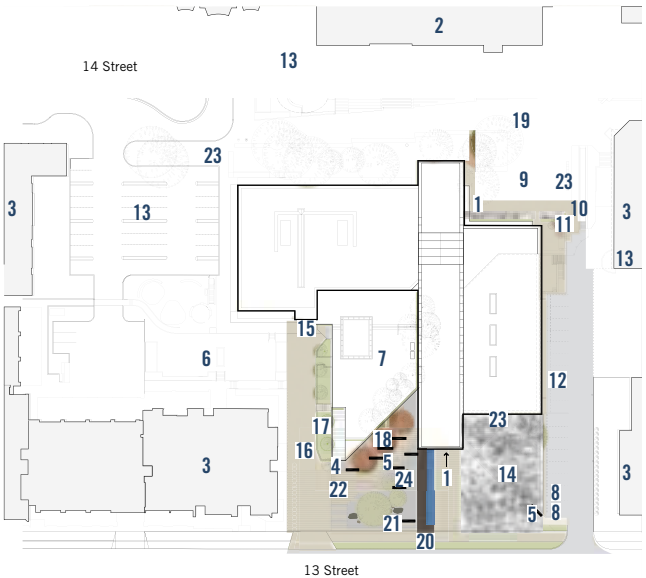
The new NVCH building celebrates the community of North Vancouver through art, design and the creation of shared informal community space inside and out. The atrium provides a new and improved area for large public gatherings, allowing the city to welcome the community for events of varying sizes. The atrium's unique wood structure and daylighting gives the space warmth that draws visitors to relax and be inspired by their surroundings. The Green Room offers a large and public multipurpose meeting room at the end of the atrium for events or community meetings. This meeting room not only provides a gathering place for the community and city staff, but it also cantilevers 45 feet out over the front entrance creating a dramatic arrival plaza. Art was also selected for the main atrium early in the design process resulting in an integrated art program intended to work flawlessly with the architecture.

This project is an expressive showcase for the innovative use of wood in buildings, which is an important part of the sustainable story and mandate of the city. Rapidly renewable wood sourced from sustainable forest practices has been used to dramatically reduce the greenhouse gas and energy footprint of the building's structure. In the end, the wood in the building sequesters roughly 230 metric tonnes of carbon dioxide.

The design for the North Vancouver City Hall was an important introduction in the innovative use of

"The inside wood sleeve delaminates it, exposes the structure that mediates between the outside wood and inside wood. The inter-mid liner is nice."

– Jury



SITE PLAN

1. accessible entrance
2. new library
3. existing & proposed residential & commercial developments
4. gated entrance to roof deck stairs
5. concrete benches w/cast resin seat + low-level lighting
6. semi-public park
7. roof deck with future roof replacement & landscaping
8. accessible public parking
9. existing plaza
10. existing ramp
11. existing stairs
12. staff parking
13. public parking lots
14. pedestrian walkway
15. service entrance w/garbage enclosure
16. loading lane
17. future city vehicle parking
18. japanese maples including relocated from roof deck
19. existing 'tree of knowledge' oak and wood deck
20. rainwater collection sculpture
21. existing oak tree
22. loading truck turnaround with paving
23. public bike racks
24. landscape boulders


NORTH VANCOUVER CITY HALL

mass timber panels. LSL was selected for the project to demonstrate the beauty and availability of panel products not widely used in large forms in the construction industry. In order to utilize these panels, the design team worked very closely with the product developers and construction team. The goal was to create a beautiful, practical space with a structure that could be panelized and installed quickly and efficiently. A lightweight structure was also important so that the existing building foundations could be maintained, helping the city tell a story of sustainable innovations.

By exposing the LSL, the design team showcased the beauty of a material usually relegated to be hidden behind drywall and highlighted how "pioneer trees" (those found under power lines or along the side of the road ready for clearing) have great potential to create beautiful, sustainable architecture. Ultimately, the design shows how materials grown by the sun are still in the early adoption stages of a new era of architecture that considers climate change and embodied energy in the structures of large institutional and commercial buildings.

The architectural team introduced this innovative structural alternative and worked through the details with engineers to find a solution that would ultimately be repeatable and fit within their ambition to build increasingly taller wood buildings. The team leveraged the knowledge developed from the City Hall roof assembly to form the basis of what is proving to be a construction revolution in tall wood building technology.

Concurrently to the construction of City Hall, a 240-page, peer-reviewed study was developed by the design and engineering team to provide the details, technology, engineering, code, cost analysis and business case for wood structures up to 30 stories in height in high seismic zones. This study would not have been possible without the lessons learned in the design and construction of City Hall, despite the building's modest scale.

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Equilibrium Consulting
Vancouver, BC

MECHANICAL ENGINEER
AME Consulting Group
Vancouver, BC

ELECTRICAL ENGINEER
BLC Engineering Inc.
Vancouver, BC

CIVIL ENGINEER
Hub Engineering
Surrey, BC

GENERAL CONTRACTOR
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Richmond, BC

LANDSCAPE ARCHITECT
Space 2 Place
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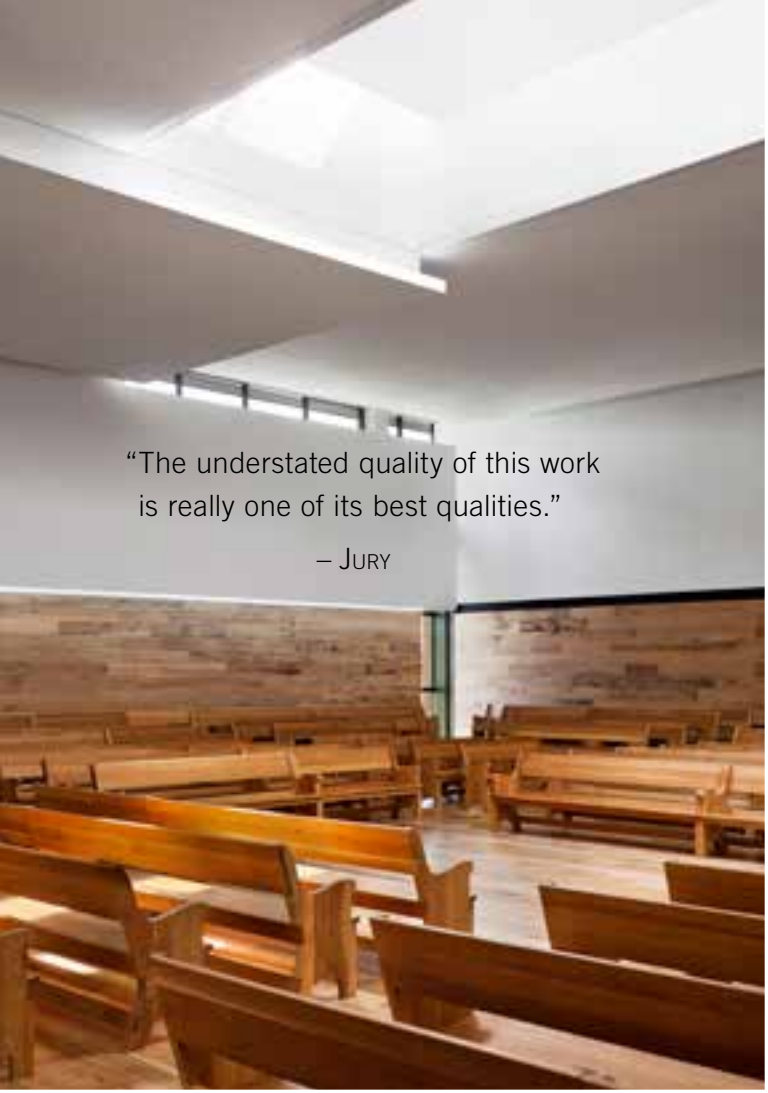
PHOTOGRAPHY
Martin Tessler
Vancouver, BC



"The understated quality of this work is really one of its best qualities."

– Jury

A simple wood meeting hall provides space for worship, art and music, in keeping with Quaker tradition

Quaker Meeting House

KieranTimberlake

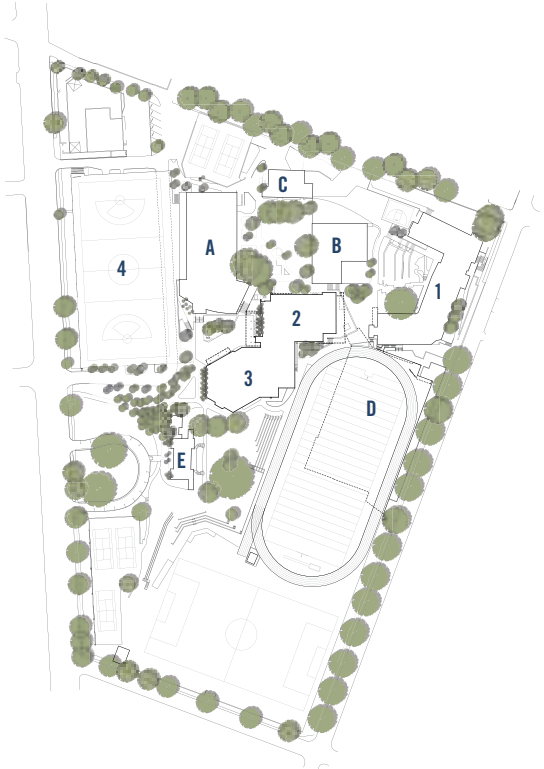
This project transforms a 1950s gymnasium into a contemplative space for worship, with additional facilities for art and music instruction. Guided by the Quaker tenet of consensus, the planning process was both deliberate and inclusive. The depth of the client/architect partnership developed over many years, ultimately resulting in a series of ethical choices that melded into the final realization of the meeting house.

Quaker meeting is a central part of the community experience at Sidwell Friends School. Every student participates in weekly meetings that consist of sitting in silence and allowing messages to emerge. The belief is that each person has a direct connection with God or the divine, and that as messages come forward, they can be shared with the community. Meetings can be uneventful or quite profound as students voice thoughts of importance to themselves about their own lives or about the world around them. Thus a dedicated meeting house was an essential element of the school's master plan.

Of particular importance was the location – at the front of campus to signify the importance of worship (but where it may have compromised the administration building's national historic register designation) or in the heart of campus to signify the centrality of the faith. Some wondered whether the school should invest in a new building, however, the ethics of building reuse, which Sidwell Friends has worked to incorporate into all of its planning, is tied to two spiritually important tenets: stewardship and simplicity.

This project was designed to address the challenges posed by the regional climate, with hot, humid summers and cold winters. The building begins by managing solar heat gain through a faceted envelope which strongly emphasizes passive environmental performance. The site has a nearly cardinal orientation; thus each elevation faced significantly different environmental factors. In response, facade treatments were tuned according to both aesthetic and environmental criteria, resulting in cladding that moves sinuously to meet each specific condition. The facade moves away from the building to provide southern shading and tucks in close to admit northern light to the artist studios.

Limiting the palette in the meeting room to just two elemental and simple materials, wood and plaster, was key to the outcome. Wood in old meeting



Key (KieranTimberlake projects)

1. Stewart Middle House
2. Meeting House
3. Kogod Performing Arts Center
4. Underground Parking And Field

Key (Existing Buildings)

A. Harrison Upper School
B. Wanan Gymnasium
C. Sensner Building
D. Underground Athletics Center
E. Zartman House

SITE PLAN

houses is often placed where hands can rub against it for centuries and it still looks great, so lining the lower walls and floor with the same wood was very much in keeping with Quaker tradition. The space's simplicity is not compromised by the advanced mechanical and audio-visual systems, well concealed among the design elements. The essence of Quaker Meeting, and thus the Meeting House itself, is silence and light. Architecturally this is achieved by filtering light and sound through architecture, landscape, structure, and systems arranged in successive concentric layers around a central source of illumination, both literal and spiritual.

The project makes careful material decisions that reflect the clients' environmental ethic. Most novel is the use of black locust as a siding material. Considered an invasive species in the mid-Atlantic region, it was sourced from a small, single-person business which cleared the trees from an individual property and cut and dried the wood in a local facility. Beyond supporting a small business, this process of sourcing took trees that otherwise would have been chipped or burned and turned them into an unconventional yet durable siding material.

This approach to material resources was adopted throughout the project. In search of a modern parallel to the timeless simplicity of Quaker design, the team discovered a source for timber paneling and flooring from long-unused Maryland barns. Waste materials generated in the demolition of portions of the existing building were fed back into the new project. The most significant measure was the reuse of the building itself. The associated preservation of embodied energy and waste not generated represents the most significant environmental material selection decision.

ARCHITECT
KieranTimberlake
Philadelphia, PA

CLIENT
Sidwell Friends School
Washington, DC

STRUCTURAL ENGINEER
CVM Engineers
Oaks, PA

GENERAL CONTRACTOR
Whiting Turner Contracting Company
Bethesda, MD

LANDSCAPE ARCHITECT
Studio Bryan Hanes
Philadelphia, PA

PHOTOGRAPHY
Michael Moran
New York, NY

CITATION **Awards**

Modern farmstead is closely tied to the land

Edge House

SALA Architects

"This is a beautifully executed house. It's almost heroic but very composed. It's both modest and monumental at the same time."

– Jury

The languid flow of the Mississippi River, with its tall sandstone bluffs and unhurried agrarian lifestyle, drew the owners of Edge House to build their small retreat overlooking this landscape. The home is a simple string of spaces stretched along the bluff edge and backed by a long, protective wall of steel. Running the full length of the home along its uphill side, the steel wall acts like a winter coat, shielding the living spaces from the region's harsh winter winds and cold temperatures. The wall is also a threshold between the site's two distinct realms: the upland rolling prairie of the bluff-top, and the expansive panorama of the river valley. By dividing these realms with the wall, each takes on a more powerful and clear presence in the owner's experience.

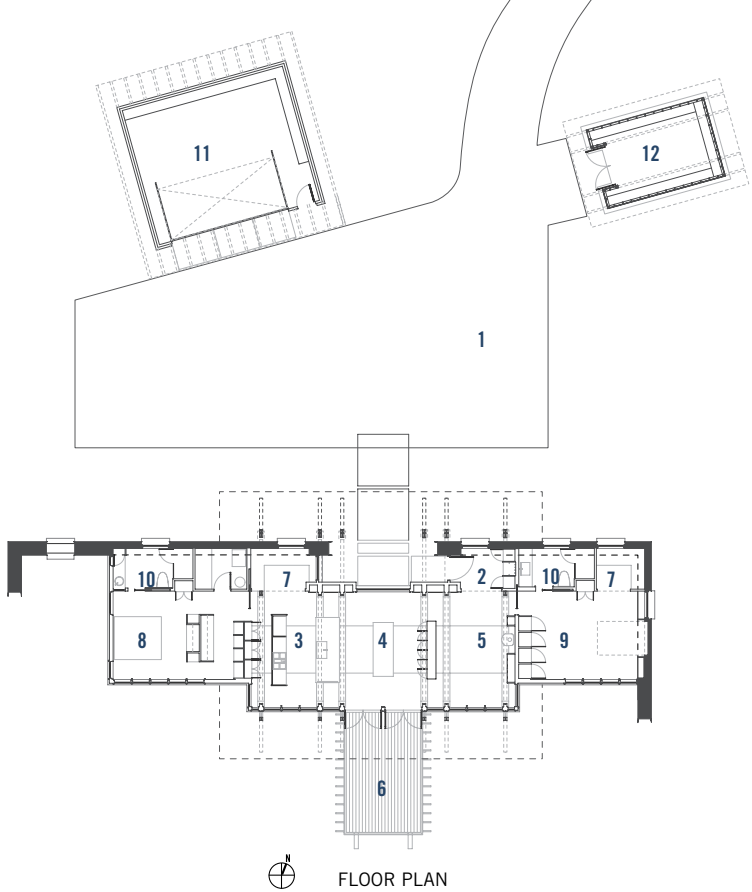
In contrast with the protective steel wall, the southern face of the home is open, with floor-to-ceiling glass that admits light and connects the owners with the wooded site and river views. A central living pavilion rises from behind the steel wall, supported with Douglas fir columns and beams, and is sheltered by a soaring shed roof. Deep roof eaves extend beyond the glass perimeter, shielding the interior from direct sun in the summertime, and admitting low-angled winter sun to warm the home's polished concrete floors.

Two private spaces flank the central pavilion. To the west is the couple's bedroom area, surrounded by a ribbon of casement windows that draw in cool breezes from the river below. To the east is an art studio, with views through a filter of birch and oak trees to the fields below. To provide flexibility, this space can be converted to a guest bedroom by pulling down a built-in Murphy bed, and sliding closed a concealed eight-foot high maple panel.

On the uphill side of the home, a pattern of square window apertures in the steel wall focus views to a neighboring farmstead. The last of these apertures sits in a section of wall that extends beyond the interior and provides views from the parking court to the river valley beyond. Midway along the wall, a slot allows passage to the entry door hidden around the corner, but also opens to allow a controlled view out to the river. After passing through the entry door and low-ceilinged vestibule, visitors step into the living pavilion and are welcomed to a breathtaking panorama of the river valley and bluffs beyond. Mirroring the slot in the wall, four glass doors open to a cantilevered deck that thrusts out over the hillside offering a vertiginous vantage point from which to take in the scenery. After taking in the view, one can return to the relatively grounded safety of the pavilion and the warmth of the Danish wood stove that anchors the pavilion's sitting area.

Two outbuildings – a Machine Shed and Tool Shed – are gathered around a gravel entry courtyard and provide additional storage for the couple. While serving the practical need of storage, these outbuildings also serve to give a human scale to the main entry. Much like nearby farmsteads where barns, corn-cribs, and silos are clustered to provide shelter, the outbuildings of Edge House lend an atmosphere of intimacy and enclosure to an otherwise open and broad landscape.

The home and outbuildings are clad with materials that express a straightforward agrarian ethic of practicality and durability, while also providing a rich range of colors and textures. The rusting surface of the steel wall is especially striking as it catches the light of the late summer sunset, or when its deep red color contrasts with drifts of January snow. The Machine Shed is wrapped in a low wall of rough concrete, half buried within the gently rolling terrain. Above this wall, the structure is surfaced in smooth panels of black fiber-cement board that seem to suck up the surrounding light. In contrast to the Machine Shed, the Tool Shed is sheathed in a white translucent polycarbonate panel that playfully reflects and transmits natural light. At night, the owners can flip on a switch from inside the house and illuminate the interior of the Tool Shed, forming a modern welcoming lantern.



FLOOR PLAN

1. parking court
2. entry
3. kitchen
4. dining room
5. living room
6. deck
7. office
8. bedroom
9. art studio | guest room
10. restroom
11. machine shed
12. tool shed

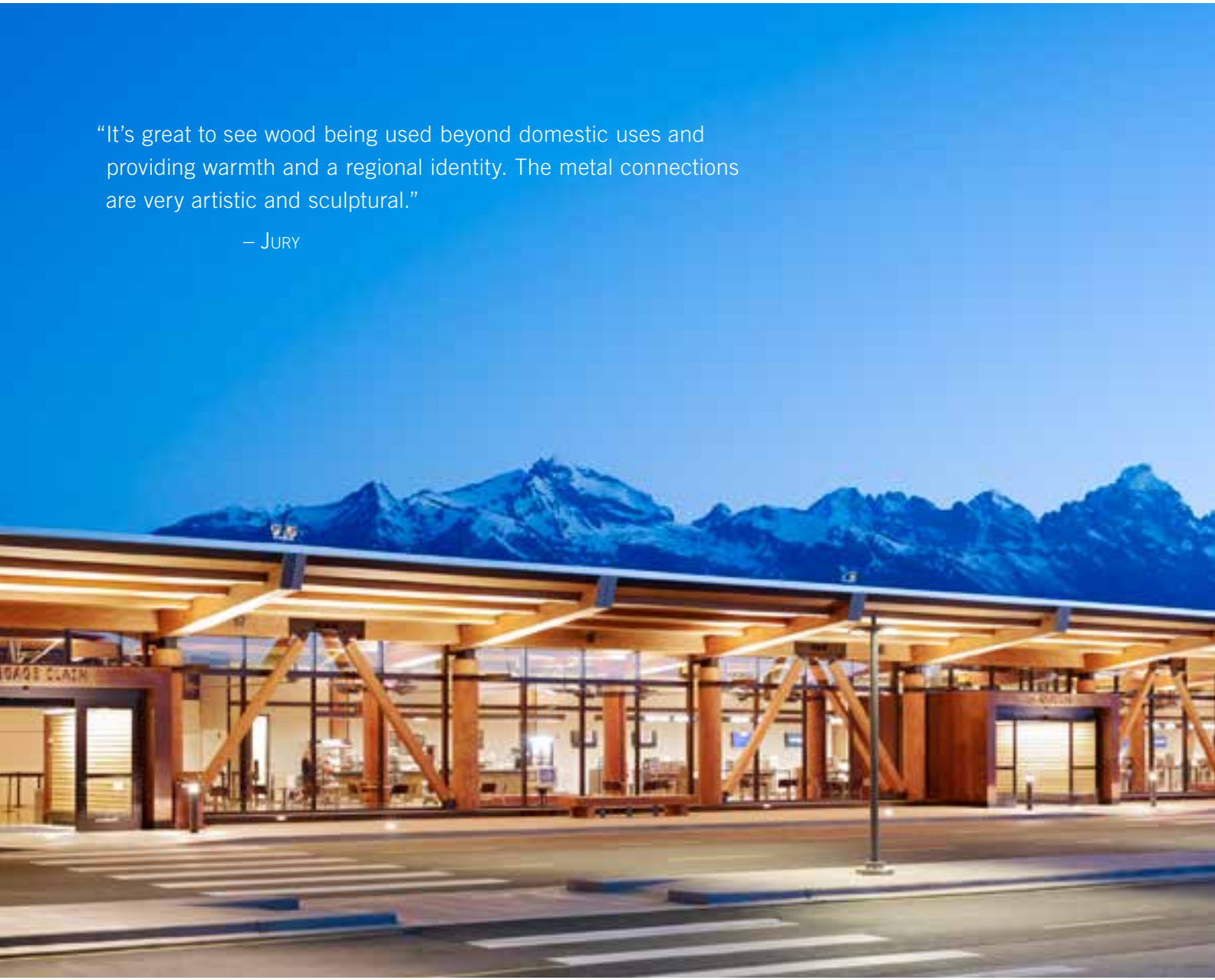
ARCHITECT
SALA Architects
Minneapolis, MN

STRUCTURAL ENGINEER
McConkey Johnson Soltermann
St. Paul, MN

GENERAL CONTRACTOR
Planesman Construction
Roberts, WI

LANDSCAPE ARCHITECT
Prairie Restorations
Princeton, MN

PHOTOGRAPHY
Troy Thies
Minneapolis, MN



"It's great to see wood being used beyond domestic uses and providing warmth and a regional identity. The metal connections are very artistic and sculptural."

– Jury

Design reflects mountain and western heritage

Jackson Hole Airport

Gensler

Jackson Hole, Wyoming, is an increasingly popular year-round tourist destination. It is the gateway to Grand Teton and Yellowstone National Parks, as well as world-class skiing and myriad summer activities. The airport is a visitor's first and last impression of Jackson Hole and is also an important symbol within the tight-knit, local community. It was important to the client and the community that the design be rooted in the community, reflecting its mountain environment and western heritage.

Jackson Hole is the only airport in the United States situated in a National Park. Grand Teton National Park has strict boundary limitations and an 18-foot building height limit that presented a challenging framework. The design also had to reflect environmental responsibility, a central cultural value in the region. As a result, the project targeted and achieved LEED Silver certification.

The exquisite beauty of the landscape and the sheer scale of the Grand Teton Mountain Range are overwhelming and humbling, therefore the concept considers the building as a simple, understated feature within this beautiful landscape. The design fosters a rich dialog between interior and exterior, opening up the terminal to the expansive views to the east and west.

The Jackson Hole Airport distinguishes itself from typical airports through its regional design approach, materiality and intimate scale. The use of wood was an important factor in achieving these goals.

Wood was used extensively as the primary structure of the building. In the Ticketing Hall, 24-inch diameter FSC Douglas fir columns anchor the space. The columns are turned smooth in a refined modern manner in lieu of a conventional rustic appearance. Expansive FSC glulam beams dramatically span the Ticketing Hall and interface with the columns via intricately detailed steel connections. Due to height restrictions, a queen post truss system was integrated with the glulam beams to reduce their depth and bulk, thus maximizing the spaciousness of the terminal. The rhythm and clarity of the structural system is on display as it marches over 250 feet through the terminal, culminating with the dramatic 17-foot exterior overhang.

The main Ticketing Hall's ceiling and the underside of the exterior overhangs use hemlock, selected for its subtle grain and light, yet rich coloration that complements the golden glulam beams. The hemlock ceiling boards are spaced intermittently to improve acoustics in the terminal that is primarily hard surfaces of glass, concrete, wood and steel. Reclaimed weathered snow fence was used extensively in the millwork and as a wainscot. The weathered gray appearance offers a nod to the past and is a nice contrast to the new warm wood structure and ceiling. Glulam beams from the original demolished building were repurposed into large-scale exterior and interior benches.

SITE PLAN

ARCHITECT
Gensler
Denver, CO

ASSOCIATE ARCHITECT
Carney Logan Burke Architects
Jackson, WY

STRUCTURAL ENGINEER
Martin Martin
Lakewood, CO

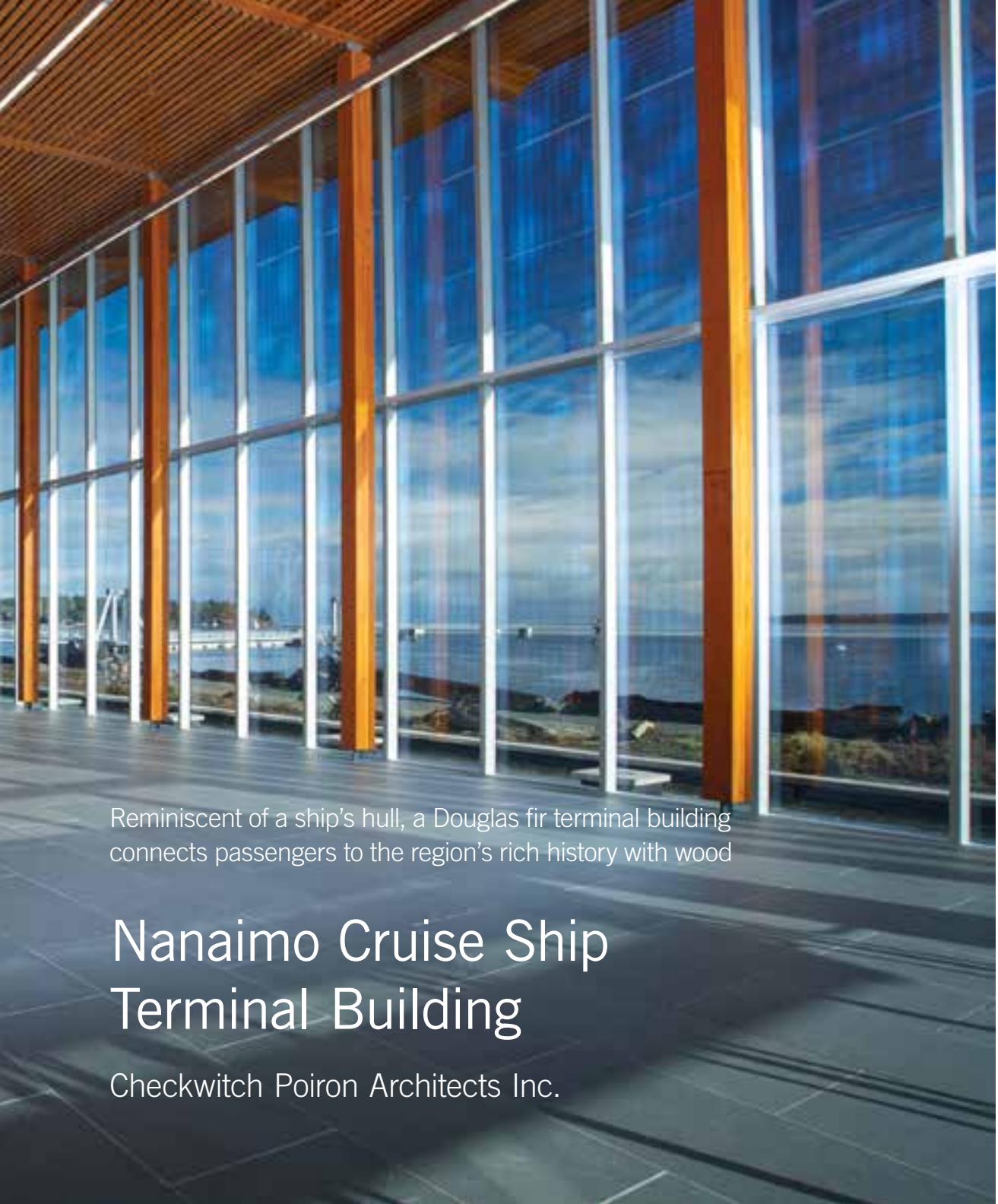
ELECTRICAL/
MECHANICAL ENGINEER
Swanson Rink
Denver, CO

CIVIL ENGINEER
Jacobs Carter Burgess
Denver, CO

GENERAL CONTRACTOR
Wadman Corporation
Ogden, UT

LANDSCAPE DESIGN
Hershberger Design
Jackson Hole, WY

PHOTOGRAPHY
Matthew Millman
San Francisco, CA



Reminiscent of a ship's hull, a Douglas fir terminal building connects passengers to the region's rich history with wood

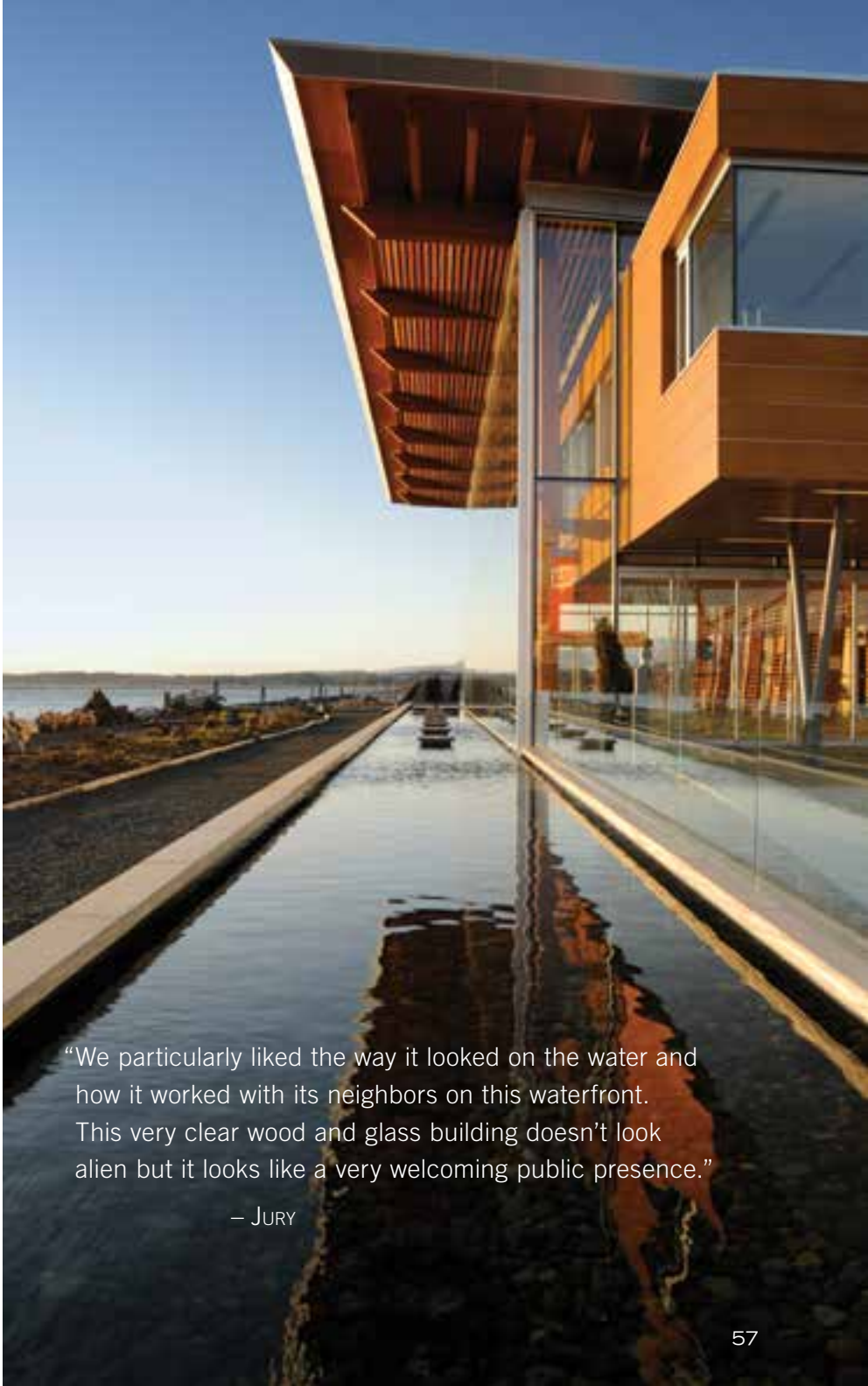
Nanaimo Cruise Ship Terminal Building

Checkwitch Poiron Architects Inc.

Situated on the edge of the Nanaimo Assembly Wharf, the 13,300-sq.ft. Nanaimo Cruise Ship Terminal Building contains a large welcome center/multi-purpose hall, facilities for the Canadian Border Services Agency and offices for the Nanaimo Port Authority.

The building site was formerly used for the processing and storage of the wood products that were the lifeblood for the region. A connection is made to the past by employing a variety of wood products including large curved glulam columns and beams, interior and exterior wood screens, and stratified timber panels. These materials echo the region's rich natural resource and make the main hall reminiscent of a giant ship's hull. Large glass walls open up the hall to panoramic views of the Nanaimo harbor.

