CELEBRATING EXCELLENCE IN WOOD ARCHITECTURE

2018-19 WOOD DESIGN AWARD WINNERS

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2018-19 WOOD DESIGN AWARD WINNERS

Canadian Wood Council Conseil canadien du bois

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Celebrating Excellence in Wood Architecture
2018-19 Wood Design Award Winners

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Celebrating Evolution by Challenging

CONVENTIONAL APPROACHES

When we celebrate wood in construction, we're celebrating some of the most innovative design and construction teams in the business. Although wood has been used in construction for centuries, advancements in technology and products are redefining what is possible. With this evolution comes the celebration of wood as an innovative building material that complements other products, adheres to the safety requirements of building codes and has an environmental story that hones in on responsibly managed forests and a desire for less greenhouse gas emissions within the built environment.

The Wood Design & Building Awards program would not be possible without the commitment of architects, engineers, builders and suppliers who steadfastly demonstrate the advanced capabilities of wood in intricate structures. Our awards program celebrates the evolution that is taking place in the construction and design industry. Submissions to the awards program challenge the conventional approach for wood use by breaking down barriers – changing the perception of possibility into a reality.

As you will see from the submissions in this year's awards book, we're celebrating the passion of design and construction teams that are inspiring a generation of newcomers to recognize wood's capabilities as a building material and use this knowledge to make informed decisions about their product choices. A building that is a good choice for today, is a good choice for many tomorrows thereafter.

It is our pleasure to feature the winners from our program in our award-winning *Celebrating Excellence in Wood Architecture* awards book. May these projects ignite inspiration, instill a desire for more wood knowledge and result in the successful completion of awe-inspiring and innovative wood projects.

An immense thank you to this year's sponsors for their ongoing support of this prestigious awards program – Sustainable Forestry Initiative, Real Cedar and Sansin.

Etienne Lalonde Lazea Natalie Tarini

Etienne Lalonde
Publisher
Wood Design & Building **magazine**

Ioana Lazea & Natalie Tarini
Coordinators
Wood Design & Building Awards

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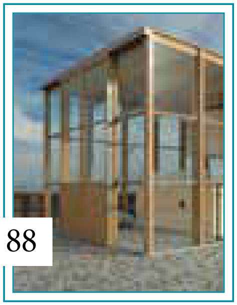

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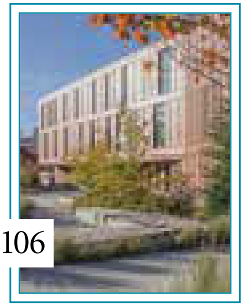

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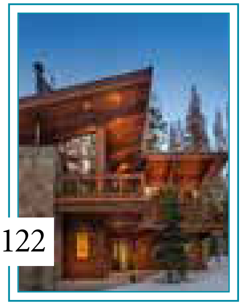

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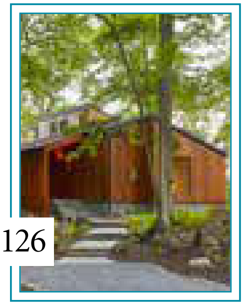

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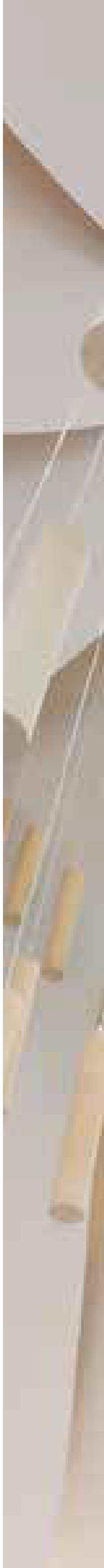
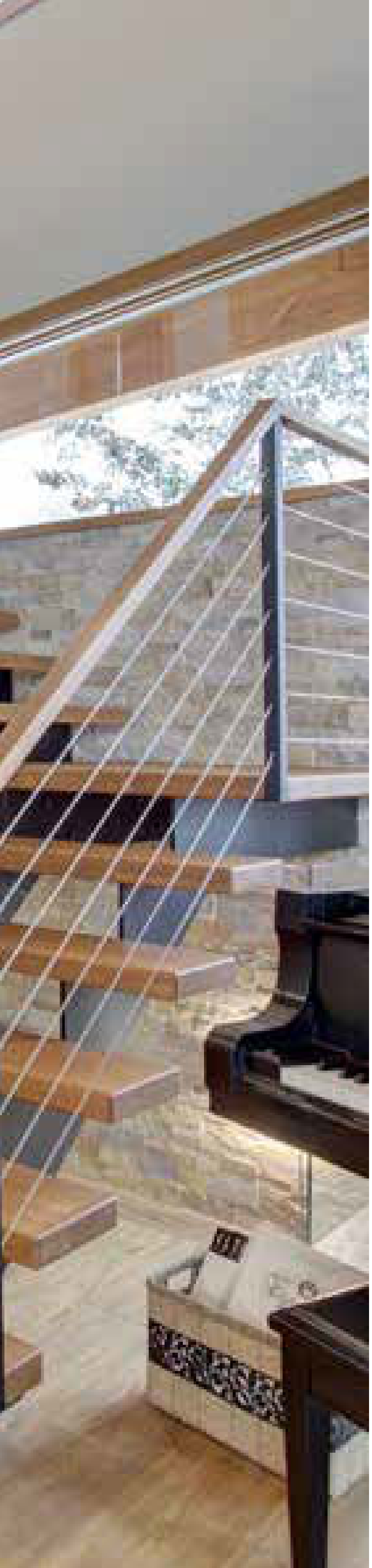


CANADIAN
WOOD *WORKS!*
AWARDS

2019 BRITISH COLUMBIA

2019 BRITISH COLUMBIA

CANADIAN
WOOD *WORKS!*
AWARDS



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2018 ONTARIO

2018 ONTARIO

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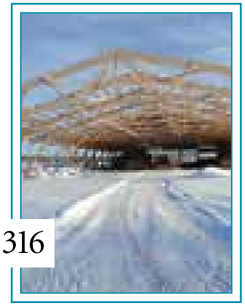

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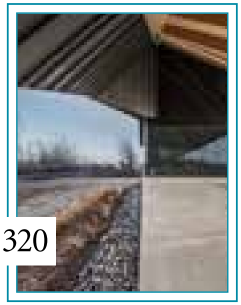

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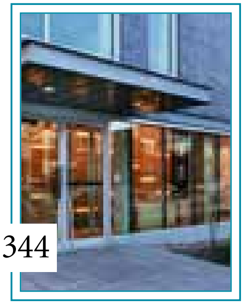

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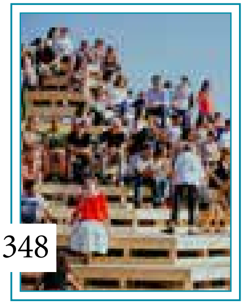

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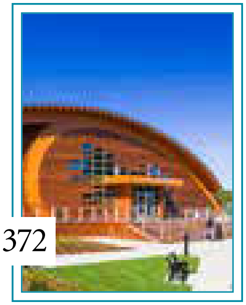

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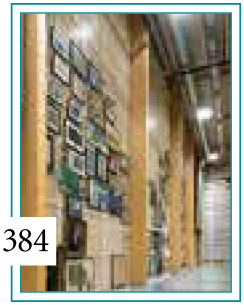

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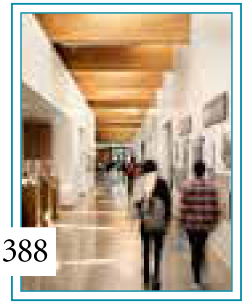
2019 UNITED STATES



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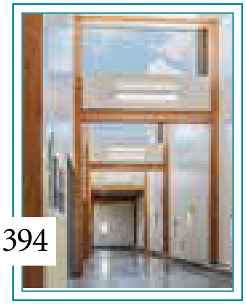

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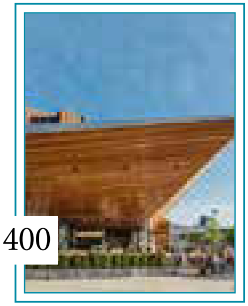

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Lumen at Beacon Park

U.S. WOODWORKS WOOD DESIGN AWARDS

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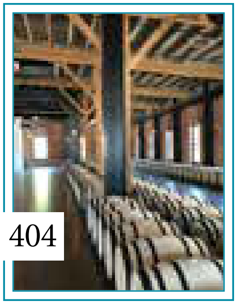

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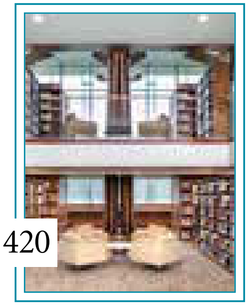
2019 UNITED STATES



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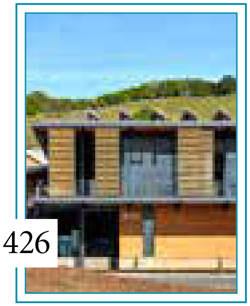
Liberty Fund Corporate Headquarters



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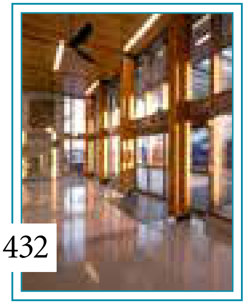
Janet Durgin Guild & Commons, Sonoma Academy



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Wood Design & Building Awards

Jurors

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Wood Design & Building Awards Program

Transform & Inspire

As I watched this year's jury review more than 60 projects that made it to the final round of judging, I realized what a truly difficult task they had – faced with so many beautiful, innovative and diverse expressions of wood architecture, a final decision often came down to function versus aesthetics, or replicability versus complexity. Sometimes a more expensive or extravagant project was passed over for one that artfully showcased the use of wood, while those which supplied additional background information and illustrations were appreciated for providing a view into the process – no matter how messy it might be, at times.

The *Wood Design & Building* Awards jury appreciates (and wants to see) not just the finished project, but also the many steps that create a structure. It was a privilege, as an observer, to hear the impassioned debates that decided the winners; with each choice, there was excitement when agreement was reached.

The recognition of excellence is a joyful, but sometimes difficult, process. Inevitably, each jury member saw one of their favorite projects get eliminated. Those winners that remain, from the monumental Calgary Central Library to the two sublime, ephemeral installations by RAW, represent the wide range of wood's ability to transform and inspire the built environment.

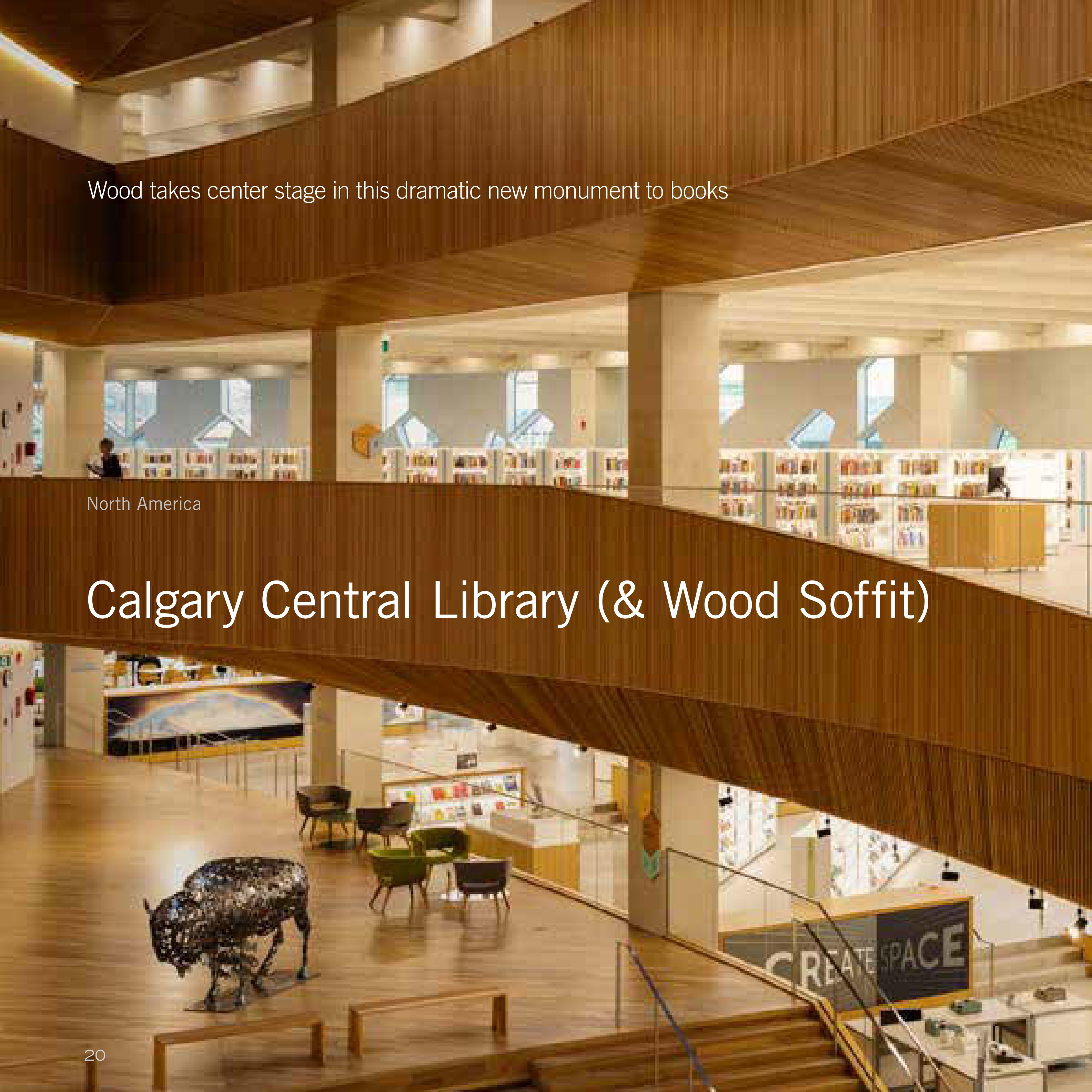
Popi Bowman
Editor
***Wood Design & Building* magazine**

HONOR AWARDS

Wood takes center stage in this dramatic new monument to books

North America

Calgary Central Library (& Wood Soffit)



"This is an exemplary project in many ways – it's an important city-building project, it takes the typology of a library to new places and it's transformative. The wood, used inside and out, has a powerful impact."

– Jury

A showcase for wood, the brand-new, 240,000-sq.ft. Calgary Central Library features Western red cedar, Western hemlock and white oak in a variety of interior and exterior applications.

Although the exterior cladding is a geometric interplay between glass and aluminum, as visitors approach the entryway they are greeted by a sweeping roof of unfinished, fire-treated cedar slats; about 170 panels that range in weight from 500 to 2,000 lb. comprise one of the largest free-form timber soffit structures in the world, using 21,850 sq.ft. of wood. The fabricator, StructureCraft, created a double-curved surface using only two-dimensional CNC-milled wood framing elements, developing custom algorithms to create a pattern of geodesic ribs that support the curved surfaces. The cedar planks were then installed and interlocked with site-cut segments to form the continuous surface.

The design team chose wood because it provides a sense of intimacy and familiarity, allowing the library to embody its mission to provide an interesting space for the public. Further, the warmth and organic texture of wood strikes a strong contrast to the crystalline facade.

Inside the structure, Western hemlock is predominant as the material used for wood slat walls and ceilings. Its visual similarity to the entryway's cedar is complemented by the hemlock's higher density, stability and more consistent grain, which makes it a more suitable choice for a slat system. Zones of slats were panelized into units averaging 2 ft. wide and 8 ft. long, custom manufactured with a slight splay to respond to the building's curvature. These panels were installed in an interlocking pattern with site-cuts and additions as required for unique conditions. This strategy also allowed for ease of access for maintenance of HVAC, devices, sprinklers and other systems, both during construction and in the future.

More than 49,000 sq.ft. of hemlock panels were used in the creation of the lobby, atrium, theater and reading room spaces; in total, there are more than 460,000 linear ft. of Western hemlock in the library, with the ceiling alone using 285,000 linear ft. In the theater, the wood slat walls were panelized with a semi-randomized depth, but each panel follows a regular increment so only minor site adjustments were required. The millwork has a high degree of variability, responding to both programmatic needs and location within the building, so each of those elements were custom designed.

White oak was selected for the floors, walls and millwork, as it is a highly durable wood type with interesting visual and tactile characteristics. Approximately 30,000 sq.ft. of engineered wood flooring manufactured by Nydree were used in the atrium and Children's Library spaces, site-installed over a raised floor.

This innovative structure is built over a pre-existing LRT line, bridging two neighborhoods while creating a world-class platform for literacy and community enrichment – including 30 free bookable meeting rooms for members, and an Elders' Guidance Circle to feature Indigenous programming. The Calgary library system is currently the second largest in Canada, and the sixth largest municipal library system in North America. It now boasts a home worthy of this legacy.

ARCHITECTS
Snøhetta (design)
Oslo, Norway

Dialog (architect of record)
Calgary, AB

STRUCTURAL ENGINEERS
StructureCraft Builders (cladding)
Abbotsford, BC

Entuitive (base building)
Toronto, ON

GENERAL CONTRACTOR
Stuart Olson
Calgary, AB

TIMBER SUPPLIER
Executive Millwork
Calgary, AB

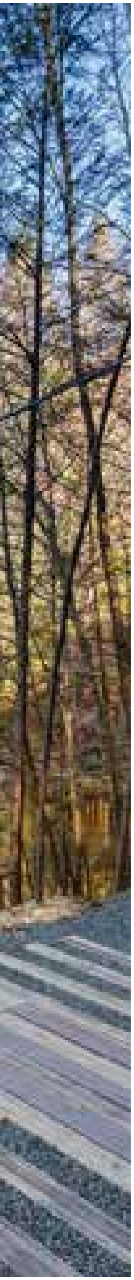
PHOTOGRAPHY
Michael Grimm
New York, NY

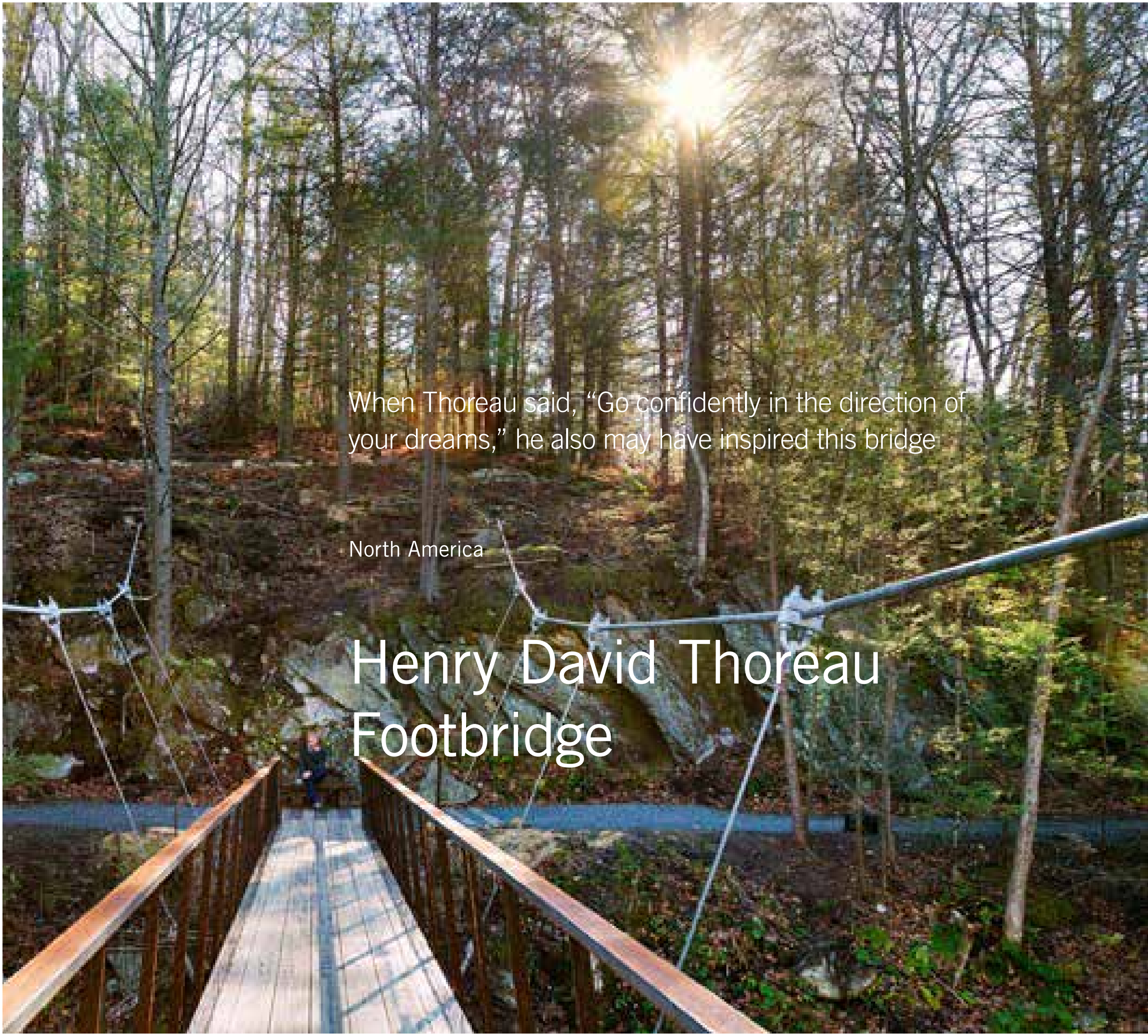
Named in honor of the renowned writer and environmentalist, this cable-stayed, mass timber suspension bridge spans 134 ft. across the Shepaug River in Northwestern Connecticut, rising clear of the 500-year flood level and then sweeping 90 degrees as it gently ramps down a gabion wall plinth on the north bank.

Opened to the public in early 2016, the new bridge is a short walk from the main parking lot at the Hidden Valley Preserve, providing access for disabled visitors to explore previously inaccessible trails along the river's northern bank, connecting two sides of the 650-acre preserve. The design was planned with input from wetland soil and wildlife biologists, with a focus on sustainable construction techniques for sensitive ecological areas.

"This is an exercise in beautiful minimalism – it feels like it is almost organically grown out of the site."

– Jury





When Thoreau said, “Go confidently in the direction of your dreams,” he also may have inspired this bridge

North America

Henry David Thoreau Footbridge

The design is unusual in several respects. First, it is a suspension bridge with a single tower; the mainlines are anchored directly into a hillside on the far shore. Second, the mainlines do not run in parallel; they radiate from a single point atop the bridge tower to two anchor points 25 ft. apart at the hillside anchorages. Third, the bridge superstructure – glulam beams pinned together with all thread rods – was more rigid and resistant to tuning than the dynamic, fixed-pinned stringer bridges that are more common.

Interlocked glulam beams create the bridge deck, suspended from steel backstay and anchored into exposed rock face. The siding consists of hand-woven cable net guard, suspended from weathered steel channel handrail. Quotes from Thoreau's seminal work, *Walden,* are inscribed by water jet into a bench at the cliff base and along the bridge's steel handrails.

ARCHITECT

Gray Organschi Architecture
New Haven, CT

STRUCTURAL ENGINEER

Robert Silman Associates
New York, NY

GENERAL CONTRACTORS

JIG Design Build
New Haven, CT

Seattle Bridge LLC
Seattle, WA

PHOTOGRAPHY

David Sundberg/Esto Photographics
Mamaroneck, NY

Sustainability and resiliency were the key design considerations for this research facility

The Marine Education Center at the Gulf Coast Research Laboratory

Located within an ecologically critical bayou and marsh wetlands, this facility – a collection of buildings that serve as the educational and outreach center for the University of Mississippi's Gulf Coast Research Laboratory – was designed with a focus on sustainability and resiliency after the original Marine Education Center was destroyed by Hurricane Katrina in 2005.

Considering natural disasters and durability, the design focused on using and maintaining the land to serve as the first line of defense. The team sited buildings within the existing tree canopy, which could serve as a natural wind buffe , while the roofs are sloped to quickly shed rainwater. Low-impact materials were selected for the health of the building's occupants and to avoid ocean contamination in the event of a natural disaster; traditional building materials including zinc and PVC were red-listed.

The buildings of the main campus are designed around a central courtyard, which serves as an outdoor classroom and informal gathering space. Composite wood slats create a shading device and provide visual

"The classrooms and indoor/outdoor spaces work well to dissolve boundaries and engage with the landscape. It's an elegant, timeless and wonderful space – the noble shed."
– Jury

interest, while porches are an important design component for sheltered outdoor walkways and teaching spaces. Tongue-and-groove wood decking provides flooring for the screened porch classrooms.

A 200-ft.-long cable suspension bridge connects the main campus to the outlying facilities, while protecting an ecologically sensitive forested bayhead. Inside the buildings, gapped wood ceilings are equipped with acoustical insulation. The primary structure is composed of Southern yellow pine dimensional lumber, a material chosen given its availability and prevalence as a local Mississippi commodity; locally sourced wood also ensures that any future repairs can be easily accommodated.

CLIENT
University of Mississippi
Oxford, MS

ARCHITECTS
Lake | Flato Architects
San Antonio, TX

Unabridged Architecture
St. Louis, MS

STRUCTURAL ENGINEER
Datum Engineers
Dallas, TX

GENERAL CONTRACTOR
Starks Contracting Company
Biloxi, MS

PHOTOGRAPHY
Casey Dunn
Austin, TX

“We were captivated by the robust exoskeleton but also by how the interiors wove into that structure.”
– Jury

Chile’s pavilion at Expo 2015 receives a “second life” as a cultural center in central Chile

International

Chile Pavilion Expo Milan 2015 – Second Life

Knowing that the pavilion to represent Chile at Milan’s Expo 2015 would be temporary, the architect designed a wooden Meccano-like, three-story structure that easily could be assembled, disassembled, transported and reassembled in its new home of Temuco, the capital city of Chile’s Araucanía region.

The glulam structure works like a lattice truss, which is composed of interlocking diagonals pinned to the top and bottom horizontal chords; the lower chords are connected to each other by the floor beams, while the upper ones are connected by a spatial structure composed of pyramids that help give rigidity to the main structure.

To simplify assembly and disassembly, the connections are designed to use the least possible amount of metal, while being embedded in the wood for both aesthetic and fire protection purposes.

Each glulam element is made of Radiata pine from southern Chile, glued and shaped in Italy, with no pieces longer than 12 m. to allow for easy transportation. The building enclosure is achieved by using wooden insulated panels and strategically located windows, both placed inside the diagonal beams to maintain the structural lines.

The interior spaces were designed to be flexible so they could host different uses and scenarios in the future. Floors are made of Lignum K, an insulating structural panel made of wood, plus a custom-made raised floor to house mechanical and electrical services. The pavilion was intended to be made of wood from the very beginning to honor Chile's rich tradition of wood construction and the fact that it is one of the countries with the highest reforestation rates in the world.

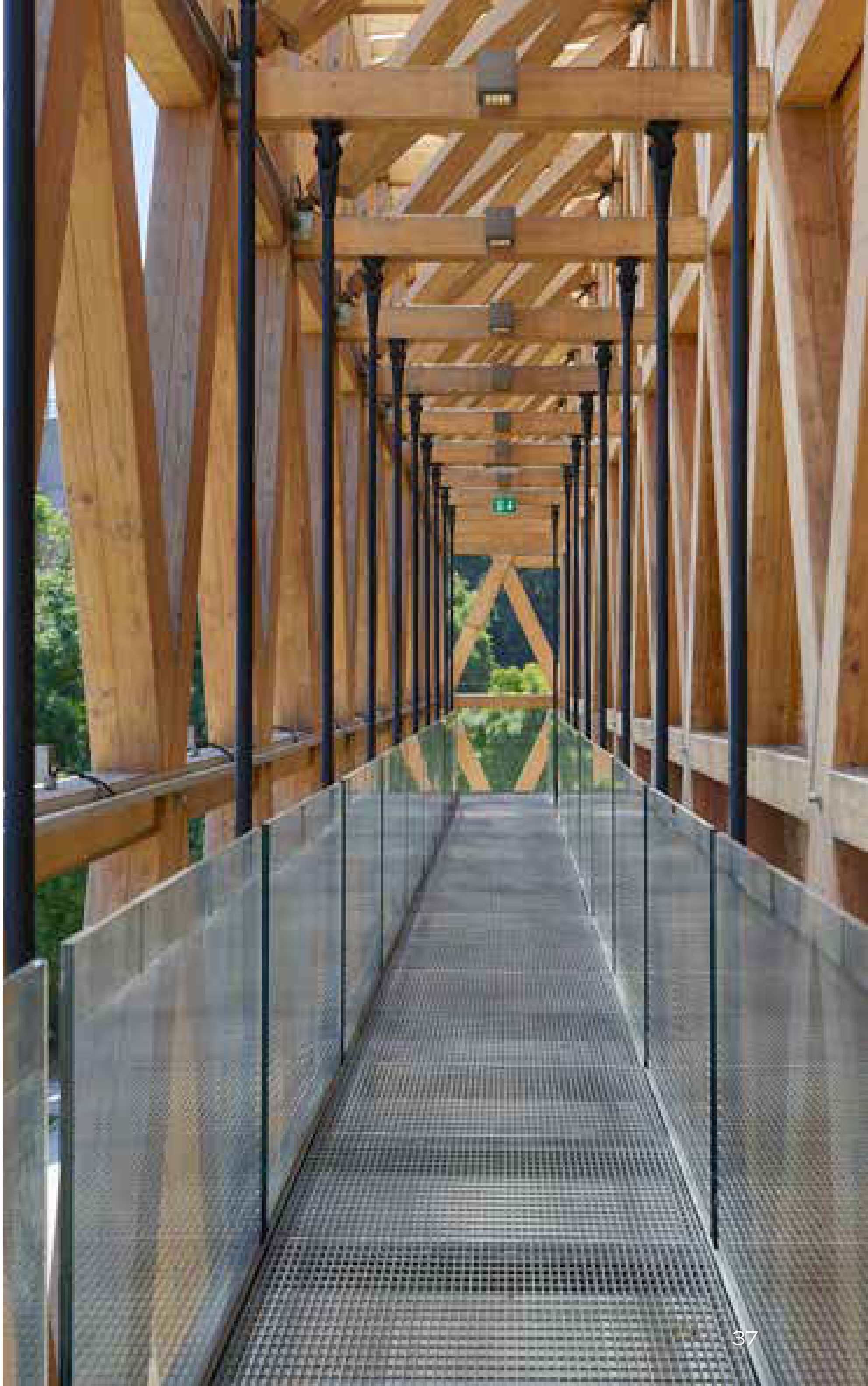
ARCHITECT
Undurraga Deves Arquitectos
Santiago, Chile

STRUCTURAL ENGINEER
F&M Ingegneria Spa
Venice, Italy

GENERAL CONTRACTORS
Sarapalti – Albertani (Italy)
Constructora San Ignacio – ASAP (Chile)

PHOTOGRAPHY
Roland Halbe
Stuttgart, Germany

Carlos Massmann
Santiago, Chile



“There’s a sense of play which was really nice to see – the CLT was an ideal material to choose because it’s a great platform for improvisation, but also pulls the spaces together as a common thread.”

– Jury

A climbing wall and trampoline are just some of the fun features that make this house a joy to come home to

Forest Home

The only single-family Honor winner in this year's awards program was a Finnish home chosen for its masterful but playful treatment of residential function, featuring a frame and interior that is predominantly CLT with integrated furniture and stairs assembled of prefabricated CLT elements. The material is an ideal framework for a climbing wall and other attachments, which are secured easily to the wooden walls.

A bright, free-flowing plan includes a void that is transformed into a lounge space with the use of trampoline netting. The main floor features a communal kitchen and dining area at one end and a generous living room at the other. In the middle of the plan, a gentle fold in the southern wall provides glimpses of the sea and afternoon sun, with the window placements carefully avoiding the neighboring homes.

Throughout the structure, windows intentionally frame views of the forest, water or sky, allowing large patches

of light to travel through the rooms. The upper floor is divided into quadrants that serve as private bedrooms, arranged around a central landing, and each room contains a small loft that connects to the adjacent spaces in a cross plan at the mezzanine level above, which features large skylights.

The wooden surfaces of the CLT floor, wall and ceiling panels are exposed throughout the interior, bestowing a sense of weight and solidity. Components such as trim boards, air vents, lighting fixtures and electrical connections were minimized, hidden or eliminated completely to keep the interior surfaces free from obstructions, so that the clean lines remain sharply defined.

The exterior is clad with Siberian larch, which will weather to a silver-grey, emulating the granite rocks that surround the home – while the geometry of the home itself rises boldly like a mountain in the forest. Larch continues inside as a flooring and furnishing material, while dark copper frames the windows to emphasize the contrast between indoors and outdoors. A metal-clad roof tops off the structure's dramatic profile.

ARCHITECT
ORTRAUM
Helsinki, Finland

STRUCTURAL ENGINEER
Asko Keronen
Helsinki, Finland

PHOTOGRAPHY
Marc Goodwin/Archmospheres
UK/Europe

"The existing and the new structure work really well together – the architect built upon a vocabulary that was already there, and then elevated it."
– Jury

When a company built on wood decided to expand its headquarters, wood was the only natural choice

International

New Headquarters FINSA

Founded in 1931 as a small sawmill, FINSA is now the oldest chipboard and MDF manufacturer on the Iberian Peninsula. Naturally, when planning an extensive renovation and expansion to its headquarters, wood played a central role in the design.

The dramatic renovation takes its cues from the new building, dubbed La Conexion, which features ventilated wooden Accoya cladding, laminated wood main beams and pillars, along with solid wood flooring, ceiling paneling and roof systems – all produced by FINSA.

Accoya slats on the original facility unify the pre-existing structure with its addition, which was completed in late 2017. The new structure features a free-form plan on both floors, arranged only by small patios and glass partitions that link the indoors with its

surroundings. The new structure is intentionally transparent to connect the building with its landscape, including the surrounding pine forests that provide FINSA's raw materials. Beams spanning 22 m. maximize the feeling of space and continuity, while exposed roof beams give a sense of scale, especially in the main lobby and first floor.

The interior walls are mainly finished in high-pressure wooden fiber boards, while the suspended

ceiling throughout consists of acoustic wooden fiber boards finished in pine or removable Ayous slats. Because the flooring needed to be easy to clean and effective for acoustic isolation, a PVC carpet is used in most areas. The diffe ent zones are designed with as few partitions as possible to make connections easier among the 300 workers and many visitors who use the spaces for working, meeting and resting.

CLIENT
FINSA
A Coruña, Spain

ARCHITECT
mrm+a architects
Pamplona, Spain

STRUCTURAL ENGINEER
Josep Agustí
Barcelona, Spain

PHOTOGRAPHY
Miguel Goñi Aguinaga
Navarra, Spain

MERIT AWARDS

“This project merges affordability and durability with sophisticated design.”
– Jury

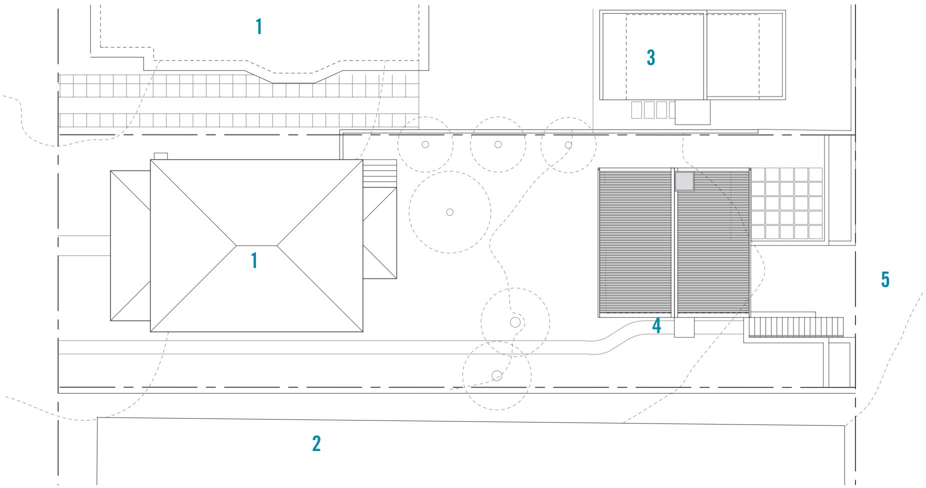
This house is small in floor space, but mighty in potential impact on the housing landscape

North America

Backyard House

With the emerging trend of Detached Accessory Dwelling Units (DADUs) in single-family zones of U.S. cities, the American public is starting to embrace the idea of living in a smaller house.

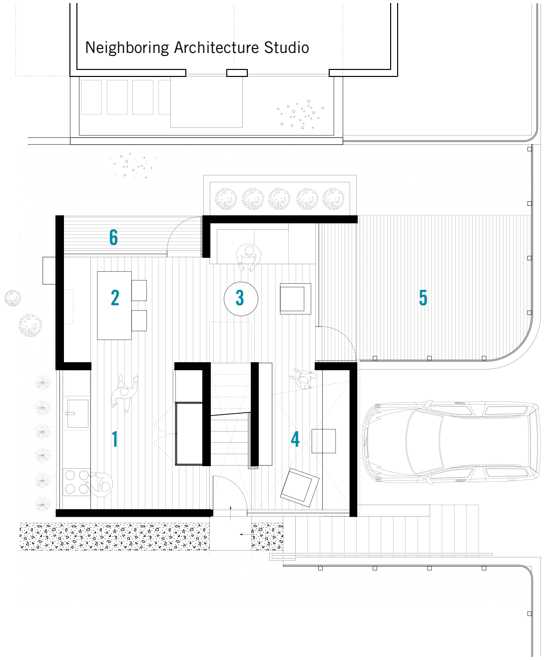
Completed in 2018, this backyard house builds upon a series of conceptual schemes the architectural firm has designed over the course of eight years. It is located in Seattle's Fremont neighborhood on the site directly adjoining Robert Hutchison Architecture's backyard art and architecture studio, originally constructed in 2006. The architect's studio provided a way to investigate design ideas for a small and efficient building, in turn influencing the neighbor's residential backyard house next door.



1. existing single family home
2. neighboring building
3. neighboring architecture studio
4. backyard house
5. existing alley

N

SITE PLAN

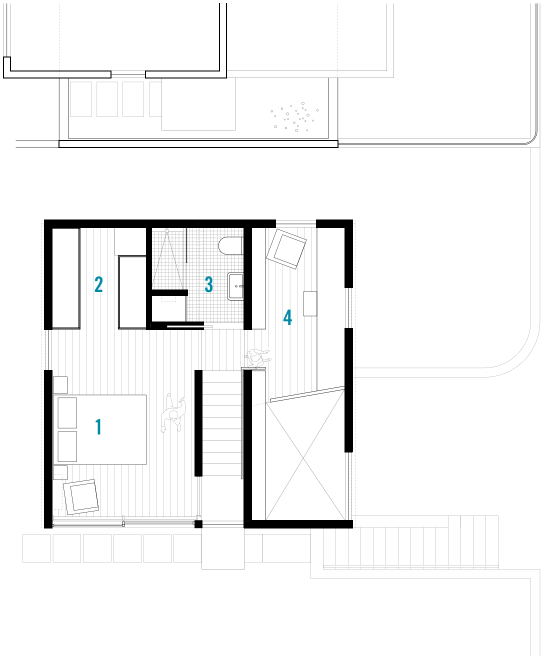


1. kitchen
2. dining room
3. living room
4. piano room
5. patio
6. deck

LOWER LEVEL PLAN

Designed for the property owner, who plans to rent out the main house, the 799-sq.ft. structure is one sq.ft. less than the maximum floor area permitted for DADUs by the City of Seattle. The exposed Douglas fir No. 1 joists and custom steel connections were engineered to have the shallowest depth possible to allow for a second floor within the strict height constraints imposed on the backyard house.

While technically a two-story structure, through the combination of a double-height space finished in white gypsum board and the cladding of floors and interior walls with A/C-grade Douglas fir plywood, the space feels more like a large room with a loft.