As the facility is the first point of contact for many cruise ship passengers to Nanaimo, it was important to portray the region's historical and ongoing relationship with the wood industry. As such, wood plays a dominant role in the passenger experience through the building. The wood clad office box (stratified timber panels), located partially interior and partially exterior to the building, gives



"We particularly liked the way it looked on the water and how it worked with its neighbors on this waterfront. This very clear wood and glass building doesn't look alien but it looks like a very welcoming public presence."

– Jury

an initial wood impression to passengers who must walk underneath the suspended structure while being processed by Canada Customs. Proceeding to the welcome center, passengers are surrounded by the main structure consisting of curved and straight Douglas fir glulam columns and beams, and Douglas fir wood slat screens. These elements give a sense of enclosure, warmth and directionality, and open up the space to the view of the harbor beyond.

An exterior vertical Douglas fir screen wraps around the south and west facades of the terminal's lower level. This screen helps guide visitors from the main building entrance around to the welcome center entry, where much of the interior wood is directly visible from the exterior through the glazed walls of the welcome center.

The building employs a passive solar scheme where sunlight enters through the extensive glazing on the east and south sides of the building and warms the stone floor during the day, slowly releasing its heat during the night and circulating within the building before exiting through louvers at the top of the building.

Working with a local artist, custom artwork was commissioned and printed onto a large roll-screen. This screen can be raised or lowered to alter the configuration of the main hall. A native plant garden is positioned between the building and the water's edge. Light bounces off a linear water feature and is reflected up into the main hall.

ARCHITECT
Checkwitch Poiron Architects Inc.
Nanaimo, BC

CLIENT
Nanaimo Port Authority
Nanaimo, BC

STRUCTURAL ENGINEER
Herold Engineering Ltd.
Nanaimo, BC

MECHANICAL ENGINEER
Rocky Point Engineering Ltd.
Nanaimo, BC

ELECTRICAL ENGINEER
RB Engineering Ltd.
Nanaimo, BC

CIVIL ENGINEER
Herold Engineering Ltd.
Nanaimo, BC

PROJECT MANAGER
Herold Engineering Ltd.
Nanaimo, BC

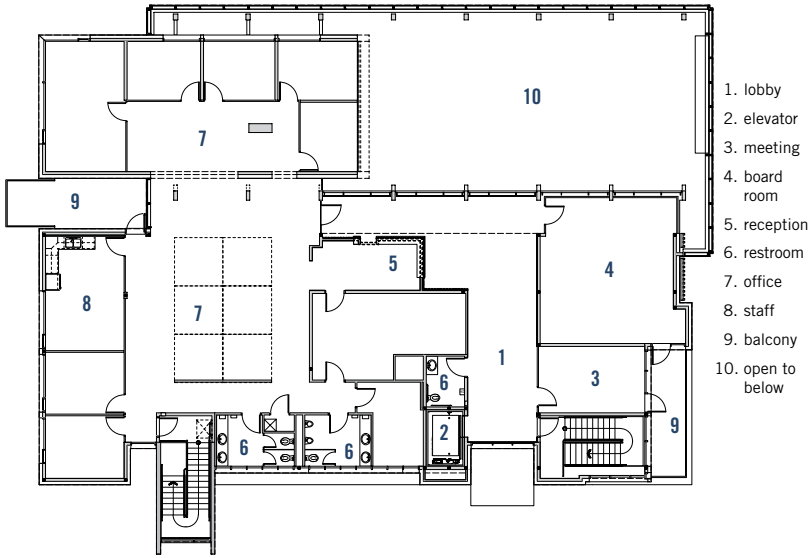
CONSTRUCTION MANAGER
Heatherbrae Builders Co. Ltd.
Nanaimo, BC

FIRE SUPPRESSION CONSULTANT
Des Design Ltd.
Nanaimo, BC

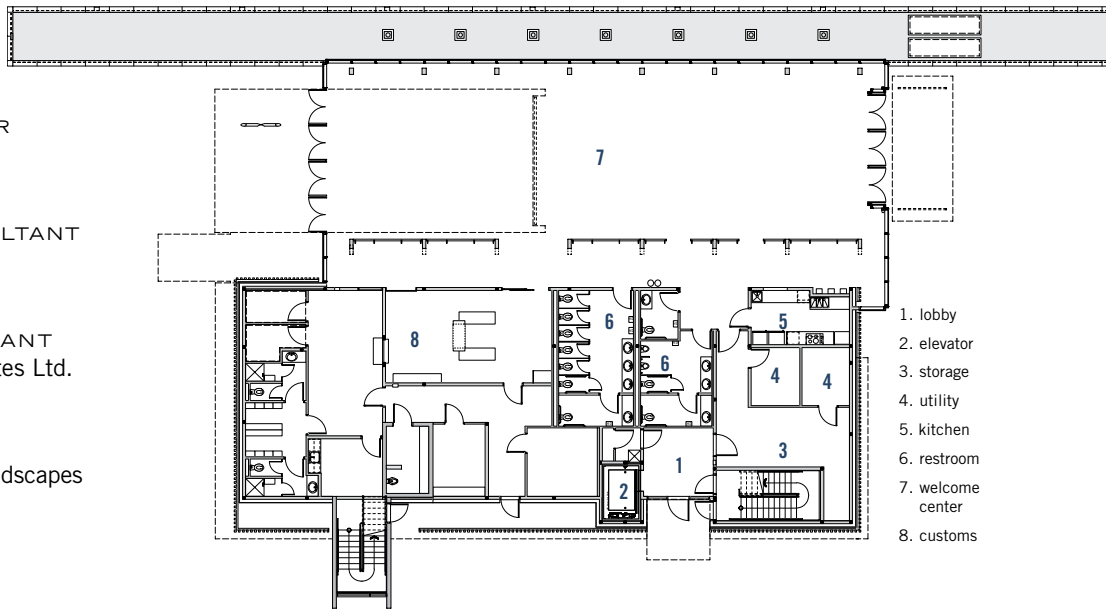
GEOTECHNICAL CONSULTANT
Lewkowich Engineering Associates Ltd.
Nanaimo, BC

LANDSCAPE ARCHITECT
Dr. Nancy Mackin Ecological Landscapes
West Vancouver, BC

PHOTOGRAPHY
Ben Checkwitch
Mark Corbett
HA Photography



UPPER FLOOR PLAN



LOWER FLOOR PLAN

SPECIAL **Awards**

WOOD HERITAGE AWARD

Thirty-two years after the last train whistled across, heritage bridge re-opens

"Just amazing. Faithful reconstruction and renewing of a structure that can only be in North America."

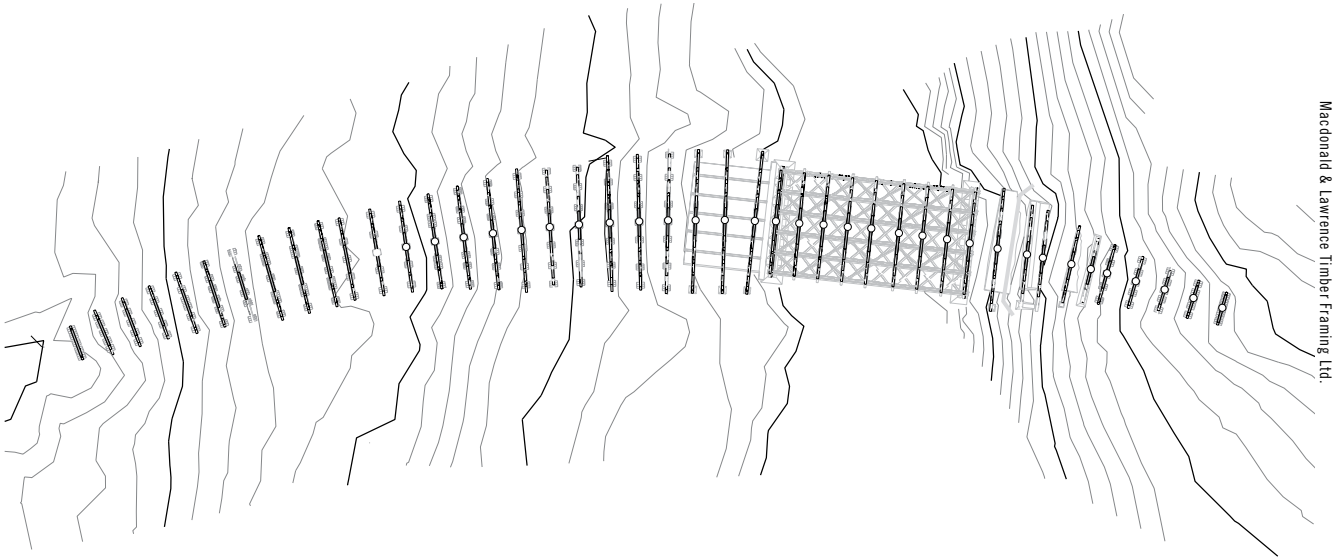
– Jury

CNR Koksilah trestle, 1947
Photographer: John Newman
Courtesy of Cowichan Valley Museum & Archives

Kinsol Trestle Rehabilitation Project

Macdonald & Lawrence Timber Framing Ltd.

The Koksilah River (Kinsol) trestle is a significant wooden railway bridge that crosses the Koksilah River at Mile 51.1 on the decommissioned CNR Cowichan line in B.C. Originally conceived by the Canadian Northern Pacific Railway in 1917, construction was delayed by WWI, and it wasn't until 1920 that the bridge was finally completed. The Kinsol is the largest wooden trestle remaining in the Commonwealth (148 feet above the river and 611 feet long),



Macdonald & Lawrence Timber Framing Ltd.

BRIDGE PLAN

and with more than 1.2 million board feet of timber, it is one of the largest wooden structures in the world. The Kinsol is an important part of local and provincial heritage and remains an outstanding example of a time when there was no project too grand, or scheme too bold to achieve with hard work and ingenuity.

Rail traffic was suspended in 1979 and ownership was transferred to the provincial government when the line was finally abandoned in 1988. During this same year, vandals set fire to part of the structure causing considerable damage to a small area at mid-span. Due to the precarious condition of the structure, the 2x bents at each approach were demolished to discourage foot traffic. Various studies were undertaken during the following decades, but in February 2006, consultants to the Ministry of Transportation (MoTI) determined that repairs were not feasible and recommended demolition.

Macdonald & Lawrence Timber Framing Ltd. (M&L), a specialist timber conservation firm based in the Cowichan Valley, recognized the heritage significance of the Kinsol Trestle and worked with other conservation professionals to present an alternative proposal for restoration, including various Letters of Opinion suggesting that the bridge might be saved. Inspection of the bridge suggested that rehabilitation was a viable alternative and information was presented to the Cowichan Valley Regional District (CVRD) and MoTI. As the stewards of the bridge, CVRD staff and directors were highly motivated to complete this final link in the Trans Canada Trail Network.

A multi-disciplined team of experts led by Commonwealth Historic Resource Management Ltd. (CHRML) and contracted by the CVRD worked from 2007-2008 to assess the feasibility of conserving the Kinsol Trestle. During this period, a detailed condition assessment of the structure was performed, working with retired CNR staff to understand the chronology of previous repairs. The team concluded that it was safe and practical to rehabilitate the bridge for pedestrian/cycle/equestrian use. As the rehabilitation of the trestle was to be considered an engineering work, according to the Standards and Guidelines for the Conservation of Historic Places in Canada, it was essential that the coordinating professional for the job be an engineer. In particular, the opportunity for adaptive re-use as a pedestrian bridge highlighted the reduced load requirements from the original design and this became key to the repairs strategy

that followed. The results of the detailed condition assessment were pivotal in securing local, provincial and federal funding for the project. In March 2010, contractors were selected to carry out the rehabilitation work.

Although many of the smaller elements were ultimately replaced, more than 70 per cent of the original timber volume was saved. All of the 320,000 board feet of new lumber used was grown and milled in the province: coastal Douglas-fir with minimal sapwood was specified for the structural timbers, and naturally decay-resistant cypress (Yellow cedar) was specified for mudsills as an alternative to creosote-treated fir. Connections were improved with the addition of more than 12,000 copper-borate rods to further increase longevity.

The completed project is the result of an innovative approach to the design which respects character-defining elements while providing a conservation solution that will meet or exceed the performance of a replacement bridge, for less than the cost of a replacement bridge.

On September 27, 2011, the Honorable Governor General, David Johnston, visited the completed project where he publicly recognized the achievements of the conservation team for delivering this challenging project on time and within budget.

CLIENT
Ministry of Transportation and Infrastructure
Victoria, BC

HERITAGE CONSULTANT
Jonathan Yardley Architect Inc.
Salt Spring Island, BC

TIMBER CONSERVATION CONTRACTOR
Macdonald & Lawrence Timber Framing
Cobble Hill, BC

LEAD CONSULTANT & COORDINATING ENGINEER
MMM Group
Vancouver, BC

TIMBER SPECIALTY ENGINEER
Cascade Engineering Group
Canmore, AB

SUPERSTRUCTURE ENGINEER
Stantec Engineering Ltd.
Victoria, BC

GEOTECHNICAL ENGINEER
C.N. Ryzuk & Associates Ltd.
Victoria, BC

ENVIRONMENTAL CONSULTANT
Madrone Environmental Services Ltd.
Duncan, BC

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

John Cowichan Newman
Valley Museum & Archives

Wood structure helps make building a model of sustainable design

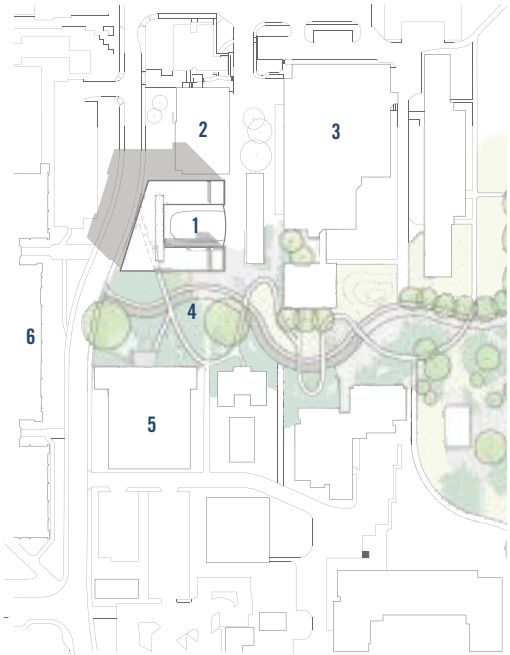
Non-Residental – Institutional

Centre for Interactive Research on Sustainability

Perkins+Will

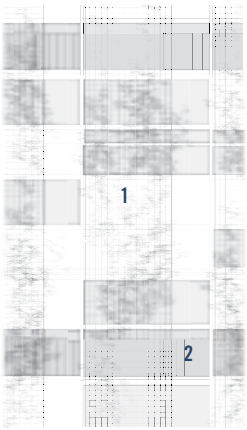
Conceived by Nobel laureate (IPCC, 2008) John Robinson, the Centre for Interactive Research on Sustainability (CIRS) was designed to be the most sustainable building in North America upon completion. Developed in three different iterations at different sites over 12 years, CIRS is a testament to a strong vision and the architect-client partnership that championed the project since its inception.

Located on a dense site at the University of British Columbia (UBC) in Vancouver, CIRS houses researchers from private, public and non-government organization sectors, who work together to advance innovation in sustainable technology and building practices, and to create a springboard for their widespread implementation. The approximately 62,000-sq.ft. 'living lab' is organized into two four-story wings, linked by an atrium that serves as a building lobby, entry to a daylit 450-seat auditorium, and 'social condenser' space. In addition to academic offices, meeting rooms, and social spaces, CIRS includes indoor environmental quality and building simulation software labs; a Group Decision Theatre that has advanced interaction technologies to engage audiences in sustainability and climate change scenarios; a building management system that shares building performance in real-time; and a cafe that uses no disposable packaging and serves local, organic food. Furthermore, researchers study user interactions with the facility to improve building performance and maximize inhabitant health and well-being.

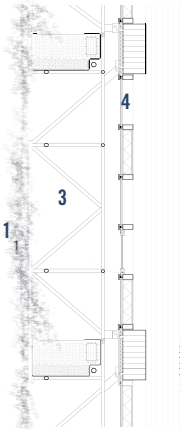


1. CIRS
2. campus & community planning
3. earth & ocean sciences
4. Sustainability Street
5. horticulture
6. university services

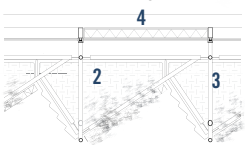
SITE PLAN



ELEVATION



SECTION



PLAN

1. living solar screen
2. planter box with growing medium
3. steel frame structure
4. curtain wall system

LIVING SCREEN DETAILS

CIRS maximizes passive environmental strategies and demand reduction, and puts sustainable systems on display. A pre-existing 'desire line' that cuts through the site was retained, used as an urban strategy to highlight the reclaimed water system and engage pedestrians with the project's sustainability goals. The building massing contributes to the goal of 100 per cent natural daylight and ventilation for all inhabitants; a living roof on the auditorium roof provides a courtyard amenity for office users; building-integrated photovoltaics shade operable windows; and the expressed wood structure is constructed of FSC-certified and pine beetle-killed wood. The western facade's living solar screen is planted with deciduous vines, which, once grown in, will act as a dynamic shading device that responds to seasonal change. In addition to assisting natural ventilation, the publicly accessible atrium is an educational space where all of these strategies are visible.

Exceeding LEED Platinum status, CIRS was designed to be 'net positive' in seven different ways: energy; structural carbon; operational carbon; water; turning passive occupants into active inhabitants; promoting health and productivity; and promoting happiness. This 'living building' harvests sunlight, captures waste heat from a nearby building, and exchanges heating and cooling with the ground – and returns 600-megawatt-hours of surplus energy back to the campus while removing 170 tonnes of greenhouse gas emissions annually. Designed to supply 100 per cent of the facility's water needs, CIRS collects rainwater for potable use and purifies wastewater in an on-site solar aquatics biofiltration system. CIRS's wood structure stores 904 tonnes of carbon, reducing the carbon footprint compared to the average UBC building by almost 90 per cent.

More than a building, CIRS is a research tool that demonstrates the possibilities in sustainable design and construction, serving as a catalyst for change. A Technical Manual and website (www.cirs.ubc.ca) further disseminate information with lessons learned, ongoing updates, and actual performance data from the project. The process of creating CIRS has reshaped UBC's vision for its campus and its role as an institution and the results from CIRS are helping move the world toward a more sustainable future.

ARCHITECT
Perkins+Will
Vancouver, BC

CLIENT
University of British Columbia
Properties Trust
Vancouver, BC

CONSTRUCTION MANAGER
Heatherbrae Construction
Richmond, BC

STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

MECHANICAL/
ELECTRICAL ENGINEER
Stantec
Vancouver, BC

CIVIL ENGINEER
Core Group Consultants
Burnaby, BC

LANDSCAPE CONSULTANT
PWL Partnership
Vancouver, BC

INTERIOR DESIGN
Perkins+Will
Vancouver, BC

PHOTOGRAPHY
Martin Tessler
Vancouver, BC

Historically detailed renovation and new construction blend seamlessly into community

Remodeled Residential

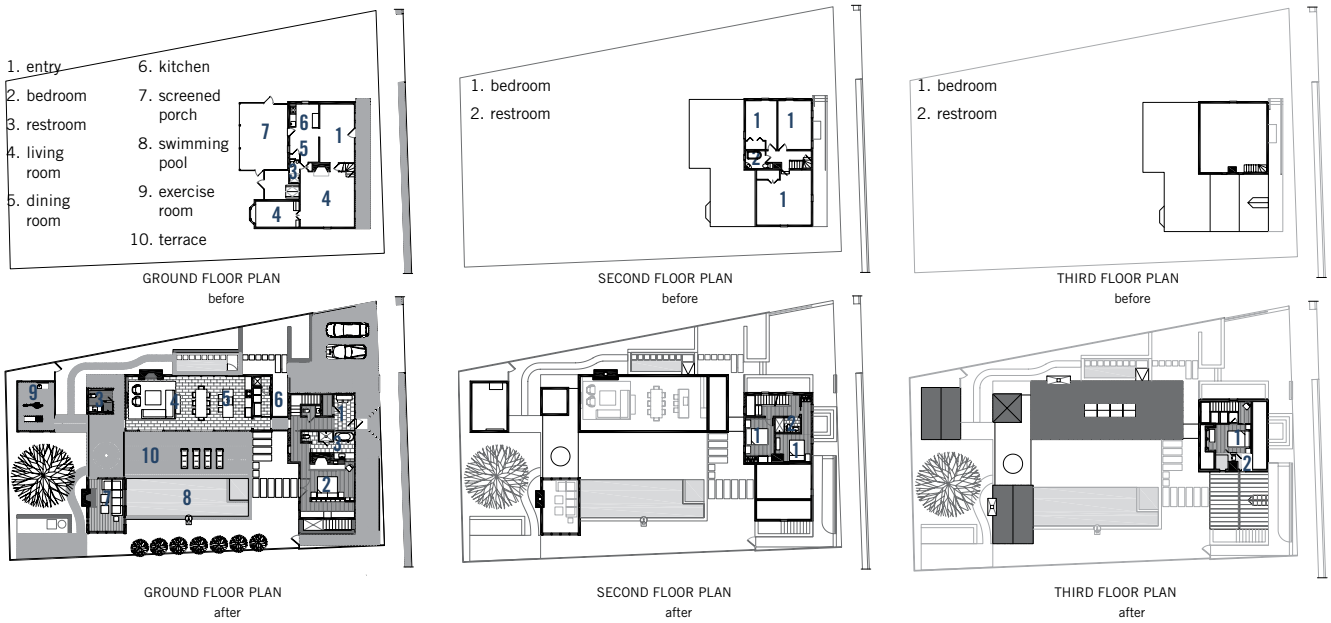
308 Mulberry

Robert M. Gurney

The small city of Lewes, Delaware, located on the eastern side of Sussex County, faces northeast into the mouth of the Delaware Bay. Lewes is popularly known as an eighteenth-century coastal town commemorated for being the site of the earliest European settlement in Delaware. The starting point for this project was a small house located at 308 Mulberry Street, originally constructed in the early nineteenth century in the heart of the historical district.

The current owner purchased the historical property, in poor condition, with the intention of renovating the existing structure and adding a substantial extension and swimming pool. In the redesign, the original structure was meticulously restored, reinforcing the historic log floor joists and wood frame. A shed-roofed screened porch, storage room and poorly proportioned living space that had been added to the back of the house in the early twentieth century were removed.

The requested spatial requirements were substantial and more than doubled the footprint of the original building. The design strategy kept the historic, two-story house prominent in the overall composition. The four additional structures engage the historical house in a minimally invasive fashion. The additions are a collection of one-story pavilions organized around a new swimming pool and large deodar cedar tree located at the rear of the property.



FLOOR PLANS

While the exterior of the original house is restored with historically correct detailing, the new pavilions are more crisply detailed. Cedar-shingled walls and roofs match the historical house but without the same overhangs and trim. Glass set in black steel frames punctuates the cedar walls. Tall red brick chimneys and landscape walls add vertical and horizontal elements, completing the composition.

The original house now contains the main entry and four bedrooms. White ash flooring enhances a decidedly modern interior, minimally detailed with crisp white sheetrock walls. An open staircase with floating wooden treads, glass walls, aluminum and stainless steel contributes to the modern palette of elements and materials. In juxtaposition to the primarily white interiors of the original house, the interior of the new living pavilion is wrapped in mahogany paneling. The rich wood of the ceiling and walls is complemented by basalt flooring, white marble countertops and fireplace surround, and stainless steel cabinetry. Walls of glass and a long skylight at the ridge allow light to flood the pavilion. The transition to the screened porch is punctuated by an oculus, detailed in the same Douglas fir that lines the subsequent volume. The wood-encased screened porch also contains a fireplace, allowing the space to be used late into the fall. Additional pavilions contain a bathroom, an exercise room and a screened porch.

This project embraced a small, historical house, restoring it and allowing it to contribute to the architectural fabric of Lewes for many years to come. The result is a generously proportioned, modern, light-filled space, rich with materials that co-exist comfortably within the town's historical makeup.

ARCHITECT
Robert M. Gurney
Washington, DC

ENGINEERING
D. Anthony Beale LLC
Springfield, VA

GENERAL CONTRACTOR
Ilex Construction
Easton, MD

INTERIOR DESIGN
Baron Gurney Interiors
Washington, DC

LANDSCAPE DESIGNER
South Fork Studio, Landscape Architecture
Chestertown, MD

PHOTOGRAPHY
Maxwell MacKenzie
Architectural Photographer
Washington, DC

Canadian Wood *WORKS!* Awards

Canadian Wood *WORKS!* Awards

Wood buildings have evolved dramatically in recent years – thanks, in large part, to the increased use of engineered wood products and systems by creative, forward-thinking designers. As you'll see in this section, contemporary wood buildings come in a wide variety of types and sizes, demonstrating that wood is a beautiful, strong and versatile building material, and that its applications are almost unlimited.

Wood helps today's designers deliver stunning aesthetics, impressive structural performance and scale, and environmentally responsible design. Canadian designers choose to use wood for other reasons, including the desire to build more sustainable communities and to realize the significant socio-economic benefits that come from specifying a renewable, locally produced material. By choosing wood as a primary building material, designers are helping secure economic prosperity for our country and for the hundreds of communities that depend on the forest industry.

Canadian designers also want their buildings to tell our story, and wood does that, too. There is a strong connection to wood in our country, and a rich tradition of forestry and timber construction that is part of our national identity and a source of pride to towns and cities across Canada. Building with wood honors our heritage and leaves a meaningful legacy for future generations.

On behalf of the Wood *WORKS!* programs in British Columbia, the Prairies and Ontario, it is our pleasure to showcase the winning projects from the Canadian Wood Design Award programs. We are proud to have this opportunity to recognize Canadian design excellence and innovation.

Marianne Berube
Executive Director
Wood *WORKS!*
Ontario

Mary Tracey
Executive Director
Wood *WORKS!*
British Columbia

Brady Whittaker
Executive Director
Wood *WORKS!*
Alberta

Jurors

(From left to right): Douglas MacLeod, Dwight Yochim, Tom Guenther, Henry Hawthorn and Thomas Tannert

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Henry Hawthorn Architect Ltd.

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ENGINEER

City of North Vancouver Civic Centre Renovation

Vancouver, BC

Eric Karsh, Equilibrium Consulting

Please see page 32

GREEN BUILDING

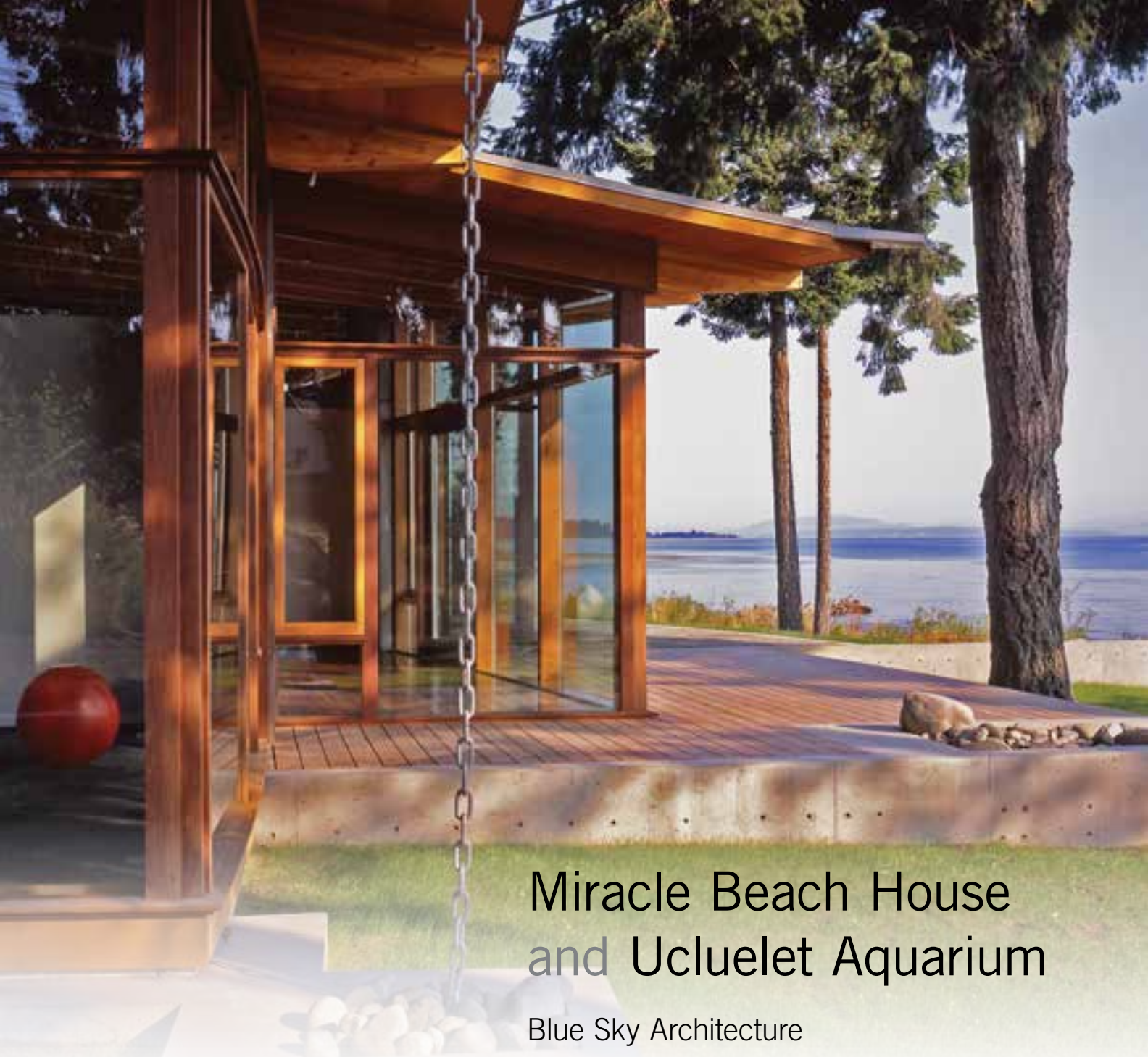
Centre for Interactive Research on Sustainability

Vancouver, BC

Peter Busby, Perkins+Will

Please see page 66

BRITISH COLUMBIA



Miracle Beach House and Ucluelet Aquarium

Blue Sky Architecture

ARCHITECT

Wave-shaped roofs grace two very different seaside structures

MIRACLE BEACH HOUSE

Structure and spatial simplicity respond to the power of this seaside site, revealing it in both subtle and impressive ways. A pebbled crescent, Miracle Beach is dominated by startling vistas across the Strait of Georgia to the snow-capped mountains on the mainland. This compound of house, studio and garage forms a convex curve, which is set in opposition to the concave curve of the beach. The two curves inspire a sheltered courtyard that captures the southern sun on the forest side of the plan. The house's structure is a mix of fir timber frames anchored by large concrete shear columns.

The home was built as a gathering place for an extended family with four teenage boys dividing their time between England and Vancouver Island. A transparent hallway with convertible walls invokes the notion of two linked homes – one for the teenagers and the other for their parents. Many of the glass walls of the house use convertible frames, allowing them to pivot from windows into doors. Forty feet of hallway walls use accordion-folding doors, while another series of doors pivot open on the sea side of the main social spaces, making for a dwelling that can almost completely open out into its setting.

Exposed glulam beams modulate interior spaces, highlighting the circulation spine and instilling in visitors a sense of curiosity for what lies beyond. An unusually bold example of the architect's evolving structural/spatial strategy, these beams support a series of undulating rafters, their variegation shaping sensual, sculptural spaces. The curving beams are set onto vertical concrete fins, oversized vertical anchors that provide a sense of gravitas and tectonic syntax. All shear structural forces are resolved into these cast concrete monoliths, exposed on the inside and clad in large bluestone slabs outside. The arcs in the plan continue around as a unifying geometry and landscape element, mediating between buildings, gardens, forest and sea.

The site was previously a trailer park set on a graveled beach, requiring remediation to bring the seashore landscape back to indigenous vegetation. One of the owners is a painter and expressed interest in using color as accent, providing contrast to a general palette of raw natural materials. Exterior walls of bright glass tile serve as punctuation points for the south courtyard. A lime green tile accented with a bold orange stripe defines the west side of the courtyard and leads to a bright, yellow glass-tiled wall at the courtyard's center.

The interior is sparsely detailed with hardwood floors, architectural concrete, bluestone detailing and simple wall planes. Sculptural timber roofs float above walls of glass and cedar. The roof of 2 x 8 clear fir tongue and groove decking floats above walls of glass and cedar. Exposed Douglas fir glulam beams and rafters curve through space, highlighting the circulation gallery, piquing your curiosity as to what lies beyond.

A freestanding concrete fireplace between living and dining spaces furthers this design's clear and simple structural vocabulary. House and studio are heated with geothermal energy. All horizontal

roofs are landscaped (green roofs), and the curving roof is clad in zinc.

Great attention has been paid to details and craftsmanship resulting in a beautiful home balanced sensitively between the forest and sea.