1. bedroom
2. closet/laundry
3. restroom
4. study

N

UPPER LEVEL PLAN

ARCHITECT
Robert Hutchison Architecture
Seattle, WA

STRUCTURAL ENGINEER
Bykonen Carter Quinn
Structural Engineering
Seattle, WA

GENERAL CONTRACTOR
YS Built
Bellevue, WA

PHOTOGRAPHY
Mark Woods
Seattle, WA

"An exceptional educational environment that
is incredibly beautiful, timeless and sophisticated."
– Jury

Environmental charter school chooses
a CLT structure to practice what it preaches

North America

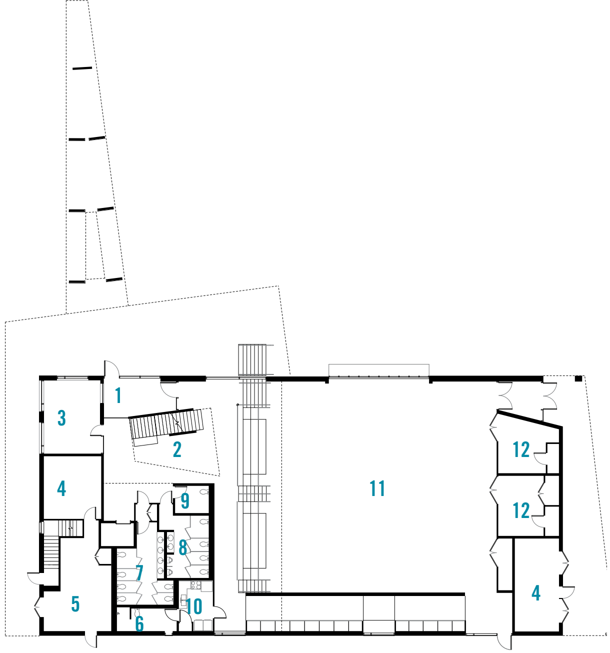
Common Ground High School

This environmental charter school in New Haven, Connecticut, combines urban agriculture and sustainable land-management practices in an innovative curriculum that serves 225 teenagers during the day and younger children and adults through after-school programs in the afternoons and evenings.

The project brief challenged the design team to weave the new building and its exterior spaces into the fabric of farm buildings, agricultural fi lds, upland forests and wetland habitat that lie at the city's edge and serve as the school's outdoor classroom. A primary objective was a pedagogical one; the

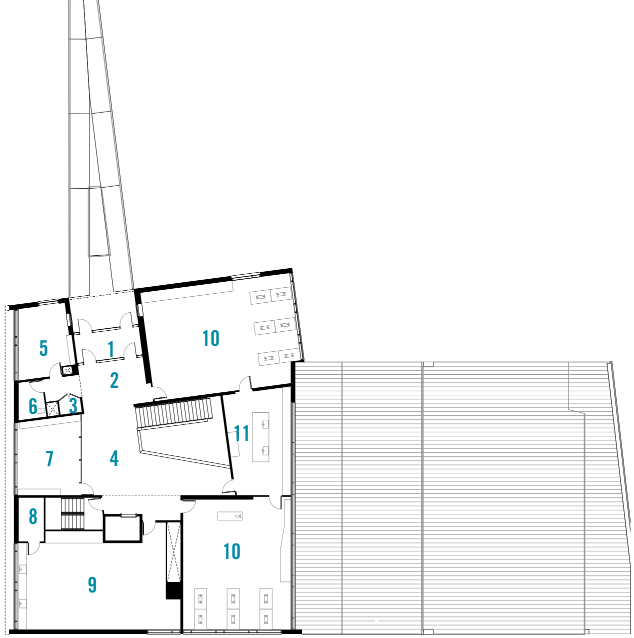
building itself – which includes an art studio, science classrooms, and a community meeting and recreation facility – had to be an environmental exemplar that integrated new ecological concepts and building technologies in a legible and instructive way.

In addition to its on-site energy production and storm water treatment, natural illumination and passive ventilation, the new building at Common Ground exploits the structural capacities and ecological benefits of wood fiber. It is one of the first buildings in the U.S. to use CLT as its primary structure. CLT provides the tension surface in the cellulose-insulated stressed skin panels that span the school's classrooms and circulation spaces, and 65-ft. glulam black spruce timber ridge trusses and roof rafters span the multipurpose room that functions as a gymnasium, theater and community meeting space. Visible in the public spaces and classrooms, these mass timber elements and surfaces serve as a reminder to the faculty and students who use the spaces, of the forests 600 mi. to the north that generated the material.



1. vestibule
2. lower foyer
3. office
4. mechanical room
5. mechanical & electrical room
6. shower
7. women's restroom
8. men's restroom
9. restroom
10. kitchen
11. multipurpose room
12. storage

GROUND FLOOR PLAN



1. vestibule
2. lobby
3. printer closet
4. upper foyer
5. office
6. restroom
7. breakout room
8. kiln room
9. art classroom
10. science classroom
11. prep. space

SECOND FLOOR PLAN

One notable benefit of this aggregation of construction biomass is that the carbon sequestered in the building's structural system offsets the annual emissions of 107 cars, making the building carbon-neutral in its first decade of operation. This integrated use of renewable material and low-impact construction techniques enhances the health and ecological function of the immediate site. It also protects more distant productive landscapes, optimizing their biological and hydrological processes so that they may continue to provide valuable environmental services such as clean air and water (and a steady supply of renewable building material) to surrounding cities and, more specifically, to important emerging institutions like Common Ground.

ARCHITECT
Gray Organschi Architecture
New Haven, CT

STRUCTURAL ENGINEERS
Bensonwood Structures
Walpole, NH
Edward Stanley Engineers
Guilford, CT

GENERAL CONTRACTOR
Newfield Construction
Hartford, CT

TIMBER SUPPLIERS
Goodfellow Inc.
Manchester, NH
Nordic Structures
Montreal, QC

PHOTOGRAPHY
David Sundberg
New York, NY

“The integration of old and new elements is remarkable and incredibly sophisticated – while retaining the heritage patina of the structure.”
– Jury

Thanks to the artful use of wood, an armory drill hall retains its heritage look after conversion to a multipurpose space

North America

Voltigeurs de Québec Armoury

The Voltigeurs de Québec Armoury officially reopened its doors in May 2018, a full decade after a fire caused extensive damage to the building. The client, Public Services and Procurement Canada, asked for reconstruction work that would safeguard the structure's heritage. There was the additional challenge of a mandate to open up the heritage building, home of the Canadian Forces' Voltigeurs de Québec infantry regiment, to tourists and the people of Quebec City.

Launched in 2011, the reconstruction project included four main components: restoration of the east wing, dating from 1913–14; addition of a footbridge leading to Battlefields Park with the addition of a new wing on the west side of the armory; reconstruction of the drill hall as a multifunctional space; and, the creation of a regimental commemorative hall for Les Voltigeurs de Québec.

The work required extensive conservation work on the armory's interior and exterior masonry walls and its plaster elements, wooden doors and windows, as well as construction of a new copper-clad roof and a complex addition to the original building.

The design of the new structure supporting the gabled roof of the armory's former drill hall was guided by the desire to restore the majestic character of the original roof. Wood established itself as the material of choice, conferring character, robustness and flexibility, and making it possible to meet the new constraints of space. A structure composed of trapezoidal glulam timber trusses is a contemporary reinterpretation of the original punch structure. The rhythmic structure is based on the axes of the existing masonry buttresses and enriches the spatial expression of the volume.

The former exercise room, now called the Salle d'Armes, has changed its vocation to become a unique multifunctional space for banquets, conferences and shows. In this context, a state-of-the-art scenographic system was integrated into the structure of the exposed roof trusses for this large, 24,000-sq.ft. space. The designers' objective was to enhance the value of wood by integrating this system seamlessly. This equipment includes a main technical footbridge that crosses the room in length and secondary footbridges arranged between each span of the structure. These gateways provide access to the various lighting hanging systems and audio-visual equipment. In addition, a retractable acoustic partition to divide the room can be retracted into the ceiling.

The wooden trusses are optimized to allow the integration of the technical walkways necessary for the new multifunctional room. Above the roof trusses, cross-laminated wood panels are topped by a triangular frame of lightweight, non-visible wood framing. This economical solution also allows natural ventilation and reduces the risk of ice accumulation on the roof.

There were several structural challenges. On the one hand, the integration of all this equipment through roof trusses of such a large span (nearly 100 ft.) required design efforts to distribute the loads while keeping the ceiling spaces efficient and safe for the stage technicians. On the other hand, the choice to implement triangular lightweight wood framing above the trusses allowed the roof structure to be lightened and optimized.

Although the use of wood in these meeting spaces is perceived to be a challenge due to the current regulations on combustible materials, the team presented a solid argument to the client and the authorities to obtain the necessary permissions and provide the building with a large wooden structure.

CLIENT
Public Services and Procurement Canada
Gatineau, QC

ARCHITECTS
Architecture49
Montreal, QC
DFS Architecture & Design
Montreal, QC
St-Gelais Montminy + Associés/Architectes
Montreal, QC

STRUCTURAL ENGINEER
Tetra Tech
Quebec City, QC

GENERAL CONTRACTOR
Pomerleau
Lévis, QC

PHOTOGRAPHY
Stéphane Groleau
Montreal, QC

“This robust building demonstrates a clarity of design that is both understated and simple, yet bold.”

– Jury

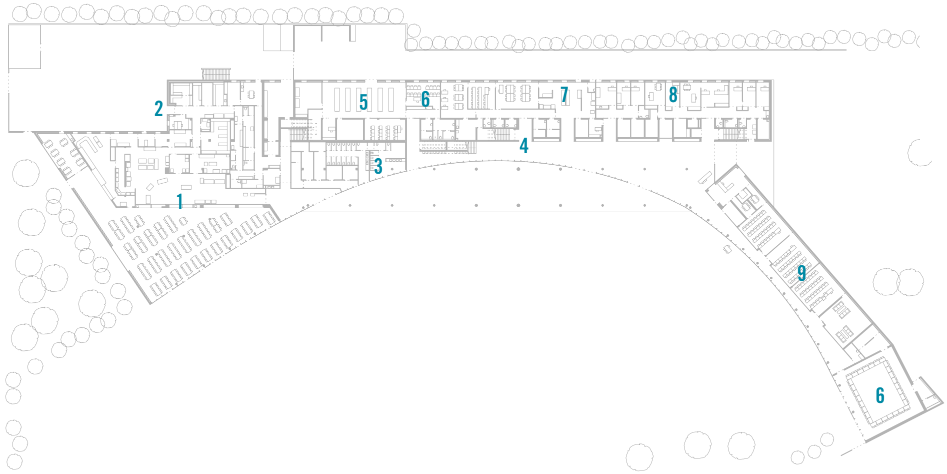
A building for shaping young minds finds inspiration in the surroundings

International

Collège Simone-Veil

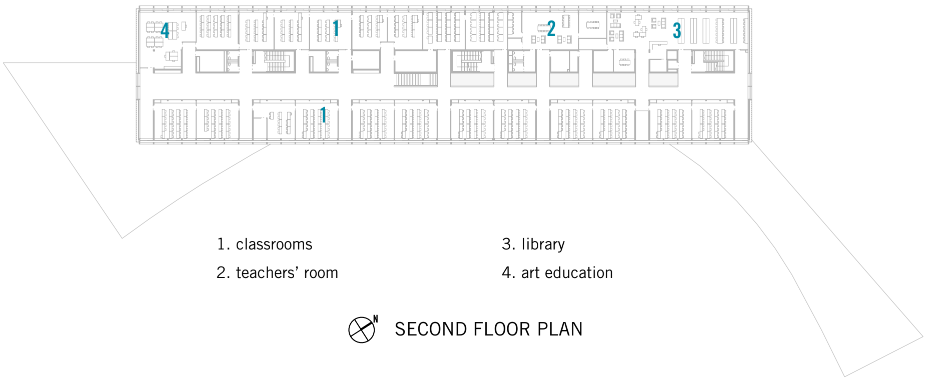
Designed to house 820 students, the Collège Simone-Veil in Lamballe, France, is mainly constructed in timber. It consists of a long, rectilinear parallelepiped that rests on a gently curved base to echo the site's topography and fit in with the landscape.

Fully glazed, the ground floor brings a sense of lightness to the building. It contains the entrance hall, the covered playground, the spaces for education, a multipurpose room and the canteen. On the facades facing southeast and northwest, vertical and horizontal wooden sunshades control the amount of light entering the two floors of classrooms. Inside, a three-story atrium gives natural light to the circulation area and classrooms, creating a contrast with the compact nature of the building. Additionally, two-story glass houses on the southeast side provide each classroom



1. school restaurant
2. delivery restaurant
3. sanitary facilities
4. cloakrooms
5. experimentation room
6. multipurpose room
7. infirmary
8. administration
9. independent working areas

FIRST FLOOR PLAN



1. classrooms
2. teachers' room
3. library
4. art education

SECOND FLOOR PLAN

with sunlight and offer wide views into the surroundings. In winter, these glass houses also serve as heat accumulators to save energy costs.

The construction blends concrete on the ground floor to assure the sturdiness of the premises, with prefabricated elements for the wooden boards (cross-laminated Douglas fir) on the upper floors. This constructive choice offers several advantages like fast execution, long life cycle and modular rooms. The project respects the environment, with untreated local materials helping the building fit in with its surroundings and also ensuring greater durability of the construction.

The French school system has very strict, standardized space programs. Schools in France are basically all-day schools, with students only allowed to work in their designated rooms and no other freely usable areas in place. The refectory must be externally accessible so that suppliers do not have to enter the school. In the morning, the pupils gather in the covered schoolyard and go collectively to their classrooms. Because of these conditions, generous bright access zones for communication and accommodation are very important. With this design, it was possible to strictly implement this highly standardized space program of French schools without restricting the generosity of the space.

CLIENT
Conseil Départemental
des Côtes d'Armor
Saint-Brieuc, France

ARCHITECTS
Dietrich | Untertrifaller
Paris, France

Colas Durand Architectes
Lamballe, France

STRUCTURAL ENGINEERS
Espace Ingénierie (concrete)
Saint-Brieuc, France

QSB (timber)
Lannion, France

PHOTOGRAPHY
Luc Boegly
Paris, France

"A bold, distinctive design that displays mastery in the use of wood."
– Jury

A rural retreat in northern Japan
reflects the simple beauty of its setting

International

Shonai Hotel Suiden Terrasse

The Shonai Hotel Suiden Terrasse can be found in a rural area of Japan, overlooking one of the many rice fi lds of the Shonai area. Given the landscape, the design team chose timber as the primary architectural material to harmonize the project with its natural surroundings.

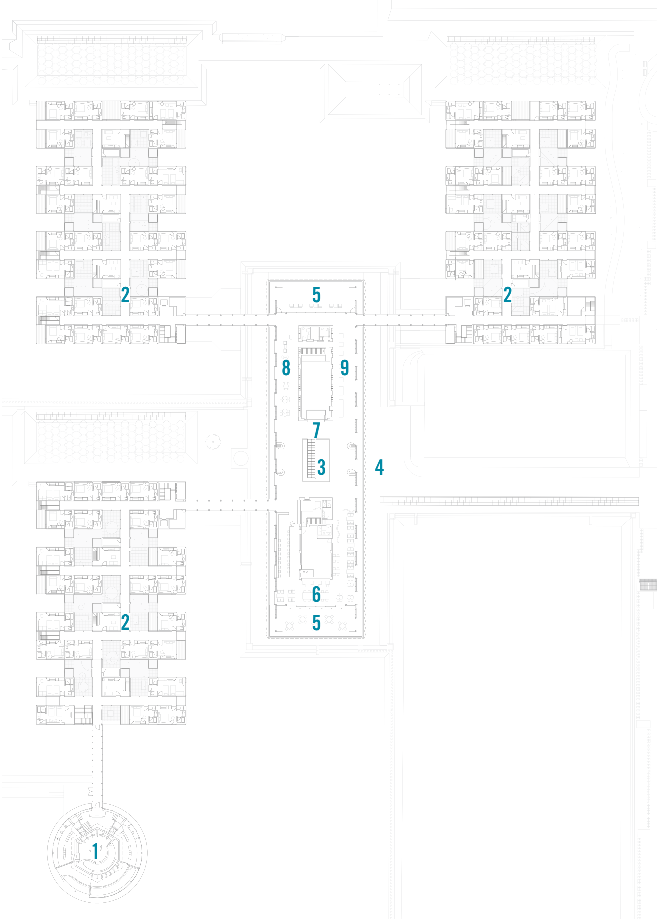
The hotel is composed of three programmatic building types: the communal wing (reception, restaurant, library, gift shops), the accommodation wings (guest rooms) and the spa wing (spa/wellness). All buildings are two stories and, aside from the foundation and cores, are constructed of timber.

Approaching the communal wing from the northeast, a wooden structure lines the sidewalk, acting as a welcome windbreak. To create an open and wide space with timber boards, the roof structure is a simple gable shape in its width, and a corrugated form along its length. The corrugated roof's V-shaped wood panels were pre-cut and assembled on site. The roof is constructed of 90-mm. laminated larch timber panels plus galvanized steel in order to meet fire code requirements. On the second floor, columns and beams are made of steel for the same reason.

The atrium below this feature roof includes one reinforced concrete-finished core and one wood-finished core. The wooden walls with square apertures act as resisting walls for the columns. Reused timber panels from the roof were incorporated in the construction of the main stair's handrail.

The hotel library is a warm and welcoming wood-finished space, outfitted with paper tube and wood furniture. The restaurant takes advantage of daylighting and is well suited for eating, working and relaxing. The facade's sliding doors fully retract to connect the restaurant to the terrace and surrounding views.

The accommodation wings are simple, column-beam timber structures, composed as a tartan grid (with alternating single and double spans). This structural configuration allows bathrooms and equipment to occupy the smaller grid units while bedrooms occupy the double-grid units, giving precedence to the bedrooms' locations and orientation within the site. Each of the three guest room buildings are subdivided into four smaller-scale, fully timber structures due to the building code's maximum allowable area for timber buildings. The units are connected via a reinforced concrete



1. spa wing
2. accommodation wing
3. communal wing
4. entrance
5. terrace
6. restaurant
7. lobby
8. library
9. shop

FLOOR PLAN

core, which both structurally separates the buildings and acts as fire protection.

Guest rooms are outfitted with wood paneling and built-in storage, as well as paper-tube headboards and furniture. The accommodation wings include small courtyards separating guest rooms. The reclaimed floor tiles are former roof tiles from the Kumamoto Prefecture, where many traditional houses collapsed following an earthquake in 2017.

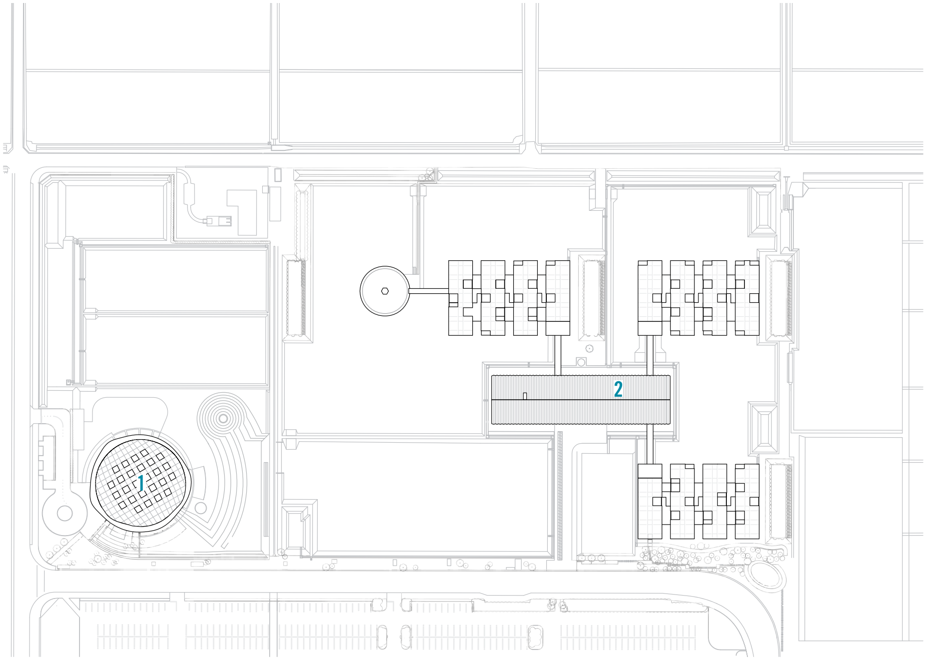
The spa wing has a roof composed of three layers of bent and laminated wood in a woven hexagonal pattern. The men's and women's bathing areas are separated by a sculptural wall. Skylights permit daylight and views of the sky while maintaining privacy, and the structure includes semi-open areas that are sheltered while providing views of the surrounding rice fi lds.