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PHOTOGRAPHY
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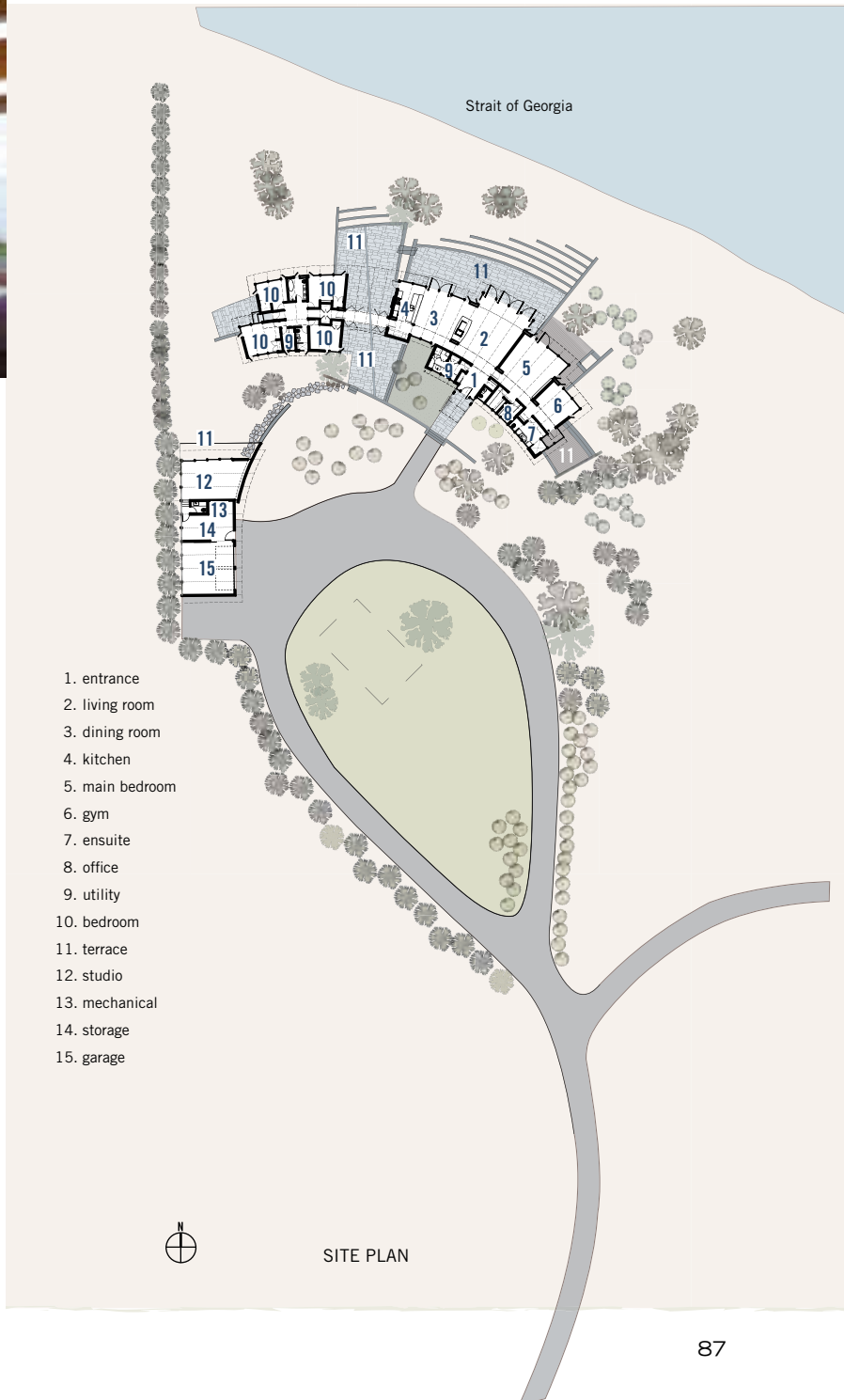


SITE PLAN

UCLUELET AQUARIUM

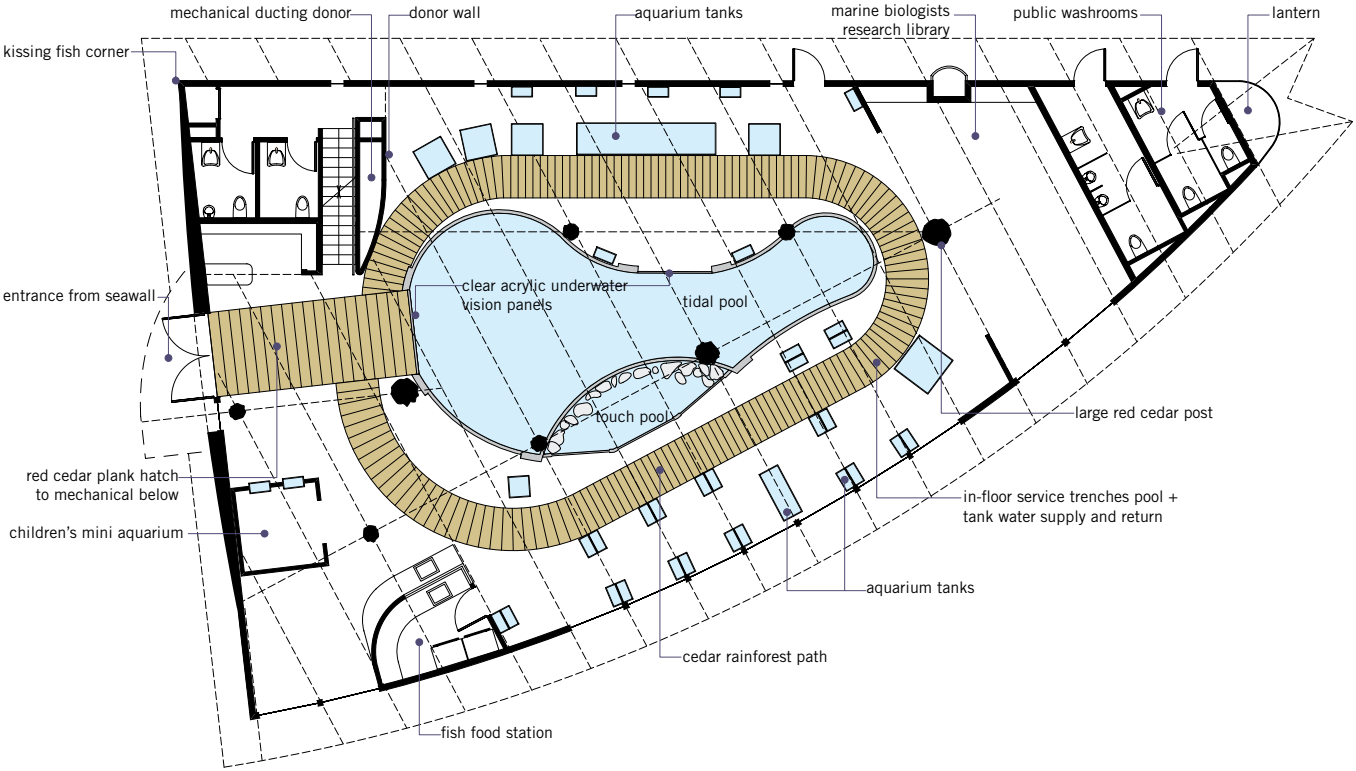
The Ucluelet Aquarium is a teaching environment and a waterfront gathering place at the centre of town created through community effort and imagination. The building was conceived and built by local residents, its purpose the sharing of information about the ocean and the integrated nature of seas with land and air ecosystems. The entire project was initiated by Ucluelet area citizens and sustained through their donations of time, money and material. Once the project attained momentum it was supplemented by government grants.

Given its community origin, it is no surprise that the Ucluelet Aquarium's layout and features signal a significant departure from conventional aquarium designs. The marine animals on display are temporarily 'borrowed' from local seas, housed for short periods, and then returned to their local habitats. Instead of splitting the building into private and public areas, this aquarium invites visitors to participate in and to observe all day-to-day support and preparation activities. The architectural conception encourages visitors and staff to engage in impromptu events and encounters throughout the building. Easy observation of movement, feeding and mating by marine life are used to weave an intimate dialog between natural and human nature. Display tanks are sized to allow visitors and staff direct physical contact with the sea life. Being able to feel, smell or hear marine life makes memorable experiences that become associated with the aquarium's natural history and conservation messages.

Architectural elements foster sympathetic understanding of local forest and marine environments. Entering the building, one feels like they have walked into the rainforest that is a part of the region. The extensive use of wood throughout was a natural choice due to its durability in moist environments such as aquariums. Heavy timber's fire resistance made it the right structural frame material for this small institutional building. Large red cedar natural posts support an equally large rough sawn Douglas fir beam structure that was all harvested locally and donated by the local Nuu-chah-nulth First Nations community and milled at their local Isaac Mill.

The roof is made from 2 x 6 tongue and groove Douglas fir decking while a 3 x 12 cedar plank pathway circles through the building, allowing circulation and providing an accessible channel for water pipes in the floor.

Maritime-inspired design motifs are featured throughout the building: local beach grasses and gravel installed on the green roof; the inter-tidal zone visible and interpreted underneath



FLOOR PLAN

the building; and inside, the marine displays themselves. The shape of the building is fish-like, with two land-facing walls designed as graphic fish forms. The building is laid out around a central saltwater pool providing views of local marine life. This main pool and smaller aquarium tanks are all interconnected by water channels and valves which distribute salt water from the inlet and return it through a geo-exchange unit into the inter-tidal pools beneath the building. A large glazed wall on the east side of the building visually connects the aquarium's interior to the harbour.

Planning and material efficiencies make this aquarium modest and sustainable, while also reducing volunteer oversight requirements. Supporting the sea life displays, the aquarium contains an entrance foyer/gathering place, gift shop, office space, a children's activity area and a lecture hall/marine biology research area. Display tanks have been recycled from other public aquariums; renewable, locally sourced wood is the primary structural building material; the floor is an efficient and low-maintenance concrete slab resting on top of concrete beams and pilings. The main exhibit level is a small but biologically productive extension of the Pacific Ocean. By building the aquarium on a suspended slab, the aquarium preserves the existing shore, which has been turned into inter-tidal garden pools with water and rock features that are supplemented by seawater recycling from the displays above. The inter-tidal garden is part of an extension of the aquarium out into the marine ecosystem.

The building is an important extension of the social life of Ucluelet. The boundary between nature and aquarium is creatively blurred because the architecture crafts connections, both natural and human.

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COMMERCIAL

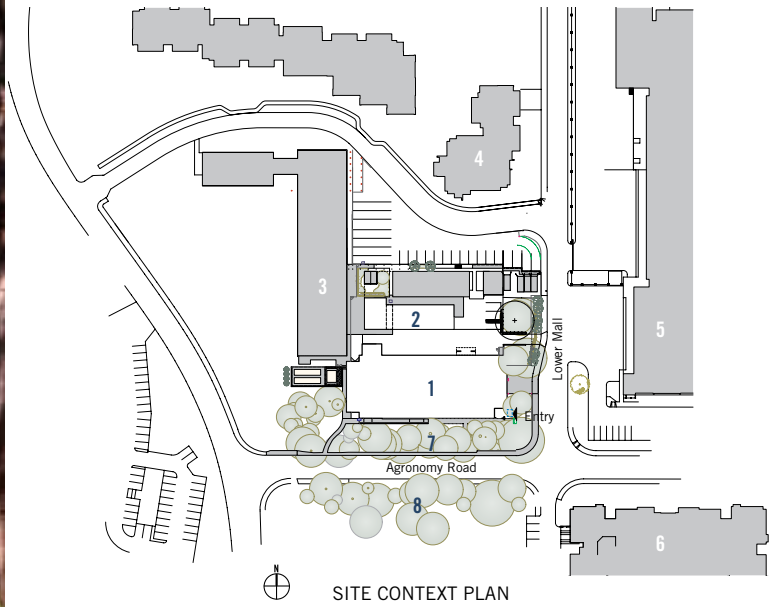
Innovative heavy timber at UBC displays advancements in bioenergy and CLT technologies

Bioenergy Research and Demonstration Facility

McFarland Marceau Architects

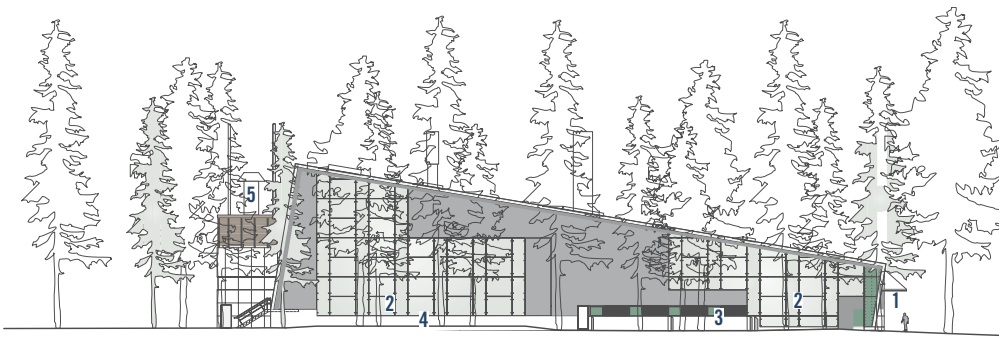
The Bioenergy Research + Demonstration Facility (BRDF), at UBC's Vancouver campus, tells a story of growth, transformation and renewal. Set against the backdrop of an impressive stand of trees, the innovative heavy timber facility displays advancements in bioenergy and cross laminated timber (CLT) technologies 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.



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

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.

From a sustainability perspective, the choice of wood for superstructure was clearly advantageous when compared to steel or concrete. The wood for the CLTs 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.

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Don Erhardt Photography
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McFarland Marceau Architects
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Free-floating solid timber staircase defies gravity

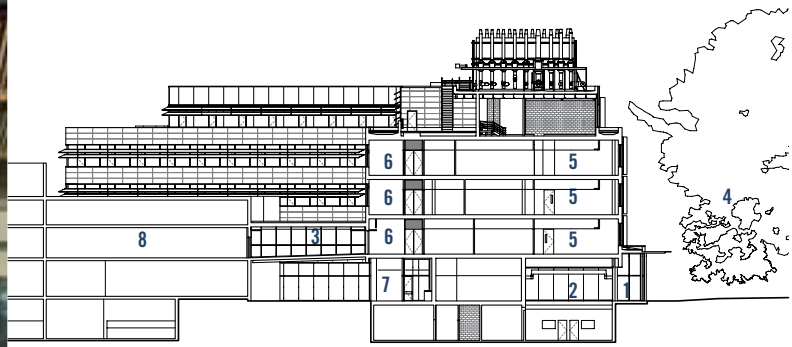
Earth Sciences Building

Perkins+Will

The Earth Sciences Building (ESB) is located on the Vancouver campus of the University of British Columbia (UBC). Designed as a new home for three of UBC's Science departments – Earth, Ocean and Atmospheric Sciences; Statistics; and the Pacific Institute for the Mathematical Sciences – the project also includes the dean's office of the Faculty of Science and integrates exhibits from the Pacific Museum of the Earth (PME). The ESB houses state-of-the-art teaching and research spaces that put 'science on display' while enhancing the campus public realm.

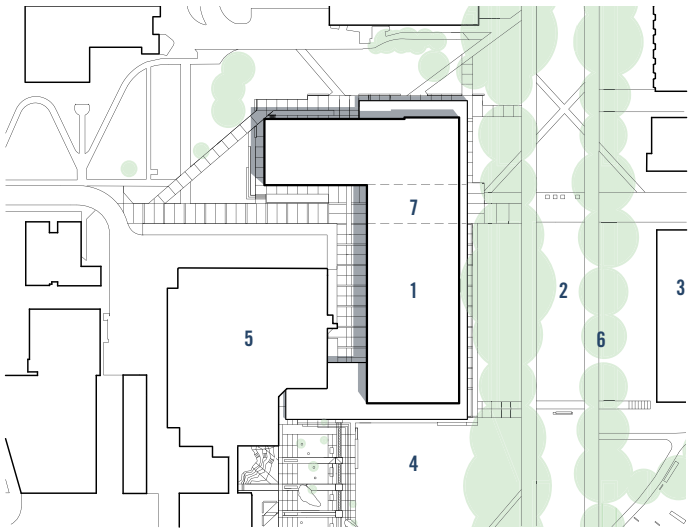
Complying with BC's Wood First Act, the project incorporates prefabricated cross laminated timber (CLT), laminated strand lumber (LSL) and glulam engineered wood products into the main structure of the building. As such, the ESB is the largest solid wood panel building and the largest application of CLT in North America to date. Articulated primarily in the structural components, the use of wood in the ESB demonstrates innovation and advances in wood technology with a subtle and contextually sensitive design solution.

A five-story atrium divides the north and south wings of the building, providing an organizational structure for the different departments while offering an east-west pedestrian route directly through the building. Unlike the concrete south wing that contains labs and offices, the north wing houses offices and lecture theatres, using wood as the primary structural material. A free-floating solid timber staircase made of a seamless folding "ribbon" of rigid



1. Pacific Museum of the Earth (PME)
2. high-head labs
3. bridge link to Earth, Ocean & Atmospheric Sciences building
4. Main Mall oaks
5. research lab
6. office
7. common circulation and space
8. Earth, Ocean & Atmospheric Science building

SECTION FLOOR PLAN



1. Earth Sciences building
2. Main Mall
3. Beaty Biodiversity Museum
4. Fairview Square
5. Earth, Ocean & Atmospheric Sciences building
6. Main Mall oaks
7. E/W pedestrian corridor

SITE PLAN

glulam stringers – a first of its kind in the world – encourages use of the stairs. The clean and elegant lines of the massive timber seem to defy gravity, and dramatically demonstrate the aesthetic and structural capabilities of modern engineered timber.

The ESB plays an important role in reinforcing pedestrian engagement along Main Mall. The ground level of ESB mirrors the Beaty Biodiversity Museum on the opposite side of Main Mall, creating a 'museum precinct' on campus, a first for the university. By integrating exhibits, the eastern corridor of the building provides an extension of the PME program into the new building. This extension creates a unique display gateway to this science and engineering-focused area of the campus.

A primary goal of the project was to improve pedestrian accessibility and connections on campus. An existing east-west walkway divides the site, and the building straddles this walkway with an interior atrium, directing pedestrians into the building and encouraging exposure of the program to the greater campus community. To provide rain cover, a solid wood CLT canopy wraps three sides of the project. It extends from inside the building, where it forms the interior ceiling finish of the museum and cafe, blurring the boundaries between interior and exterior space at the ground level.

The entire ground floor of the ESB contains full height glazing to provide visual connections between the indoors

and out. The south elevation of the ESB frames the north edge of Fairview Square, a vibrant campus open space. To ensure a lively and bustling outdoor space, the café and portions of the PME program are both located at the south end of the building and are intended to spill out during mild weather. The laboratories inside the building also face Fairview Square, encouraging two-way visibility and program connection with a fully glazed south wall.

The ESB includes high head laboratory spaces, which are required to be located at the basement level. Rather than bury these fully below grade, the upper half of these labs penetrates the first floor with floor-to-ceiling windows. This not only brings daylight into the space, it also allows visibility into the labs from the PME, the cafe, and the atrium – putting science on display, a primary goal of the project.

The ESB is designed to enhance the growing links between each department by providing valuable opportunities for shared learning and collaboration. In addition to the fully glazed central atrium, which serves as a front door for each of the departments, the exterior curtain wall of the lecture theatres incorporates stone into the curtain wall glazing frames, bringing opportunities for formal and informal outdoor teaching. Opportunities for informal learning are scattered throughout the ground floor and generous landings on the cantilevered wood stair provide opportunities for serendipitous interactions.

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INSTITUTIONAL – SMALL

Indigenous wood building forms and construction techniques are the basis for new community center

Klahoose First Nation New Relationship Centre

Merrick Architecture – Borowski Sakumoto Fligg Ltd.

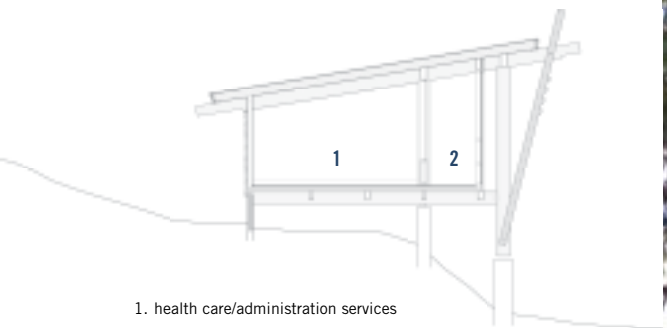
The Klahoose First Nation commissioned the design and construction of a new facility to house its current and growing healthcare, administrative and community-based functions. The Nation has a large population dispersed across B.C. with the main reserve located on Cortes Island, on the shores of Squirrel Cove. The construction of the Klahoose New Relationship Centre was financed by the Nation's extensive economic developments which contribute to services for the community. They had outgrown their existing aging facilities and had a desire to create an accessible

and welcoming place for the Klahoose people, and the local island community, that would establish a permanent home for various cultural, economic and development ventures. The project was tasked with creating a strong physical presence for the Klahoose First Nation, placing them firmly in today's society and looking forward to new horizons.

The design drew upon traditional indigenous wood building forms and construction techniques for initial inspiration. The straightforward assembly of a heavy timber frame supporting a series of single pitched roof forms is a response to the local conditions of climate, resources and culture, and the constraints of the remote and rocky site.

An extruded building form created by a modular framing system of exposed bents with a structural insulated wood wall and roof panel system was designed to accommodate a number of different uses and create a variety of interior and exterior spaces through the composition of two basic framing elements. The cadence of the bent frames orders interior spaces and circulation areas and creates a material consistency throughout the different programmed areas. Using a repetition of identical heavy timber frames also acted to reduce the number of components and connection details, simplifying off-site pre-manufacturing and facilitating quick on-site construction.

Cortes Island is located on the eastern edge of Desolation Sound. Semi-remote in nature, the project required careful consideration of building siting and construction techniques in order to minimize impact on the forested site. The New Relationship Centre is sited within the second-growth forest next to the Klahoose community settlement. The building stretches along a granite slope above the shoreline, resting on the existing topography to create floor levels



1. health care/administration services
2. corridor

SECTION

and an exterior gathering space. To the western forested side, the building presents itself as a long, low, wood-clad volume nestled into the existing vegetation. From the eastern ocean side, the building reveals itself as a strong, transparent structure lightly touching on the rocky slope. Expansive glazing opens the building to natural lighting and views across Squirrel Cove. The dominant use of wood enhances both the design thesis as described while connecting the facility both literally and figuratively to the natural materials of the surrounding context.

The New Relationship Centre has three main programmatic functions: health services, Nation administration, and community multi-purpose space. Program elements are housed in distinct building parts. The main core of the building contains the community-based spaces of the multipurpose room, the community kitchen, the fitness room, and the lounge. The administration and health services each form a wing extruded off the core. The wings are formed by repeated modules, allowing the program a degree of flexibility by "adding or subtracting a bay" as spacial relationships and functions develop. The extension of the health wing to the south and the administration wing to the north separates functions within the building, creating privacy for the variety of building uses.

The New Relationship Centre is designed to make use of local resources with a minimal impact on the environment. Locally available wood resources owned by the Klahoose First Nation and milled on site at the Nation's milling operations influenced material selection and detail development throughout the building. An extensive use of Western red cedar as interior and exterior finishes is a reflection of the local ecosystem and a connection to the community's input in the project.

Wood is used for as much of the building as possible: cladding, exterior fascia and barge boards, exterior trim and joinery, ceilings, stairs and railings, architectural woodwork and furnishings, and the main structural elements. As well as being a renewable resource, wood allowed the use of local materials and labor, along with higher efficiency pre-manufacturing. The building is oriented to make use of natural lighting and ventilation throughout the interiors, minimizing energy needs and creating a more comfortable working environment. Interior and exterior finishes are selected for durability, easy maintenance, and easy replacement.

1. main entry/reception
2. social space
3. conference room
4. health care services
5. ante-room/kitchen
6. conference room
7. mechanical
8. administration services
9. chief and council

GROUND FLOOR PLAN

1. multi-purpose room
2. terrace
3. kitchen
4. storage
5. mechanical
6. recycle centre

LOWER FLOOR PLAN

In addition to environmental sustainability, the Klahoose New Relationship Centre contributes to social and economic sustainability by providing a facility that accommodates the Nation's current and future needs and encourages connections within the community.

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INTERIOR

The textured use of wood and soaring vaulted chapel offers a strong visual connection to the site

Queen of Peace Monastery

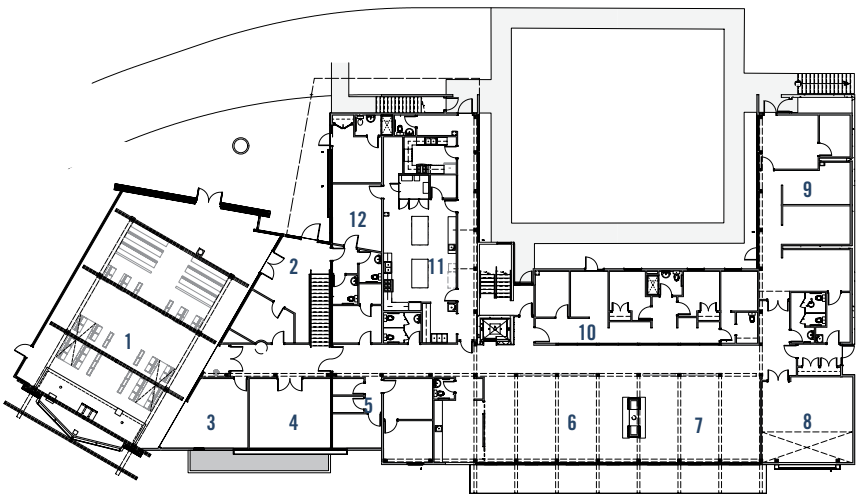
a|k|a architecture + design inc.

The Queen of Peace Monastery is a place of quiet contemplation for an order of 19 Dominican nuns. Located in Squamish Valley, British Columbia, the building comprises a multitude of unique spaces to support the monastic lives of these deeply devoted nuns. Places for worship, such as the chapel and meditation room, are complemented with residential, administrative, workshop, library and study areas.

Surrounded by hayfields with views to snowcapped mountains, the monastery is situated on a sheltered rocky plateau at the northern edge of the peaceful 55.4 Ha property. From the valley floor, visitors begin their procession to the building by ascending a long pedestrian path which winds its way up the front of the escarpment. A modest timber roof structure defines a warm and intimate public entry and imparts a sense of arrival. The ground level lobby serves as a small gallery displaying art, literature and other works created by the sisters. An open stairway invites guests to continue upward to the chapel foyer. There, the building's most significant space, the chapel itself, is revealed.

The impressive and inviting chapel interior is characterized by the textured use of wood and a strong visual connection to the site. The soaring vaulted space is expressed through structural Douglas fir posts, beams and rafters supporting a wood-decked ceiling. Oak plank floors and simple wood bench furnishings contribute to the warm and spiritual ambience. Floor-to-ceiling windows at the front of the chapel offer a striking, expansive view and extend the experience into the outdoors. Together, these elements frame the spectacular mountain context where one is inspired to connect with and contemplate the sacred.

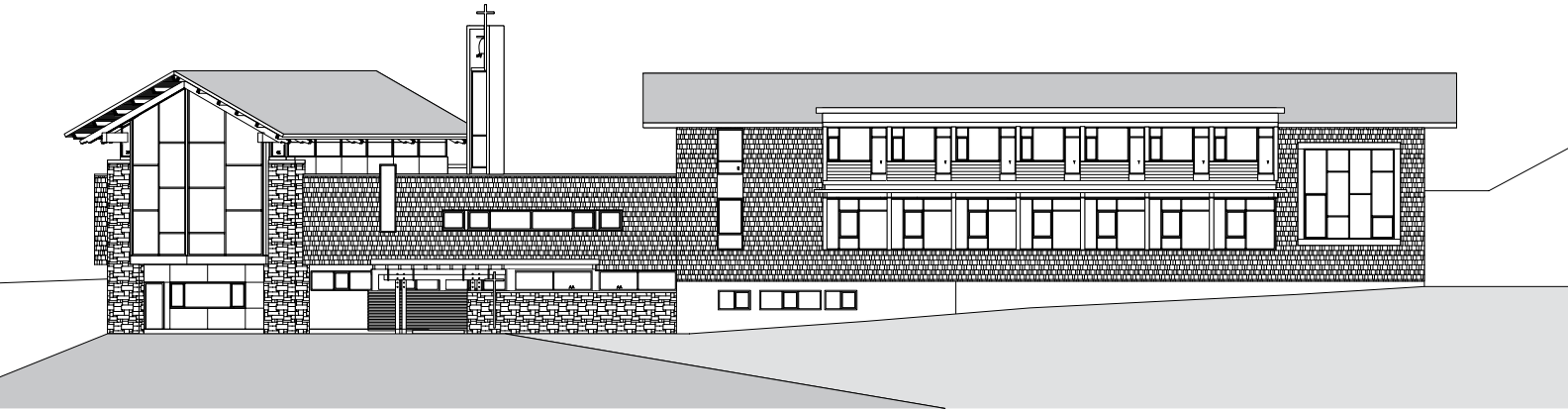
1. chapel
2. chapel foyer
3. meditation room
4. before choir
5. office
6. refectory
7. community room
8. library
9. studios
10. infirmary
11. kitchen
12. visitor area



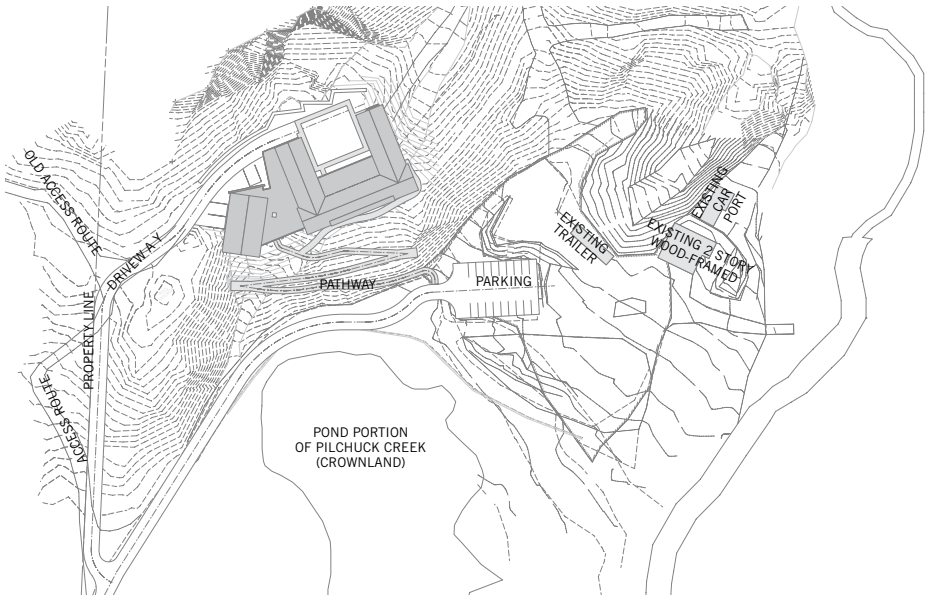
FLOOR PLAN

Mindful of a limited construction budget, the use of wood elsewhere in the building is strategic and designed for maximum effect. Wood posts and beams line the continuous cloister walk around a central courtyard, creating a tranquil rhythm to the daily contemplative walk integral to monastic life. The refectory and community rooms are finished with exposed rafters and wood ceilings, accentuating the significance of these social gathering spaces. The refectory is furnished simply with custom wood linear tables in keeping with monastic tradition.

The nuns' rituals, the nuns themselves, the site, the choice of materials and the structure of the chapel coalesce to form the genius loci, a place of worship.



SECTION



SITE PLAN

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

CLIENT
Michael Hutchison,
Bethel Lands Corporation
Sister Claire,
Queen of Peace Monastery
Squamish, BC

STRUCTURAL ENGINEER
Read Jones Christoffersen
Consulting Engineers
Victoria, BC

GENERAL CONTRACTOR
Murphy Construction
Pemberton, BC

PHOTOGRAPHY
Andrew Doran Photography
Squamish, BC

MULTI-UNIT RESIDENTIAL

Wood-frame module concept is suited to multiple site conditions, demographics and lifestyles

Monad

LWPAC Lang Wilson Practice in Architecture Culture

The Monad project has been designed and developed to serve as an urban infill prototype. It addresses the inherent contradiction of our time: the need for broad sustainability, or to endure and evolve in an ecological and meaningful way, in a world of rapid change and tremendous urban growth and transformation.

The M33_Monad project is part of the M-model family that resulted from a highly systematic and integrated research/idea/design/development/fabrication/construction process that develops synergies and potentials beyond the traditional limitations and contradictions in architecture by linking art and business, standardization and customization, sustainability and feasibility, flexibility and affordability, quality and resourcefulness, and the short- and long-term perspectives of our ever-changing urban landscape.

The built project is in many ways a first-of-its-kind and demonstrates innovative spatial logics and construction systems that create highly sustainable and adaptable urban infill solutions in order to make city living a more desirable alternative to commuting and unsustainably large single family homes. The project presents innovation by creating multi-story prefabricated engineered wood-frame modules and building systems for parallel construction and resource management for mixed use residential buildings. This is a first in Vancouver.

1. parking
2. loading
3. exit
4. lobby
5. C.R.U.
6. personal storage
7. mech./elec.
8. bicycle storage
9. living room
10. bedroom
11. kitchen
12. dining room

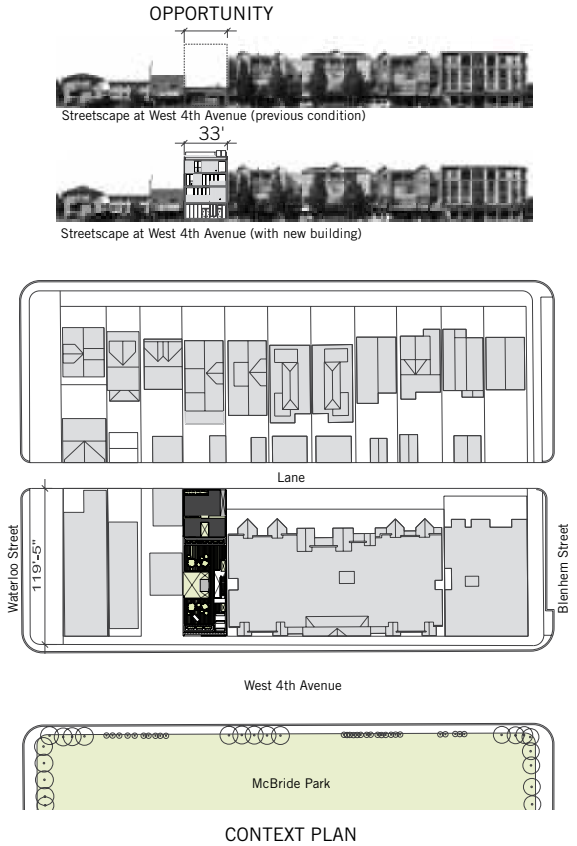
BASEMENT | GROUND FLOOR | SECOND FLOOR | THIRD FLOOR | FOURTH FLOOR | TOP VIEW – GARDEN ROOF

N

FLOOR PLANS

The modules have been designed to be flexible and adaptable and to allow for living outside or beyond the box. The modules can be combined, used and adapted to respond to a multiplicity of site conditions, demographics and lifestyles. The wood-frame module design also addresses engineering issues such as moisture/shrinkage control and stackability to allow for up to 10-story construction (an eight-story Monad 2 is currently in process).