ARCHITECT
Shigeru Ban Architects
Tokyo, Japan

STRUCTURAL ENGINEER
Arup
Tokyo, Japan

GENERAL CONTRACTOR
Science Park Joint Venture
Tokyo, Japan

PHOTOGRAPHY
Hiroyuki Hirai
Tokyo, Japan



1. kids dome SORAI

2. Shonai Hotel Suiden Terrasse

SITE PLAN

Indian Residential School
History & Dialogue Centre
Vancouver, BC
Please see page 160

CITATION AWARDS

"Thoughtful analysis of form and function has created a replicable, elegant result."
– Jury

Every workspace in this office building comes with a view, thanks to the project's biophilic approach to design

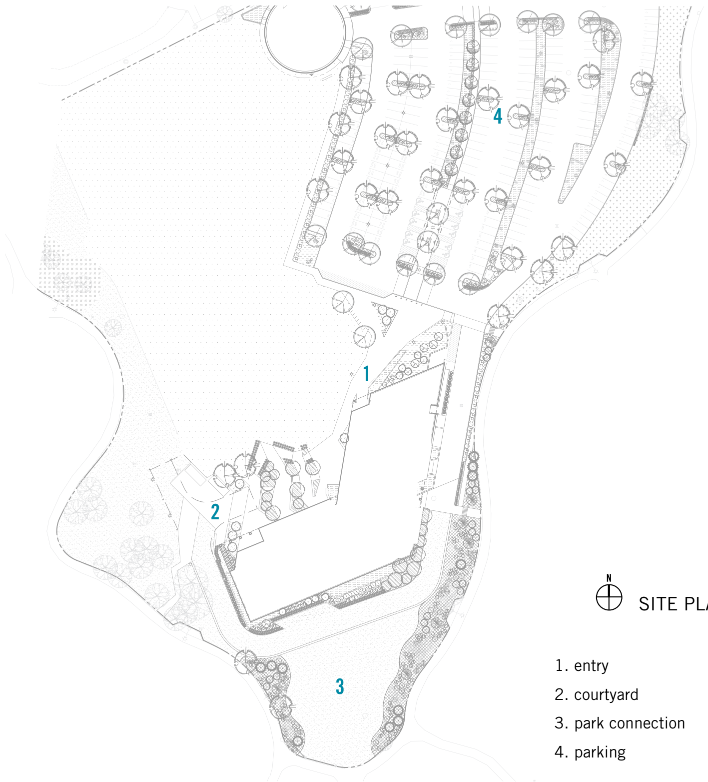
North America

First Tech Federal Credit Union

First Tech Federal Credit Union's new Oregon campus is designed to support and promote the health, comfort and happiness of its employees. Each design choice, from the CLT structural system down to the material details and finishes, aims to blur the line between inside and out, bridging a connection between people and nature.

Viewed from a distance, this 156,000-sq.ft. building nearly disappears into the landscape. The mirrored facade reflects the sky, trees and creek, and the randomized pattern of the exterior paneling helps to minimize the visual size of the building. The boomerang-shaped footprint creates an embraced courtyard that allows work and leisure spaces to spill outside. The site's naturally sloped topography continues into the first and second floors, expressed through shallow terraces in the communal dining area and culminating in an amphitheater-style, all-hands space that expands into a double-height atrium.

Much of the building's design draws on the beauty of wood and the CLT structural system. The elegant timber frame is visible throughout the building, complemented by a warm, natural material palette. The glulam beams frame floor-to-ceiling views to the park and the creek that surrounds three sides of the site. Raised access floors conceal HVAC, electrical and low-voltage systems, contributing to clear, uncluttered spaces that showcase the simple beauty of wood.



SITE PLAN

1. entry
2. courtyard
3. park connection
4. parking

The open office system is designed with emphasis on equitable access to natural light and views, with workstations on each floor arranged to ensure all employees can benefit from biophilic opportunities. Additional program elements in this structure include: a distinctive central common area with stadium-style seating; a kitchen and lunch room adjacent to the courtyard; a coff e bar, which is operated by students through a partnership with the local school district; a game room; training rooms; private huddle rooms; and flexible collaboration spaces with retractable walls, allowing teams and work groups to define their own spaces as needed.

The building achieved LEED Gold certification, with an exemplary score awarded in the regional materials category as all the columns, beams and CLT were sourced and refined within 500 mi. of the site.

CLIENT
First Tech Federal Credit Union
Beaverton, OR

ARCHITECT
Hacker Architects
Portland, OR

STRUCTURAL ENGINEER
Kramer Gehlen & Associates
Vancouver, WA

GENERAL CONTRACTOR
Swinerton Builders
Portland, OR

PHOTOGRAPHY
Jeremy Bittermann
Portland, OR


"This is one of the best modular/prefab
examples we've ever seen."
– Jury

A private residence in the hills of Northern California creates an intimate experience with nature

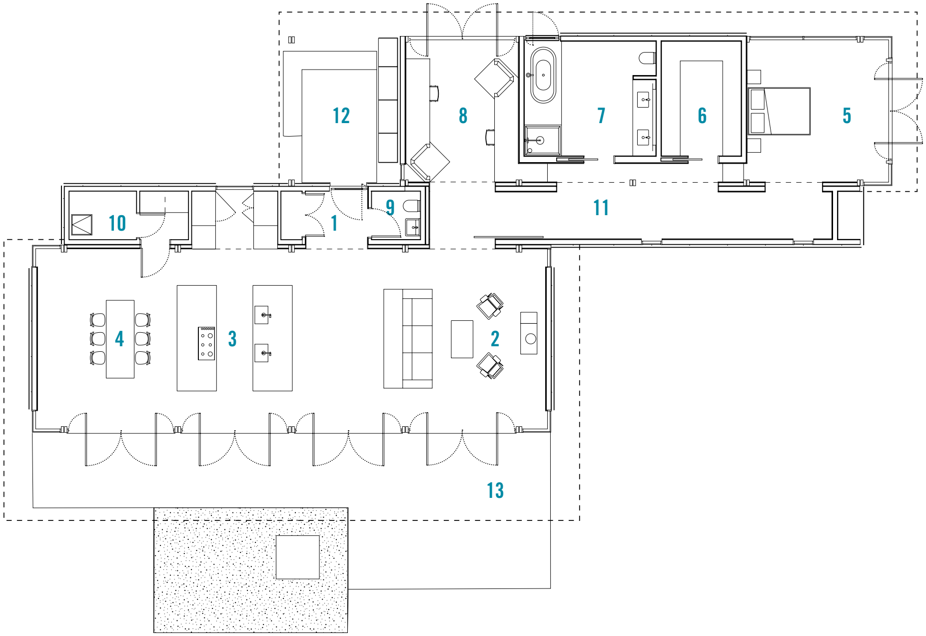
North America

High Horse Ranch

High Horse Ranch is a private residence in the hills of Mendocino County, about 150 mi. north of San Francisco. The owners were struck by the dramatic experience of approach and arrival to the extraordinary site, where the edge of a cliff falls away and reveals a panoramic view of the forested valley below. Accordingly, the team designed a main house and two satellite guest cabins that create an intimate experience of nature.

The two primary volumes of the main house were fabricated off-site as modules that were shipped to the location and set in place. The structure of each module is framed with glulam Douglas fir columns and beams that, when mated with the adjacent module, form an exposed double beam and column frame that both describes the volume and establishes a visual rhythm for the main living spaces of the house.

The structural frames are infilled with oversized, fully glazed and operable pivot doors facing the view; on the opposite side, clerestory windows are placed above the adjacent lower service volume. In addition to facilitating cross ventilation, this allows the overhanging roof to remain visually detached from the enclosing walls. This required designing junctures between the columns and beams as moment connections to transfer lateral loads from the roof across the clerestory to the shear walls below. The steel plates used for these connections remain entirely concealed between the paired columns and beams, allowing the wood frame to remain visually uninterrupted from one side of the room to the other.



1. entry
2. living room
3. kitchen
4. dining room
5. master bedroom
6. wardrobe
7. restroom
8. study
9. powder room
10. mechanical
11. gallery
12. porch
13. terrace

FLOOR PLAN

Wood is used as both an interior finish and as an exposed, expressive structural element. It is also used throughout the main house and guest cabins as a primary finish material, bringing warmth and variation to a restrained, minimal palette. The continuous plane of the ceilings in the main house are paneled in boards of reclaimed, clear, vertical-grain Douglas fir sourced locally in Northern California. They are lifted above the enclosing walls and define the living/dining and bedroom/study pavilions.

Each of the two guest cabins have both ceilings and floors finished in reclaimed, clear, all-heart, vertical-grain redwood, also sourced locally. The use of redwood allows the material to be extended from inside to outside, connecting the interior of each modestly scaled cabin with the exterior space of its entry porch.

ARCHITECT
KieranTimberlake
Philadelphia, PA

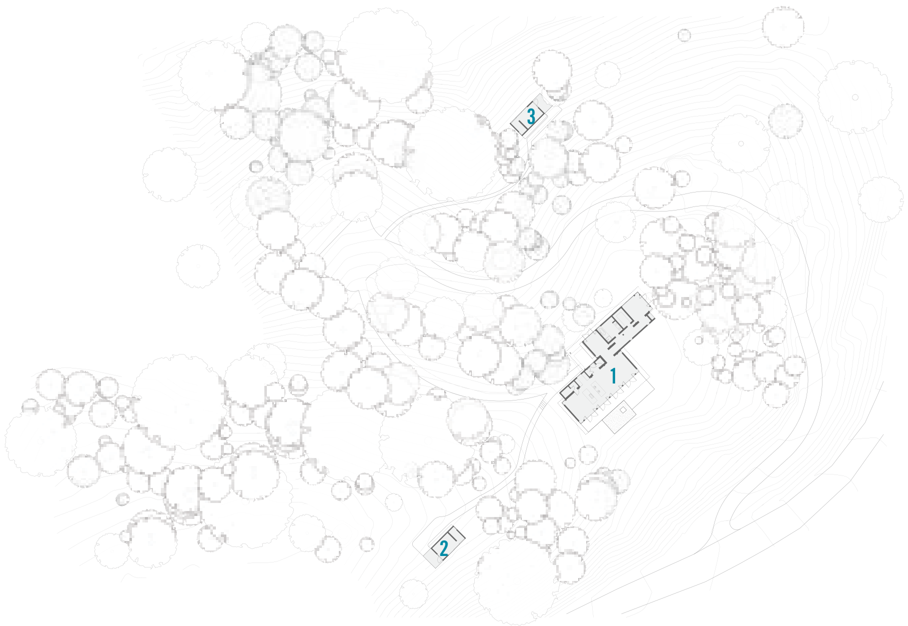
STRUCTURAL ENGINEER
CVM
King of Prussia, PA

GENERAL CONTRACTORS
Buckeye Construction
Ventura, CA

Moderna Homes
Menlo Park, CA

PHOTOGRAPHY
Tim Griffith
San Francisco, CA

Kyle Jeffers
Willits, CA



1. main house 2. upper cabin 3. lower cabin

N SITE PLAN

“The delicate simplicity of this practical and creative structure is universally appealing.”
– Jury

A simple design with a focus on social interaction ensures smooth sailing for this clubhouse

International

Harbour Building WVIjburg

Located in Ijburg, a newly created residential neighborhood just east of downtown Amsterdam, the non-profit Water Sports Club Ijburg (WVIjburg) was granted permission to build its new facilities on a small parcel of land adjacent to the community yacht harbor, a site overlooking nearby Lake Markermeer.

The architects held extensive workshops with club members throughout every step of the design process. The most important finding that came out of those consultations was that many members valued social contact while doing small maintenance jobs on their boats. The principle of a simple container (shed) with a maximum of multipurpose space became the basis for the design.

The building establishes a strong connection between the harbor and the larger Lake Markermeer to the north. On each level of the building, visitors experience a direct relationship with one or both of the two bodies of water. The choice of wood as the primary construction material distinguishes the building from its surroundings. Thirty-ft.-long larch columns, all locally sourced, make reference to the tall masts in the adjacent harbor.

The rhythm of the seasons largely dictates the building's program requirements, which is naturally less active in winter and requires less space, while a bigger building is needed in warmer months to accommodate more activities. The "volume inside a volume" strategy diffe entiates fully insulated/climatized spaces with fixed programmatic designations and larger, more flexible seasonal spaces behind single glazing.

The outer single-glazed volume consists of seven laminated larch portal frames. Larch corner columns combined with steel roof beams are utilized at the end facades to create maximum openings. The 30-ft. larch columns also serve as window frames for large, single-glazed panels to achieve a minimum-detail solution.

CLIENT
Watersport Vereniging Ijburg
Amsterdam, The Netherlands

ARCHITECT
Margulis Moormann Architects
Amsterdam, The Netherlands

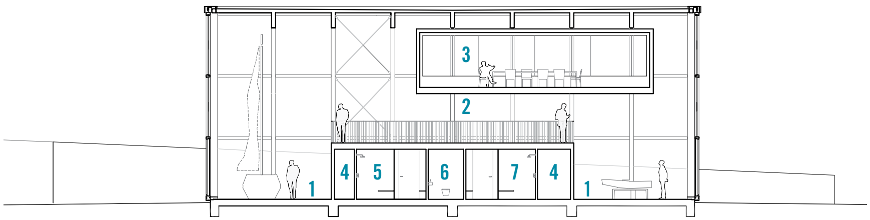
GENERAL CONTRACTOR
Romijn Bouw BV
Kockengen, The Netherlands

TIMBER SUPPLIERS
De Groot Vroomshoop
(laminated larch construction)
Vroomshop, The Netherlands

Timmerfabriek Gebrs Bos
(larch sliding doors)
Goudriaan, The Netherlands

PHOTOGRAPHY
Boris Nieuwenhuijzen
Amsterdam, The Netherlands

Annemarieke van den Broek
Amsterdam, The Netherlands



1. mixed use space
2. members' lounge
3. meeting room
4. storage
5. shower
6. handicapped restroom

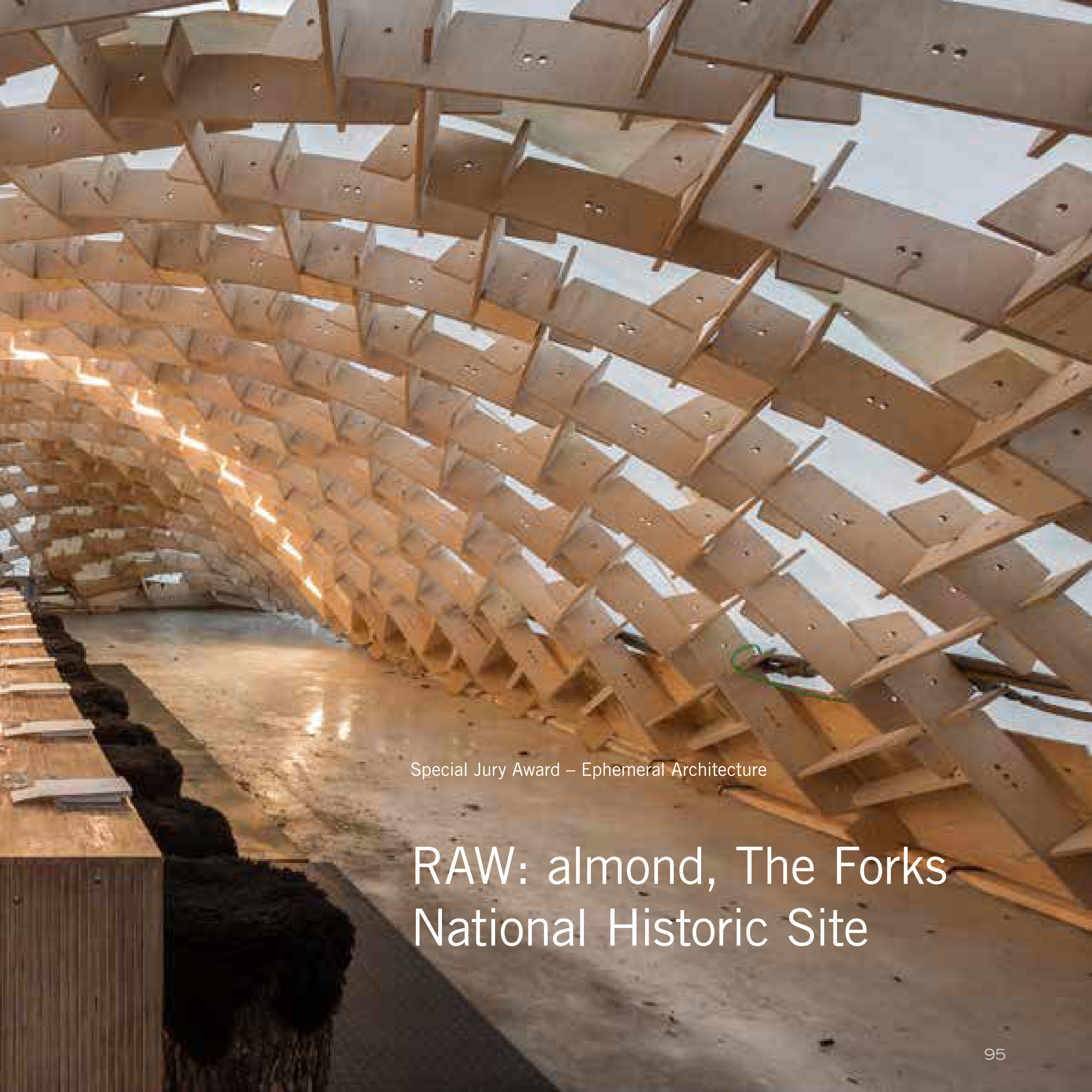
CROSS SECTION

Shane Homes YMCA at Rocky Ridge
Calgary, AB
Please see page 196

SPECIAL AWARDS

"This temporary structure is captivating because it is so rugged and yet refined in its design, like a perfectly built puzzle."

– Jury



Special Jury Award – Ephemeral Architecture

RAW: almond, The Forks National Historic Site

RAW: almond is a temporary fine dining experience unlike any other. Situated on frozen river ice at the junction of the historic Red and Assiniboine rivers, the temporary structure houses world-renowned chefs and their patrons for 24 days of dining during the coldest month in Winnipeg. As an ongoing experiment that attempts to show temporary architecture need not be wasteful or extravagant, RAW: almond is also about embracing the specific geography of the city and the unique challenges posed by its climate.

A restaurant constructed directly on river ice always has been an exploration of what can be done with food and design, with recent years exploring the capabilities of small-scale, modular wood components. A single CNC-cut Baltic birch plywood profile duplicated and woven en masse, friction fit and arranged into a reciprocal frame vault structure, met the three main objectives set out by the design team: make something unique and inviting, make something environmentally responsible and, for goodness' sake, make sure it's easy to build in -40°C weather.

Erected in 10 days, the plywood reciprocal frame vault was constructed relatively free of additional fasteners to enable these design criteria. All lighting and finishes are minimal and designed to emphasize the structural system. As it lasts only six weeks, a great deal of planning is placed on assembly/disassembly and quality of space.

Only viewable from the interior, the natural warmth of the wood and its quilt-like grid layout patterning instantly welcomes guests, acting in contrast to the unimposing snowdrift exterior. The strength-to-weight ratio of the Baltic birch plywood, along with constant replication of the same modular component, limited manufacturing waste and maximized plywood panel usage. The inherent assembly sequence of the modular

components lifts itself into form in an afternoon (as if being inflated or emerging from the ice itself), with all work done by hand without power tools or machinery.

Research for building a commercial restaurant on ice included reviewing ice road construction documentation as well as Cold War research on airplane runway construction. Finite element model analysis of various reciprocal frames also was completed, with individual plywood modules optimized through the design process. Real-world testing of the modules during the operation of the restaurant is inherently valuable; however, third-party testing of the modules is planned for further development of the concept.

RAW: almond – along with offshoot projects in Churchill and Gimli – tries its best to capture some small sliver of the indomitable pioneering spirit of the First Nations people and immigrants who survived so many difficult prairie winters. Wood is the only reasonable material that suits this spirit, with the RAW: almond structure allowing guests to experience wood's inherent qualities of natural beauty, strength and social responsibility in a whole new setting. Ever evolving, RAW: almond has been embraced as an iconic symbol of this dynamic city and its winter culture.

ARCHITECT
AUX: Projects
Winnipeg, MB

STRUCTURAL ENGINEER
Wolfrom Engineering Ltd.
Winnipeg, MB

GENERAL CONTRACTOR
0812 Building Solutions Inc.
Winnipeg, MB

PHOTOGRAPHY
Lindsay Reid
Winnipeg, MB

A unique dining experience on the frozen shores of Manitoba's waterways uses the natural warmth of wood to offset its icy interior

Special Jury Award – Ephemeral Architecture

RAW: Gimli,
Frozen Surface of Lake Manitoba

"It's great to see the element of whimsy, fun and play in such a simple but elegant project."
– Jury

Operating during early 2018, RAW: Gimli was an intimate temporary restaurant space designed for the frozen surface of Lake Winnipeg off Gimli, Manitoba. The project is a collaborative effort that builds on RAW: almond's successful lineage of annual temporary restaurants at the Forks site in Winnipeg and Manitoba's northern Churchill community.

RAW: Gimli is constructed from stacked dimensional SPF lumber from a local supplier and compressed in place using ratchet strapping to form a rigid structure moored to the ice. Free of traditional mechanical fasteners, its material components were disassembled and returned to the supplier at the end of the restaurant's program.

Using readily available and aff rdable materials, the project uses the reliable conventions of the dimensional lumber that makes up so much of local architectural vernacular, in a surprising and somewhat unconventional way. By returning 90 percent of its material mass to circulation in the local building trade, RAW: Gimli minimizes its environmental impact and points towards alternative methods for using local resources sustainably and creatively.

ARCHITECT
AUX: Projects
Winnipeg, MB

STRUCTURAL ENGINEER
Wolfrom Engineering Ltd.
Winnipeg, MB

GENERAL CONTRACTOR
0812 Building Solutions Inc.
Winnipeg, MB

PHOTOGRAPHY
Lindsay Reid
Winnipeg, MB

An intergenerational home reimagines family living while expressing fine details

Canadian Wood Council Award

House on Ancaster Creek

“Fine millwork and well-detailed design elevate this project.”
– Jury

A wide lot backing onto Ancaster Creek is the site of a beautiful home for a family and their elderly parents. The linear progression of the home presents a series of rooms that fluctuate volumetrically, providing 3,500-sq.ft. of varied living spaces with views of the creek and conservation area beyond.

The house was conceived as two distinct residences, each formed into a linear bar containing the full program of a home. The bars are perpendicular to each other and stack at one corner, creating a landscaped courtyard set back from the street.

The parents' suite occupies the ground floor. The accessible suite is laid out on a single level and incorporates special features designed to accommodate the specific challenges facing the aging parents, with strategically located drains and a master power switch to mitigate issues that come with memory loss (i.e., a sink left running or an oven left n).

The main residence runs parallel to the creek. A dramatic double-height kitchen anchors the south end of the house. Its 20-ft. high pyramidal ceiling creates an expansive space that opens to the creek, the courtyard and the sky. Backpainted glass and polished Calacatta slabs are meticulously detailed to reflect the surrounding landscape and compliment the dramatic, flat-sawn solid oak island with a faceted base.

The dining room occupies a glazed link between the kitchen and living room. The fully transparent volume permits views of the creek landscape from the courtyard. The living room extends out under a cantilever and doubles in size in the summer months, so the extended family can share these three social spaces.

The cedar cladding, locally quarried limestone and white oak floors, cabinetry and figural stair connect this modern house to an ancient southern Ontario landscape. Wood's inherent warmth, strength, lightness and malleability provide everything from the structural framework for the house to a variety of stunning finishes. The milled cedar siding is a crisp, deeply grooved, shadow-casting cladding. The curved, rift-cut white oak stair is light and sinuous, gathering strength from its curvature. The wide-plank brushed oak floor is warm underfoot.

The project constructs a scenario for senior living that allows for autonomy while maintaining the mutual benefit of close proximity. It affirms that sustainable systems and age-in-place designs can be accomplished with a modern expression and exquisite details. As the family changes, so can the family home.

ARCHITECT
Williamson Williamson Inc.
Toronto, ON

STRUCTURAL ENGINEERS
Blackwell
Toronto, ON

Faet Lab
Toronto, ON

GENERAL CONTRACTOR
DB Custom Homes Inc.
Ancaster, ON

PHOTOGRAPHY
Ben Rahn/A-Frame Inc.
Toronto, ON

A dynamic space for academic collaboration and experimentation aims to inspire the next generation of environmentally conscious designers

Canadian Wood Council Award

John W. Olver Design Building, UMass Amherst

The design team's goal for the John W. Olver Design Building at the University of Massachusetts Amherst was to create an innovative building that visibly demonstrates environmentally sensitive design. That vision resulted in one of the most advanced mass timber buildings in the U.S., a four-story, 87,500-sq.ft. structure that exemplifies the university's commitment to sustainability and – through the generations of students who will learn within its walls – the future of the built environment.

The building sets a high bar for mass timber buildings in the U.S., with a glulam timber column-and-beam frame, glulam brace frame, CLT shear walls, timber-concrete composite floor system and unconventional cantilevered forms. It is wrapped in an envelope of copper-colored anodized aluminum, which in combination with vertical windows echoes the wood structure by evoking the color and pattern of regional forests.

Just as it unites three university departments (Architecture, Landscape Architecture and Regional Planning, and Environmental Conservation), the

1. studios
2. pin-up lounge
3. computer lab
4. offices
5. seminar rooms
6. administration
7. lounge

FLOOR PLAN

building serves as a bridge between the architectural styles of diffe ent campus buildings. It is carefully sited on a steep slope at the main campus artery, rising from three stories on the east side of the building to four on the west. In this way, its massing connects the smaller structures of historic Stockbridge Way with the Fine Arts Center and modern concrete structures on campus.

Intended to house 500 students and 50 faculty, the building is organized around a two-story central atrium known as the Commons, a flexible gathering and event space with integrated tiered seating, movable partition

boards, lounge seating and a café. Dominated by the composite zipper truss roof structure, the atrium also features a three-story folded CLT stair, hung from a single long-span truss with thin rods that give the impression it's floating.

Facilities used by all three academic departments surround the central atrium. The first floor features exhibition and lecture space, laboratories, fabrication and materials testing shops, and dining and classroom space, while the second and third floors house studios, classrooms and offices. The smaller fourth floor contains studios. Above the Commons is a green roof that functions as a public courtyard and outdoor learning space for the Landscape Architecture department.

A curtain wall system exposes much of the building's first floor, including the timber structural system and atrium space, inviting interaction with passersby. The second story cantilevers several feet beyond the first, and the second, third and fourth stories are clad with a panelized rainscreen system.

The steel design was more than halfway complete when the university decided on a wood structural system. However, knowing that a switch was possible, some design decisions were made early in the process to select a structural grid that could accommodate either steel or mass timber, paying close attention to floor-to-floor heights and overall building geometry. The team even created parallel schematic drawings of a mass timber design.

Today, the building is home to a bustling education community. Its innovative mass timber systems are an inspiration for students, practicing design professionals and passersby who are drawn in by the extraordinary sight of the zipper truss. By inspiring future designers and their projects, there is a good chance this building will lead to increased manufacturing of mass timber products in the eastern U.S.

CLIENT
University of Massachusetts Building Authority
Boston, MA

ARCHITECT
Leers Weinzapfel Associates
Boston, MA

STRUCTURAL ENGINEERS
Equilibrium
Vancouver, BC

Simpson Gumpertz & Heger
Waltham, MA

GENERAL CONTRACTOR
Suffolk
Boston, MA

PHOTOGRAPHY
Albert Vecerka
Mamaroneck, NY

A boathouse in Ontario's cottage country demonstrates
the beauty and practicality of an ancient Japanese wood technique

Canadian Wood Council Award

Lake Rosseau Boathouse

Located in Ontario's premier cottage country, this boathouse is a two-story, wood-clad building situated on an island in Muskoka Lakes, Ontario. Comprised of two bedrooms, a shared ensuite bathroom, a living area with kitchenette on the upper level and three boat slips below, this 2,370-sq.ft. lakefront structure serves the adjacent cottage and doubles as a guest residence, offe ing panoramic views of Lake Rosseau and the shoreline beyond.

The design team was tasked with creating an elegant, durable and eco-friendly structure that would blend discreetly into the natural landscape of forest and deep lake expanse surrounding the building. Given the logistics involved in transporting all construction products by boat to the island, the selection of lightweight and modular materials was key, and so wood became the predominant construction and cladding material.

The selection of a durable and lightweight exterior siding material required that the cladding be able to withstand the harsh seasonal climates without the maintenance required of additional finishing, such as paint or stain. A charred cedar wood siding (shou sugi ban) was selected from a local supplier that had just introduced the product to its roster. The intrinsic properties of this type of cedar siding and the ancient Japanese technique of surface charring informed the overall

design. The charring creates a wear layer for increased durability and reduced susceptibility to fire, pests and rot over the life of the siding, while also creating the desired aesthetic effect of a darker structure that is well integrated into its surroundings.

Various textures of wood were used, with horizontal and vertical cedar boards, as well as a dramatic cantilevered trellis and horizontal lattice that are all constructed with cedar using the shou sugi ban method. The 5,500-sq.ft. deck was constructed with weathered cedar, offering a place for generous social gatherings and recreational activities with access to deeper waters. The predominant structural components used throughout were prefabricated wood TJI joists, wood wall structure framing and LVL beams, which allowed for ease of transport and reduced site waste.

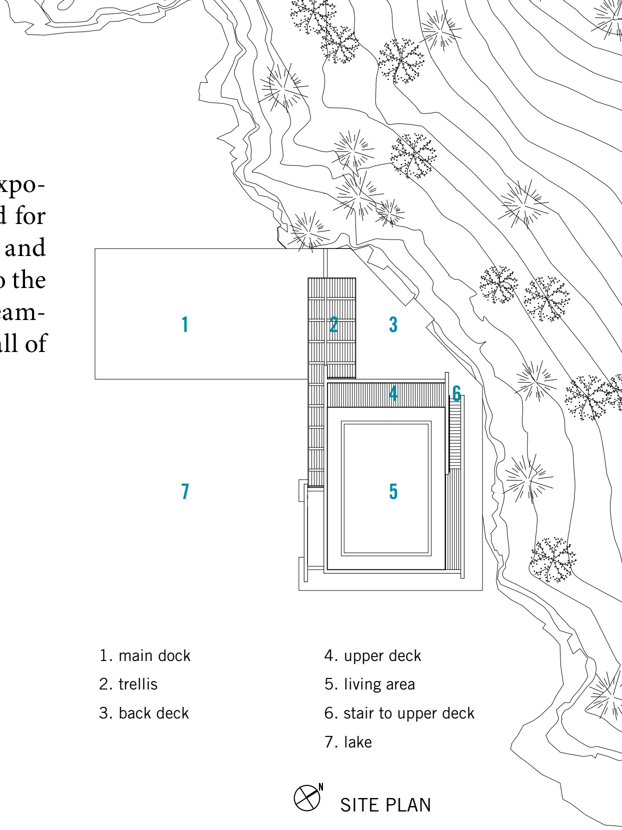
The design team maintained the use of wood throughout the project, choosing to contrast the interior through the use of a light Baltic birch smooth plywood for all the wall and ceiling paneling in the second story. The expansive cantilevered soffits were built with exterior-grade fir plywood stained to match the Baltic birch. The walls and ceilings in the boat storage area are also clad with a lightly stained fir plywood to offer a lighter ambience, while also contending with the anticipated exposure to the elements. This allowed for the creation of a warm, inviting and bright interior as a counterpoint to the dramatic, dark exterior that is seamlessly integrated into the dense wall of trees as its backdrop.

ARCHITECT
Akb Architects
Toronto, ON

STRUCTURAL ENGINEER
Blackwell
Toronto, ON

GENERAL CONTRACTOR
Mazenga Building Group
Toronto, ON

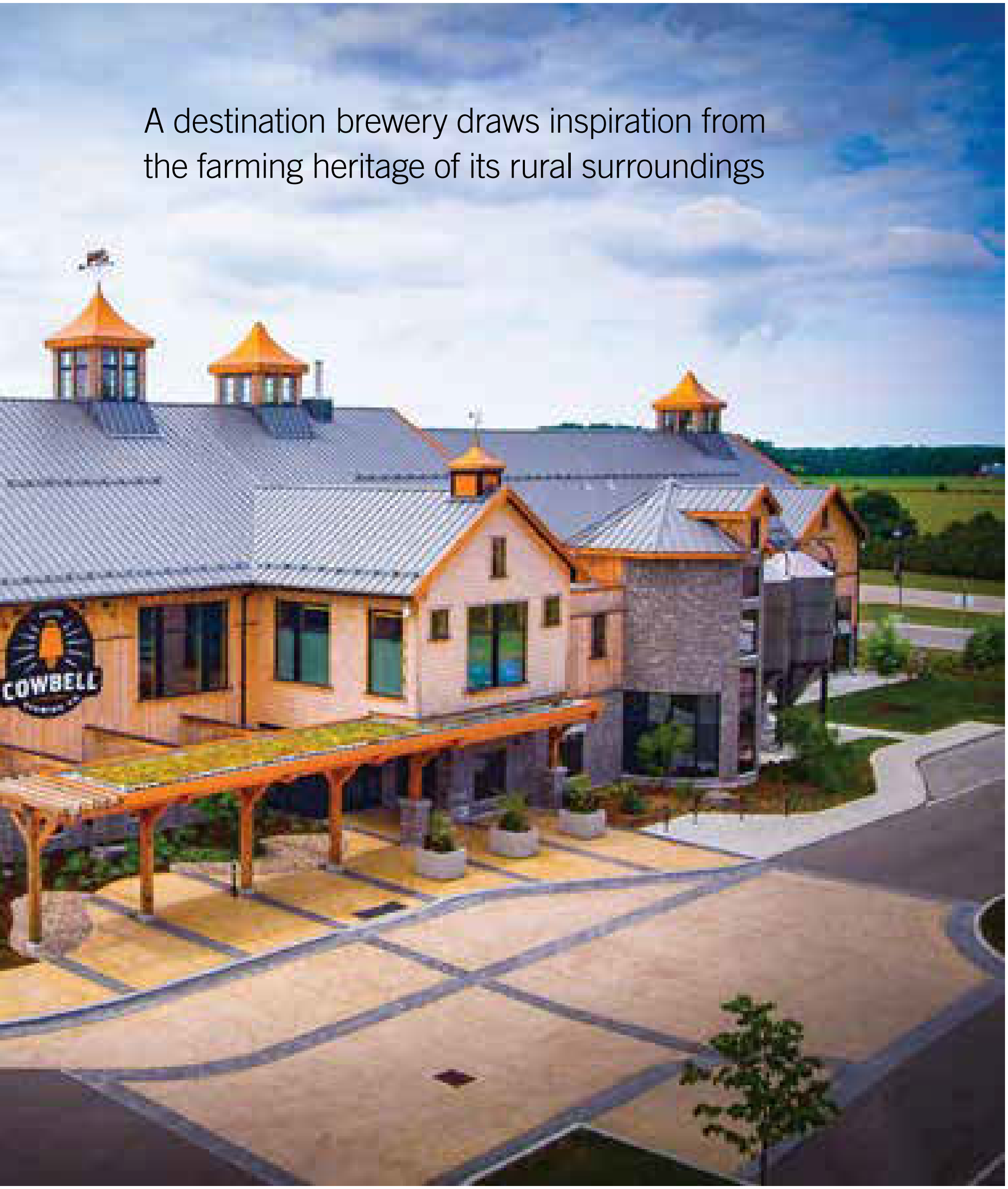
PHOTOGRAPHY
Shai Gil
Toronto, ON



1. main dock
2. trellis
3. back deck
4. upper deck
5. living area
6. stair to upper deck
7. lake

SITE PLAN

SPONSORSHIP AWARDS



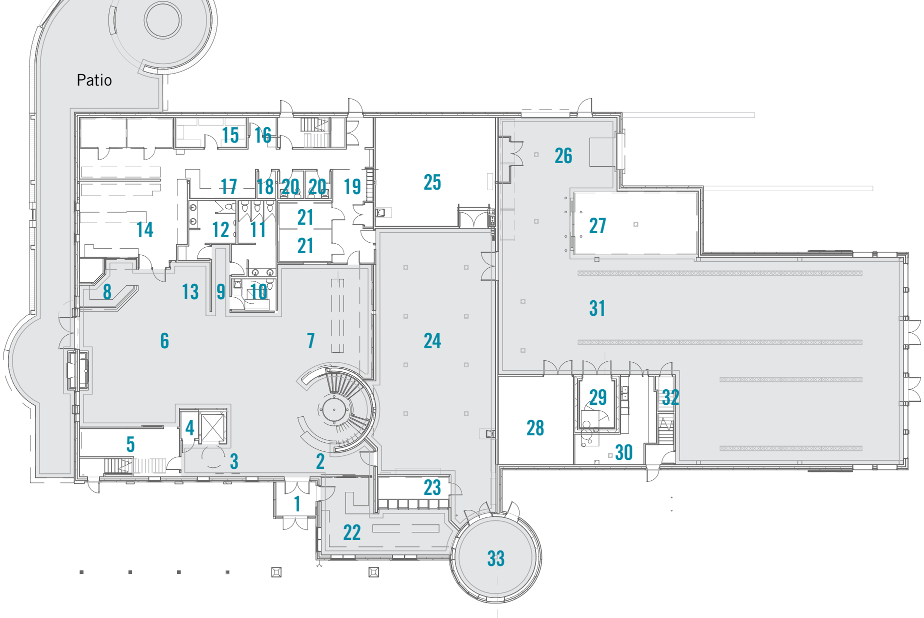
A destination brewery draws inspiration from the farming heritage of its rural surroundings

Cowbell Brewing Co.

When the Sparling family set out to be part of the economic revitalization of Ontario's Huron County, the result was Cowbell Brewing Co., an award-winning brewery employing 170 people who are committed to making great beer while minimizing their environmental impact.

Located in the village of Blyth, just over two hours west (and feeling about a million miles away) from downtown Toronto, the destination brewery is part of the 120-acre development known as Cowbell Farm. It features a fully accessible restaurant, indoor and outdoor seating, two bars, a retail store and entertainment space, all housed inside a stunning 26,000-sq.ft. timber-frame barn.

The building and property are intentionally designed to recognize the farming heritage in Huron County. This respect for heritage includes both architectural style and building materials. Historically, barns in the region were constructed of stone and timber



1. vestibule
2. lobby
3. waiting area
4. machine room
5. storage room
6. restaurant
7. bar
8. pizza oven
9. corridor
10. universal restroom
11. women's restroom
12. men's restroom
13. chef's table
14. kitchen
15. storage room
16. office
17. dish wash pit
18. utility room
19. corridor
20. staff restroom
21. keg cooler
22. retail shop
23. cooler
24. brew house
25. steam mechanical room
26. loading dock
27. cold storage
28. crushing room
29. filtration room
30. lab
31. cellar
32. storage room
33. distillery

FIRST FLOOR PLAN

frames built to withstand the test of time. Situated on a former working cattle farm, the structure represents an interpretation of the traditional German bank barn, while housing state-of-the-art equipment.

The bookend-style barn recreates the organic growth a typical family farm may have experienced throughout decades of operation. Elements contributing to this sense of authenticity include: the silo, designed to host a future distillery; a lean-to roof addition, accommodating a second-floor event space; and a "milking parlor" housing the brewery cellar and packaging hall. The result is the appearance that the brewery and restaurant moved into an existing family barn, a feeling accented by the extensive use of new and reclaimed wood throughout.

Aside from its sheer size, one of the building's most impressive characteristics is its timber-frame structure, starting with 650 responsibly sourced Douglas fir beams that support 45-ft. ceilings. Authentic mortise and tenon joint construction is visible throughout the interior. The front entrance features a beautiful Douglas fir canopy and pergola, providing a gathering point and protection from the elements. A second Douglas fir pergola structure, built as a side veranda, provides exterior dining and gathering space.