The true innovation is in the C-shape design (where there are three sides open and flexible, and three simple, consistent, scalable planes for floor, ceiling and perimeter/party shear wall). The perpendicular shear walls double up as highly organized shafts for all services. Everything has been designed and tested to be directly applicable for 33-, 50-, 66-, 75- 99-ft. wide urban infill lots, three to 10 stories high, and to work on hundreds of available lots along the commercial arteries, C districts and centers throughout the metro Vancouver area and Pacific North.



CONTEXT PLAN

ARCHITECT
LWPAC Lang Wilson Practice in Architecture Culture
Vancouver, BC

STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

MECHANICAL ENGINEER
Perez Engineering
(now part of MCW Group of Companies)
Vancouver, BC

ELECTRICAL ENGINEER
Cobalt Engineering
(now part of Integral Group)
Vancouver, BC

ON-SITE CONTRACTOR
Trasolini Chetner Construction Corporation
Vancouver, BC

LANDSCAPE ARCHITECT
Space2Place
Vancouver, BC

PHOTOGRAPHY
Nic Lehoux
Vancouver, BC

RESIDENTIAL WOOD DESIGN

Wood-frame construction was architect's top choice for off-grid island home

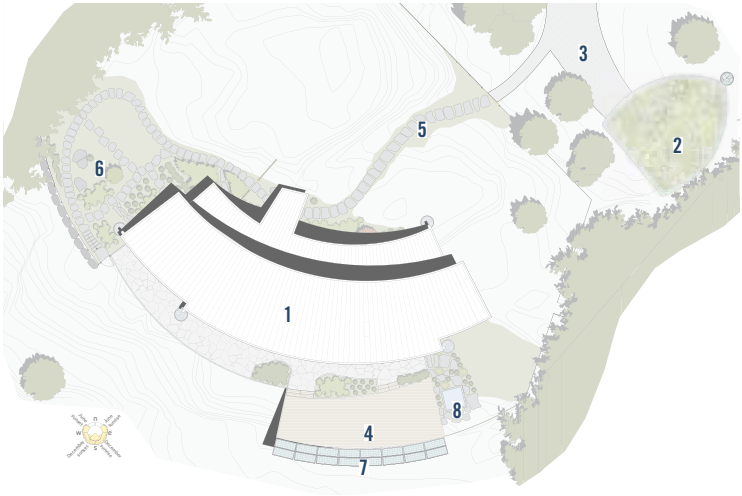
Solar Crest House

Helliwell + Smith Blue Sky Architecture

Embracing a rugged rocky ridge on a remote island in Juan de Fuca Strait, Solar Crest is a completely off-grid home and garden. In section and plan, it combines a studied geometric formality with organic and sensuous elements that merge with its surrounding landscape of rounded glaciated granite. The plan of the house is an arc following the sun and the hill's crest opening to southern light and views across the strait to the Olympic Mountains in Washington state. In section, the roof undulates, a living sculpture responding to the hierarchy of spatial use, the opportunities of sun, air, views and the shape of the land itself. On the entrance garden side, lower flat roofs maximize light penetration into the house's center and assist the natural ventilation throughout.

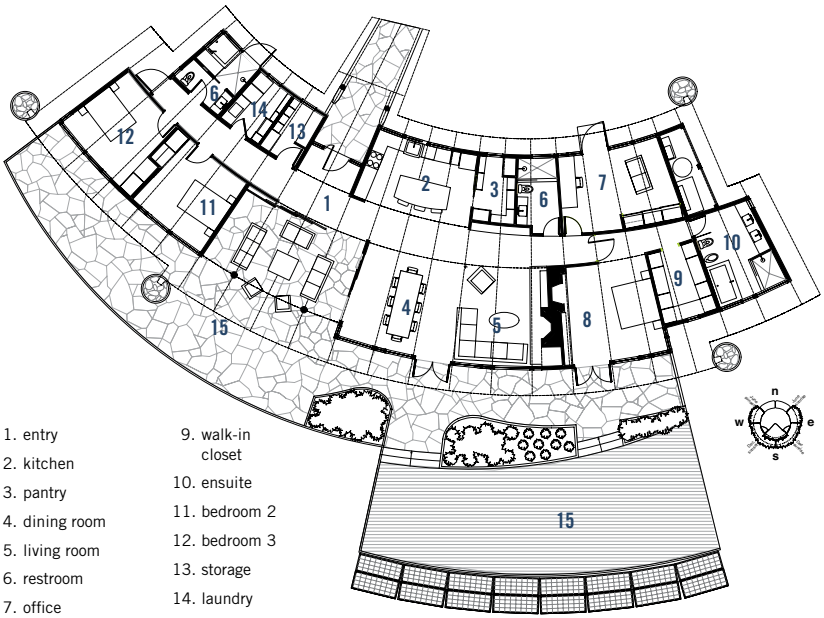
The building is off all energy grids and is oriented to maximize solar gain. Its central spaces are transparent so that the southern sun penetrates deeply into interior spaces, warming floors and walls. Ocean views to the south and west are open to all spaces including the south-facing outdoor room and terraces. The only level, outdoor spaces on the site are the terraces that had to be constructed. These cover five cisterns holding 444,000 gallons of rainwater collected from roof surfaces and used for all domestic and landscape purposes and available for firefighting. To power the home, 26 solar photovoltaic panels are located out of sight from inside the house, leaning against the terrace's curving south wall. When the electrical battery storage is low, a back-up diesel generator takes over. Other sustainable features are a wind turbine, on-demand hot water, radiant in-floor heating, LED lighting, energy efficient appliances, low-flush toilets and on-site vegetable gardens.

Because of a large introduced deer population on this island, the gardens need high fencing to protect them. At times, this fencing is designed to be either visually non-obtrusive or a



1. house
2. garage
3. driveway
4. terrace
5. path
6. garden
7. solar panels
8. hot tub

SITE PLAN



1. entry
2. kitchen
3. pantry
4. dining room
5. living room
6. restroom
7. office
8. master bedroom
9. walk-in closet
10. ensuite
11. bedroom 2
12. bedroom 3
13. storage
14. laundry
15. terrace

FLOOR PLAN

contrasting horizontal cedar screen landscape feature. The remote island has only private boat access and no local services, so all construction materials had to be moved by small barge with all attendant difficulties of weather, tides, and off-loading onto a small ramp. Wood-frame was the construction choice, being a relatively lightweight, easy-to-move and easy-to-use material. Most of the fir and cedar used in the house is local, harvested and milled on nearby Vancouver Island. Large glass walls lining the dining room and adjacent entrance hall fully slide back to open the home to the terrace, the views and outdoor living. The inclusion of alternative energy systems enable the home to be situated in a stunningly beautiful, remote landscape completely free of organized energy grids and dependent only on the natural cycles surrounding it.

ARCHITECTS
Helliwell + Smith Blue Sky Architecture
Vancouver, BC

STRUCTURAL ENGINEER
Chiu Hippman
Vancouver, BC

GENERAL CONTRACTOR
Rob Parsons
Victoria, BC

LANDSCAPE ARCHITECT
Considered Design
Vancouver, BC

PHOTOGRAPHY
Heath Moffatt Photography
Victoria, BC

Blue Sky Architecture
Vancouver, BC

A gathering place for family and friends, Western red cedar emits a warmth that is the essence of this residence

The Urban Longhouse

Zimba Design

The clients for this project were both raised in small towns in British Columbia that are, or have been, centered on the forest industry. The forested settings of these towns provided a basis for a love of the outdoors as well as future occupations in the forest and construction industries so it was important to them that the essence of their backgrounds be reflected in their home. The clients like to entertain, so it was also important to create various gathering spaces for friends and family.

This house replaced one that was almost 100 years old, as many in its neighborhood are. The site is a 25-foot wide city lot, limiting programming to a linear design with a maximum building width of 15 feet. The resulting building is long and narrow, however, by adding vertical stone elements to the horizontal cedar siding, the length was visually reduced.

The base building was traditionally framed with 2 x 4 studs and prefabricated wood trusses. The front and rear patios were framed with exposed heavy solid timbers. Various wood species (in particular, Douglas fir on the interior and Western red cedar on the exterior) and the associated finishes were chosen to reflect the design concept of The Urban Longhouse and to embrace the clients' West Coast upbringing. It was significant to the clients that materials local to British Columbia were used. These included Western red cedar on the siding and roof braces, solid Douglas fir beams and posts custom cut from a small mill in Squamish, exterior stone accents from a quarry on Vancouver Island, cedar deck boards from the former house, reclaimed Douglas fir flooring that came out of nearby Ridgeway Elementary School when it was renovated in 2010, and pine used as soffit material.

Western red cedar was chosen for the exterior cladding and roof brackets as it is aligned perfectly with the project concept. Despite being in the midst of the city of North Vancouver, the house is set amongst plantings native to the region, making Western red cedar a literal and figurative natural choice. The exterior elements are treated only with a clear stain so that the beauty of the wood's color and texture are highlighted. When the setting summer sun hits the building, it glows a warm orange, grounded only by the vertical stone columns of natural ledgestone veneer that break up the length of the building.

One significant interior feature is the floating wood stair between the main and second floor. It is constructed of solid straight grain Douglas fir and hung off the wood-frame structure within the exterior wall. The stair is

separated from the hallway by a vertical wood slat screen constructed of the same wood. The openness of the screen allows light through to the stair as well as opens up the interior space so that one is unaware the house is so narrow.

Other interior features of wood include ceiling-height fir cabinets throughout the open kitchen, a floor-to-ceiling, wall-to-wall millwork unit finished with Douglas fir veneer that helps absorb sound in the media room, Douglas fir fireplace mantels and exterior doors.

Western red cedar emits a warmth that is the very essence of The Urban Longhouse. As a gathering place for family and friends, a warm welcoming to the building is essential and sets the scene for the beautiful wood interior. This family home effectively uses the warmth of wood inside and out to create a welcoming space.

ARCHITECT
Zimba Design
Vancouver, BC

STRUCTURAL ENGINEER
C.A. Boom Engineering (1985)
North Vancouver, BC

GEOTECHNICAL ENGINEER
Puar Engineering Consultants Inc.
West Vancouver, BC

BUILDER
Delta Sierra Construction & Millwork Ltd.
Vancouver, BC

GENERAL CONTRACTOR
Zimba Design
Vancouver, BC

LANDSCAPE DESIGN
McKell Landscaping
North Vancouver, BC

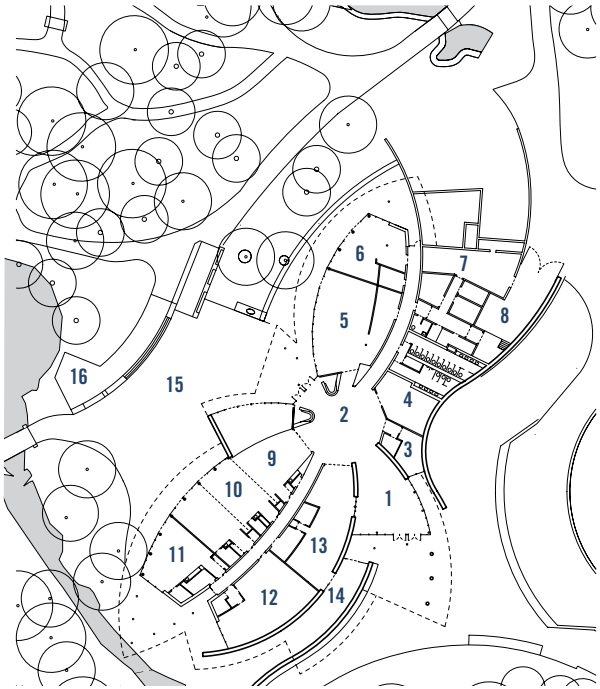
PHOTOGRAPHY
Hietanen Photo
Surrey, BC

Zimba Design
Vancouver, BC

Curving along three axes, 71 different panels made of more than
100 unique curved glulam beams create the complex roof structure

VanDusen Botanical Garden Visitor Centre

Perkins+Will



1. arrival hall
2. atrium
3. office
4. interpretive centre
5. food service
6. volunteer
7. services
8. loading bay
9. great hall
10. flex
11. classroom
12. library
13. garden shop
14. outdoor shop
15. Livingston Plaza
16. Livingston Lake Dock

FLOOR PLAN

1. VanDusen Botanical Garden Visitor centre
2. Oak Street
3. administration building
4. floral hall

SITE PLAN

Inspired by organic forms and natural systems, the VanDusen Botanical Garden Visitor Centre seeks to create a harmonious balance between architecture and landscape, from a visual and ecological perspective. The dynamic single-story structure includes an innovative prefabricated roof form that appears to float above the building's curved rammed earth and concrete walls. Metaphorically representing undulating petals, the building form flows seamlessly into a central oculus and the surrounding landscape.

Located on the garden's prominent southeast corner, the 1,810-sq.m. visitor centre transforms the site's entrance to heighten public awareness of the garden, its conservation mandate, and the importance of nature. With solid walls that protect visitors from the busy street and transparent walls that open the building toward the garden, the building houses a cafe, library, volunteer facilities, garden shop, offices, and flexible classroom/rental spaces.

The garden's mission is one of conservation, and the visitor centre was designed with the same philosophy in mind. Mimicking natural systems, it collects water, harvests sunlight, and stores energy until needed. Through mapping and analyzing the garden's ecology, the project team was able to integrate natural and human systems, restoring biodiversity and ecological balance to the site. The building's green roof and surrounding landscape were carefully designed to include only native plants, forming a series of distinct ecological zones; a vegetated land ramp was included to connect the roof to the ground plane, encouraging use by local fauna; and old-growth trees were carefully preserved, facilitating an ecologically balanced system of wetlands, rain gardens, and streams.

Designed to exceed LEED Platinum status, the visitor centre is the first building in Canada to register for the Living Building Challenge (LBC) – the most stringent measurement of sustainability in the built environment. Placing enormous constraints on projects, only three projects worldwide have earned full certification.

The most difficult LBC requirement to achieve is the Materials Imperative, which calls for avoiding items on the Red List, such as PVC and many other common construction materials. It also mandates the use of only FSC-certified wood products for any non-reclaimed wood, a very high minimum threshold for recycled content, and a series of proximity thresholds that require materials to be supplied locally/regionally, limiting long-distance transport.

To this end – and to provide a beautiful and warm environment – the Visitor Centre uses wood products extensively, from the panelized roof structure to the cladding, furnishings, millwork and wall finishes.

Five types of wood were used in the project. Reclaimed wood that was milled from trees cut down on site during the construction of the project was employed for a variety of landscape features, as well as exterior furnishings. On-site salvaged wood, reclaimed from previous structures in the garden, was utilized for a variety of elements, including a prominent bridge that was made of recovered fir from a former covered walkway on the site. FSC-certified wood was used as the main structural elements in addition to the ceiling finish and the structure of the internal walls. Off-site salvaged wood was used for a variety of millwork items, including the interior doors, washroom partitions and a 30-meter-long, curved wooden bench in the foyer. Fallen wood from yew trees was found, collected and used as the feature door handles designed by a local artist.

While similarly complex building forms – like Spain's Guggenheim Bilbao Museum or the Experience Music Project in Seattle, Washington – have been achieved through the use of steel or concrete, this is believed to be the first example of panelized wood use for such a geometrically complex form. Curving along all three axes, the roof structure includes 71 different panels, each made of more than 100 unique curved glulam beams. The panels were prefabricated and pre-installed with thermal insulation, sprinkler pipes, lighting conduits, acoustic liner, and wood ceiling slats. A novel, universal 'one-size-fits-all' panel-to-column connection accommodates unique geometric conditions at every support location. Advancements in computer modeling, machine-factory production, and wood fasteners allowed for a project of this complexity to be built, particularly given its fast-tracked schedule.

ARCHITECT
Perkins+Will
Vancouver, BC

CLIENT
Vancouver Board of Parks and Recreation
Vancouver, BC

STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

MECHANICAL/ ELECTRICAL ENGINEER
Cobalt Engineering
Vancouver, BC

CIVIL ENGINEER
R.F. Binnie & Associates
Burnaby, BC

CONSTRUCTION MANAGER
Ledcor Construction
Vancouver, BC

PHOTOGRAPHY
Nic Lehoux
Vancouver, BC

Jurors

(From left to right) Betsy Williamson, David Moses and Lloyd Hunt

LLOYD HUNT
Principal
LLOYD HUNT ARCHITECT
www.lloydhuntarchitect.com

DAVID MOSES
Principal
MOSES STRUCTURAL ENGINEERS
http://mosesstructures.com

BETSY WILLIAMSON
Founding Partner
WILLIAMSON CHONG ARCHITECTS
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ONTARIO

GREEN BUILDING

Wood minimizes already low environmental footprint and maximizes quality of work environment

Vale Living with Lakes Centre

J.L. Richards & Associates Limited in association with Perkins+Will

Laurentian University in Sudbury, Ontario, is home to one of the most environmentally sustainable laboratory buildings in the world: the Vale Living with Lakes Centre (LWLC). This graceful building on the shores of Ramsey Lake houses a unique client. The users within the building form an organization called the Cooperative Freshwater Ecology Unit (Co-op Unit). This group of biologists from Laurentian University, the Ontario Ministry of Natural Resources, and the Ontario Ministry of the Environment, studies and monitors local watersheds, with expertise in industrially damaged water systems. The Co-op Unit has become a world-renowned scientific organization. The project's goals were to raise the bar for sustainable design and create a place that holds northern Ontario at its core.

The project accommodated one important programmatic requirement above all: change. The interior spaces needed to be flexible and functional. They needed to be able to grow and shrink in the same way research budgets and related staffing and student numbers grow and shrink from year to year. In addition, the building design had to accommodate climate change. The design team was provided with climate models projecting altered conditions due to climate change to 2050. No building, to the team's knowledge, has been asked to accommodate this type of change.

As well as being a centre of excellence for critically important ecological research, the Vale Living with Lakes Centre is an extraordinary building with an exceptionally low environmental footprint. The project makes extensive use wood products harvested and manufactured close to Sudbury, including structural, framing and decorative wood products.

The Platinum LEED-certified Living with Lakes Centre has a second building, also located on the shore of Ramsey Lake on the Laurentian University campus. The smaller Watershed Building is a one-story building used for sample collection and cleaning, equipment storage and for launching and receiving field crews. The two-storey Living with Lakes Centre, the subject of this profile, houses offices and laboratories and has room for approximately 80 faculty members, staff and students in 28,000 sq.ft. The building responds to the topography and shoreline of the site, with mechanical and custodial spaces located on the parking lot side of the building and laboratory areas and offices facing the lake.

The structure of the Living with Lakes Centre is glulam post and-beam construction with wood-framed infill walls and solid wood floor and roof decking. The glulam beams and columns were factory-finished with a clear protective coating. The wood frame walls have infill batt insulation and exterior rigid insulation. The upper portions are clad with eastern white cedar siding positioned to provide a drainage plane behind it. The cedar was left to weather naturally. The interior spruce-pine glulam columns extend the full height of the building and the columns on the exterior extend floor-to floor. The columns vary in size.

Efforts were made to minimize the quantity of steel required for the connections. Many of the column-to-beam connections used glued-in rebar. This allowed the rebar to be embedded in the members at the glulam plant. The connection was completed on-site using epoxy adhesives. In cases where the loads were too high for this type of connection, a steel plate connection was hidden in the beam ends.

The foundation-to-column connections are comprised of a steel plate embedded in the concrete that extends up through the centre of the columns and is bolted to the glulam. The roofs of both buildings are vegetated green roofs. The plantings are blueberry shrubs which are native to the area.

Construction began in June 2009. Erection of the wood superstructure began in January 2010 and second floor framing was completed in a month. Prefabricated exterior shear wall panels were installed in two weeks. Wood siding was installed in April. The centre was ready for occupation in March 2011 and officially opened August 25, 2011.

The LEED credit for having at least 20 per cent of the materials used sourced within a radius of 500 miles was easily met because of the quality of the local materials that were available. The glulam members and framing lumber were FSC-certified materials from northern Ontario and Quebec; the eastern white cedar used for the louvered cladding was sourced and milled on nearby Manitoulin Island, and the red pine FSC-certified decking used for the second floor and roof was milled in Thessalon, Ontario, close to Sudbury. The cabinetry and millwork is maple veneer on a particleboard substrate. The urea formaldehyde-free and FSC-certified particleboard came from Quebec while the panels were laminated in Thessalon.

The Vale Living with Lakes Centre vastly increases the capability of Laurentian

University to champion the protection, remediation and restoration of freshwater lakes and ecosystems. The complex reduces energy and water consumption significantly compared to conventional modern buildings. Wood products are used extensively to meet or exceed all building code requirements and provide a warm, congenial working environment.

ARCHITECT
J.L. Richards & Associates Limited in association with Perkins+Will Canada Architects Co.
Sudbury, ON / Vancouver, BC

STRUCTURAL ENGINEER
J.L. Richards & Associates Limited in association with Fast + Epp
Sudbury, ON / Vancouver, BC

MECHANICAL ENGINEER
J.L. Richards & Associates Limited in association with Stantec
Sudbury, ON / Vancouver, BC

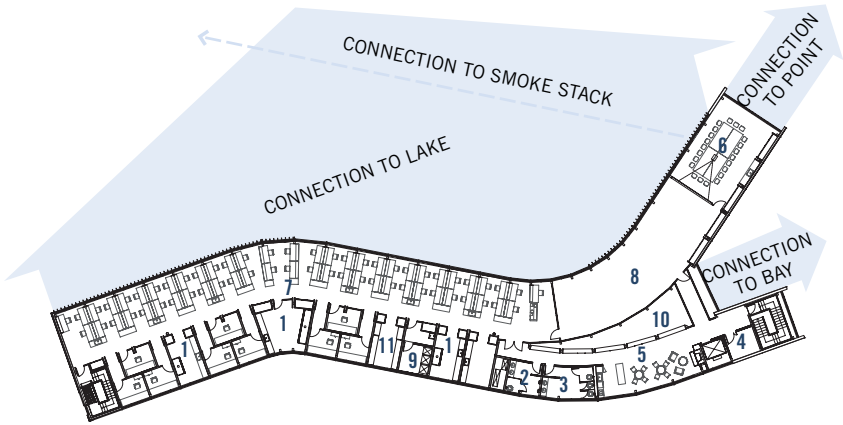
ELECTRICAL ENGINEER
K. Lang Engineering Ltd.
Sudbury, ON

CIVIL ENGINEER
J.L. Richards & Associates Limited
Sudbury, ON

GENERAL CONTRACTOR
Tribury Construction
Sudbury, ON

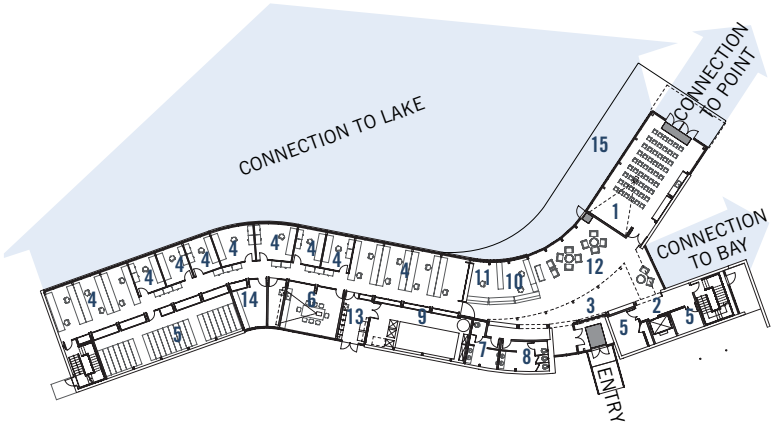
LANDSCAPE ARCHITECT
PWL Partnership Landscape Architects Inc.
Vancouver, BC

PHOTOGRAPHY
Tom Arban Photography
Toronto, ON



1. fumehood
2. men's restroom
3. women's restroom
4. I.T.
5. lounge
6. teaching lab
7. wet labs
8. dry lab
9. mechanical room
10. open to below
11. storage

SECOND FLOOR PLAN



1. mulitpurpose room
2. elevator/lobby
3. lobby
4. offices
5. storage
6. meeting
7. men's restroom
8. women's restroom
9. mechanical room
10. reception
11. admin.
12. lounge
13. recycling
14. copy
15. terrace

GROUND FLOOR PLAN

INSTITUTIONAL COMMERICAL <$10M

Locally salvaged wood brings new life to public space

Kingston Park Revitalization

Brown and Storey Architects Inc.

The Kingston Park project – its buildings and urban design – is a dramatic revitalization of a 17-acre, open space formed largely as the internal part of a residential sub-division created 40 years ago in the city of Chatham. With 85 per cent of its edges bounded by backyards and a considerable area underutilized, the Municipality of Chatham-Kent has created an ambitious new programme including a major water feature, picnic/washroom/park office pavilions, multi-purpose pathways, lighting, and extensive planting that make it a truly revitalized public space.

The new elements have been used as catalysts to recharge the park through full integration of architecture, landscape and water feature design. The project uses each of the typical elements of parks – the washroom building, the picnic shelter, the splash pad and the open spaces – to create an open space that has attracted thousands of new visitors.

The utilitarian concrete block washroom building has been replaced with an elegant community structure that houses an efficient interior plan for changerooms, washrooms and a separate park office. The structure also creates a "middle space" with long, extended loggias. These loggias are located at all faces of the structure making bonus outdoor rooms that are used extensively for community programming. The open wood structure recalls the important agricultural heritage of southwestern Ontario through the imagery of traditional "corn cribs" that still dot the landscape of Chatham-Kent.

Set slightly up from the essentially level park grade, the community pavilion has a unique vantage point over the three elements of the water feature – a toddlers' mist garden and more traditional splash pad tied together with a "forest" of geysers creating a 60-meter long allée of water. The hill overlooking the pavilion has been remolded and equipped with wood / earth landscape steps for easier access to the new hilltop destination of a faux ruin of low walls with a solar-powered LED fixture.

The community pavilion structure has been faced with custom-milled ash that was drawn from ash trees lost to the Emerald Ash Borer. The locally salvaged ash is a very strong hardwood and perfect for furniture. Although it's more difficult to work with in built construction, ash is a hardy facing material for this highly animated public space. All the wood was also locally milled with emphasis placed on maintaining the rough-hewn characteristic of the boards. The large size and thickness of the milled boards lends a greater presence and effect when the building is viewed from a distance. A simple, natural and transparent stain was used to finish the wood for ease of maintenance and to preserve the natural color and quality of the wood.

The use of the lost ash trees was an important beginning point for Kingston Park. The environmentally focused design includes pathways created from recycled concrete pool decks from locations in the city, new LED lighting in the parking lot that allows for its multi-use as basketball and tennis courts, and the major multivalent water feature that uses a full recycling system housed in the lower level of the pavilion.

The Kingston Park Revitalization seamlessly integrated new infrastructure with the natural landscape to produce a beautiful and eco-friendly park. From the natural heritage of southwestern Ontario's Southern Carolinian forests to the prominent use of locally salvaged ash, wood played an important role in the renewal of this public space.

ARCHITECTURE AND PARK/SITE DESIGN
Brown + Storey Architects Inc.
Toronto, ON

CLIENT
Municipality of Chatham-Kent

GENERAL CONTRACTORS
Phase 1 Site Services –
Clarke Drainage Limited
Blenheim, ON

PHASE 2 PAVILIONS + LANDSCAPE – INTREPID GENERAL LIMITED
Chatham, ON

STRUCTURAL ENGINEER
Y. C. Liu Engineering
Chatham, ON

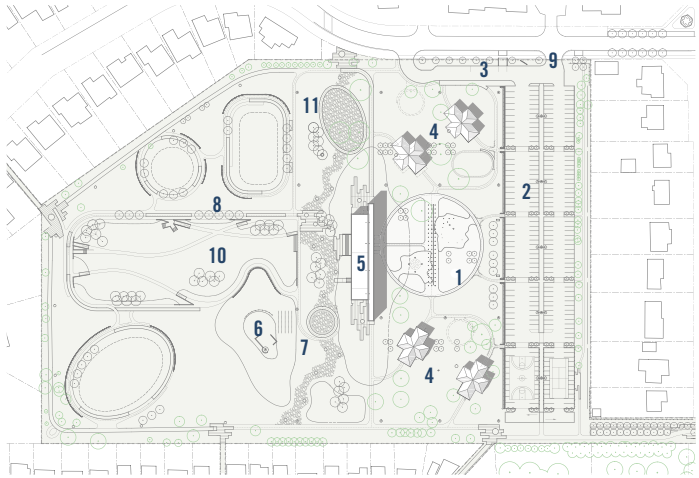
MECHANICAL/ ELECTRICAL ENGINEER
Vanderwesten Rutherford Mantecon
London, ON

CIVIL ENGINEER
Thames Valley Engineering
Chatham, ON

LANDSCAPE ARCHITECT
Scott Torrance Landscape Architect Inc.
Toronto, ON

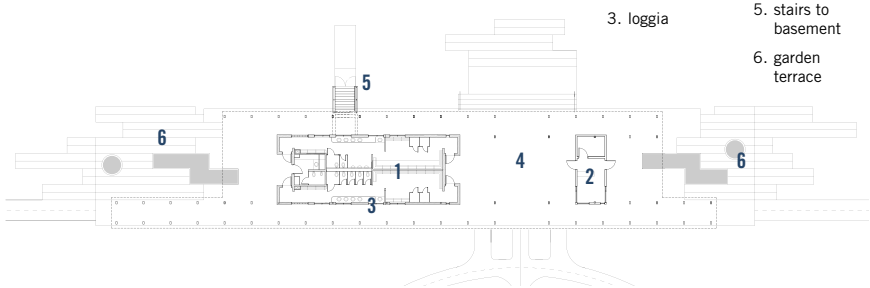
WATER FEATURE DESIGN
Dan Euser Waterarchitecture Inc.
Richmond Hill, ON

PHOTOGRAPHY
Brown + Storey Architects Inc.
Toronto, ON



1. regional water play area
2. parking
3. bus parking
4. picnic pavilions
5. park restroom pavilion and community structure
6. raised park mound
7. amphitheatre
8. linear park and tree circuit
9. pedestrian entrances
10. raised central terrace
11. central commons

SITE PLAN



1. restroom building
2. park office
3. loggia
4. common covered space
5. stairs to basement
6. garden terrace

FLOOR PLAN

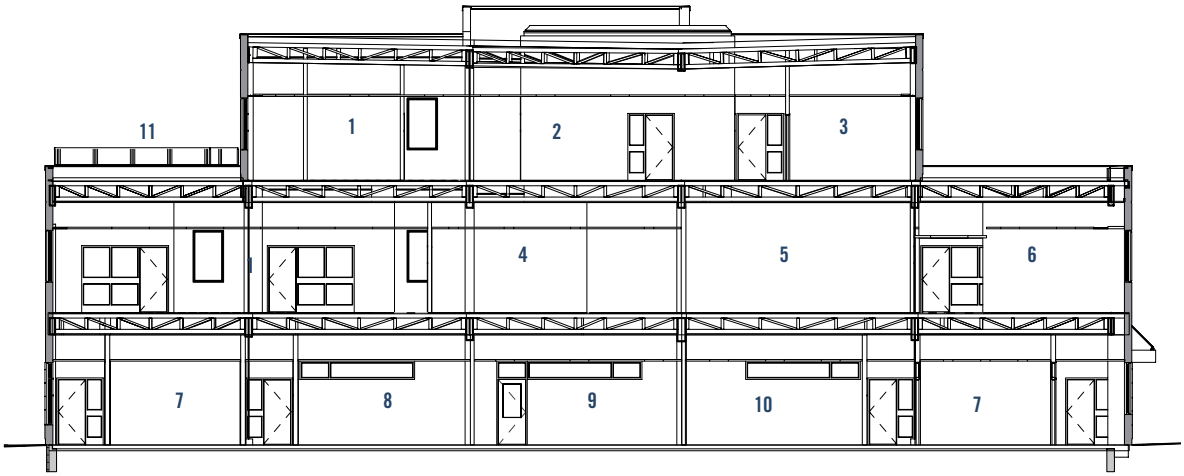
INSTITUTIONAL COMMERICAL >$10M

Structural and decorative wood components provide a bright, positive atmosphere for staff and clients

District of Thunder Bay Social Services Administration Board Office

FORM Architecture Engineering


231 South May Street



BUILDING SECTION: NORTH/SOUTH

1. south staff area
2. central staff area
3. manager
4. files
5. server
6. work room
7. interview
8. computer
9. learning
10. training b
11. roof top terrace

The District of Thunder Bay Social Services Administration Board delivers services to 13 communities in northwestern Ontario. To help clients achieve self-sufficiency, the board provides various forms of assistance to seniors, children, people with addictions, and also administers social housing programs.

In March 2012, the board's ability to help people was greatly enhanced by the opening of a new building in the Thunder Bay central business district. Before the new building was constructed, services were delivered from three substandard locations, an arrangement that often required clients to travel from one location to another to get help.

Initial resistance from the local community to bringing social services clients into the business district has dissipated. Instead, it appears that the public and social services clients view the bright, progressive building as a positive influence. In addition, staff absenteeism has decreased.

The building is wood post and beam construction with wood frame floors and infill walls. Glulam columns were left exposed. This aesthetically pleasing expression of the structure, combined with wood millwork and doors, provides a bright, positive atmosphere for staff and clients.

The slab-on-grade foundation is supported by end-bearing piles.

The relatively light weight of the wood superstructure reduced foundation costs compared to what would have been required for a concrete or steel superstructure. A high water table did not permit below grade parking on the site so parking is provided on an adjacent lot.

The main floor houses client reception, waiting, interview and meeting rooms as well as a kitchen and lunch room that is also used for vocational training. All client/staff interaction takes place on the main floor in a secure environment. A separate staff entrance provides access to the second and third floor administration areas and separate secure access to the interview rooms on the main floor.