Once inside the brewery, guests are greeted at a 14-ft. curved oak reception desk adorned with reclaimed windmill blades. The lofty ceilings throughout the building are lined with natural pine and interior walls are finished with pine boards, some untreated and some naturally aged gray. The event space walls also are lined with naturally aged pine, accented with four sets of 8-ft.-wide pine barn-style rolling doors. Locally sourced oak slabs, crafted into beautiful 5-in.-thick stair treads, are the showpiece of the centrally located, curved staircase. The entire second story is accented by rough-sawn ash flooring, chosen for its beautiful grain, durability and the abundance of harvested ash that had been aff cted by the ash-borer beetle in southwestern Ontario.

An 8-ft.-wide elevated walkway constructed of Douglas fir beams and ash flooring spans the width of the restaurant, providing a beautiful and functional bridge on the second floor. Continuing along, the walkway turns into a catwalk, allowing unobstructed viewing of the entire brewing, production and packaging functions at the facility. The retail store cabinetry and fireplace mantle are crafted using

300-year-old hemlock reclaimed from a recent renovation of the oldest commercial building in Blyth.

More than 150,000 guests visited the Cowbell Brewery in its first year of operation, each one of them greeted by the authentic design and the unique, timeless warmth and strength that only a wooden barn can achieve.

CLIENT
Cowbell Brewing Co.
Blyth, ON

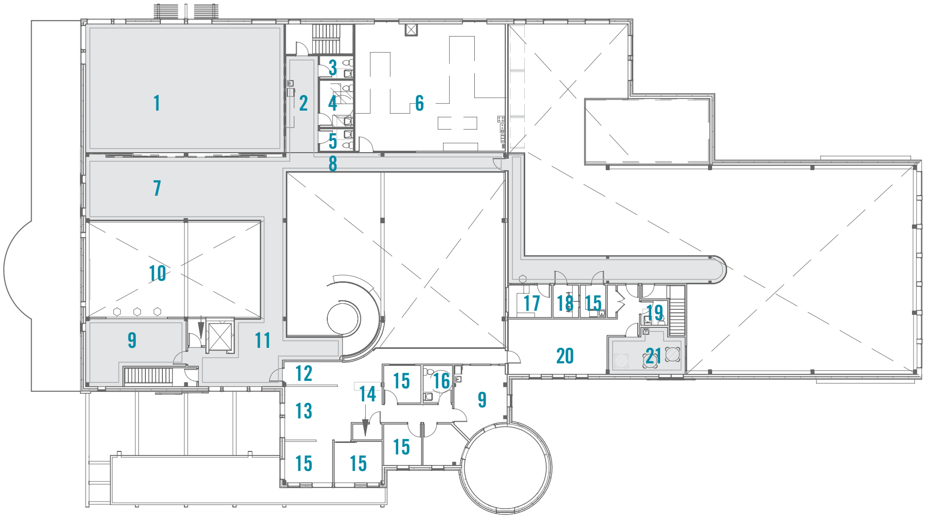
ARCHITECT
Allan Avis Architects Inc.
Goderich, ON

STRUCTURAL ENGINEER
Tacoma Engineers Inc.
Guelph, ON

GENERAL CONTRACTOR
H. Bye Construction Ltd.
Mount Forest, ON

PHOTOGRAPHY
Shutter Fotos
London, ON

Austin Chaffe
Blyth, ON



1. meeting/conference room
2. corridor
3. men's restroom
4. universal restroom
5. women's restroom
6. mechanical/electrical service room
7. future expansion
8. corridor
9. meeting room
10. janitor's closet
11. upper landing
12. waiting/reception area
13. open offices
14. IT closet
15. office
16. barrier-free restroom
17. control room
18. sensory room
19. staff restroom
20. open offices
21. staff room

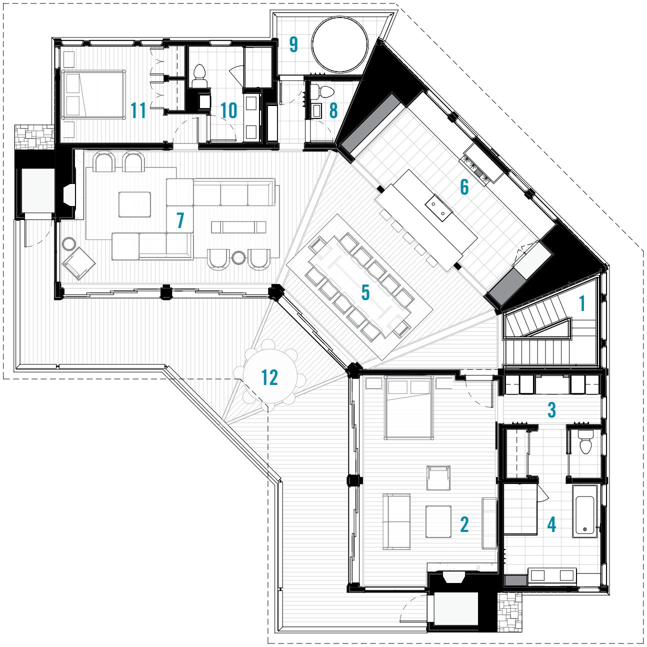
SECOND FLOOR PLAN

The extreme mountain climate of California's High Sierra inspires a home designed to take whatever the weather can throw at it

Western Red Cedar Award

Overland Trail Cabin

Overland Trail Cabin is located at Sugar Bowl Resort, one of the oldest ski resorts in California. Sugar Bowl is known for its rich history and beautiful architecture, with a village lodge that was designed in 1938 by noted American architect William Wurster. The community is also known for having some of the heaviest snowfall in the region, averaging 500 in. annually. Both the extreme weather and the resort's location in the High Sierra region contribute to challenging building conditions and the necessity of using durable materials.

1. stair, open to below
2. master bedroom
3. master closet
4. master restroom
5. dining room
6. kitchen
7. living room
8. powder room
9. hot tub deck
10. guest restroom
11. guest bedroom
12. deck

FLOOR PLAN

The design of Overland Trail Cabin celebrates the unique environment of the region and the sense of place and rich history of Sugar Bowl. The home is organized as a horseshoe that marks the path of the sun, and in doing so provides panoramic views of the forest and nearby slopes. The interior layout provides for a range of social spaces and uses: The ground floor features a media room, ski room and bedrooms, while the second level prioritizes open social areas, including a chef's kitchen, living room and an expansive deck for outdoor entertaining in warmer months. One of the signature elements of the house, the pitch of the roof – designed to withstand and shed significant annual snowfall – pays homage to the Village Lodge.

The design balances modern amenities with material selection and application that feels timeless and in dialogue with the history of the resort. Without a specific owner in place, Sugar Bowl Resort wanted a residence that had the flexibility to accommodate a large family in the future (with the potential to host large gatherings) but that would also function

as a cozy getaway retreat. The design team addressed these desires through the layout of the home and the ability of diffe ent areas to transition from expansive to intimate.

For the home's exterior, the use of board-on-board cedar cladding warms the facade and brings a high-quality aesthetic to the residence, keeping with the strong tradition of wooden alpine shelters in the region. A mix of clear- and knotty-grade cedar both helped to reduce the cost and contributed a more traditional alpine feel to the overall design. A semi-transparent stain was selected for the siding of the house, yielding a darker color while allowing the natural characteristics of the wood to remain visible. Along the soffit of the house, the design team chose a nearly clear stain, allowing the roof to appear brighter.

CLIENT
Sugar Bowl Resort
Norden, CA

ARCHITECT
BCV Architecture + Interiors
San Francisco, CA

STRUCTURAL ENGINEER
Nishkian Monks
Bozeman, MT

GENERAL CONTRACTOR
Steven Bennett Construction Inc.
Grass Valley, CA

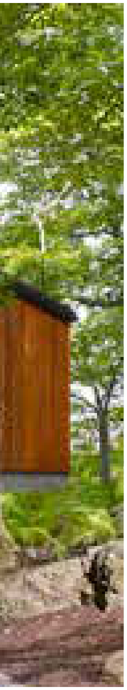
PHOTOGRAPHY
Vance Fox
Reno, NV

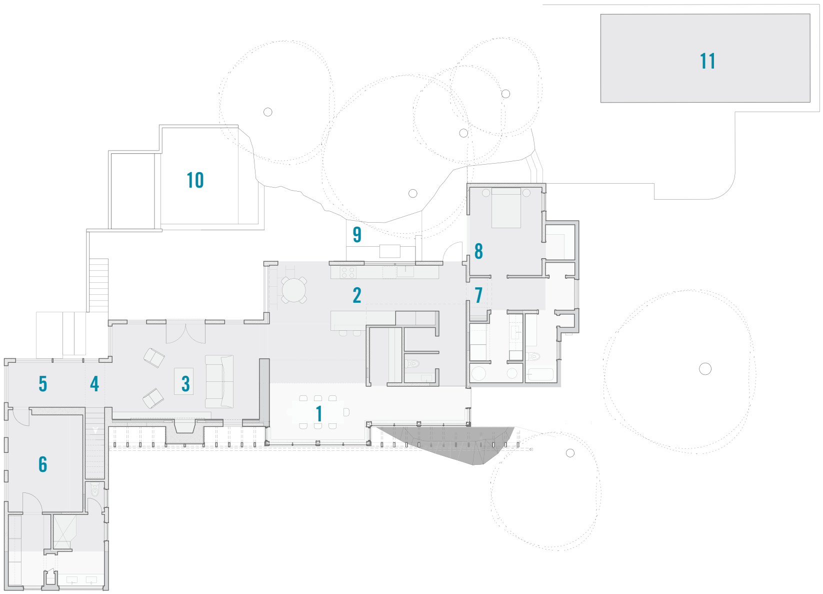
Strategic use of wood unifies new and existing fragments of this reconstructed ranch house, integrating the existing structure with the site

Sansin Award

Terrapin Neck

Previous owners had marred this magnificent site, a rock ledge in West Virginia 100 ft. above the Potomac River, with a standard-issue ranch house. The design team was given the challenge to better integrate the existing form into the landscape, while retaining as much of the structure and fabric as possible. A transformation of the site was realized with only a few decisive moves.





1. dining room
2. kitchen
3. living room
4. to guest bedroom 1/study
5. gallery
6. master bedroom
7. ship ladder to sleeping loft
8. guest bedroom 2
9. outdoor kitchen
10. outdoor dining/terrace
11. pool

N

FLOOR PLAN

The changes are evident from the long, winding entry drive that enters the site. As a massing design strategy, the team played up the repetition of shed roof forms, reframing the existing two-story gable on the west. This taming of discordant roof forms creates a series of waves that mimics the rapids below.

The re-skinning of the south elevation with a new Douglas fir scrim wall reflects the rhythm of the trees and stitches together the elements of this long facade. The scrim variously forms the entry porch, the glazed entry hall and the dining room bay, which overlooks the Appalachian woodland to the south.

At the new entry porch, bluestone steps and Douglas fir columns accommodate a prominent boulder and instruct the entry sequence. The alterations to the south elevation enable the main interior space to open up, exhibiting the woodland as a counterpoint to the Potomac River to the north. This artful flow of spaces and the treatment of the existing boulder act as grace notes that indicate the house is tailored to this unique place.

Other important edits can be found throughout the structure. The exterior materials palette has been altered and unifi d from its found condition. The warm color of the stain-grade cedar siding integrates the home into the surrounding woods. Inside, new and existing spaces are unifi d by the reorganization of rooms and edits to materials of select ceilings, millwork and wall paneling in Douglas fir.

In addition to the main house, the project also included a new outbuilding that houses a guest suite, potting shed/ workshop and ample storage for bikes, kayaks and a pickup truck. At the terminus of the long entry drive through the woods, it acts as a gatehouse and signals arrival to the nearby house.

ARCHITECT
Richard Williams Architects
Washington, DC

STRUCTURAL ENGINEER
A.F. McCormick Structural Engineering
Shepherdstown, WV

GENERAL CONTRACTOR
Michael F. Taylor Custom Structures
Shepherdstown, WV

PHOTOGRAPHY
Tom Arban
Toronto, ON

Canadian Wood *WORKS!* Awards

Canadian Wood *WORKS!* Awards

Welcome to this year's showcase of winning wood projects from across Canada, which celebrate excellence in contemporary architecture and structural engineering design. We are proud to honour the visionary professionals in the design and building communities from coast to coast who participated in Wood *WORKS!* 2019 Wood Design Awards, as they have once again enthralled and inspired us with what's possible while using wood.

Through the Wood Design Awards, we clearly see that architects, engineers, designers and project teams continue to explore wood's expanding potential and are reaching new frontiers in building and design with taller, larger and more innovative wood structures all across our country. We were struck by the stunning aesthetics, impressive structural performance and scale, and environmentally responsible designs that have evolved. Changes to the building codes and continuing technological innovation will continue to create new opportunities for wood, both structurally and architecturally, and will positively change our urban landscapes.

It is a pleasure to see buildings going up around us that celebrate the heritage of our forest industry, and create pride and prosperity in our communities. Wood's many attributes and benefits are demonstrated in all of these award-winning projects, including its strength, beauty, versatility and its ability to increase construction efficiency and lower carbon impacts.

We wish to acknowledge and thank this year's jurors for their skilled work, our sponsors for their generous support, and project owners, wood product manufacturers and producers for their commitment to excellence and innovation. Finally, congratulations to the wood design and building communities all across Canada for their remarkable leadership and ingenuity that gives us a view of sustainable, livable, aff rdable and inspired cities of the future.

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

Paul Whittaker
Provincial Director
Wood *WORKS!* Alberta

Marianne Berube
Executive Director
Wood *WORKS!*
Ontario

Jurors

Left to right:

ETHAN MARTIN, PE
Northwest Regional Director
WOODWORKS U.S.
www.woodworks.org

TREVOR HEDSTROM
Design Manager
WINTON HOMES & COTTAGES
www.wintonhomes.ca

ANGELIQUE PILON
Director, Urban Innovation Research,
UBC Sustainability Initiative
UNIVERSITY OF BRITISH COLUMBIA
www.ubc.ca

KIMBERLY JOHNSTON,
ARCHITECT AIBC, MRAIC, LEED AP
Principal
JOHNSTON DAVIDSON ARCHITECTURE + PLANNING
www.jdarch.ca

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BRITISH COLUMBIA

If a family's home is their castle, then welcome to a house where the love of play rules supreme

Shift House

Sitting on a quiet street in Vancouver's east side, Shift House's massing of two distinct, ridged elements respects the common architectural silhouette of the neighborhood, while emerging organically from this tradition to express a modern and playful identity.

The idea of "play" proves to be a key attribute of Shift House. Its owners, a family with two small children, asked the architects to design a home rooted in this concept. They imagined a house where play in all its forms was to be the guiding energy, with no room or material too sacred or off-limits to their children or their friends.

This sense of play starts with the outside. The cladding, a near-45-degree pixelated cedar shake pattern, picks up the contextual coloration of the site, referencing the unpretentious diamond shingle of a fisherman's shack. While the shingles were stained and refined, the architects chose to provide contrast with Western red cedar as secondary cladding. Chosen for its elegant natural form, the tongue-and-groove cedar remained unstained and will not require any upkeep, aging gracefully with the building.

Inside, the architects kept on theme, playing on traditional building materials to push the boundaries of what is considered acceptable. Exposed galvanized conduit lines, Douglas fir structural material and construction-grade plywood cabinetry are all part of the language of the house, a considered composition of coarse materials that evoke a modest, yet unmistakably modern, typology of style.

To hew to a smaller footprint and retain exterior living areas, the architects created multiple uses for spaces. Nooks in which to read, play and daydream abound. The inside front wall becomes an inspired mudroom pegboard. Netting protects a play area above the entrance.

A 10-ft. drop from front to back provided a unique opportunity to explore volumes within the space. Upon entering Shift House, steps rise to the sleeping quarters and descend to the living areas, with a flush-on-grade exterior condition in the back. This design leverages stair volumes to create a stacked effect, engaging passive cooling.

The cathedral roof, in concert with multi-level connections, offe s a sense of volume not usually found in a conventional stacked house, allowing for a soaring 12-ft. ceiling on the main floor. The roof also creates room for play in the form of a secret terrace, hidden behind its peaks.

An intimate connection with nature can be found throughout the home. Large picture windows offer framed views to the outdoors, while lofty, front-to-back sightlines reveal glimpses of treetops. The kitchen and dining area opens seamlessly to a patio and grass.

To minimize the materials' footprint, the architects used reclaimed pavers in the front yard, with cuts of the foundation wall forming the exterior entry pad. Part of the concrete board form was reused for soffits, while the rough fir planks of the scaffolding were repurposed for planter beds. More planks were milled down to create a table for the dining room and desk for the study. Local artisans crafted the millwork and lighting sconces, and recycled materials, such as the kitchen tiles, were used where possible.

1. entry
2. study

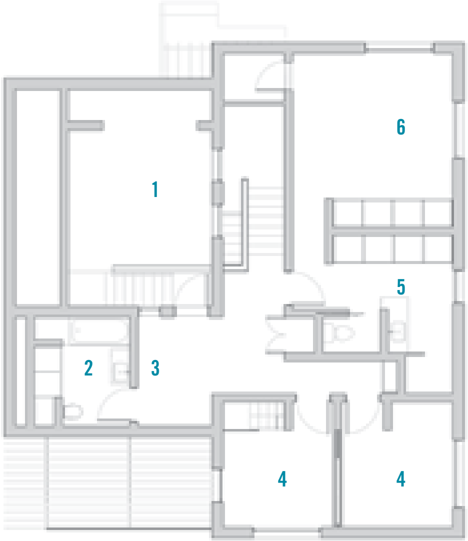
N

ENTRY PLAN

1. dining room
2. living room
3. flex space
4. boot room
5. mechanical room
6. restroom
7. pantry
8. kitchen

N

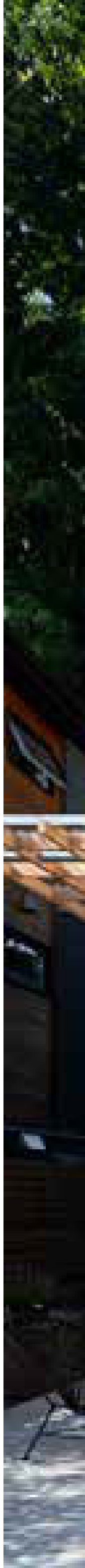
MAIN FLOOR PLAN

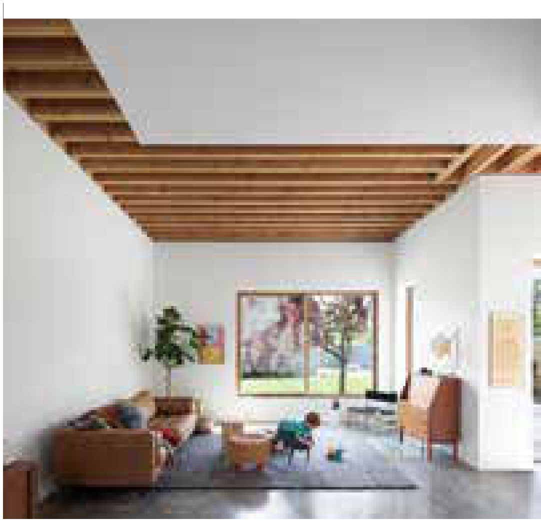


1. rooftop deck
2. restroom
3. flex/study
4. bedroom
5. master ensuite
6. master bedroom

N

SECOND FLOOR PLAN





ARCHITECT
Measured Architecture
Vancouver, BC

STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

GENERAL CONTRACTOR
Powers Construction
Vancouver, BC

PHOTOGRAPHY
Ema Peter
Vancouver, BC

An innovative hybrid building makes headway for mass timber

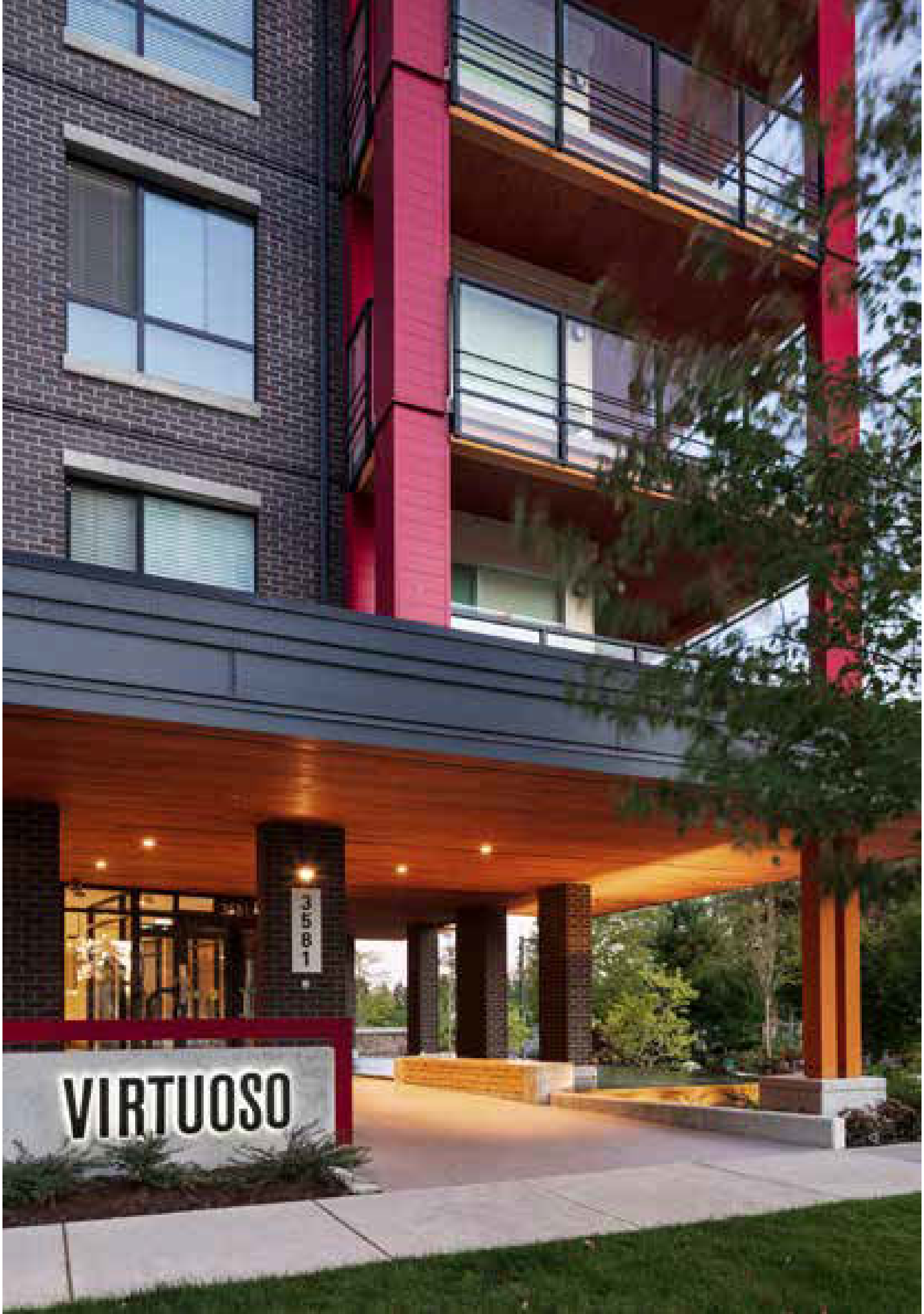
Virtuoso

Virtuoso is a 107,639-sq.ft., six-story residential condominium building located in the Wesbrook Village neighbourhood on the Vancouver campus of the University of British Columbia (UBC). The building is the 10th project to be constructed by developer Adera at UBC, and the first to use a hybrid system of light wood-frame and mass timber construction. Six stories of wood sit on top of a two-story underground parking garage constructed in concrete. The residential accommodation comprises 106 two- and three-bedroom apartment and townhouse units, varying in size from 1,300 to 1,600 sq.ft., some with decks up to 860 sq.ft.

This building departs from the traditional wood-frame construction typical of multi-family residential structures by introducing CLT panels in place of the more familiar wood I-joist and plywood floors. CLT is also used for the walls of the elevator shafts, the structural roof deck and exterior balconies. The exterior and interior walls are wood-frame construction, with 2x6 Douglas fir studs used throughout to provide the extra load-carrying capacity that is required for five- and six-story buildings.

The three-layer, 105-mm.-thick CLT panels span either nine or 14 ft. between interior walls and/or load-bearing partitions. Some of these walls include a glulam header beam that cantilevers up to 1.8 m. beyond the building envelope to support exterior balconies, which are also made from CLT panels. The interior floor panels are joined together along their edges using closely spaced stainless steel screws arranged at opposing 45-degree angles, much like the toe-nailing used to fasten studs to plates in conventional framing. This same method, known as “dragon’s claw,” is used to connect the vertical CLT panels that make up the elevator shafts.

Considerable time was taken during the design and development phase to optimize the sizes, connection details and arrangement of CLT panels to minimize waste and maximize the speed of installation. A 3D model was used to test the various options. Other penetrations were drilled on site, and air-conditioning ductwork was run within suspended ceilings. For acoustic and thermal comfort, Virtuoso features Energy Star–rated windows, hardwood and ceramic floors laid over a semi-rigid acoustic mat, and an air-conditioning system that provides both heating and cooling using low-velocity tempered air from a central plant located on the first parking level.


3581
VIRTUOSO

The exterior features exposed wood elements, including horizontal glulam timber beams at each floor level and CLT balcony soffits. Together with the brick cladding on the first five stories, the wood alludes to the natural character and materials of the nearby Pacific Spirit Regional Park, which features more than 750 hectares of forests and shoreline.

With its hybrid approach, Virtuoso is an innovative prototype not only for residential buildings, but also for the six-story commercial buildings that will be permitted under the 2020 National Building Code of Canada.

ARCHITECT
Rositch Hemphill Architects
Vancouver, BC

STRUCTURAL ENGINEER
WHM Structural Engineers
Burnaby, BC

CONSTRUCTION MANAGER
Adera Development Corp.
Vancouver, BC

TIMBER SUPPLIER
Structurlam Mass Timber Corp.
Penticton, BC

PHOTOGRAPHY
Raef Grohne
Vancouver, BC


WOOD INNOVATION RESEARCH LABORATORY
UNBC

Environmental Performance

The first certified Passive House building in Canada for a post-secondary client puts theory into practice

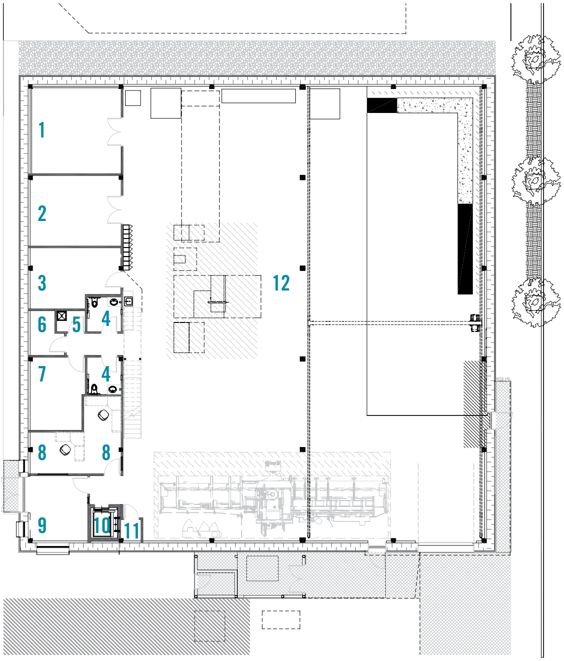
Wood Innovation Research Laboratory, UNBC

Located in downtown Prince George, B.C., the Wood Innovation Research Laboratory (WIRL) is designed as a modern research facility for students, faculty and researchers at the University of Northern British Columbia's (UNBC) Master of Engineering in Integrated Wood Design program.

The building – which served as a learning and teaching tool for UNBC during and after construction – has considerable ceiling heights to allow large sections of building materials to be assembled, moved by overhead crane, loaded and unloaded onto delivery vehicles, and carried to the testing area.

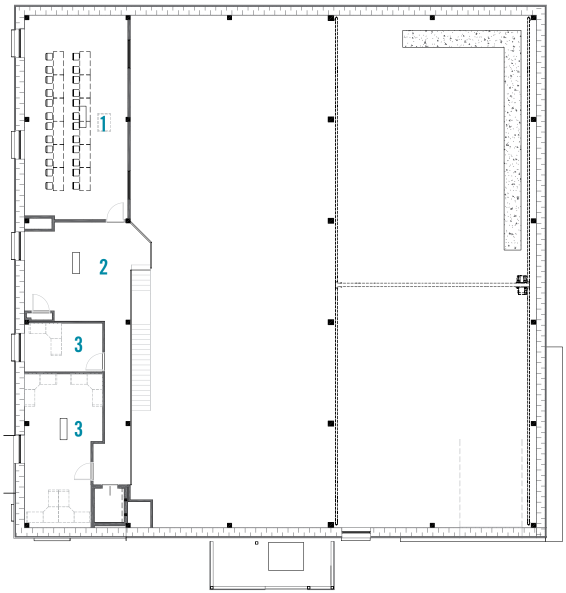
It is also the first certifi d Passive House building in Canada for a post-secondary client. Conceived as a modest building influenced by passive design principles and wood innovation, it responds to and complements its surrounding building forms and orients itself in response to the urban landscape. The size, detailing and orientations of windows were strategically positioned with passive strategies in mind; most of the glazing is placed on the south facade. The windows are shaded by the addition of external shading devices to reduce solar gain.

The dark metal panel exterior wraps a warm wood interior with exposed wood structure on the interior. Wood is used throughout the interior as both a structural and cladding material, including in the convenience stairway to the mezzanine level. The exterior metal panel cladding is interrupted at the two entrance corners with vertical wood siding, detailed with a metal blade to protect the wood. The wood cladding features CNC-routered signage.



1. conditioning room
2. tools/storage
3. mechanical room
4. restroom
5. janitor
6. comm.
7. electrical room
8. office
9. entrance
10. elevator
11. elevator room
12. lab

FIRST FLOOR PLAN



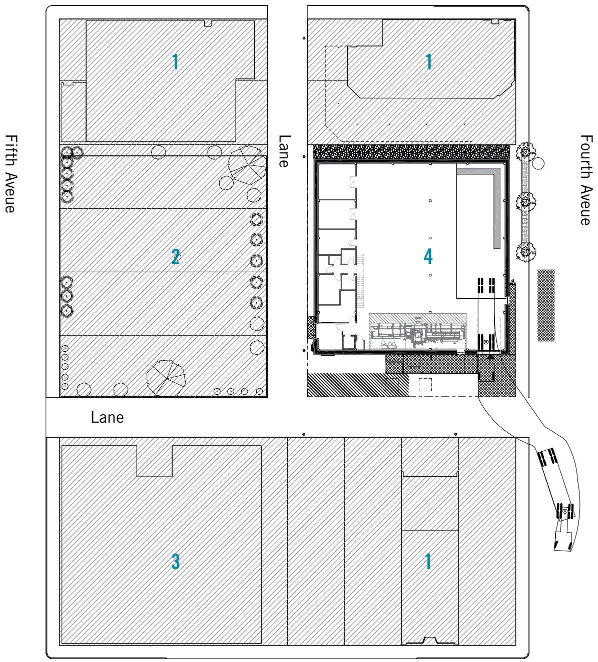
1. seminar space
2. flexible collaborative area
3. office

SECOND FLOOR PLAN

The structure of the building, a glulam post-and-beam superstructure over raft foundation, is simple and composed of repetitious elements. The wall infill panels were created as modular components, a decision that decreased cost, improved product consistency, assured a high degree of quality control and sped up the construction process.

Initially, the team began the design by looking at mass timber wall and wood assemblies with an outboard insulation, but this proved not to be cost-eff ctive. A more feasible solution was designing a wall assembly using standard residential roof trusses with a sprayed mineral wool insulation. The wall truss design was unique due to the Passive House requirements, but the structure was made with conventional building materials and fabricated in Prince George by a local truss manufacturer.

The completed construction set a new standard for airtightness, securing the best North American result of any building under Passive House standards. The testing protocol involves both pressurizing and depressurizing the building and measuring the number of air changes per hour that result. With a score of 0.07, the WIRL surpassed the Passive House requirement by a factor of almost 10. This required careful planning in wall assembly construction, sealing of membranes, and consideration for air leakage at all interfaces – especially openings such as around the garage door.



1. existing building
2. future park
3. existing Wood Innovation and Design Centre (WIDC)
4. Wood Innovation Research Laboratory (WIRL)

SITE PLAN

CLIENT
University of Northern British Columbia
Prince George, BC

ARCHITECT
Stantec
Edmonton, AB

STRUCTURAL ENGINEER
Aspect Structural Engineers
Vancouver, BC

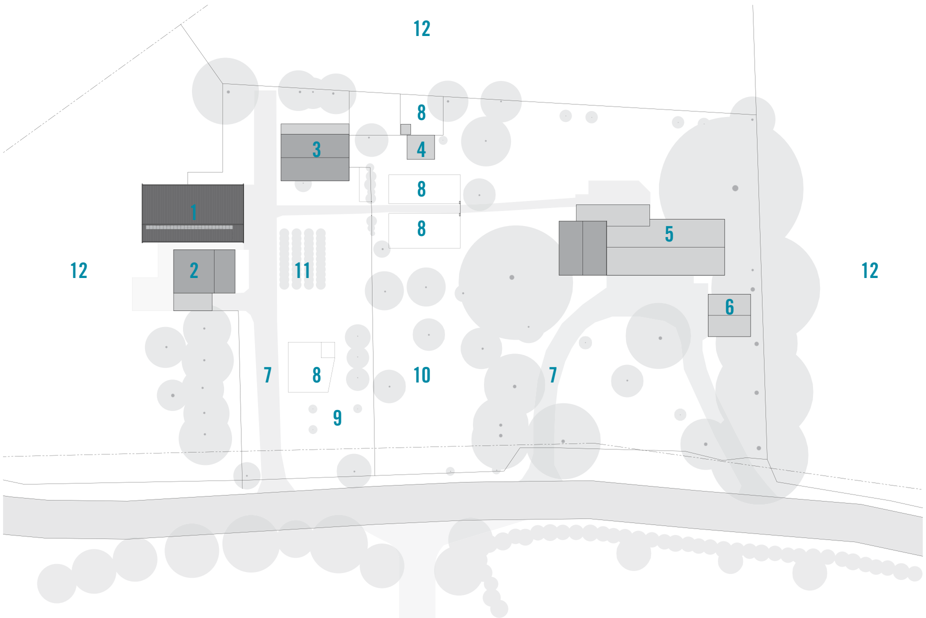
GENERAL CONTRACTOR
IDL Projects
Prince George, BC

TIMBER SUPPLIER
Western Archrib
Edmonton, AB

PHOTOGRAPHY
Michael Elkan
Vancouver, BC

Involving the local community in its construction from the ground up, this barn is a fitting homage to Canada's rich rural heritage

Swallowfield Barn

1. new barn
2. existing barn
3. storage shed
4. greenhouse
5. farmhouse
6. carport
7. driveway
8. garden
9. arbour
10. orchard
11. berry bushes
12. pasture

SITE PLAN

The goal of the Swallowfi ld Barn was to use the process of design and construction to strengthen the bonds within a tight-knit family and build community within their rural neighborhood.

Designed by the architect for his parents' farm in rural Langley, B.C., the 3,600-sq.ft. barn was conceived with two functions in mind. First, it's a traditional barn designed for the resident livestock, cats and barn owls, with workshops and storage for a modest hobby farm. Second, as an homage to the vernacular building forms of Canada's agricultural landscape and the community building processes that shaped them, the hayloft was conceived as a vibrant gathering space suitable for hosting concerts, events and long-table dinners serving an abundance of food from the small farm.

The simplicity of the barn's form is intentionally reminiscent of traditional North American barns, visible across the pastures from neighboring farms. The barn's off-kilter roof profile creates a warm and inviting entrance visible on axis through the gardens and orchards from the farmhouse.

The construction process was tailored to involve the local community in its building from the ground up, in the manner of traditional barn-raisings. The architect acted as builder for the project – undertaking all contracting services – and along with his father, coordinated build days with crews of up to 40 people. The frames of the roof structure were constructed completely on site and raised into place in less than four hours. The free spanning cathedral roof structure consists of closely spaced LVL moment frames with a unique flush ridge connection, achieved with a pair of glued-in threaded rods that run through to clamp the intersecting rafter.

As you climb the stairs, the repetitive roof structure immediately draws the eye upward to the long linear skylight at the ridge, which infuses the space with warmth and a calming, diffused light. The space requires no daytime lighting and is naturally heated during the shoulder seasons. At night, it is clear this structure was built to bring a community together, its glowing skylight drawing visitors from the road to the hustle and bustle of a local hall.

Below the loft, the ground floor is spacious and functional with multiple entries and generous alleys to move larger equipment and animals, while integrating with the existing barn directly to the south. Large sliding doors create a generous indoor-outdoor work area that's protected by the roof overhang above.

The building is clad entirely in vertical Douglas fir siding, reclaimed from prior use as boards from concrete formwork. Here, the marks and stains of the boards' previous use are left visible, maintaining the patina and memory as the material ages and weathers.

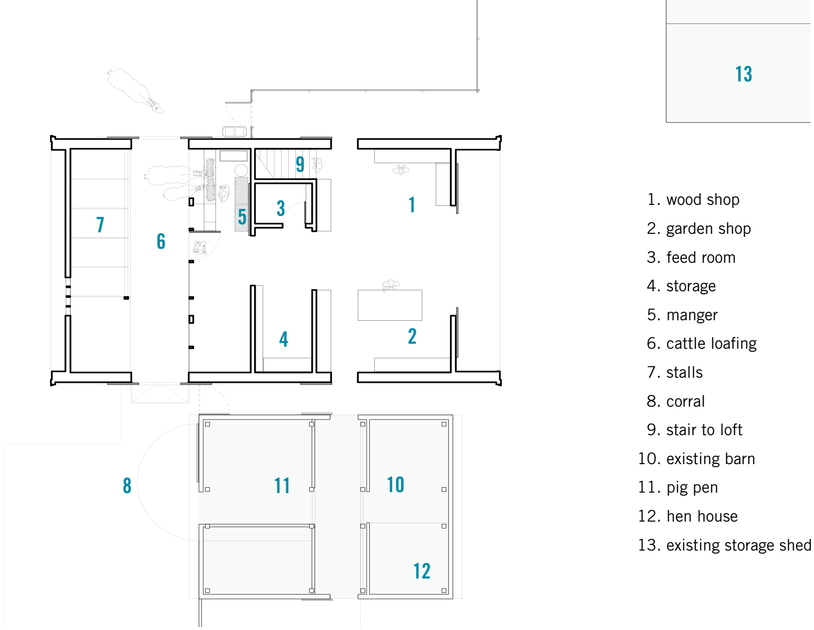
The structure achieves a high level of economy and refined expression of traditional framing techniques. It showcases the potential for engineered wood to be celebrated in an exposed application and elevates mundane wood materials to a new level, expressing the beauty of their strength and visual simplicity.

CLIENT
Dennis and Jenny DeGroot
Langley, BC

ARCHITECT
MOTIV Architects Inc.
Vancouver, BC

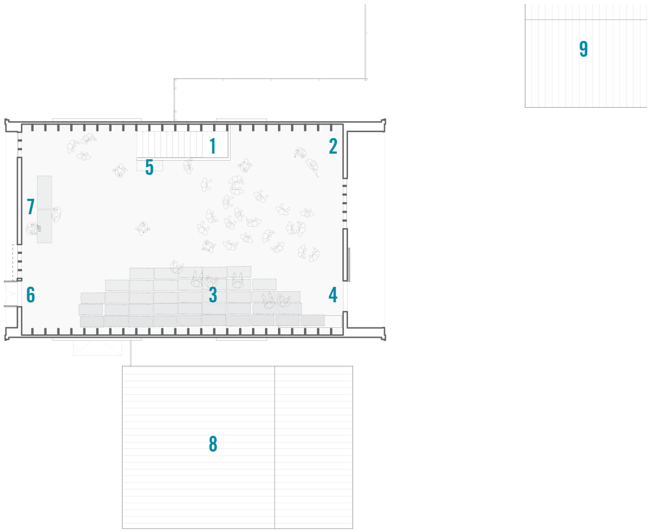
STRUCTURAL ENGINEER
Equilibrium Consulting
Vancouver, BC

PHOTOGRAPHY
Ema Peter
Vancouver, BC



MAIN FLOOR PLAN

1. wood shop
2. garden shop
3. feed room
4. storage
5. manger
6. cattle loafing
7. stalls
8. corral
9. stair to loft
10. existing barn
11. pig pen
12. hen house
13. existing storage shed



UPPER FLOOR PLAN

1. stair to workshop
2. stage
3. hay storage
4. hay wagon access
5. hay chute/trap door
6. field side access
7. merch table
8. existing barn
9. existing storage barn

Interior Beauty Design

Wood features prominently in this innovative approach to support First Nation community and wellness

Ts’kw’aylaxw Cultural & Community Health Centre


MMUNITY HEALTH CENTRE

The Ts'kw'aylaxw First Nation is located in the south-central interior of B.C., about 40 km northwest of Lillooet. The 18,800-sq.ft. Ts'kw'aylaxw Cultural and Community Health Centre – a three-story structure with community/recreational hall and kitchen on the first level, fitness room and mechanical equipment in the middle, health and social services at the top – provides the community with an opportunity to further pursue and define its vision of a more holistic health care model, one in which respect and trust lead to meaningful collaboration and partnerships in the greater pursuit of health and wellness.