Beyond the architectural and structural design considerations unique to the site and the structure, the project also required careful planning to overcome staff resistance to the amalgamation of services into one building and the consolidation of duplicated services including reception and accounting. Interaction with the staff during the design process was essential for achieving acceptance of the merger. In addition, the scope of the social services provided by the board was expanding. The building layout has been carefully planned to offer privacy and dignity to clients while providing safety and security for staff during client interactions.

To create an inviting and relaxed atmosphere for clients and staff, the building makes optimum use of natural light with large windows and a skylight shaft that admits light to the mid-floor areas of the second floor. Nine-foot ceilings add a feeling of spaciousness. Photovoltaic

solar panels generate on-site power and also provide shade to the ground-floor, south-facing windows.

The layout of the second and third floor office areas equalizes the quality of the open-plan workstations. The workstations are located around the perimeter so that all staff have access to natural light and outdoor views.

Building Information Modelling (BIM) was an integral part of the design solution. The building was conceived as a two-story structure, but the architect was advised that the building needed to be capable of a third floor addition if the client's user requirements changed. Indeed, when the design was 95 per cent complete, the architect was instructed to add the third floor and make layout changes to the second floor. The use of BIM as well as wood construction meant the redesign was done with only a one-month delay in the schedule.

Structural wood components were used throughout the building. In addition to the exposed glulam columns that can be seen on all three floors, wood trusses and wood-framing were used for all exterior walls, interior partitions, floors and the roof. All wood products, including the glulam, were standard stock materials. In addition to the exposed columns, the building makes generous use of wood doors and millwork to provide the desired appearance and ambience.

In the reception area, the desk is constructed of a plastic laminate over particle board with solid wood bullnoses and horizontal trim. The large, custom designed way-finding signage throughout the building was made locally from MDF covered with a wood veneer. The linoleum floor has simulated wood accents to blend with the colour and tone of the room. The suspended feature ceiling at the desk is cherry. Horizontal maple trim has been applied to the walls throughout the building to achieve visual continuity. The doors are maple veneer with a clear finish that highlights the warmth and beauty of the wood grain.

The elevator shaft wall is designated ULC W301 and has a fire resistance rating of one hour. It is comprised of 2 x 6 studs with Type X gypsum board on both sides and batt insulation in the cavity in order to achieve the required fire and sound ratings. The use of wood for the elevator shafts minimized the potential for differential movement between the shafts and the rest of the structure.

The new building is an important step for amalgamating and enhancing the delivery of social services in the region. The building's extensive use of exposed structural elements and wood finishes provides a welcoming, upbeat atmosphere for clients and service providers.

ARCHITECT
FORM Architecture Engineering
Thunder Bay, ON

STRUCTURAL ENGINEER
FORM Architecture Engineering
Thunder Bay, ON

MECHANICAL ENGINEER
Cuthbertson Engineering
Thunder Bay, ON

ELECTRICAL ENGINEER
AG Engineering
Thunder Bay, ON

CIVIL ENGINEER
Hatch Mott MacDonald
Thunder Bay, ON

GENERAL CONTRACTOR
Finnway General Contractor Inc.
Thunder Bay, ON

GLULAM SUPPLIER
Western Archrib
Edmonton, AB

INTERIOR DESIGN
FORM Architecture Engineering
Thunder Bay, ON

PHOTOGRAPHY
FORM Architecture Engineering
Thunder Bay, ON
Barry Wojciechowski Photography
Thunder Bay, ON

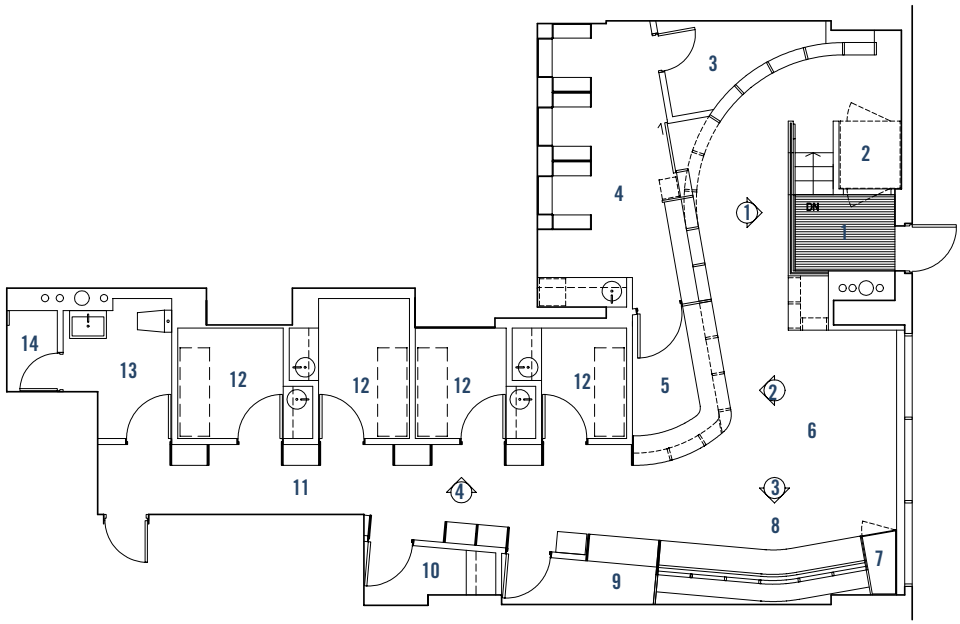
INTERIOR

Traditional millworking methods and new technologies craft a space of flowing maple

Metropolitan Pharmacy

JET Architecture Inc.

Located within a high rise residential development in a bustling area of downtown Toronto, the Metropolitan Pharmacy provides boutique services to patrons in its immediate area. The pharmacy and medical clinic fits into a compact 1,500 sq.ft. with a ceiling height of 21 feet and a level change. The pharmacy and medical clinic are commercial typologies that have often been kept separate. This project combined the two services, taking advantage of the unique opportunity to define a brand for this new business venture.



FLOOR PLAN

Three-quarter inch maple plywood veneer was used for the majority of millwork. Maple was the ideal building material because of its versatility, structural strength and aesthetic warmth. At 16 feet high, the millwork forms an organically curved grid of product shelving that composes the space and defines its flow. The pharmacy is comprised of a dispensary, service counter, counselling booth and storage area, while the clinical component includes four exam rooms, a waiting area, reception desk and an office. Common to both is the accessible washroom. The contoured grid of millwork guides the flow of space from entering the pharmacy to waiting for a medical appointment to having a prescription filled.

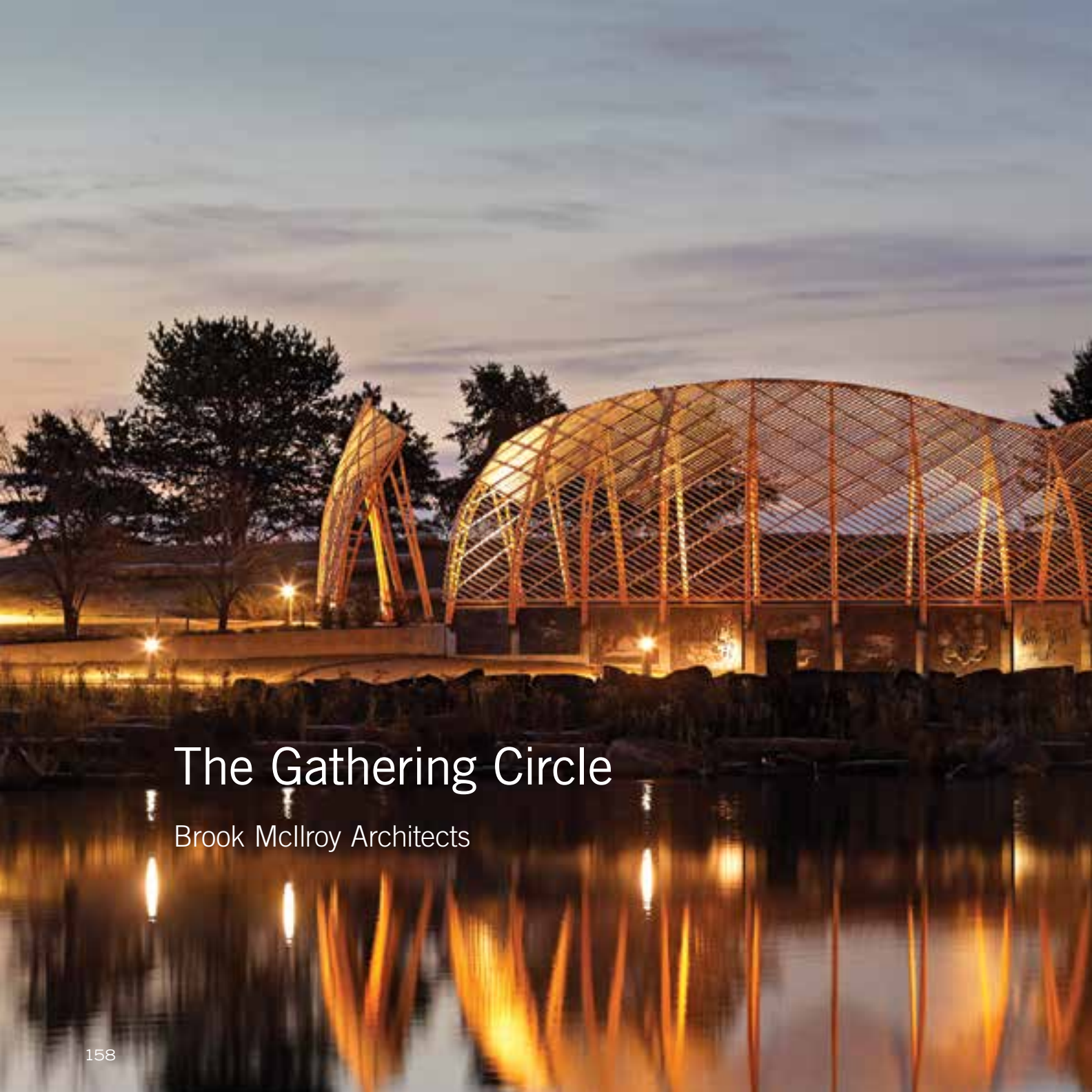
The interior fit out combines traditional millworking methods with leading-edge industrial technologies. A computer model was used to explore various design options. The final design used building information modelling (BIM) to map out the components of the millwork for cutting with a CNC (computer numerical control) router. Millwork components were kept to a maximum of eight feet in order to work with the standard plywood sheet dimension of 4 x 8.

ARCHITECT
JET Architecture Inc.
Toronto, ON

CLIENT
Metropolitan Pharmacy
Toronto, ON

GENERAL CONTRACTOR
Shing-Fai Woodworking and Renovation
Toronto, ON

PHOTOGRAPHY
Roger Rainer
Toronto, ON



The Gathering Circle

Brook McIlroy Architects

JURY'S CHOICE

Open-air pavilion connects to the earth with trusses made from locally harvested wood

The Gathering Circle is an open-air pavilion within the Spirit Garden at Prince Arthur's Landing, part of Thunder Bay's downtown waterfront. The Spirit Garden is a headland extending into Lake Superior and is one component of a larger revitalized public park. The Gathering Circle is the main structure within the Spirit Garden, and gives expression to the deep cultural and historic roots that link Aboriginal peoples to the Lake Superior shoreline.

The Circle's design reflects an adaptation of a traditional Aboriginal bentwood building technique, using modest means of construction and sustainable building practices. Spruce trees were harvested in the spring by a local Aboriginal craftsman and were bent and lashed to create 20 arched, truss-like column supports. The trusses were installed around the Circle and clad with a lattice of laminated local cedar, creating a semi-enclosed shroud over the structure. The platform is a drum-shaped concrete retaining wall that also provides seating for viewers around the Circle. Four landscape elements extend from the circle, orienting the Gathering Circle and reinforcing the symbolism of the turtle when viewed in plan or from the sky. A main pedestrian path connects with the Circle's archway entrance at the cardinal east and west points, inviting visitors in, while a footpath circulates underneath and between the 20 bentwood arches. The pattern echoes imagery associated with Anishinabe woodland art. The design was created through a collaboration between Brook McIlroy and a young Aboriginal

intern architect/artist, Ryan Gorrie from Thunder Bay. The exterior north wall of the Circle is lined with 10 laser-cut steel panels designed by local Aboriginal artist Randy Thomas.

The Gathering Circle tucks into the south hillside of the Spirit Garden landscape providing a natural amphitheater configuration with large, reclaimed ash tree logs draped across the hillside, providing seating and an elevated view into the Circle. The shroud is a "light-catcher," a patterned surface of overlapping, divergent planes that enables views through its wooden frame onto the adjacent waterfront as well as the city's downtown. By night, a network of soft lighting highlights the curved, luminous shell form that can be seen from many vantage points throughout the city. The cedar shroud transforms depending on the season and time of day – reflective of the profound beauty and spiritual resonance of Lake Superior's north shore.

Thunder Bay has a significant Aboriginal population, yet the presence of this founding culture (which has inhabited this shoreline for 9,000 years) in the fabric of the cityscape is virtually invisible. The design of the Circle evolved from a series of workshops hosted by the city that drew together community representatives from Fort William First Nation, communities of the Robinson Superior Treaty and Red Sky Métis. The Gathering Circle gives expression to a rich culture and strives to serve as a common ground – a place of meditation, mediation and celebration – gathering together all cultures. The 80-ft. diameter space provides the city's residents and visitors with an event space for ceremonies, blessings, music, storytelling, theater and gatherings. The Gathering Circle reflects Aboriginal concepts of inclusion, peaceful co-existence and respect for the natural world and showcases adaptations of traditional building methods.

ARCHITECTS
Brook McIlroy Architects
Toronto, ON

Ryan Gorrie
Thunder Bay, ON

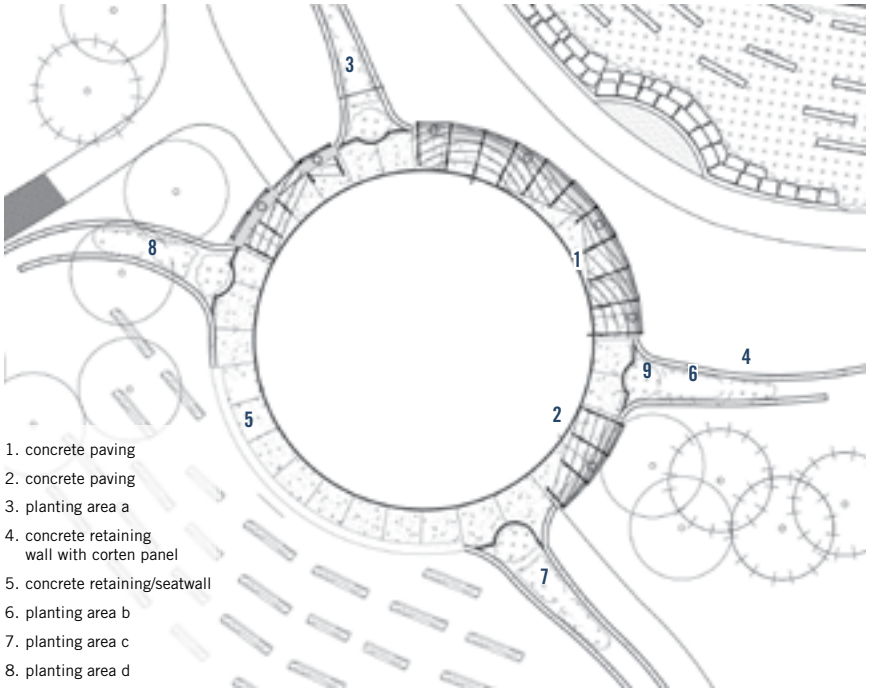
STRUCTURAL ENGINEERING
Blackwell Bowick Partnership Ltd.
Toronto, ON

GENERAL CONTRACTOR
Wilco Superior Contractors Inc.
Thunder Bay, ON

CONSTRUCTION OF BENTWOOD TRUSSES
George Price

BENTWOOD TRUSS INSTALLATION AND EXTERIOR CEDAR CLADDING
Man-Shield Construction
Thunder Bay, ON

PHOTOGRAPHY
David Whittaker
Toronto, ON



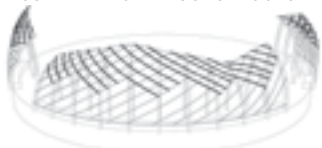
1. concrete paving
2. concrete paving
3. planting area a
4. concrete retaining wall with corten panel
5. concrete retaining/seatwall
6. planting area b
7. planting area c
8. planting area d
9. focal planting area

SITE PLAN

ERECT BENT WOOD TRUSSES

ASSEMBLE TOP & BOTTOM RAILS

ASSEMBLE LOWER SUBSTRUCTURE



ASSEMBLE UPPER SUBSTRUCTURE

MULTI-UNIT

Four-story boutique condo appeals to a young, hip buyer

360 Lofts Condominium

Farrow Dreessen Architects Inc.

360 Lofts Condominium is an upscale boutique condominium development in Ottawa's trendy Byward Market. The building features 38 units on a tight urban infill site. The building is tight to the lot line on two sides and, through a careful interpretation of the building code, the ground floor is elevated almost a full story above the street. This allows the building to adhere to the current Ontario Building Code limit of four stories (plus a mezzanine) and have the appearance of a six-story building from the street.

Much of the surrounding area has been undergoing gentrification over the years. High rise condominiums across the street and beside the project site contrast with older buildings, heritage housing stock and assisted/transitional housing. The Byward Market is a trendy area filled with boutique restaurants and shopping as well as a seasonal farmers market. It is a central hub for public transit and is near plentiful parks, walking paths and easy access to major employment centers in downtown Ottawa, Parliament Hill, and the University of Ottawa.

The design of the building used the site development limits to maximum effect. This resulted in a straightforward double-loaded corridor served by an elevator and stairwell at one end and an exit stair at the other. Individual units are open concept, highly efficient layouts with compact bathrooms, combined living/dining and kitchen areas and modest bedrooms. Most units are in the range of 400 sq.ft., with some units as small at 350 sq.ft. The largest unit is more than 600 sq.ft. Space savings in common areas facilitated efficient suite layouts and provided opportunities to highlight design elements including the exposed glulam column at the front entrance. Carefully detailed cladding and projecting elements around certain windows and doors provide eye-catching features.

The overall form of the building evolved with direct participation of the developer. Key design elements such as the projecting third floor volume and resultant covered entry forecourt, material selections and roof terrace design were developed in a close relationship born out of a collaborative working friendship.

Detailing of the building elements emphasized constructability and reliability over the long term, particularly important in the highly regulated condominium environment. For example, the galvanized steel balconies at the rear of the building were designed to minimize penetration of the air barrier and reduce thermal bridging. The front balconies were designed to act almost as vertical blinds by using deep steel plates as pickets to create privacy for occupants from the busy street and nearby buildings.

Overall, the regularized form and structure of the building elements such as balconies, units and the overall floor plate allowed maximum efficiency of material use and reduce the opportunity for construction error. Thorough detailing and documentation resulted in an expedited construction process with few site changes.

During the planning approval of the project, numerous media agencies covered the design concept and planning approach, including the use of wood as the major construction element. This led to an engaging debate in the media on the use of wood in this type of project and provided the architects with an opportunity to explain the benefits of wood construction to a broader audience. The resultant building is an excellent example of high-quality design for infill development that sets the bar for mid-rise modern development.

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MECHANICAL/ELECTRICAL ENGINEER
Chiarelli Engineering
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CIVIL ENGINEER
DB Gray Engineering
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BUILDER
Tega Developments
Ottawa, ON

DEVELOPER
Surface Developments Inc.
Ottawa, ON

PHOTOGRAPHY
MIV Photography
Ottawa, ON

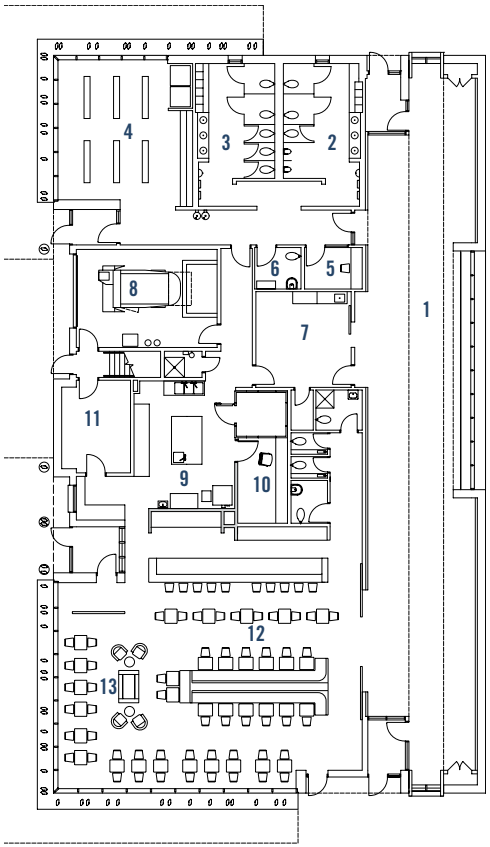
Building encourages visitors to Thunder Bay's waterfront to get close to wood

Water Garden Pavilion

Brook McIlroy

The Water Garden Pavilion is a central building of the revitalized Thunder Bay waterfront. The pavilion provides washrooms, changing facilities and a warm-up room/rest area for adjacent recreational uses, such as the splash pad/skating rink, children's boat pond and skateboard park. In winter 2012, Bight Restaurant opened within the pavilion, providing panoramic views of Lake Superior and the Sleeping Giant.

Also inside, Mariner's Hall is a multi-purpose space designed to host events, exhibitions and summer day camp activities. The pavilion is designed as environmentally sustainable, using measures such as passive heating and cooling, solar energy, green roof, and recycled content building material.



FLOOR PLAN

1. Mariner's Hall
2. men's change/restroom
3. women's change/restroom
4. the lodge
5. office
6. family restroom
7. support room
8. ice resurfacer garage
9. kitchen
10. future kitchen amenities
11. garbage/recycling room
12. the clearing
13. the hearth

1. water garden pavilion & skating rink/splash pad
2. baggage building arts centre
3. piers 1 & 3 with beacons
4. children's pond pavilion
5. pier 2 – picnic docks & viewing circle
6. market square & waterfront plaza
7. market building
8. CN station
9. hotel (8-story)
10. residential buildings (7-story)
11. spirit garden

SITE PLAN

The pavilion demonstrates how wood can be used to soften the sometimes austere aesthetic of modern buildings. On the pavilion's exterior, ash wraps a series of HSS (hollow structural sections) columns, framing the south, southwest, and southeast elevations. These wood-clad columns support the dramatically extended black ash soffits. The construction method for the column cladding was developed with the fabricator over the course of the project through detailed drawings, mock-ups, as well as tests of different assembly options.

An informal seating and rest area for visitors is created around the south and southwest elevations, providing views of the skating rink/splash pad, marina and Lake Superior. Ash also frames the pavilion's doorway entrances and windows, softening the use of brick and surrounding concrete of the waterfront.

Wood products used include: black ash columns, soffit, exterior cladding and doors; glulam pine structural beams (within Mariner's Hall); ash interior millwork, doors, frames, and cladding; and walnut acoustic ceiling.

The building encourages visitors to get close to wood. Its use was a contributing factor in the project's LEED Gold certification; a demonstration of how wood can help achieve sustainable design.

ARCHITECT
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Thunder Bay, ON

CLIENT
City of Thunder Bay

STRUCTURAL ENGINEER
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Toronto, ON

MECHANICAL/ELECTRICAL ENGINEER
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Thunder Bay, ON

GENERAL CONTRACTOR
Tom Jones Corporation
Thunder Bay, ON

SUSTAINABLE BUILDING CONSULTANT
CDML
Toronto, ON

PHOTOGRAPHY
Brook McIlroy
Thunder Bay, ON

John Nistico
Thunder Bay, ON

David Whittaker
Toronto, ON


Hearst

Northern Ontario project uses only locally produced wood and energy to meet its needs

Inovo Centre

PBK Architects

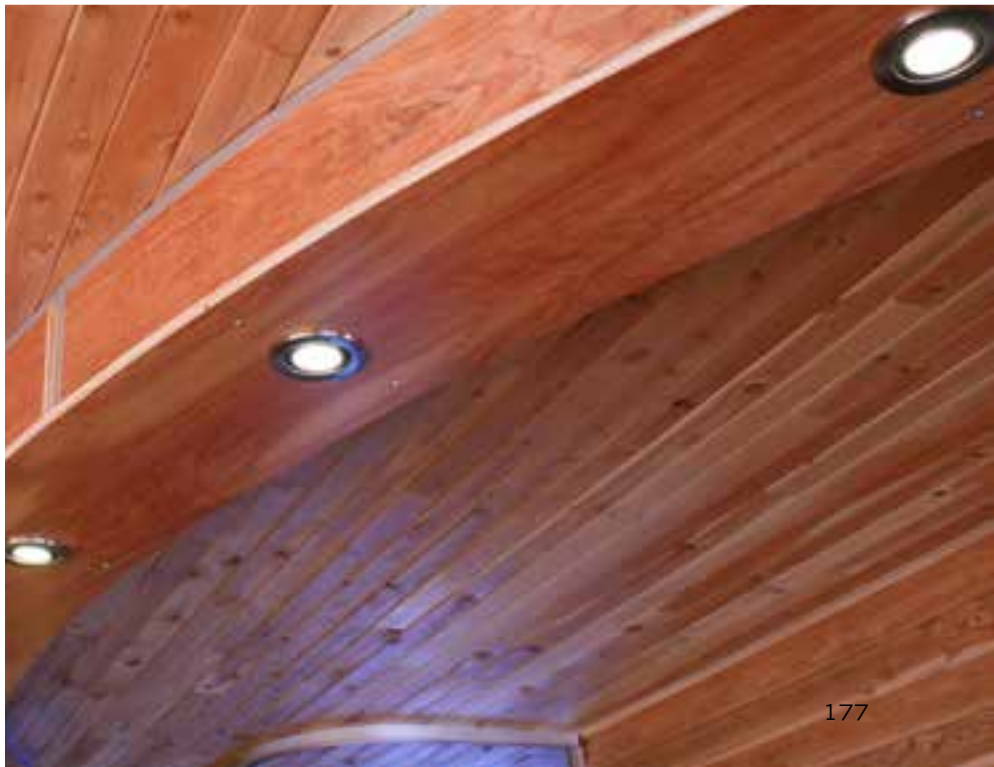
The Inovo Centre, located in Hearst, Ontario, is an exciting and innovative addition to the Gilles Gagnon Welcome Centre that showcases a unique "made in Hearst" approach to wood construction, use of materials and energy supply in a modern building.

The building frame is comprised of wood studs, laminated columns and a "truss wall" concept in the glazed exhibit area. The exterior stud partitions are sheathed with oriented strand board (OSB). The truss wall system features large glazed panels and is constructed of built-up wood members comprised of a combination of structural grade SPF 2 x 6s, 2 x 8s and 2 x 10s to give the members a unique tiered appearance. These angled members and the similarly constructed vertical columns in the center of the building support white spruce rough lumber trusses that were pre-constructed near the site using steel-bolted truss plates. These trusses in turn support a roof deck composed of laminated SPF 2 x 4s.

The multimedia centre, mechanical display area and offices have similar roof trusses. The roof deck in this area is made with laminated layers of locally manufactured plywood that has been finished with a laminated layer of birch veneer plywood applied to the underside, thus revealing a completely finished ceiling surface. All walls are constructed of wood studs and sheathed with birch veneer panels as the interior finish. The wood features of this building are not limited to framing and birch veneer plywood panels: in one area, the ceiling showcases exposed wood joist framing.

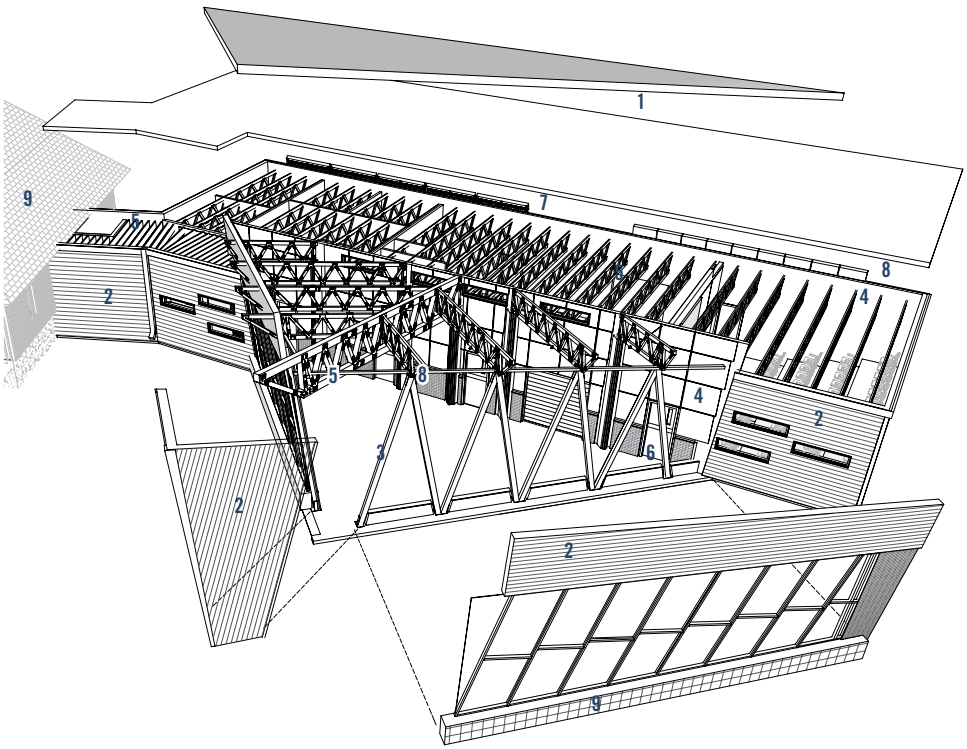
The exterior of the building is clad with rough sawn white spruce siding, stained with appropriate colors to reflect the center's affinity with nature and its tribute to green technologies. The interior surfaces of the outside walls of the exhibit area are clad with tamarack siding with a clear finish. The birch plywood wall panels and ceiling panels are finished with a UV-laminated coating produced by a local panel manufacturer.

In the reception area, the original building has been completely refurbished with wood finishes again being one of the main features. The ceiling is finished with natural cedar planking that has been harvested and milled locally. The floor in this area is constructed of cut tongue and groove tamarack plank flooring with a urethane finish. To complement the floor and ceiling finishes, the reception counter is constructed of birch veneer plywood.



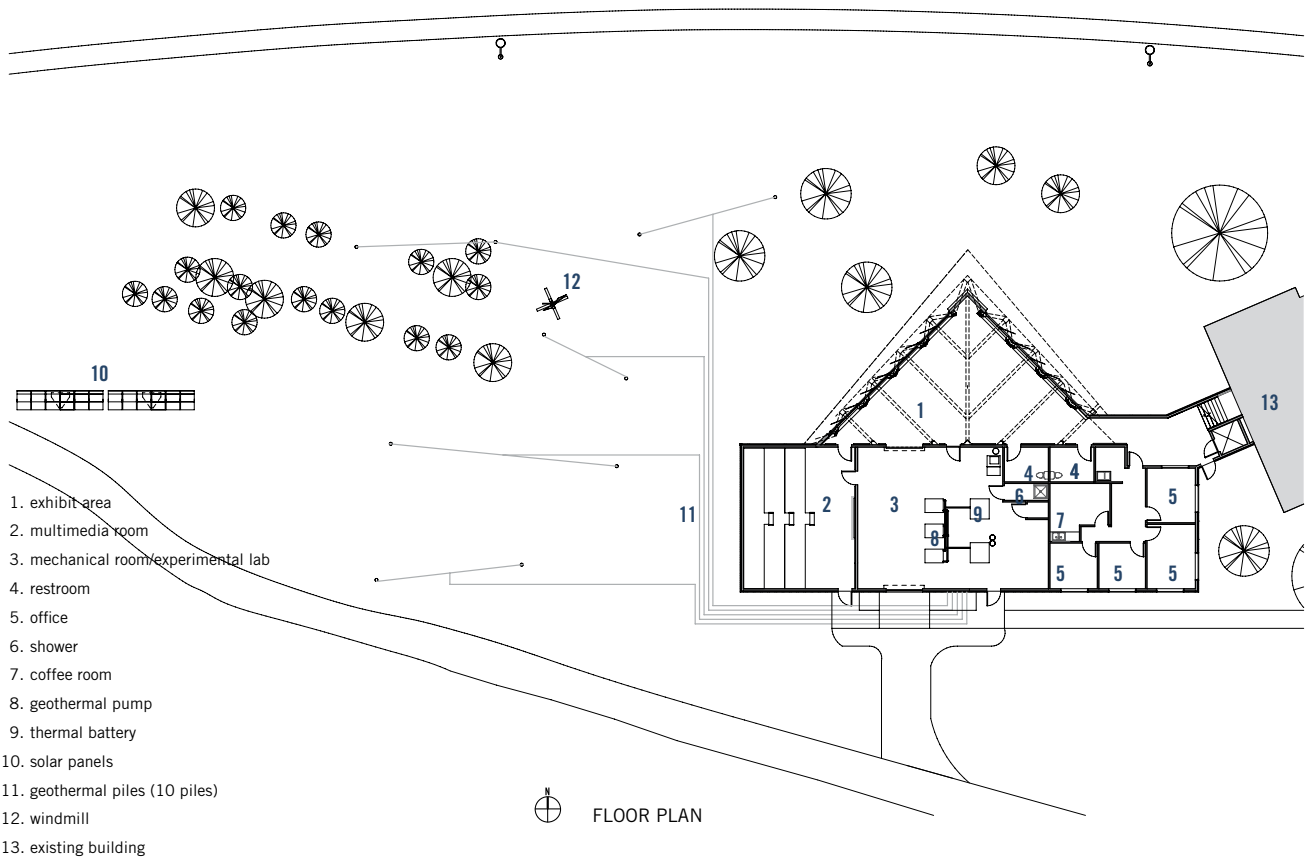
In addition to the local framing, wall and ceiling finishes that were used, the design-builder also manufactured custom interior panel doors with SPF select structural rails and stiles and birch veneer plywood panels.

Although this building was not specifically built to pursue LEED certification, many LEED concepts were incorporated into its design and construction including the upgrades to the original building. Local "sponge stone" was used for feature panels in the reception counter while the exterior stone veneer at the base of the windows is from another quarry in the region. Recycled materials were also used, including the recycled stone veneer on the interior panels and the recycled telescopic bleachers in the multimedia area.



AXONOMETRIC VIEW

1. roof deck – constructed of vertical laminated SPF 2 x 4's
2. rough sawn white spruce lumber siding
3. columns are a combination of laminated spf 2 x 6's, 2 x 8's and 2 x 10's
4. UV laminated birch plywood with galvalume trims
5. white spruce rough lumber trusses
6. doors are a combination of SPF select 2 x 4's with UV laminated birch plywood
7. solar thermal panels
8. preheat solar panels for ventilation air
9. existing building



FLOOR PLAN

The building's energy needs are met by a diverse group of well-coordinated systems that include a wind turbine, photovoltaic panels, solar thermal panels, jumbo panels (panels that preheat ventilation air), solar lighting tubes and geothermal ground source heating. Computerized controls co-ordinate all of the energy systems that integrate wind with solar, and solar with geothermal, boosted by light collection tubes that provide natural light during the day. Batteries store energy to meet 24-hour operational requirements. Each of these functioning, alternative energy systems also performs an important educational function: they serve as a demonstration project for alternative energy solutions, attracting tourists and local residents alike.

This project is a true product of northern Ontario. One hundred per cent of the wood products used in the construction of the Inovo Centre were locally produced and the building uses wind, sunlight, and geothermal energy resources to heat, cool, illuminate and power it.

ARCHITECT
PBK Architects
Timmins, ON

STRUCTURAL ENGINEER
Genivar Inc.
Toronto, ON

DESIGNERS/BUILDERS
Bâtisseurs Stratégik Builders Inc.
Hearst, ON

PHOTOGRAPHY
Jamie Boilard
Miguel Morneau

RESIDENTIAL

Sustainable and healthy approach to building helps client with allergies

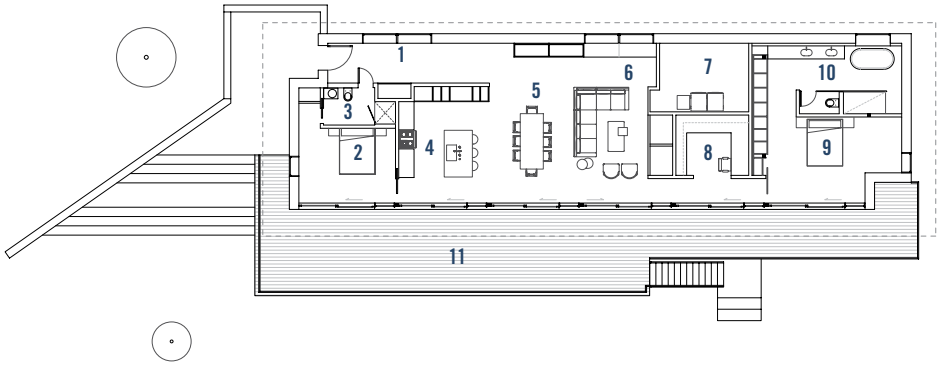
+HOUSE

superkül

Designed for a client with acute environmental sensitivities, +HOUSE is the manifestation of a sustainable and healthy approach to building that does not sacrifice design.

Located in Mulmur, Ontario, this four-season house is designed to minimize its environmental impact and to integrate with the natural surroundings. Use of wood was central to achieving both of these goals. Located in a valley facing the banks of a stream-fed pond, the site is characterized by its abundant vegetation and a unique micro-climate. Sited on the footprint of a previous home, +HOUSE is nestled into a slope that rises to the north and its green roof angles back toward the hill, extending the natural slope. Extensive 10-ft. high lift-and-slide doors offer expansive views of the landscape and access to a long cedar deck that integrates the living spaces with the outdoors. Bedrooms are located at opposite ends of the rectangular plan with the open kitchen and great room situated in the heart of the building. All rooms are fitted out with rift-cut white oak millwork.

+HOUSE's clean profile, refined details and eminently functional spaces belie a wealth of complex, health sensitive technology beneath. Responding to the client's environmental sensitivities, each building material and finish was vetted by the architect and tested by the client to ensure that she would have no adverse physical reaction. To this end, wood was again central to achieving the project's design goals. The house is built of Durisol block – an inert cement-bonded wood fiber product that produces no VOCs and inhibits the growth of fungi and molds. To minimize the creation of electro-magnetic fields, the house favored wood structural roof members over steel. In keeping with the goal of zero-VOCs, the interior walls are finished with a natural clay plaster, a self-finishing and breathable product applied over the Durisol block that requires no paint finish (there is no drywall in the house). A soy-based sealer was used for the concrete floors and counters; PVC-free blackout roller shades and untreated silk and hemp



1. entrance
2. bedroom
3. restroom
4. kitchen
5. dining area
6. living room
7. laundry and mechanical
8. study
9. master bedroom
10. ensuite
11. outdoor terrace

FLOOR PLAN

fabric were used for the window treatments; and hospital-grade Hepa filters were installed in the duct system.

While the client needed the house to meet her environmental sensitivities, she also wanted a house that was ecologically responsible. Pursuing healthy choices for both client and environment meant extensive product research, narrowed down according to local availability and climate suitability. Other features of this LEED Gold-targeted project include a green roof, FSC-certified lumber throughout, heat-mirror triple glazing, a large south overhang minimizing solar gain in the summer, operable skylights and windows on all four elevations offering passive ventilation and natural daylighting, as well as a pond-loop geothermal system. The site's existing natural conditions were preserved and enhanced where possible. Nearly a dozen mature trees were transplanted to a local nursery for protection during construction and replanted once the house was complete. An Envirolok green retaining wall system (engineered seed and soil bags that grow into a plant wall) was used to support the rear slope. Low-maintenance local grasses and plantings were used throughout to reduce irrigation and integrate with the local ecosystem. A permeable driveway mitigates storm water run-off.

In response to a unique set of client needs, the design was created to exceed the norm – and achieved an exemplary synthesis of sustainable, healthy design and aesthetics.

ARCHITECT
superkül inc
Toronto, ON

STRUCTURAL ENGINEER
Blackwell
Toronto, ON

MECHANICAL/ELECTRICAL ENGINEER
Rice Kong Engineering Ltd.
Vaughan, ON

GEOTECHNICAL ENGINEER
Terraprobe
Brampton, ON

CONTRACTOR
Wilson Project Management
Toronto, ON

PHOTOGRAPHY
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DARRYL CONDON
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HUGHES CONDON MARLER ARCHITECTS
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CHRISTINE MACY
Dean of the Faculty of
Architecture and Planning
DALHOUSIE UNIVERSITY
http://architectureandplanning.dal.ca

Sponsors

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Weyerhaeuser

60 YEARS western archrib
structural wood systems

RECOGNITION SPONSORS

Alberta Newsprint Company

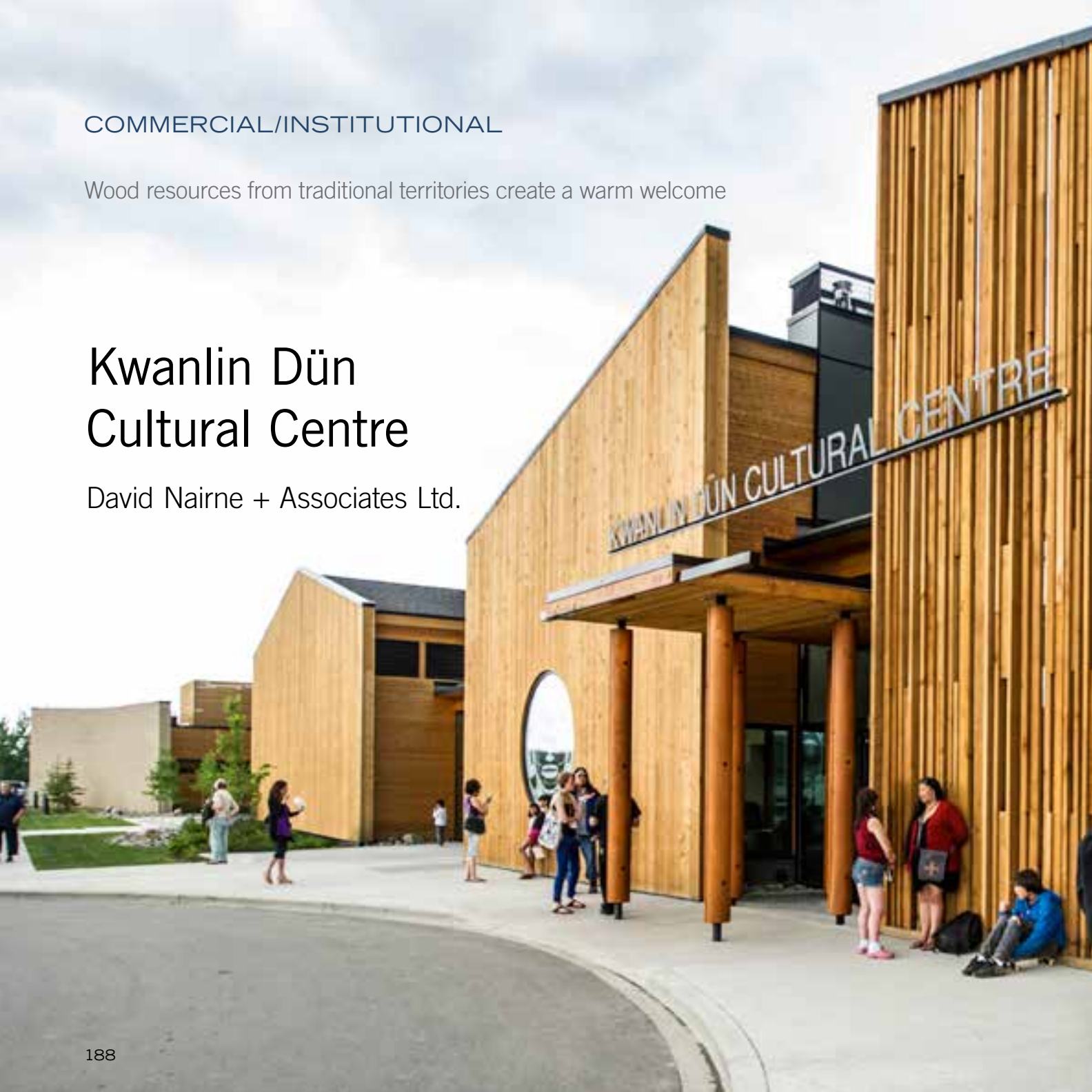
Vanderwell Contractors (1971) Ltd.

PRAIRIE

Wood resources from traditional territories create a warm welcome

Kwanlin Dün Cultural Centre

David Nairne + Associates Ltd.



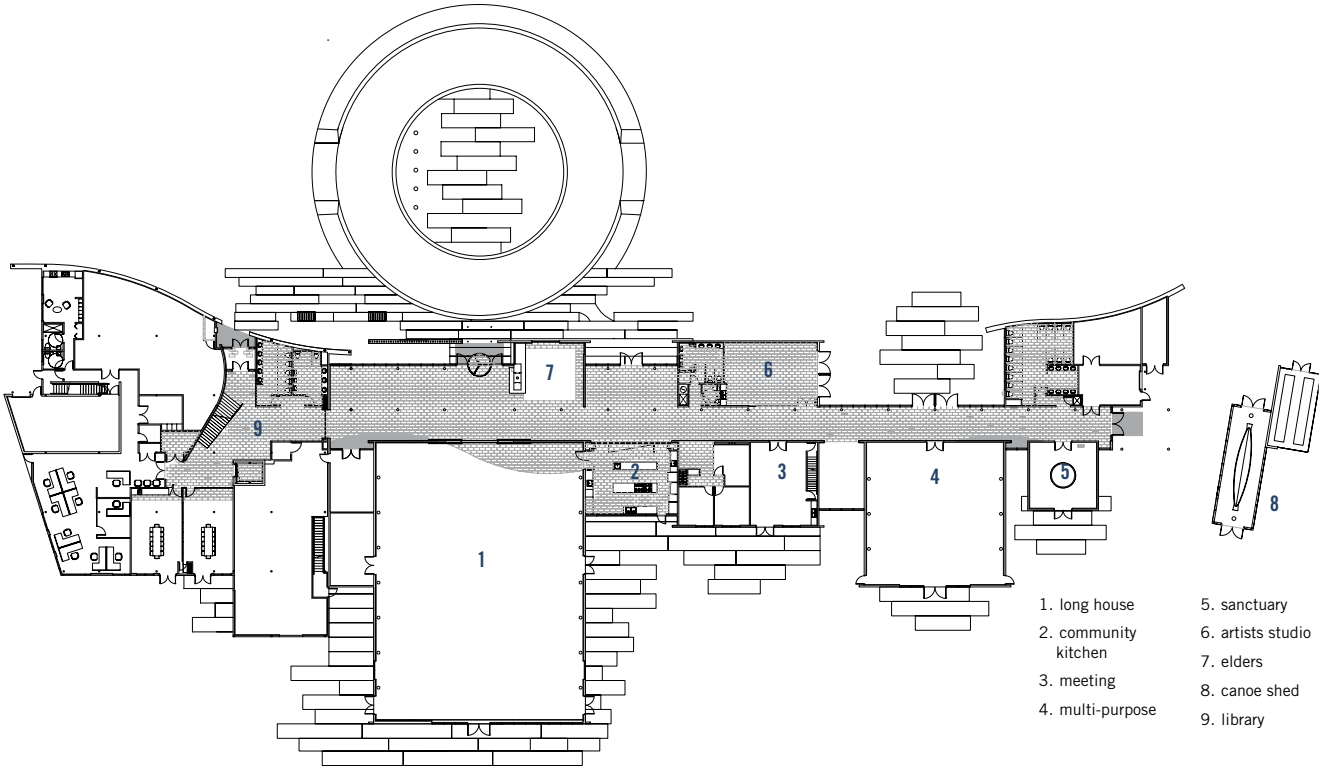
The story of the Kwanlin Dün First Nation Cultural Centre is the story of a community reclaiming its heritage. Returning to the banks of the Chu Nínkwan (Yukon River), the Kwanlin Dün have erected a center for the celebration of their culture and way of life. Fundamental to the design are references to traditional Kwanlin Dün First Nation longhouses, expressed through modern applications of timber structure and wood finishes.

From the river and west side of the centre, the traditional point of entry for the Kwanlin Dün First Nation people, the exterior of the cultural center was designed to resemble a village of longhouses. The main street entry for the building is located on the east side of the building, facing the city of Whitehorse. Visitors entering the facility from the east pass through a contemporary interpretation of a longhouse. The facade features a circular wood moiety panel and circular window with the Nations' emblem on either side of the entry, symbolizing the co-operation of the community to create the new centre. This street side main entry facade is framed by sinuous curving walls that echo the surrounding bluffs that define both the Yukon River Valley and the city of Whitehorse.

While the main entry facade maintains the form of the traditional longhouse, it was designed to allow a strong visual connection between the city and the center through use of a handcrafted cedar screen wall. The wall was assembled by Kwanlin Dün First Nation members from long pieces of rough-sawn cedar. The screen also creates ever-changing patterns through the play of shadow and light, and represents the warm, welcoming traditions fundamental to the culture.

The building plan is laid out along two major axes. The primary axis takes visitors from the center of Black Street through the main entrance and lobby space, and continues through the Gathering Longhouse to the outdoor plaza and fire pit space and then to the Yukon River. The secondary axis runs perpendicular to the primary axis, providing a 265-ft. long exhibition gallery linking the functional areas of the facility. The gallery was designed to constantly reinforce visitors' sense of the river glimpsed through glazings or through the various rooms linked by the gallery.

The heart of the Kwanlin Dün Cultural Centre is the Gathering Longhouse featuring glulam columns supporting structural glulam/steel trusses. It is the largest and most prominent space in the center, and was designed for ceremonial events, performances and exhibits, and is a place for storytelling and celebration. Facing the Yukon River, with views of the river and bluffs on the opposite shore, the longhouse serves as the main Kwanlin Dün First Nation community space and forms an essential element reconnecting Kwanlin Dün people to their fabled Yukon River.



1. long house
2. community kitchen
3. meeting
4. multi-purpose
5. sanctuary
6. artists studio
7. elders
8. canoe shed
9. library

FLOOR PLAN

Cedar was selected for both exterior cladding and interior finishing because of its intrinsic durability and use in the traditional structures of southern Kwanlin Dün First Nation communities. SPF (spruce-pine-fir) material for framing and wall panel finishes was utilized to reflect the forests surrounding the site, and the importance of these materials in the construction of structures, rafts and boats of all Kwanlin Dün First Nation communities.

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CLIENT
Kwanlin Dün First Nations
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STRUCTURAL ENGINEER
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MECHANICAL/ELECTRICAL ENGINEER
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CIVIL ENGINEER
David Nairne + Associates Ltd.
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GENERAL CONTRACTOR
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WOOD SUPPLIER
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GLULAM AND TRUSS SUPPLIER
Western Archrib
Edmonton, AB

LANDSCAPE ARCHITECT
Forma Design Inc.
North Vancouver, BC

PHOTOGRAPHY
Harry Kern
Whitehorse, YT

ENGINEER WOOD ADVOCATE

Nestled in the trees, this modern wood facility can adapt and grow as needed

Academic Research Centre – Athabasca University

Fast + Epp

Athabasca University (AU), a leader in the field of distance education, was experiencing an urgent need for a new facility to create a social heart for its academic and research staff. AU's campus, nestled within the beautiful boreal forest of Athabasca, had been experiencing rapid student enrolment and needed a new facility to accommodate its expanding base of researchers and faculty. The Academic Research Centre is designed to "nestle within the trees," integrating with the site's boreal forest landscape, the campus's existing buildings, as well as a sensitive nesting area for red-winged blackbirds.

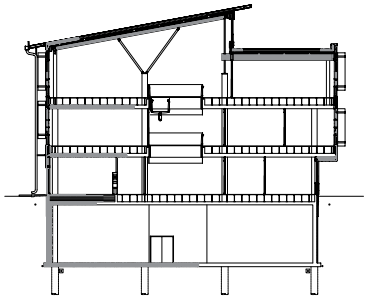
One major objective for the project was to maximize open workspace within the building to increase social capital and encourage the opportunity for discussion and exchange between students and faculty, across disciplines. Another crucial goal was to allow for adaptability and flexibility within the space. As programming and technology changes at AU, the spaces within the building will adapt as needed.

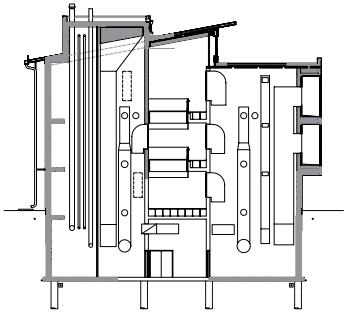
All regularly occupied space within the building receives daylight. The centre takes advantage of natural daylight and pleasing views across the site, using clerestories and high window walls along the east and west facades. Ultimately, the Academic Research Centre provides a comfortable, healthy, and productive and sustainable workplace for both the students and staff of Athabasca University.

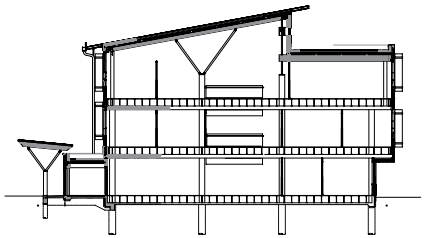
Wood was used throughout the building as a medium to celebrate the region's wood-based economy, and it played a large part in the design. The facility's hallmark is an exposed timber roof featuring prefabricated solid wood panels using vertically staggered 2 x 4 and 2 x 6 spruce supported by glulam beams and steel struts atop a three-story concrete structure. The advantages to using these materials (particularly off-site prefabricated materials) were speed of installation, carbon sequestering, low embodied energy in wood products, aesthetics and appearance, and cost savings.

The Academic Research Centre is a model of sustainability, combining energy-efficient building technologies with cutting-edge networking and communications technologies. Displacement ventilation and operable windows allow fresh air to circulate through the building, while energy-efficient building systems reduce energy consumption. The facility was designed to LEED Gold standards.

According to Dr. Lisa Carter, Dean of the Faculty of Science and Technology, the Academic Research Centre "symbolizes a bold and immeasurable structure that epitomizes the university's vision of fostering a knowledge economy."







BUILDING SECTIONS

ARCHITECT
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STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

MECHANICAL ENGINEER
FSC Engineering
Yellowknife, YT

ELECTRICAL ENGINEER
Stantec Consulting Ltd.
Edmonton, AB

CIVIL ENGINEER
Challenger Engineering
Edmonton, AB

GENERAL CONTRACTOR
Chandos Construction Ltd.
Edmonton, AB

WOOD SUPPLIER
Western Archrib
Edmonton, AB

LANDSCAPE SUBCONSULTANT
Eidos Consulting
Edmonton, AB

PHOTOGRAPHY
Manasc Isaac Architects and
Western Archrib
Edmonton, AB

INTERIOR SHOWCASE

A lot of vision, a little budget and some birch plywood transforms a fire hall into a church

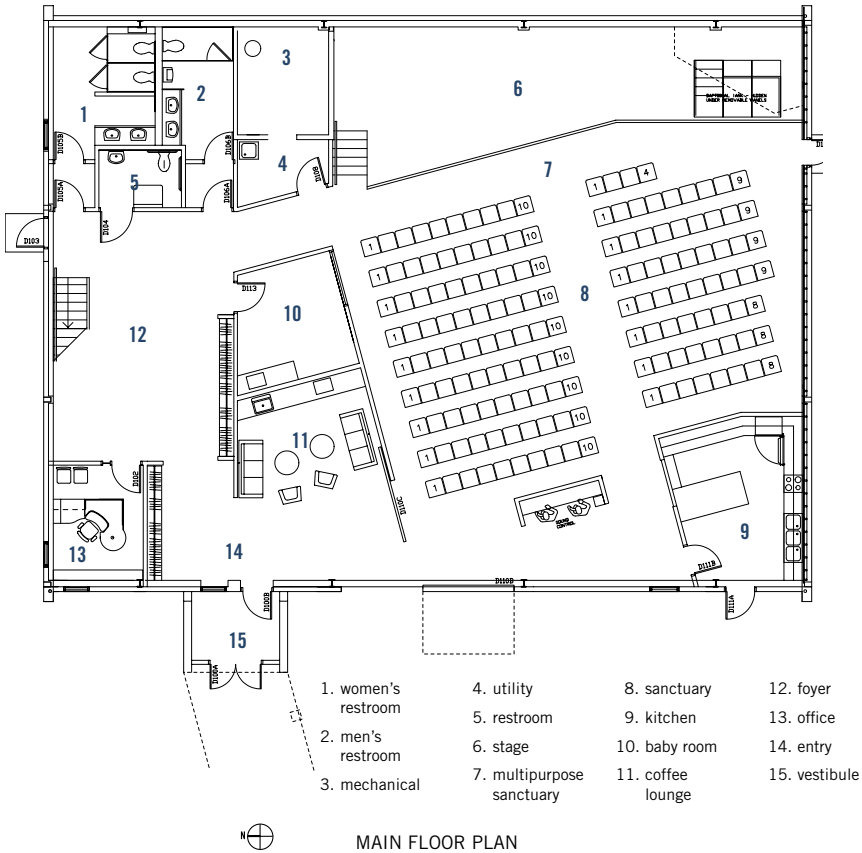
Cornerstone Vineyard Church

Zach Pauls with Jeff Penner of ROAD Architecture Ltd.

The Cornerstone Vineyard Church transformed a decommissioned fire station in Winkler, Manitoba, into a distinctive new space for a growing congregation. The modernization of the entire building required the development of dynamic spaces that could be used for a plethora of activities including worship, concerts, weddings and other gatherings for the membership and the community.

The pre-engineered building was constructed in 1970 and occupied by the Winkler Fire Department for the past 40 years. During those four decades, the city grew rapidly and the old fire station was no longer adequate. When the fire department relocated to a new facility, the church community acquired the property. The change in use necessitated an extensive renovation with a complete interior refurbishment and minor exterior alterations.

The visionary fellowship was motivated to establish a space that was unique from the typical local church typology. Their ambition provided the basis for challenging the typical formal language and materials utilized in traditional rural Manitoba worship spaces. The interior of the building divided into two levels of program. The second level has an area of 1,100 sq.ft. and includes four classrooms, a restroom, a multipurpose meeting room and a prayer



MAIN FLOOR PLAN

room overlooking the main sanctuary. The first level is 4,800 sq.ft. and is comprised of more conventional areas like restrooms, office space, storage, baby room and lobby. In contrast, the kitchen, lounge and sanctuary spaces are highlighted as the main social gathering spaces in the building, receiving additional care in a modestly budgeted project.

Birch plywood was selected to bring warmth and natural texture to the worship space. Pre-finished panels were selected as a cost-effective and durable replacement to a more typical interior finish of drywall/taping/painting. The resilient plywood withstands accidental impact as this main space is used for a variety of events and is constantly being reconfigured. The plywood was prefabricated offsite with boreholes and diffuser grilles, decreasing installation time onsite. The plywood inherently has excellent acoustic properties, essential for the diverse music performances held in the sanctuary.

Four existing windows in the fire truck storage garage guided the layout of the interior support spaces. Providing the ability to control natural light during the congregation's services, the windows were enclosed with paneled shrouds, preventing bright spots and glare. Two classrooms, the projector screen and the kitchen envelope the windows and create unique lighting conditions by their specific volumetric configuration. These shrouds capture and control light and the facets double as lively acoustic surfaces improving the quality of the varied musical performances featured in the room. The color and texture of the wood is a modern variation on the other stark worship spaces in the area. The client's objectives were to provide a unique space through economical construction and wood was the optimal material to achieve both.

ARCHITECTS
Zach Pauls with Jeff Penner of ROAD Architecture Ltd.
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BUILDER
Pic-a-dilly Construction Ltd.
Winkler, MB

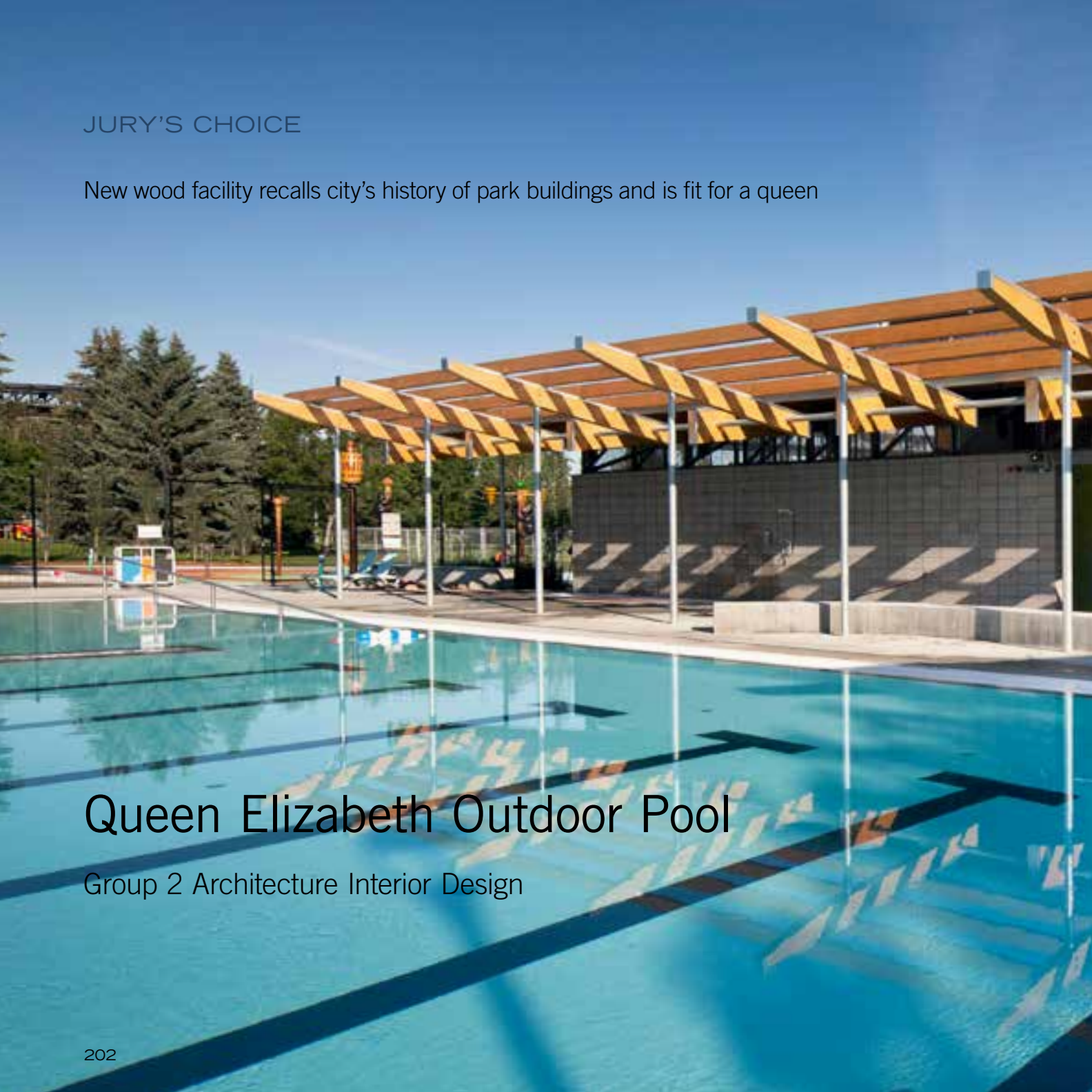
INTERIOR DESIGN
Zach Pauls, Priscilla Mah

LANDSCAPE DESIGN
Katy Martin
Philadelphia, PA

PHOTOGRAPHY
Russ Dueck
Winkler, MB

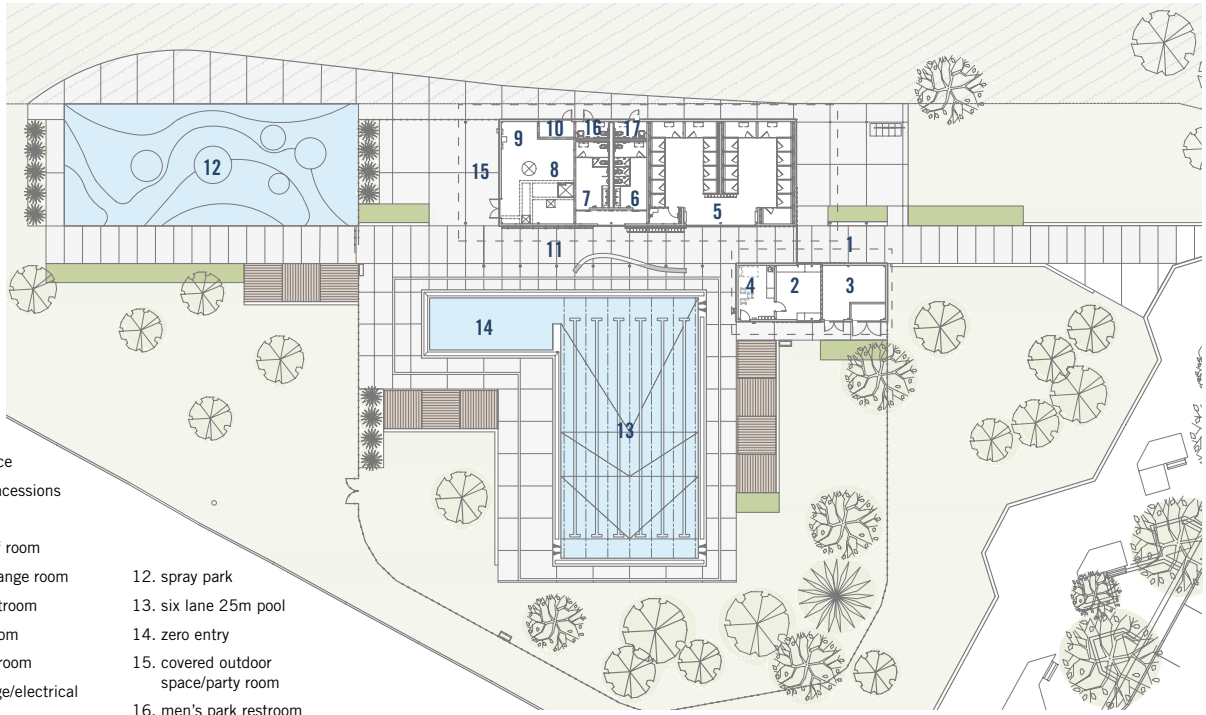
JURY'S CHOICE

New wood facility recalls city's history of park buildings and is fit for a queen



Queen Elizabeth Outdoor Pool

Group 2 Architecture Interior Design



SITE/FLOOR PLAN

Edmonton's first outdoor pool opened during the summer of 1922 and was renamed for Queen Elizabeth to commemorate the 1939 Royal Visit. The unique location, tucked within the trees of the North Saskatchewan River valley, continued to draw swimmers for 82 years. Extensive damage to the pool tank was revealed at the end of 2003 which forced the facility to close.

The new Queen Elizabeth Outdoor Pool continues the tradition of the original pool. Its careful siting and pavilion-like form recall the rustic spirit of the original pool and tie the new building into the landscape of the North Saskatchewan River valley park system.

Wood is used, especially structurally, to tie the building to its natural surroundings as well as to the city's history of park buildings. Edmonton has a rich history of public pavilions located within the river valley and its extensive park space. The most notable, the Hawrelak Park pavilions designed in the late 1960s by Bittorf Wensley Architects, reflect the landscape through their organically shaped concrete columns, glulam wood beams and wood-shingled roofs. The new Queen Elizabeth Pool building further articulates this armature and reinforces the identity of the river valley by continuing the tradition of high-quality pavilion buildings that incorporate natural materials such as beetle-kill lodgepole pine and Western red cedar.

The new facility is located adjacent to the Kinsmen Sports Centre and existing parking within the Kinsmen Park site. The pool and surrounding buildings fit between existing trees and services in a natural shallow bowl of land, therefore minimizing the disturbance of the site caused by construction. The entry to the building is signaled by the mass of the building volumes as well as the roof lines that project above the trees.

The user is drawn into the entrance porch by way of a long retaining/seating wall and bold signage. The pool house pavilion is organized under the floating wood and steel roof around a central circulation zone that allows for easy orientation and organization of spaces. It contains two volumes: one that houses the majority of the user facilities (changerooms, washrooms, showers and lockers) as well as the pool mechanical spaces, and the other that houses the main day-to-day staff areas, consisting of the staff/first aid room, the admission/concession and deck storage.

The ticketing and concession area is located adjacent to the entry courtyard and has controlling views across the entrance to the pool, the pool deck and the changerooms. Through the entry, the change facilities are located on the right of a circulation zone that organizes the spaces of the building and allows for simple way finding. The change area is comprised of one large space with a series of individual change cubicles. The cubicles each have low clearance and no gaps between the door and the frame, to ensure privacy. They also vary in size to accommodate individuals, families with small children or a person in a wheelchair with an attendant. Separate male and female washrooms are adjacent to the change zone and showers are provided on the pool deck for 'bathing suit required' showering. Upon reaching the deck area, bathers are covered by a south-facing sun shading pergola. Lockers and showers are located on deck in order to provide convenient access for all users. An outdoor party area is located at the west end of the building.

After hours, the building can be closed off by a series of wooden sliding and swinging doors. For example, two large wood sliding doors close off the admission desk as well as the main entrance to the pool to ensure that the pool compound is secure during evening hours or during the eight-and-a-half months of the year that the pool is not operating.

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CLIENT
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STRUCTURAL ENGINEER
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ELECTRICAL ENGINEER
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GLULAM SUPPLIER
Structurlam Products
Penticton, BC

LANDSCAPE
EIDOS Consulting
Edmonton, AB

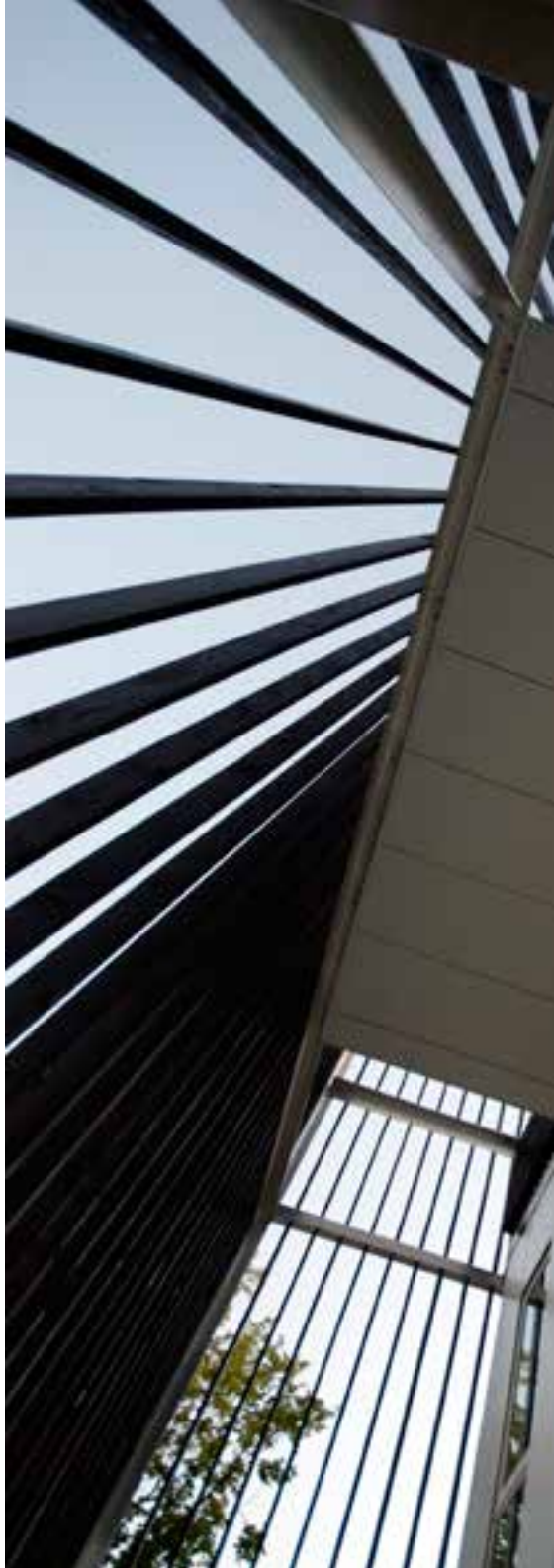
PHOTOGRAPHY
Jim Dobie Photography
Edmonton, AB

MULTI-UNIT

Vertical-slat privacy screen wraps the condo's exterior providing privacy, shade and sheer texture

Bloc_10

5468796 Architecture



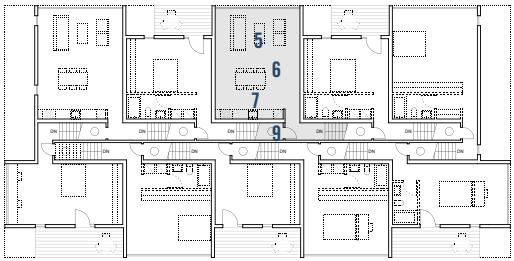
Bloc_10 is a multi-family housing project that strives to re-imagine and re-invent the market-driven condominium. Situated on the site of a former gas station in Winnipeg's River Heights neighborhood, the developer wanted a modestly priced building designed and constructed within 12 months. The resulting three-story, 10-unit condominium project was modeled after the 'white-box' concept: each buyer purchases an unfinished unit with basic plumbing, heating and electrical systems. Buyers can decide which rooms they would like distributed on each level and they can personalize their finishes to their own taste and budget.

All of the units (sized between 900 and 1300 sq.ft.) rise over three levels and most have two balconies. As the apartments ascend, they cross from one side of the building to the other, resulting in 10 unique, interlocking layouts that feel like a hybrid between a condominium and a house. This arrangement provides views to the north and the south, and eight of the 10 apartments have views in three directions. To take advantage of the maximum allowable mass for the development, cantilevered projections expand rooms, create balconies and provide support for the wooden, vertical-slat privacy screen that wraps the building's exterior.

The screen serves many purposes. It provides each homeowner with privacy and shade and yet by offering glimpses of neighbors, it also encourages community. The screen's slats filter views of the surroundings, playfully drawing the city into Bloc_10's expression. The screen's sheer texture and kinetic spirit unify the façade and give Bloc_10 a distinctive identity within the city.

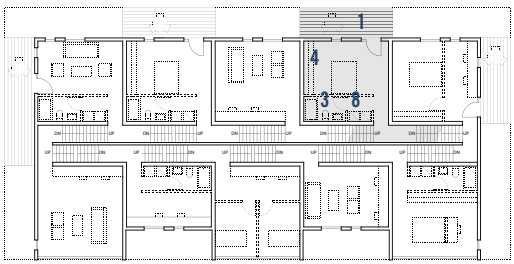
The entire structure is composed of pre-fabricated wood components, built off-site in a climate-controlled warehouse and shipped to the site in panels. The pre-fab process helped accelerate the construction schedule, improve quality control and reduce overall waste. The floor and roof systems are all engineered wood products, including TJI joists and parallam beams as required. The interior demising walls are composed of back to back 2 x 4-in.walls with a 1-in. airspace, offering excellent acoustic separation. The assembly is also well-suited for the pre-fabricated construction method.

The building is clad in white, factory-finished 4 x 10-ft. James Hardie panels that act as a rainscreen. All fasteners are left exposed. The screen is composed of cedar, which is considered the optimal choice for exterior applications due to its natural rot resistance. More than 50 per cent of the wood used is northern white



LEVEL THREE FLOOR PLAN

1. deck
2. office
3. restroom
4. bedroom
5. living room
6. dining room
7. kitchen
8. laundry
9. utility



LEVEL TWO FLOOR PLAN

GROUND FLOOR PLAN

cedar, selectively harvested in southeastern Manitoba in a salvage area designated for logging due to beetle kill. All of the mature trees were personally harvested by a local wood supplier, who also dried, milled and stained the wood. The wood travelled no more than 200 km from its origin to the site, contributing to very low embodied energy. The remainder of the wood required for longer lengths is comprised of western red cedar, supplied from British Columbia and locally milled. An environmentally friendly stain was chosen, which will lightly fade from black to weathered grey.

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CLIENT
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STRUCTURAL ENGINEER
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GENERAL CONTRACTOR
Green Seed Development Corp. + Holz Constructors Inc.
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WOOD SUPPLIER
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Winnipeg, MB

PHOTOGRAPHY
James Brittain Photography
Montreal, QC

Lisa Stinner

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MUNICIPAL/RECREATIONAL

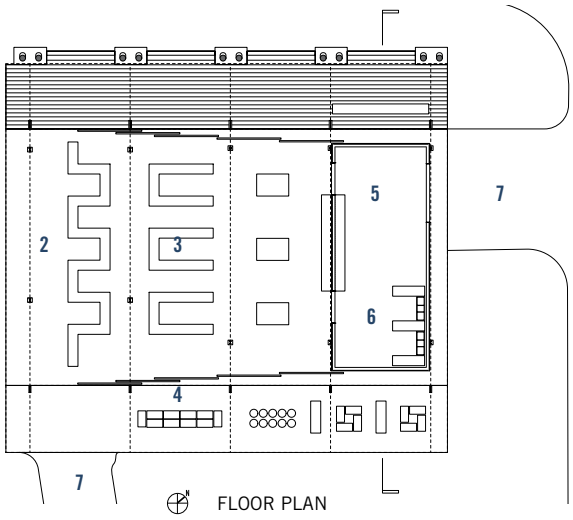
Salvaged wood components help address health and safety, improve audience experience and create a more environmentally sustainable facility

Winnipeg Folk Festival – La Cuisine and Site Office Building Complex

Syverson Monteyne Architecture Inc.

The Winnipeg Folk Festival is a year-round arts organization that presents one of North America's premier outdoor music festivals during a five-day run each July. The La Cuisine building is a backstage, seasonal kitchen facility, designed to accommodate the preparation and serving of 10,000 meals a day to volunteers and performers.

Working in the spirit of the Winnipeg Folk Festival Environmental Policy, the La Cuisine and site office buildings were designed as seasonal structures, with environmentally responsible building as a main concern. Both were designed and constructed using a 'low-tech,' approach with largely reused, recycled, and land-fill-diverted components.



FLOOR PLAN

1. festival verandah
2. food service
3. food prep
4. cooking
5. storage
6. dishes
7. access

LA CUISINE

In its previous life, La Cuisine was a modular steel structure warehouse. It was sourced and carefully dismantled, transported from Winnipeg to the festival site, and rebuilt in a new form. Components were modified and either rewelded or bolted together. In addition to this superstructure, all secondary framing members, including roof purlins and wall girts, and roofing, are reused materials.

In response to its location backstage, the building is fronted with a festival-

sized verandah that serves as a greeting space for arriving visitors and performers, and as a general backstage hangout space. At night, it becomes a lantern that backstage volunteers use to navigate in the dark. In wet years, the space is used to dry festival-owned tents before packing them away to be stored for the balance of the year.

An aerial view of the spectator area in front of various outdoor stages reveals a colorful landscape of ground sheet polytarps. The front façade of the building features different colors of sheet metal that symbolize the memorable way these tarps are used each year.

Hardwood flooring used for the verandah is local landfill-diverted oak. A portable mill was set up at a Winnipeg landfill site where viable oak trees brought to the landfill were milled and dried, and then transported to the festival site. Left untreated, the local oak is an extremely hardy wood species, easy to work with, and naturally rot-resistant.

Salvaged cedar hydro poles anchor the primary verandah wall and provide the superstructure on which purlins and spruce wall framing members are mounted. Reclaimed cedar provides bench seating.

Pre-engineered box trusses are used to support exterior wall framing and sliding security doors. Dimensional spruce lumber is used for both exterior and interior wall framing.

SITE OFFICE

Other than new metal roofing, the site office is constructed entirely of reused building components. Two existing shipping containers located adjacent to one another provide formal office space and are grouped by way of a large, wood-framed overhead canopy.

Untreated fir glulam beams and pre-engineered trusses structure the overhead canopy. Two site-located trees that were taken down to accommodate infrastructure upgrades provide column support for one corner of the roof canopy.

La Cuisine and the Site Office Complex are part of the Winnipeg Folk Festival's site redevelopment project that includes significant upgrades to the festival site to address key health, safety and accessibility issues, improve audience experience and create a more environmentally sustainable event.

ARCHITECT
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PROJECT MANAGER
Milestone Project Management
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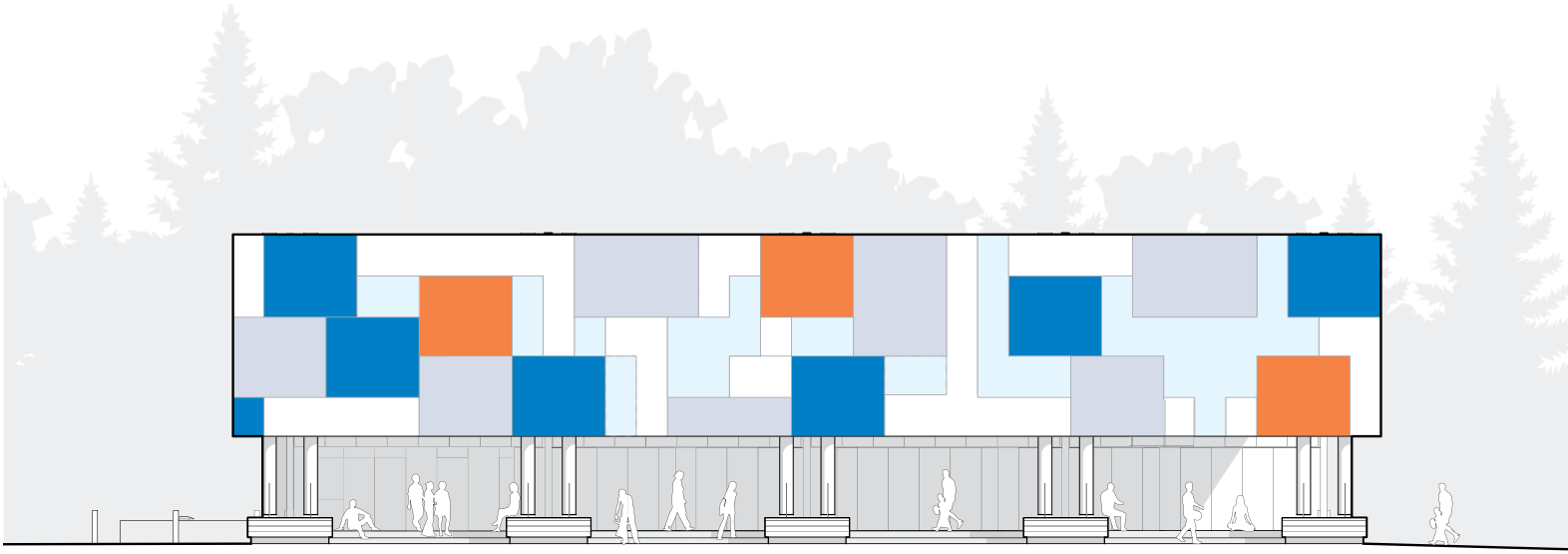
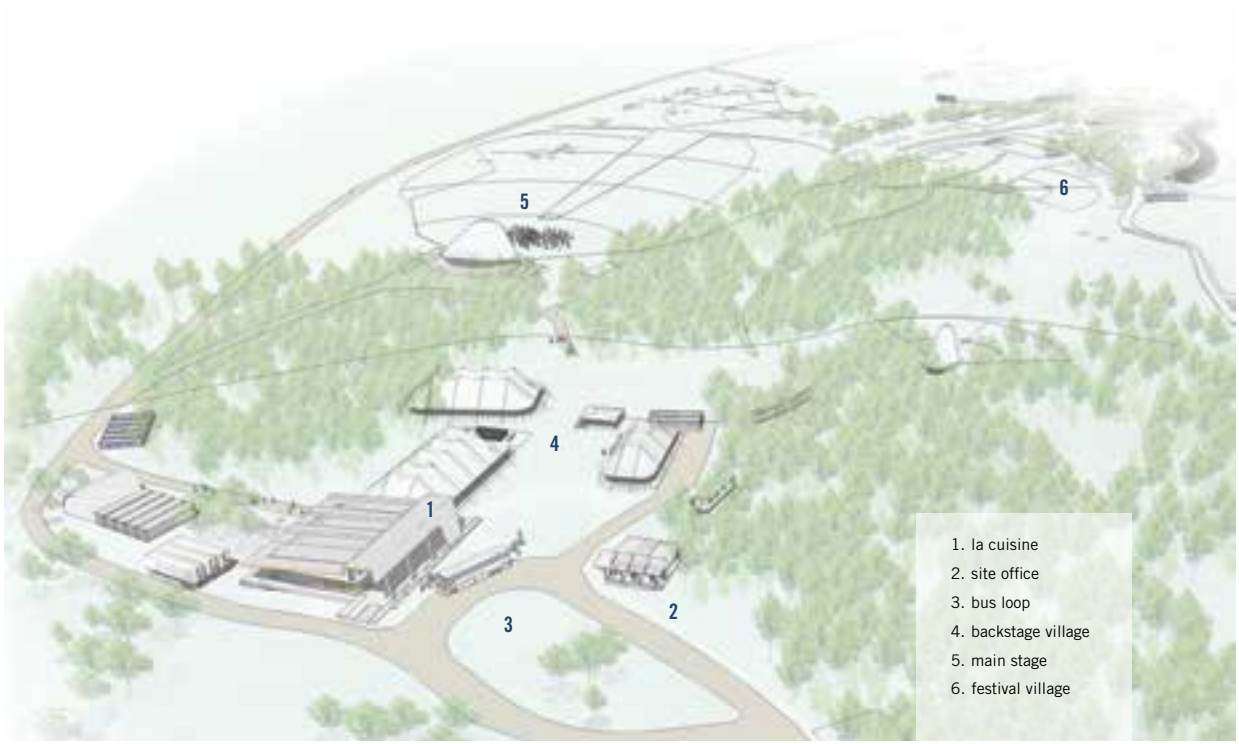
PHOTOGRAPHY
Syverson Monteyne Architecture Inc.
Winnipeg, MB



ELEVATION



SITE PLAN

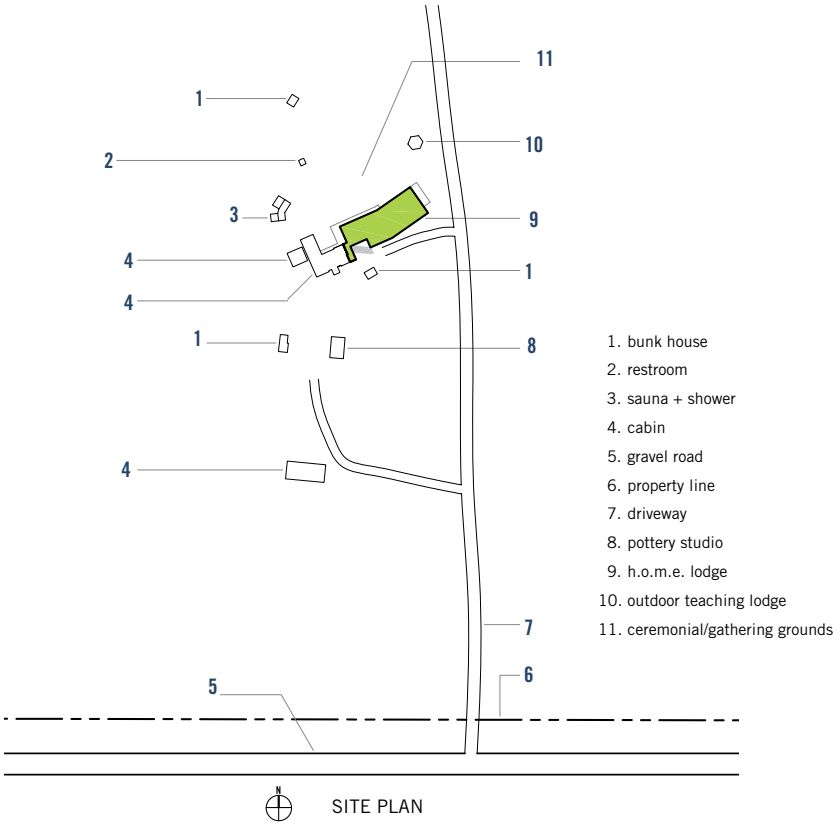
Wood creates a warm, nurturing and culturally relevant space for troubled youth

H.O.M.E. Rural Healing Lodge

Michael Robertson Architect
in collaboration with Melissa Sarasin

Located within a ceremonial retreat in rural Manitoba, the Hands Of Mother Earth (H.O.M.E.) Project is a healing lodge for exploited youth. It offers a warm and welcoming environment that eases the transition from the city and facilitates the healing and learning process of its residents.

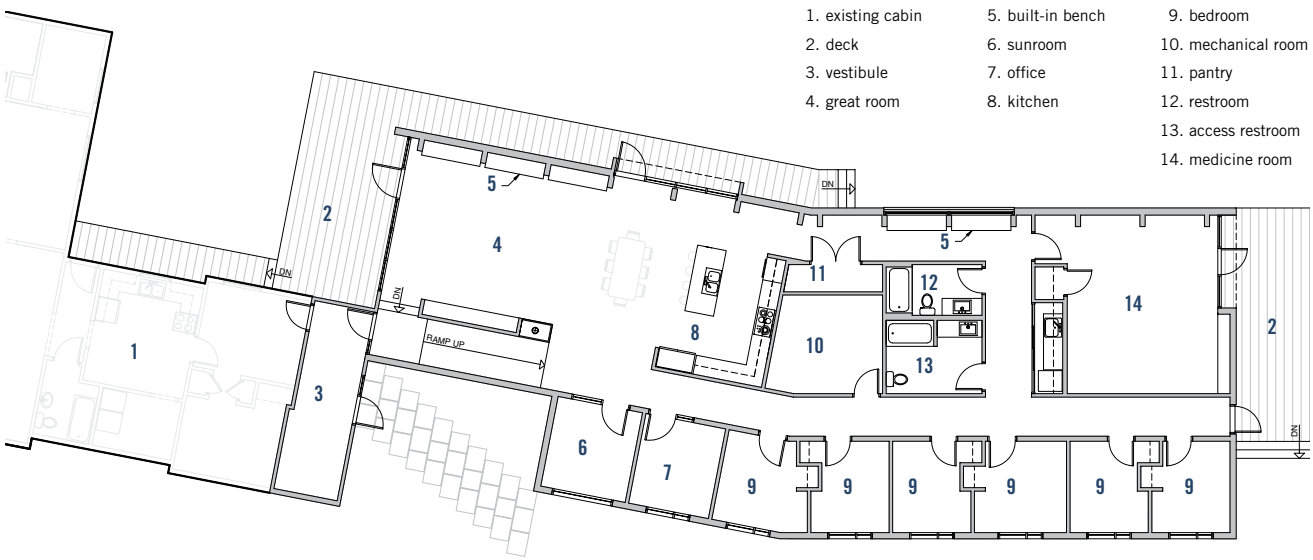
The new building is built around the client's goal of complementing the existing ceremonial complex and the natural beauty of the surrounding landscape, and thereby utilizing the connection to the natural and the ceremonial as a fundamental part of the healing of the youth staying at the facility. The design and placement of the building meets the functional need of the program while respecting the landscape and the ceremonial procession of the site. The relationship between the built form and the unbuilt is central to the ideal set by the client and their stakeholders.



SITE PLAN

In defining the interior spaces, the design intent was to create space that would be warm and enveloping. To achieve this, the main space of the 3,300-sq.ft. single-story lodge is enclosed by curved laminated structural wood beams and structural fir decking. These beams curve up at a radius of six feet to reach a maximum height of almost 12 feet at which point they begin to slope down, spanning a total of 24 feet. A structural fir deck runs perpendicular to the beams and covers the shared interior spaces, providing a wealth of warmth. High ceilings in the living, dining and kitchen areas convey a sense of openness, while lower ceilings in the bedrooms and office convey a sense of protection.

By placing the curve at the high part of the building, the building appears smaller and less obtrusive to its natural surroundings. The cedar-clad lodge is situated on a well-treed 40-acre lot and is surrounded by three existing cabins and various auxiliary buildings including three bunkhouses, an outdoor sauna and shower, a pottery studio, an outdoor teaching lodge and ceremonial/gather-



FLOOR PLAN

ing grounds. Through the extensive but controlled use of glazing, one can enjoy the views from within the lodge but also seek privacy when needed. Daylight filters through the entire lodge adding a warm glow to the interior.

In creating a warm, nurturing and culturally relevant space for the youth as well as the workers, wood was selected for the interior and exterior. It was decided that a curved ceiling would soften the building on the interior as much as on the exterior, and that curved laminated wood beams were the most aesthetically pleasing and economical solution. The fir decking that covers the curve on the interior was not only chosen for its structural qualities but also for its natural warm color and texture. The wood siding on the exterior helps to gently integrate the building into its natural environment. Cedar was chosen because of its special meaning in aboriginal culture, as it is commonly used in ceremonies and is known for its healing properties.

The extensive use of wood on the interior, the sense of nurturing and protection achieved by curving the ceiling, and the continuation of these themes on the exterior through the application of cedar, lead to successful reflection of the clients' goals in service of the youth.

ARCHITECT
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STRUCTURAL ENGINEER
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GENERAL CONTRACTOR
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Steinbach, MB

WOOD SUPPLIER
Western Archrib
Edmonton, AB

PHOTOGRAPHY
Anastasia Derksen

COMMERCIAL

LeMay – America's Car Museum
Tacoma, WA

LARGE Architecture

Please see page 28

U.S. WoodWorks Wood Design Awards

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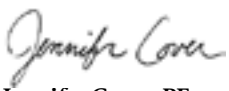
U.S. WoodWorks Wood Design Awards

Along with education and project support, celebrating the innovative use of wood in buildings is a fundamental part of the U.S. WoodWorks program. It's also exciting. We get to feed our passion for wood design by learning about remarkable buildings from across the country and then we get to shine a spotlight on them to inspire and educate others.

This year's winners exemplify wood's design flexibility as well as its many other advantages. For example, as a LEED Platinum, net zero energy building, the David & Lucile Packard Foundation headquarters is a showcase both for wood's beauty and its positive impact on occupant environment. By choosing five stories of wood over a concrete podium, architects of the University of Washington student housing project met ambitious design goals on a limited budget. Using wood as the main architectural expression at Duke School created a warm learning environment.

Development of the load-bearing timber frame is said to be one of the great achievements of ancient Chinese architecture and it's interesting to think that innovation continues at that level of profound significance today. Wood high-rises are by many accounts the next frontier, but, while mass timber and hybrid opportunities are taking wood to new heights, other trends – such as the use of wood in evidence-based design or to create net zero carbon buildings – are equally exciting.

The projects featured throughout this book are a testament to the pioneering nature of architects and engineers. I'm honored to share with you this year's winners of U.S. WoodWorks Wood Design Awards.



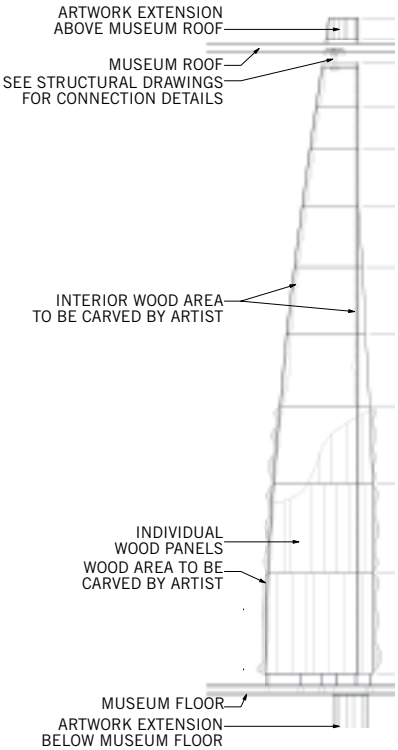
Jennifer Cover, PE
Executive Director
U.S. WoodWorks

Wawona Sculpture – Museum of History and Industry

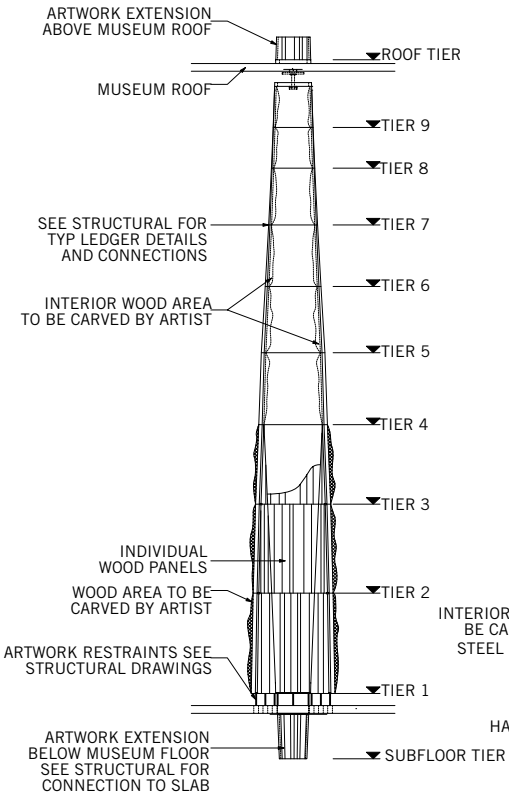
Arup

ENGINEERING

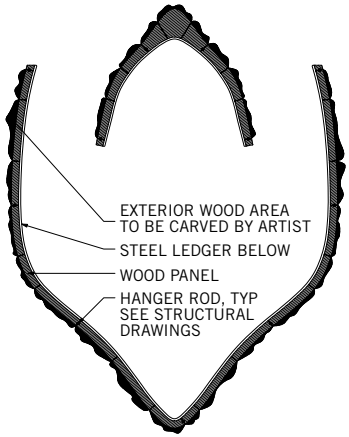
Museum visitors are invited to touch and experience
giant sculpture crafted of planks from an old schooner



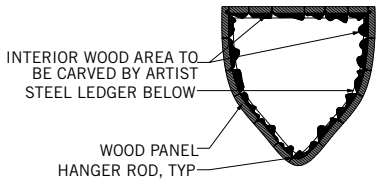
SIDE ELEVATION



FRONT ELEVATION



PLAN @ TIER 1



PLAN @ TIER 9

The Wawona Sculpture is artist John Grade's commissioned permanent installation at the recently relocated Museum of History and Industry at South Lake Union in Seattle, Washington. It is an 11,000-pound, 56-ft. structure comprised of water jet-cut steel ribs and hanger rods supporting digitally fabricated and hand-carved old-growth Douglas fir planks reclaimed from the recently dismantled Wawona schooner.

The artwork is suspended as a pendulum from the museum's roof trusses, allowing it to hover just 12 inches above the floor. Museum patrons are encouraged to interact physically with the artwork by imparting controlled movement and venture within its hollowed-out interior. The mandated 50-year design life required designing for stability of the sculpture during a strong seismic event and metal fatigue resistance due to repeated cyclic movements imparted by the museum patrons.

At the onset of design, engineers worked closely with the artist to identify the performance objectives of the sculpture and develop an expressive structural system that would become the art.

The sculpture had to be shaped and supported so that it would hang in the correct vertical orientation over the floor. Analysis software was used to ensure the center of gravity of the sculpture and the hang point at the roof were vertically aligned. In addition, the top solid steel bar from which the sculpture hangs was detailed to be field-adjusted in both plan directions.

To achieve the structural requirements, each tier of the sculpture is comprised of vertical timber planks captured top and bottom by curved 7/8-in.-thick steel plates. The steel plates were in turn fastened to each other via half-inch diameter threaded steel rods located in the vertical seams of the timber planks thus clamping the assembled tier together. During installation, starting at the top and working down, each assembled tier was bolted together at the mated curved steel plates thus completing the structural system.

Lateral support for the sculpture is required to resist both code-prescribed earthquake loads and forces induced by museum patrons who are encouraged to physically interact with the sculpture. The artist's desire was for this interaction to also impart a kinetic movement in the sculpture. To achieve lateral stability and safety amidst this movement, seven dis-

crete 1-in. diameter steel rods link the base of the sculpture to the concrete museum floor. The rods are restrained at floor level by a soft elastomeric "donut" ring that allows up to two inches of lateral movement while also dampening out the motion. The rods are detailed to move unrestrained vertically with the sculpture and supporting roof trusses which will deflect up to two inches with snow loading. This detail ensures the sculpture's intended load path through the roof is maintained.

A digitized scan of the artist's original wooden scale model started the design-to-fabrication process. Using Rhinoceros 5 modeling software (Rhino), the scanned file was converted into surfaces and then advanced until each of the more than 190 wood planks and nine tiers of steel ribs and hangar rods were individually modelled. Using the generative design Rhino plug-in Grasshopper, the geometry and member sizing for the sculpture evolved with the advancement of the sculpture's design in real-time. In addition, the limited stock supply of timber planks salvaged from the Wawona schooner were individually chosen and assigned to specific locations on the sculpture to ensure the efficient use of materials.

At completion of design, each wood element in the Rhino file was converted into machine code for use on a three-axis CNC mill at the University of Washington College of Built Environments. The machining operations allowed for each plank to be cut and tapered to fit piecewise planar to the doubly curved surface of the sculpture. Tolerances of less than 1/8-in. were achieved during fabrication, allowing excellent fit-up during construction at interfaces of the wood and water jet-cut steel components. The final stage of fabrication involved many hours of hands-on carving by the artists to create the final dynamic surface topography of the sculpture.

CLIENT
Museum of History and Industry
Seattle, WA

ARTIST
John Grade
Seattle, WA

STRUCTURAL ENGINEER
Arup
Seattle, WA

WOOD DIGITAL FABRICATION
University of Washington
College of Built Environments
Seattle, WA

ARTWORK INSTALLATION AND RIGGING
Artech
Seattle, WA

PHOTOGRAPHY
Arup
Seattle, WA

John Grade
Seattle, WA

StudioFifty50
Seattle, WA

GREEN BUILDING

Wood features prominently in this headquarters which feels less like an office and more like a retreat

The David and Lucile Packard Foundation

EHDD

Wood was chosen for the Los Altos, California, corporate headquarters of the David and Lucile Packard Foundation as a sign of its commitment to protecting the environment.

According to the architect, the inherent warmth of wood was a great match with the client, Packard family members and the foundation's culture. The wood gives the building a relaxed feel; the occupant is in constant contact with nature through views into the outdoor courtyard and being surrounded by natural materials. The palette supports an environment that's somewhere between a family residence and a retreat center – one that fosters great human interaction and collaboration.

Wood is the main exterior cladding material of the LEED Platinum, net zero energy building and also features prominently in the interiors. Selected casework, doors and furniture utilize eucalyptus veneer salvaged from the Presidio in San Francisco.

For the exterior in particular, the use of wood reflects the California tradition of wood buildings, underlining the emphasis on the indoor-outdoor lifestyle and love for natural materials. This is also clearly referenced in the building layout which is centered around a wooded courtyard, with operable doors on all sides. This gives staff the opportunity to work outside or inside with natural ventilation and direct access to the outdoors. Areas of the courtyard are paved with FSC-certified end grain wood block pavers, adding another layer of texture and color to the ground surface.

1. green roof
2. mechanical room
3. terrace
4. upper lobby
5. board room
6. office neighborhood
7. copy room
8. meeting room

FLOOR PLAN

1. South San Antonio Road
2. 343 Second Street
3. Second Street
4. Third Street
5. Whitney Street
6. retail
7. visitor parking
8. gas station
9. old packard building
10. office
11. book store
12. store
13. surface parking

SITE PLAN

The wood adds warmth and a smaller scale to the building with its subtle variation in tone and textural qualities, while the modern application uses dark reveals to create sub-division and larger scale pattern in the facade. This results in a taut, crisp and refined skin.

The extensive use of wood emphasizes the building as a healthy and sustainable work environment for the staff. The exposed wood trusses and wood structure help support this notion.

ARCHITECT
EHDD
San Francisco, CA

STRUCTURAL ENGINEER
Tipping Mar
Berkeley, CA

MEP ENGINEER
Integral Grou
Oakland, CA

CIVIL ENGINEER
Sherwood Design Engineers
San Francisco, CA

GENERAL CONTRACTOR
DPR Construction Inc.
San Francisco, CA

LANDSCAPE ARCHITECT
Joni L. Janecki & Associates
Santa Cruz, CA

PHOTOGRAPHY
Jeremy Bittermann
Portland, OR

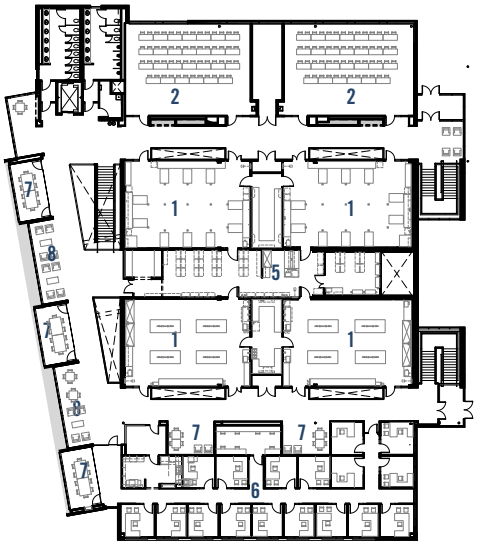
INSTITUTIONAL

Science building continues campus tradition of building with wood

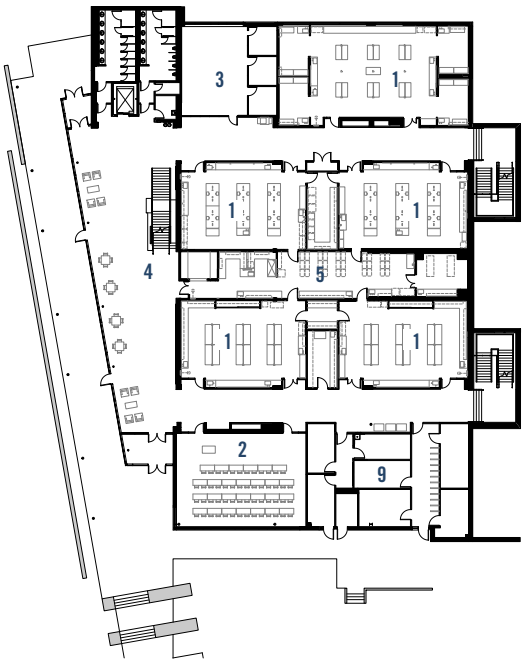
Central Oregon Community College Science Building

Yost Grube Hall Architecture and Pinnacle Architecture

1. lab
2. classroom
3. learning resources center
4. lobby/lounge
5. stockroom/prep lab
6. office
7. group study
8. study lounge
9. building support



SECOND FLOOR PLAN



FIRST FLOOR PLAN

Nestled into a hillside site at Oregon's oldest community college, the Central Oregon Community College (COCC) Science Building provides flexible instructional spaces to support both traditional and innovative modes of teaching and learning. With a subtle, earth-toned exterior palette harmonizing with the campus context, the two-story, 45,000-sq.ft. building maximizes opportunities to put learning on display, both within the teaching spaces and in the outside public areas.

The science building program is comprised of dedicated labs for biology, chemistry, geology, and physics; a herbarium; a learning resource center; and faculty offices. The building contains a wide variety of informal break-out/group study areas designed to encourage collaboration and interaction. These vary from three enclosed conference "boxes" on the second floor of the lobby to open study lounges located between the conference rooms, along the public hallways and at the building's entries. On both floors, the building is organized around a large central prep lab/stockroom that is shared by four adjacent science labs. A large two-story lobby is located on the downhill side of the site, opening onto a covered terrace area and providing expansive views to nearby mountains.

HILL SECTION




Each of the lab spaces is connected to its adjacent public hallway by large interior windows, providing views of lab activities from the hallways. Floor-to-ceiling writing surfaces and display cases abound in the public areas of the building, transforming them into places of education and discussion.

Because the building is backed into a hillside and a majority of its lab spaces do not have exterior windows (based on the science faculty's desire to have the labs adjacent to a central stockroom), providing daylight throughout the facility was a challenge. To introduce daylighting into these "landlocked" parts of the building, skylights ring the central lab/stockroom area, bringing light to the hallways, the lobby, and to the labs themselves via continuous interior glazing between the labs and hallways. Openings in the second floor beneath the skylights bring the light to the first floor and provide visual connections between the two levels of the building.

Wood was chosen as a predominant building material for its aesthetics, ease of construction and sustainability. The campus and the region have a strong tradition of building with wood, with the surrounding context characterized by structures clad in wood shingles and siding. The science building continues this wood palette with a more contemporary expression. The extensive use of wood on the exterior and interior takes advantage of the deep reservoir of local experience in building with wood. Moreover, the use of a renewable resource was also a high priority for the project. The center used sustainably certified wood products and received a Gold rating from Earth Advantage's Commercial Pilot Program.

Wood provided wonderful natural contrasts with glass and steel on the exterior. On the interior, Western red cedar ceiling panels were mixed with Douglas fir paneling, benches and casework to develop warmth in the spaces. In addition, white oak was used as interior siding in group study spaces, as casework in science labs, and for hallway display cases.

ARCHITECTS
Yost Grube Hall Architecture
Portland, OR

Pinnacle Architecture
Bend, OR

STRUCTURAL ENGINEER
KPFF Consulting Engineers
Portland, OR

MECHANICAL ENGINEER
Mazzetti + Nash Lipsey Burch
Portland, OR

ELECTRICAL ENGINEER
Sparling
Portland, OR

CIVIL ENGINEER
W&H Pacific
Bend, OR

GENERAL CONTRACTOR
Kirby Nagelhout Construction
Bend, OR

LANDSCAPE ARCHITECT
Lango Hansen
Portland, OR

PHOTOGRAPHY
Alan Brandt
Portland, OR

Christian Columbres
Portland, OR

University of Oregon Ford Alumni Center

Opsis Architecture and TVA Architects

The Ford Alumni Center is the new gateway to the University of Oregon, anchoring the east entrance to the campus. Adjacent to the new arena, this exciting facility was envisioned as a place that brings past and present students together.

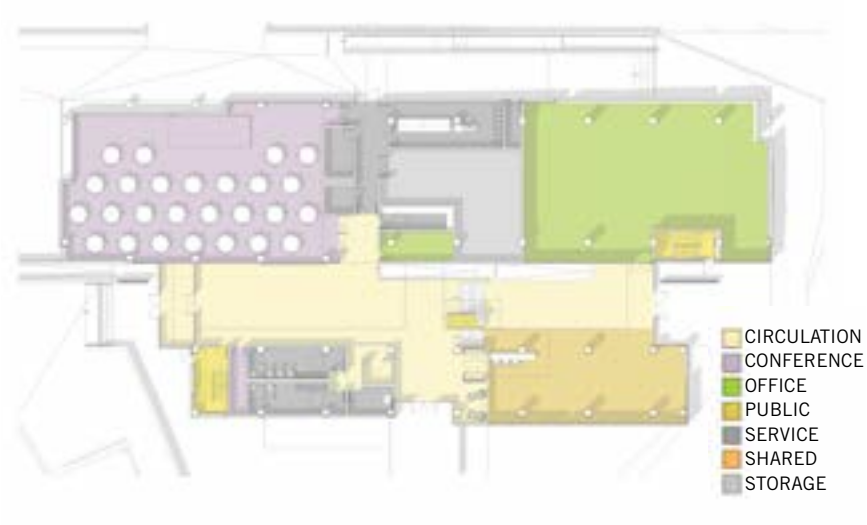
The center was designed to tell the Oregon story through the warmth of natural materials, dramatic natural light, transparency and cutting-edge interactive video technology. The 60,000-sq.ft. center brings together the Alumni Association, University Office of Development and the UO Foundation offices for the first time in an interconnected, collaborative workplace. It is also the beginning and ending point for all campus tours connecting the next generation of UO students to the school's rich history.

The central four-story atrium invites students and alumni to explore and learn about the history of the university. Interactive panels tell the stories of alumni and students, and the legacy of the institution and its graduates, while a touch-activated table invites users to discover the history of the school's alumni. Movable panels highlight significant achievements of successful alumni and display the many accolades of the academic and athletic pursuits of current students and professors. The welcoming environment extends to the 10-ft. fireplace in the lobby and the intimate lounge spaces that bookend each floor and provide places for impromptu meetings, studying and socializing. A 250-seat ballroom opens through folding partitions to the atrium and to the exterior garden terrace, creating the perfect environment for large events. A library, kitchenette and meeting rooms break out from the atrium offering additional space for casual interaction as well as smaller meetings and events.

Locally harvested wood is used throughout the building to ground the design while also creating an inviting place to visit and work. The west wall of the atrium is covered in a dedicated wood screen bringing warmth into the space, addressing acoustics and playing with the daylight streaming in from the skylights above. Local artists were commissioned to produce works that tell the story of the uniqueness of the environment and culture in Oregon. These are incorporated into the wood elements of the building.

INTERIOR

Wood tells the story of unique Oregon culture and environment



LEVEL 1 FLOOR PLAN

All of the conference, lounge and meeting spaces were combined on three levels into a highly transparent "bar" that fosters a strong sense of community. This was achieved through a collaborative planning process designed to break traditional silos. The open office environment also encourages collaboration and interaction between departments that were previously miles apart on campus. Each floor overlooks the lobby below and offers views throughout the entire building to connect the spaces and mix building users with students and alumni.

The Ford Alumni Center is LEED Gold Certified.

ARCHITECT OF RECORD AND INTERIOR ARCHITECT
Opsis Architecture
Portland, OR

BUILDING ARCHITECT
TVA Architects
Portland, OR

CLIENT
University of Oregon
Eugene, OR

STRUCTURAL ENGINEER
Haris Engineers
Overland Park, KS

MECHANICAL/ ELECTRICAL ENGINEER
Interface Engineering
Portland, OR

LEVEL 2 FLOOR PLAN

LEVEL 3 FLOOR PLAN

LEVEL 4 FLOOR PLAN

CIVIL ENGINEER
Balzhiser & Hubbard
Eugene, OR

LANDSCAPE ARCHITECT
Walker Macy
Portland, OR

GENERAL CONTRACTOR
Fortis Construction
Portland, OR

PHOTOGRAPHY
Christian Columbres
Portland, OR

MULTI-STORY

Wood-frame student housing achieves a fine balance of public and private spaces

University of Washington West Campus Student Housing – Phase 1

Mahlum Architects

A desire for connectivity and a pedestrian-friendly space influenced the design and structure of four city blocks of student housing on the University of Washington's emerging West Campus. Nearly 1,700 beds contained in five buildings define a growing mixed-use campus neighborhood straddling NE Campus Parkway, a neglected 1950s era incision into the neighborhood. Two public open spaces were created: an on-grade park, anchoring the complex along NE Campus Parkway with a heritage elm tree as the focal point, and a publicly accessible courtyard allowing pedestrians to cut through one residence hall at grade. In addition, every building provides an elevated, secure and private terrace for its residential community.

Careful attention to safe street crossing, accessible routes and entry locations supports the successful realization of the interconnectivity concept. Areas of both prospect and refuge within a dense urban environment play upon the social instincts of seeing and being seen.

To make the most of the urban campus location, the buildings were each designed with five stories of light-frame wood construction over a two-story concrete podium, a configuration that helped meet both ambitious design goals and a limited budget. The use of wood also improved the buildings' environmental footprint.

West Campus Student Housing – Phase I includes three residential halls (Alder Hall, Elm Hall and Poplar Hall) and two apartment buildings (known collectively as the Cedar Apartments). While the apartments have a parking garage on the lower level, the residence halls include a restaurant, grocery store, conference center, café, fitness center and academic support center on their ground floors.

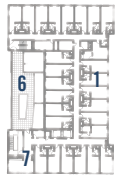
The wood-framed structure in each building is separated from the concrete podium below by a three-hour rated floor assembly, and all floors were fully sprinklered according to NFPA 13. The five upper floors used 2 x 4 and 2 x 6 wood studs in both exterior walls and interior load-bearing walls, as well as in partition walls. Lateral strength is provided by plywood-sheathed wood shear walls. Floors consist of engineered wood I-joists and plywood sheathing.

Stair treads and stair landings on the primary staircases were constructed from glued laminated beams, and laminated strand lumber (LSL) was used for the rim boards. Roof structures were comprised of engineered wood trusses and plywood sheathing, and heavy timber blocking was used throughout for fire protection. The building's exteriors were then clad in manganese flashed brick extending to grade. Wood was also used as a finish material on portions of the exterior, to add richness to the material palette, especially around the main building entries.

PRIVATE

CEDAR APARTMENTS
RESIDENTIAL LEVELS 3-7

ELM HALL
RESIDENTIAL LEVELS 3-7



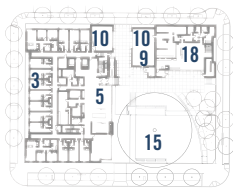
POPLAR HALL
RESIDENTIAL LEVELS 3-7

ALDER HALL
RESIDENTIAL LEVELS 3-7

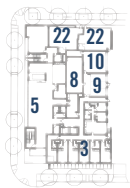
1. residential rooms
2. studio, two & four bedroom apartments
3. studio apartments
4. two & four bedroom townhome apartments
5. residential commons
6. residential roof terrace (level 3 only)
7. floor lounge
8. bike parking
9. parking
10. service
11. advisory suite
12. academic resource center
13. central custodial offices
14. health & wellness center
15. elm plaza
16. courtyard
17. lower courtyard
18. restaurant
19. grocery store
20. café
21. conference center
22. retail

SEMI-PUBLIC/SEMI-PRIVATE

CEDAR APARTMENTS
RESIDENTIAL LEVEL 2



ELM HALL
GROUND LEVEL 2

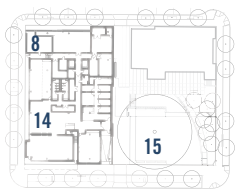


POPLAR HALL
GROUND LEVEL 2

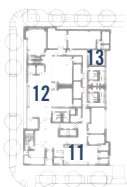
ALDER HALL
GROUND LEVEL 2

PUBLIC

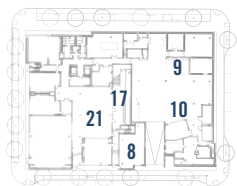
CEDAR APARTMENTS
RESIDENTIAL LEVEL 1



ELM HALL
GROUND LEVEL 1



POPLAR HALL
GROUND LEVEL 1



ALDER HALL
GROUND LEVEL 2

FLOOR PLANS

Contractors used traditional installation methods, finding it most economical to frame in place. They experimented with using modular prefabricated wood residential room units on one of the five buildings, but learned that they lacked adequate staging space in the tight urban setting, so instead turned to traditional framing. Wood structural materials for each unit were precut and palletized, which helped speed installation and reduced jobsite waste.

Clad in brick extending to grade, the building mass was carved away at the first and second floors to reveal public and community spaces clad in curtainwall, wood and weathering steel.

Daylight studies were undertaken to determine the amount of glazing required for the rooms to function without the use of electric lighting. The preferred solution utilized a series of economical and efficient vinyl nail flange windows effectively spanning the room's width. To deconstruct the ribbons of glazing, the windows are manipulated in a shifting pattern occasionally infilled with white aluminum panels to create a graphic facade alluding to the individuality of the residents housed within. Floor lounges, stairs and study rooms punctuate the facade at corners.

The principal project goals were to reduce energy and strive for carbon neutrality. The university challenged the design team to create a community which could be built within a very tight budget of $177/sq.ft., yet provide iconic identity, exceptional energy efficiency and integrated sustainability that would set the stage for future development.

There are a number of additional student housing projects under development at UW, and all will be built with wood. The West Campus Housing project represented a paradigm shift at the University of Washington, symbolizing its first embrace of large-scale light wood-frame construction.

ARCHITECT
Mahlum Architects
Seattle, WA

CLIENT
University of Washington
Seattle, WA

STRUCTURAL ENGINEER
Coughlin Porter Lundeen
Seattle, WA

MEP ENGINEER
PAE Consulting Engineers Inc.
Portland, OR

CIVIL ENGINEER
SVR Design Company
Seattle, WA

CONSTRUCTION MANAGERS
Seneca Real Estate Group Inc.
Seattle, WA

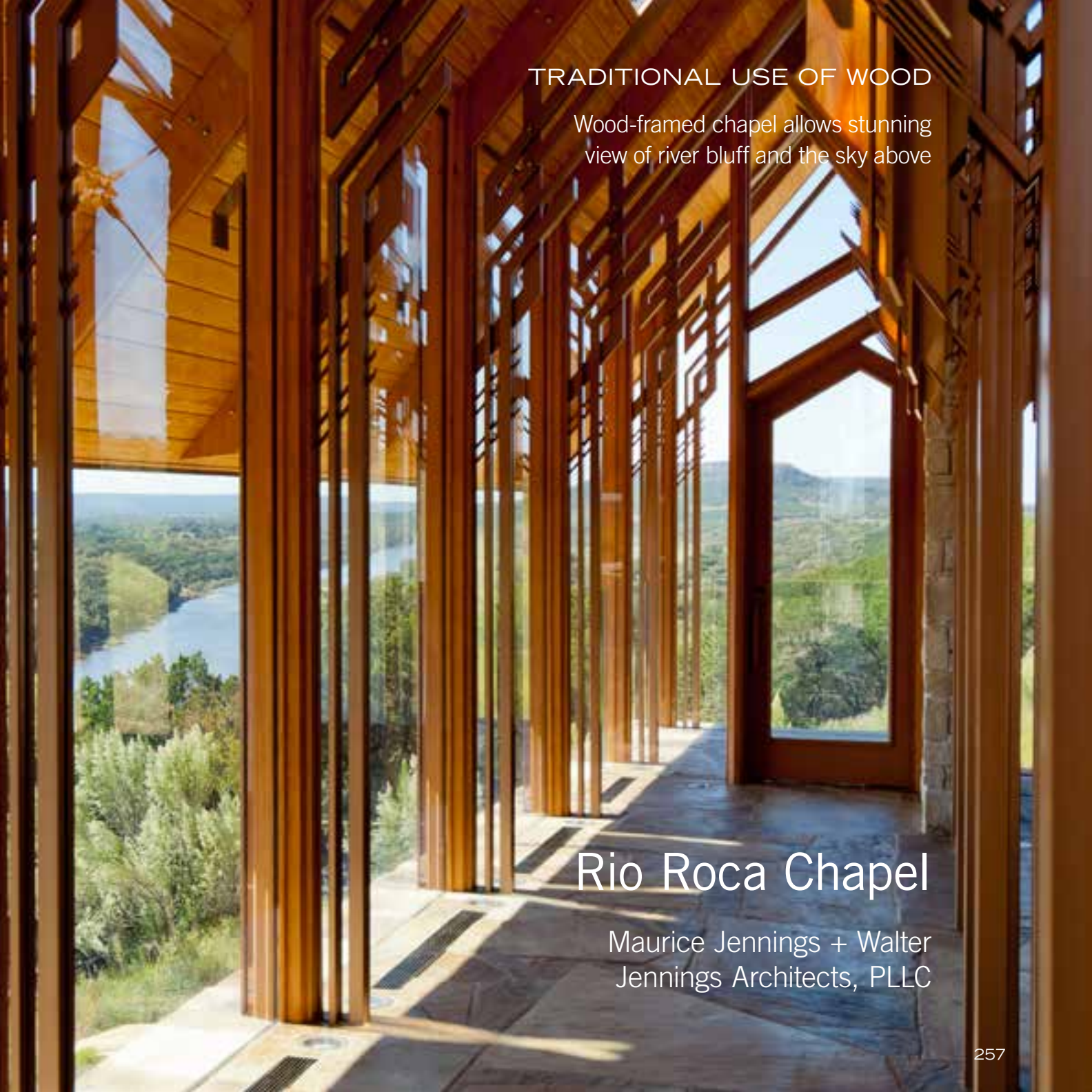
Spectrum Development Solutions
Seattle, WA

GENERAL CONTRACTOR
CONSTRUCTION MANAGERS
Walsh Construction
Seattle, WA

W.G. Clark Construction
Seattle, WA

LANDSCAPE ARCHITECT
Gustafson Guthrie Nichol
Seattle, WA

PHOTOGRAPHY
Benjamin Benschneider
Seattle, WA



TRADITIONAL USE OF WOOD

Wood-framed chapel allows stunning view of river bluff and the sky above

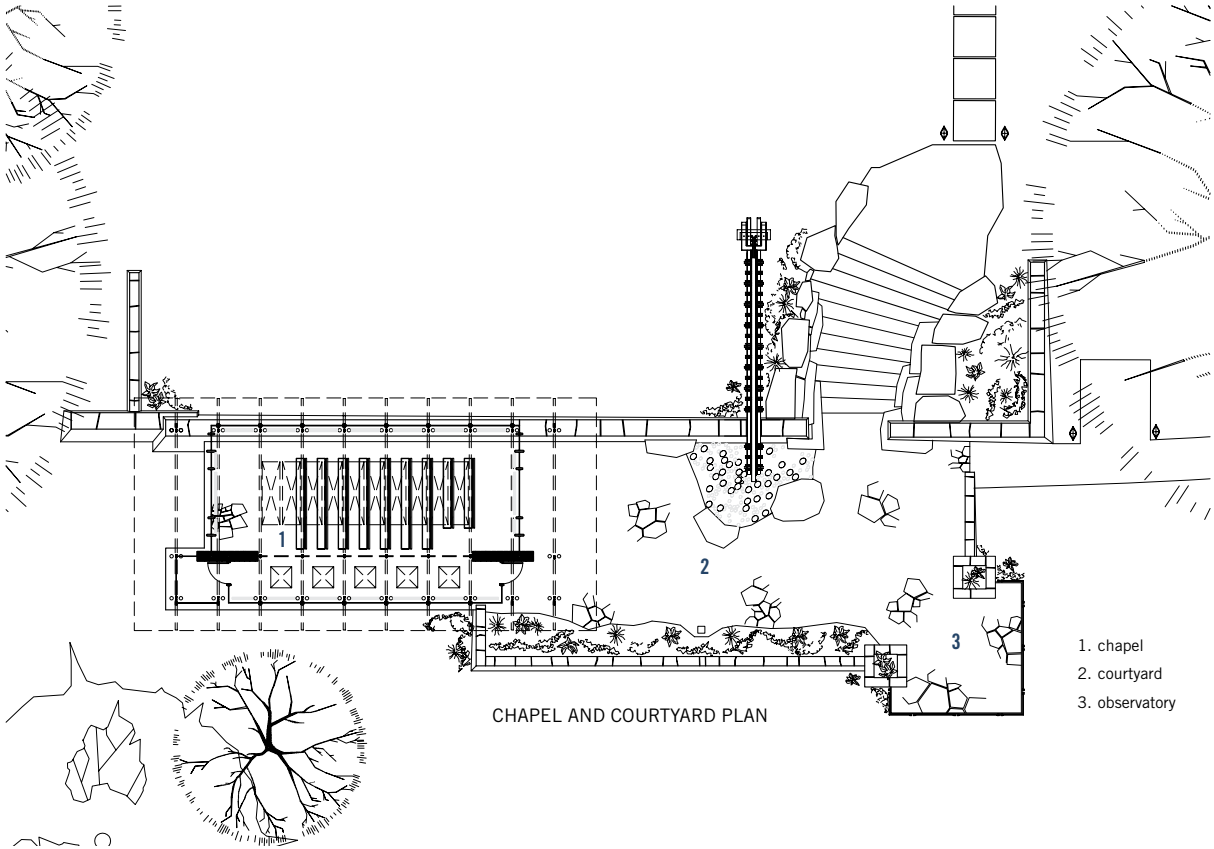
Rio Roca Chapel

Maurice Jennings + Walter Jennings Architects, PLLC

Rio Roca Chapel is located along the Brazos River in Texas. The 1,080-sq.ft. chapel is used for private services. The chapel is constructed of stone, glass, steel and wood, and utilizes tension bars, with turnbuckles at each of the bars, to provide bracing for the glass walls and copper roof. The structure is a series of custom-designed steel and wood flitch systems with fir tongue and groove decking above.

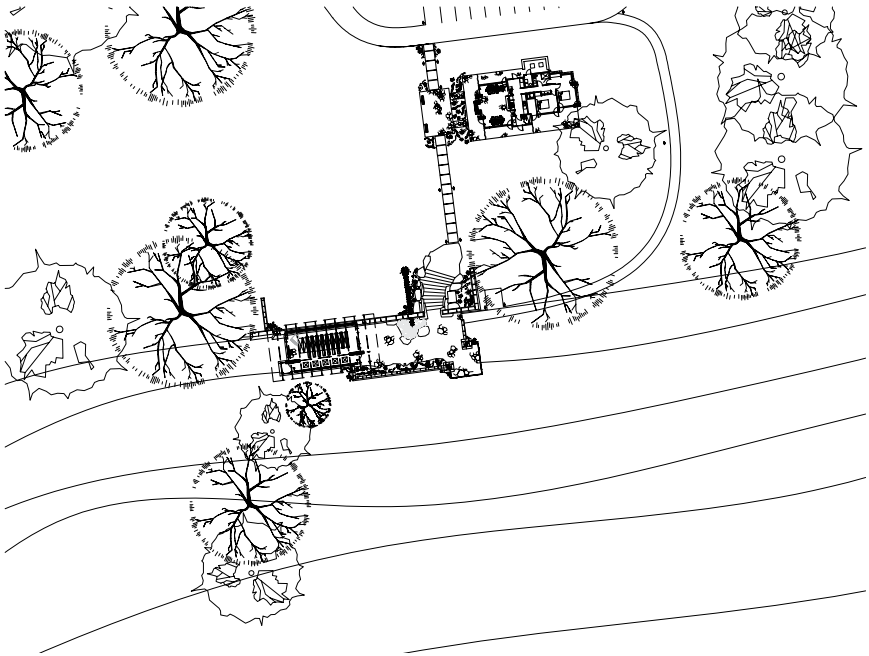
The chapel utilizes stone retaining walls to negotiate the transition between plateau and river bluff. Visitors go through a 10-ft. stone wall to enter the chapel forecourt, where a beautiful view of the Brazos River is revealed.

The axis of the chapel parallels the river valley to maximize the view down the river. Once inside, a visitor's gaze is drawn down to the river by the low roof and to the west toward School House Mountain by the large glass window wall.



CHAPEL AND COURTYARD PLAN

The flitch columns are made of four standard pine 2 x 4s bolted to the sides of a steel plate. They allowed simple nailing and screwing of the wood trim to hold the glass, creating a wood and steel curtain wall system. The flitch beams are made of standard pine 2 x 8s bolted to either side of a steel plate. They allowed the fir decking to be nailed to the cross frame easily. The profiles of the wood trim are simple angles, fabricated with a table saw on-site. This process permitted the wood portion of the construction to be cut to fit and installed with a nail gun. The pine is protected from sun and rain by the large roof overhang. The fir tongue and groove decking ties all of the cross frames together. Nearly all of the wood framing is exposed so there was no occasion for "rough carpentry." Care had to be taken during construction to load the structure symmetrically while the decking was being installed. The decking was installed in a four-foot run on one side,



SITE PLAN

then the other, until completion. Before everything was tied together by the roof deck, the structure acted like independent cross frames. Once all of the decking was in place, the structure is very rigid.

This portion of Texas is dotted with oil and gas rigs. While the forms of this chapel and the wells differ, the detailing is similar. Threaded and bolted connections allowed pieces to be built in a shop and then brought to the site to be assembled. The threaded connections allowed for minor adjustment and tensioning and were then held in place with set screws. The use of turn buckles allowed the majority of the structure to be fabricated off-site in a controlled environment by skilled craftsmen.

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Wood creates an enriching learning environment that balances cost, functionality and environmental objectives

Duke Lower and Middle Schools

DTW Architects & Planners and Fielding Nair International

When the architects signed on to design Duke School, they faced the same challenge school boards and design teams face across the country: how to balance cost, functionality and environmental objectives while creating an enriching space that inspires learning.

To create a positive learning environment, exposed wood was used as the main design element. The warm color palette of the natural wood structure and finishes complements the informal and open educational philosophy of the school, and the open floor plan allows the use of wood to unify the design.

Duke School is located adjacent to the Duke Forest, a 7,000-acre forest used for research and education by the Nicholas School of the Environment at Duke University, Duke School, and the Durham community. In addition to creating a sense of harmony with the outdoor environment, one of the design objectives was to expand the concept of learning to the school itself by exposing the structural and mechanical systems and making the solar hot water system, rain gardens with cisterns, and daylighting techniques all visible.

SITE PLAN

1. 7/8 education
2. play court
3. ms shared
4. 5/6 education
5. middle school gymnasium
6. playground
7. early childhood education
8. existing soccer field
9. existing gym/library
10. 2/3 education
11. service
12. administration
13. 4th education
14. k-1 education
15. future softball field
16. sign kiosk
17. new multi-purpose sports field
18. existing school campus
19. lower school campus
20. middle school campus

In the early design phase, several structural systems were analyzed and the combination of a glulam timber structure and wood stud walls proved to be an economical option for most of the new construction. Overall, the project included three new wood-frame middle school buildings, two new wood-frame lower school buildings, the renovation of four existing lower school buildings, and a new steel-frame gymnasium – a total of 79,204 sq.ft.

Glulam columns, girders, purlins and arches comprise the main structural frames, while exposed tongue and groove wood roof decking is used as a design element. Other wood features include exterior walls comprised of wood studs with plywood sheathing, interior walls featuring wood studs with pressure-treated wood floor plates and wood windows clad with aluminum.

Of the five new wood buildings, the two lower school buildings averaged $130 per sq.ft. while the three middle school buildings averaged $112 per sq.ft.

Among its cost advantages, wood can be locally sourced and tends to be delivered quickly, and most communities have a large pool of qualified tradespeople, which minimizes construction delays and keeps labor costs competitive. Wood's ease of use also translates into faster construction schedules, while a smaller foundation may be needed because of its light weight.

Adaptability is also a consideration. For example, Duke School was designed with an area adjacent to the art room and covered in canopies for outdoor learning. However, a year after the school was completed, it was decided that the indoor art room needed more capacity. It was a relatively easy fix to move the outside wall to the edge of the canopy.

At the same time, there are challenges in the design of any building. Here, the desire for large, open rooms dominated by exposed wood decking created an acoustical challenge. The solution involved suspending ceiling baffles in select areas which did double duty because both sides are exposed. Some wall panels were also constructed – essentially wood framing with batt insulation covered with fabric – a cost-effective solution.

Although budget was important, the top reason for using exposed wood was the aesthetic and, more specifically, how the warmth and beauty of wood could influence students. Evidence suggests that the use of natural materials can contribute to an individual's sense of well-being. For example, a study by the University of British Columbia and FPInnovations found that the presence of visual wood surfaces in a room lowered activation of the sympathetic nervous system (SNS), which is responsible for physiological stress responses in humans. Study author David Fell says research on schools is planned, but the results of the study apply to any interior environment: the stress-reducing effects found for wood in office environments are in theory transferable to any building type as these are innate reactions to natural materials.

Although Duke School did not pursue green building certification, sustainability was a stated design objective that was met in part by the use of wood. Duke School utilized Southern yellow pine from local, sustainably managed forests. In terms of operational energy, the wood building system also allowed for high insulation values in the exterior building envelope. The combination of a thermal building envelope, daylighting, occupancy sensors, solar hot water system, HVAC system and other elements allowed the facility to achieve a 25 per cent reduction in energy use compared to typical schools.

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