The steep site informs a landscape strategy that leads to a compact, layered approach to energy-efficient initiatives. While the atrium vertically facilitates natural ventilation, its warm vibrancy compels visitors to

climb and enter the Elders Lounge, a circular gathering space embraced by a wall of aspen poles. Further, half of the community/recreational hall is buried underground to maximize the insulating benefits of the earth. The front face of the building is a tall timbered colonnade with a generous overhang that provides sun protection to the upper level, and the building envelope incorporates Passive House standards using insulated prefabricated wood panels, triple-glazed wood windows and high-efficiency HVAC systems.

All social spaces make use of a variety of wood species to provide the users with tactile and emotional benefits. Veneered surfaces adorn walls and millwork, while solid wood sections form windows, doors, benches and countertops. The aspen used to surround the Elders Lounge is a sustainable material of choice for its health and wellness attributes.

The collaborative nature of this project between architects, health providers and the community addresses the need to establish eff ctive health care architecture, especially where First Nation holistic goals naturally extend into an environmental sensitivity that demands innovative building technologies. By focusing on ways to bridge the value-added production of wood with sustainable building technologies, the Ts'kw'aylaxw Cultural and Community Health Centre becomes a wellness anchor for the community while maintaining spiritual and cultural values in the form of a service hub model.

CLIENT
Ts'kw'aylaxw First Nation
Lillooet, BC

ARCHITECT
Unison Architecture
Vancouver, BC

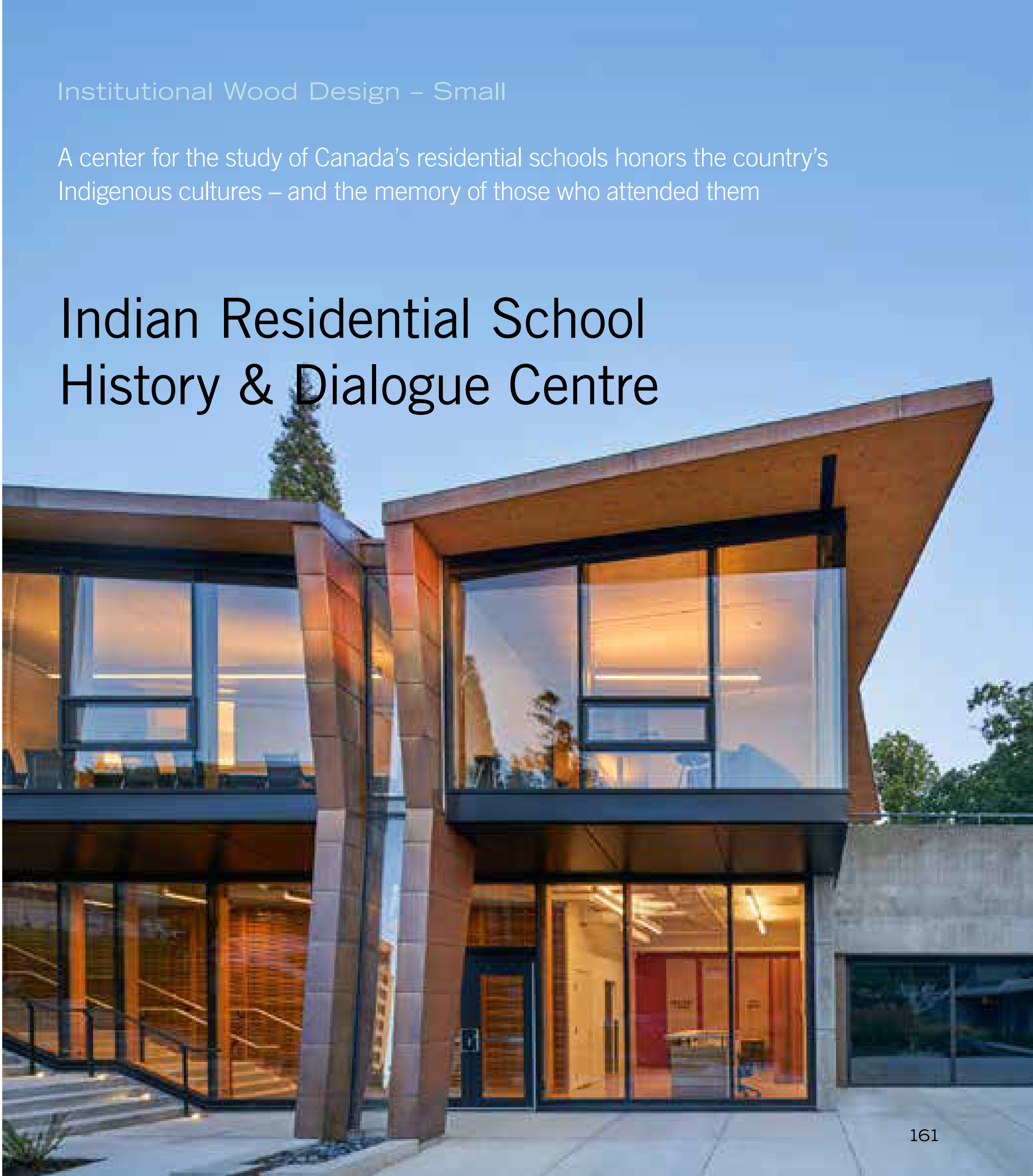
STRUCTURAL ENGINEER
Equilibrium Consulting
Vancouver, BC

GENERAL CONTRACTOR
Mierau Contractors
Abbotsford, BC

PHOTOGRAPHY
Ema Peter
Vancouver, BC

A center for the study of Canada's residential schools honors the country's Indigenous cultures – and the memory of those who attended them

Indian Residential School History & Dialogue Centre



The Indian Residential School History and Dialogue Centre on the University of British Columbia campus is a place to acknowledge the suffering of the 150,000 Indigenous students who attended Canada's residential schools, and to remember more than 6,000 children believed to have died in those institutions. Their memories are honored by connecting the struggles of the past to today's movements for human rights.

This building is an educational facility for students, staff and visitors to access information about the 138 residential schools that once existed in Canada. The program is arranged on two levels, with the main entry, administrative offices and meeting rooms on the upper level and the exhibition area (known as the Vault of Memories) and mechanical/electrical service rooms on the courtyard level below.

From the east-facing main entry, approached down a curving ramp, visitors descend a generous staircase with panoramic views to the courtyard through a glulam-framed glazed curtain wall to the right, and woven cedar paneling lining the wall to the left. The curtain wall offe s light, views to nature and a sense of openness, while the woven cedar paneling recalls the basketwork that is common among Canada's Indigenous cultures.

At the bottom of the stairs, a Douglas fir reception desk and portal mark the entrance to the Vault of Memories. This space is large, open and unadorned, with continuous glass doors providing visual connection and physical access to the paved portion of the courtyard. The cantilevered meeting rooms on the upper floor provide weather protection when the sliding doors are open. The roof of

1. Indian Residential School History & Dialogue Centre
2. main entrance
3. Irving K. Barber Learning Centre
4. Walter C. Koerner Library
5. mid plaza over the exisiting Sedgewick library
6. Rodney Graham Millennium Sculpture Pavilion
7. clock tower
8. buck fountain
9. outdoor learning
10. lower ceremonial plaza
11. landscaped seating bowl
12. stormwater wetland pond

SITE PLAN

the hall is accessible from the street above, with seating steps overlooking the courtyard.

As an urban design exercise, the challenge was to give the 6,500-sq.ft. building a strong presence amid its much larger neighbors while respecting an existing view corridor that runs diagonally across the site. A low rectangular solution was proposed, to be built at courtyard level and extending along the south boundary of the site. This configuration offe ed the opportunity to establish a much stronger relationship with the courtyard.

The use of wood is symbolic as well as regional in this building. First Nations architecture is rooted in the use of wood, so the architect developed a hybrid structure of spruce-pine-CLT roof and wall panels and a Douglas fir glulam curtain wall system to create the shell of the building. The 175-mm. CLT roof panels were used to evoke lightness to counter the dark concrete exhibit space that houses the data from the residential schools. The use of premanufactured CLT provided the advantage of reducing the roof structure build-up, keeping the roof plane thin and creating broad overhangs that enhance the lightness of the building.

1. service space
2. ceremonial plaza
3. storm water wetland
4. stairs up to main floor
5. main entrance foyer
6. meeting room
7. reception
8. office
9. custodial
10. kitchenette
11. outdoor learning

MAIN FLOOR

Where support was required for the overhangs, canted circular Douglas fir glulam columns were connected to concealed steel beams on top of the roof that hang the panels by welded, riveted flat plates, which can be seen on the underside. Around the perimeter, glulam columns support the weight of the roof, with a lightweight glazed curtain wall attached to them.

The exterior of the building is composed of curtain wall glazing and charred 32 x 185-mm. reverse batten clear A vertical-grain Western red cedar. Western red cedar is often said to be the blood of the Coast Salish people. The architect, whose mother attended a residential school, used the material to honor the resilience of the Indigenous families who have survived the multi-generational eff cts of residential schools and are stronger for it today.

CLIENT
UBC Properties Trust
Vancouver, BC

ARCHITECT
Formline Architecture
Vancouver, BC

STRUCTURAL ENGINEER
Bush, Bohlman & Partners LLP
Vancouver, BC

GENERAL CONTRACTOR
Bird Construction
Vancouver, BC

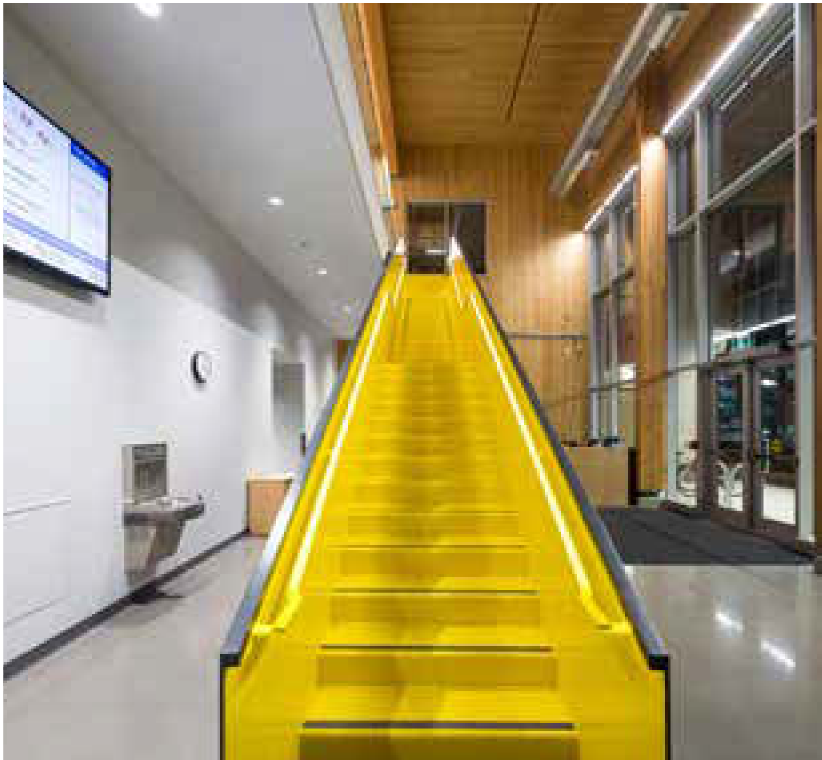
PHOTOGRAPHY
Andrew Latreille
Vancouver, BC

Institutional Wood Design – Large

A new addition to UBC's Vancouver campus is schooling everyone on the myriad benefits of sustainable design

Campus Energy Centre, UBC

The University of British Columbia's Campus Energy Centre (CEC) is a state-of-the-art hot water boiler facility that provides for the Vancouver campus' heating requirements. It replaces the university's old steam boiler plant, which was built in 1925. The system serves more than 130 buildings through nine mi. of underground insulated pipe.



This $24-million, LEED Gold facility demonstrates leading-edge sustainable design strategies, playing a significant role in reducing UBC's greenhouse gas footprint. Its location at a prominent corner on campus puts energy infrastructure in the heart of the university community – a conscious choice to elevate UBC's awareness of its own energy consumption.

While an infrastructure building of this type typically would be constructed of concrete or steel, wood features prominently in the CEC. Wood was chosen for its structural, aesthetic and sustainability characteristics. The primary structure of the building is left exposed on the interior, with large windows ensuring the wood elements and process equipment are readily visible to people walking by.

The design team felt strongly that a building housing such an important piece of sustainable infrastructure also should be as sustainable as possible. Integrating wood so comprehensively into the interior of this type of building makes a strong statement about the design intent, as well as the importance of providing a high-quality work environment for the team that operates the energy center.

A zinc shroud on the outside of the CEC gives shape and texture to what would otherwise read as a disjointed series of programmatic blocks. The metal cladding unifi s these shapes, creating a cohesive building expression. The zinc shroud also materially connects the CEC with the neighboring Life Sciences and Pharmaceutical Sciences buildings. The skin is given interest and texture through the use of three diffe ent types of zinc panels: 30 percent perforated, 50 percent perforated and a solid panel. The building's simple volume is enlivened by the play of light across and through the zinc panels over the course of a day. The base of the building is a mix of glass and polished concrete block veneer. A canopy integrated in the cladding runs the building's length on one side and wraps around to a sheltered seating area that faces the plaza.

Wood is used extensively in the interior space of the CEC. The building is constructed of renewable, locally sourced CLT panels supported by Douglas fir glulam columns and 65-ft. clear span beams. CLT panels used for the sloping roof span the full width of the space. The 59-ft. spruce-pine-fir CLT walls create a continuous enclosure around the mechanical equipment, providing warmth and lightness to this industrial space.

The boiler process areas' primary structural elements include glulam columns and beams, seven-ply CLT wall panels and sloping CLT roof panels. The boiler room roof is divided into three sections, with the steeper middle section supported by an inclined hybrid wood-steel truss that is concealed from below by the CLT ceiling. The CLT and glulam wood provide significant stability to the steel members that might otherwise risk buckling.

The administration block has an electrical room enclosed with concrete masonry walls, giving it a two-hour fire-resistance rating (FRR), and an office area with CLT walls that has a one-hour FRR.

The hybrid-wood system reduces the overall construction carbon by 97 tons over a standard steel construction system. More importantly, however, is the symbolic value of using a material that is locally harvested, supporting the B.C. forestry and timber manufacturing industry. The contrast of wood with the industrial process equipment, along with the sustainable connotation of the natural material, expresses a commitment to green building in a subtle yet profound way.

CLIENT
University of British Columbia
Vancouver, BC

ARCHITECT
Dialog
Toronto, ON

STRUCTURAL ENGINEER
Fast + Epp
Vancouver, BC

GENERAL CONTRACTOR
Ledcor Construction
Etobicoke, ON

PHOTOGRAPHY
Ema Peter
Vancouver, BC

Prefabricated Structural Wood

An innovative approach to truss construction is a practical, affordable and beautiful solution

Tyron Road Residence

This project is an oceanfront property in North Saanich, B.C., with views of the nearby marina and surrounding ocean, so open spaces and light were important. For the roof, this meant that adding depth to the structure would detract from the overall appearance of the project. It was important to the clients that the finished appearance of the building be as close to the architectural pictures as possible.

The original plans for this residential roof structure called for large glulams with a compound curve, as well as other smaller curved roofs that were to be framed on site. The design team asked a local truss manufacturer if it could price those beams; instead, they were given an option to convert the roof to trusses with all the curves built into them, as well as trusses on all the curved and non-curved roofs. The roof structure has a sloped LVL beam in it; the trusses were designed with a pocket to be inside the truss system, allowing for most of the roof to be constructed with prefabricated components. The result is a more efficient building with abundant ventilation space in the attic, adding to the structure's eco-friendliness.

Loading conditions created by the curved roof and building shape caused special slumping and drift loading on the building. The truss components had to be designed to account for this. The team was faced with a challenge getting the trusses up onto the walls, as the shape was like nothing they had ever done before. They had to invent a method of stabilizing and craning up the trusses one at a time onto the walls, while preventing the trusses from bending too far during the installation process. With careful planning and diligence, all the trusses were placed without incident or delay.

A stick-frame structure would have required a time-consuming process involving lasers, string lines and multiple measurements, whereas the curved trusses were simply dropped in where required. Using these prefabricated trusses reduced the overall roof costs significantly and provided a structure that was easier to install and made-to-order in a very short time frame.

ARCHITECT
Studio DB3
North Saanich, BC

TRUSS MANUFACTURER
Victoria Truss 2007 Ltd.
Cobble Hill, BC

CLIENT/GENERAL CONTRACTOR
Roads End Contracting
Victoria, BC

PHOTOGRAPHY
Studio DB3
North Saanich, BC




This West Coast school is designed with heritage in mind, so Western red cedar plays a central role

Kwakiutl Wagalus School

The northeast coast of Vancouver Island is the traditional territory of the Kwakiutl First Nation, of the Kwakwaka'wakw Tribe. Throughout their long history, they have developed sophisticated art and construction technology, and the versatile properties of Western red cedar have played an essential role as a prime building material for shelters, canoes and other necessary parts of daily life.

The Kwakiutl Wagalus School project entailed the design and construction of a grades K-7 school. The vision was to incorporate traditional elements of Kwakiutl art, culture and construction into the new building. Cultural values of significance were gathered through a series of consultations with chief and council, elders, artists, teachers and – importantly – the students.

Western red cedar is featured in every aspect of the design, both structurally and in the finishes. Harvested from local forests, it is the only finishing material used in the exterior cladding and is integral to the interior design. The use of cedar as a structural material and a finishing material varies according to the diffe - ent functions of the school programs.

The heart of the school – the multipurpose room – is inspired by the form and structure of the traditional Kwakwaka'wakw "Big House" and consists of four Western red cedar posts supporting four cedar beams. Interior walls are clad with cedar planks installed vertically, reminiscent of traditional cladding used in Big Houses. The ceiling of the multipurpose room and surrounding corridors is finished with custom acoustic wood panels. The roof structure above consists of Douglas fir glulam purlins and TJI joists. A large central skylight mimics the smoke opening in the Big House, allowing in the sun.

Classrooms are constructed with glulam posts and beams in-filled with conventional dimension wood framing. The classrooms and other support programs are also clad with custom-made cedar shiplap boards installed over the rain screen on conventional wood framing. The elegant transition between the cladding and the roof is achieved with soffits made using cedar boards and accompanying articulated cedar fascia.

The gymnasium is designed as a system of prefabricated wood "tilt-up" panels to minimize the adverse eff cts of the rainy West Coast climate. The exterior cladding on these panels is custom-made Western red cedar shiplap boards installed in the form of slanted scallops, which add three-dimensional texture and fragment the scale of the large walls.

The use of wood resulted in operational benefits. To simplify construction and save money, the gymnasium's panels were manufactured outside of Victoria, B.C. The panels were then transported 280 mi. to the Port Hardy site, where they were assembled in five days by a small crew that included local community members.

A special eff rt was made to highlight the use of Western red cedar as a prominent element in all aspects of the building design. It would have been inconceivable to express the essence of Kwakwaka'wakw's hereditary values with any material other than Western red cedar, as these values were born of – and evolved from – the use of this remarkable tree.

CLIENT
Kwakiutl First Nation
Fort Rupert, BC

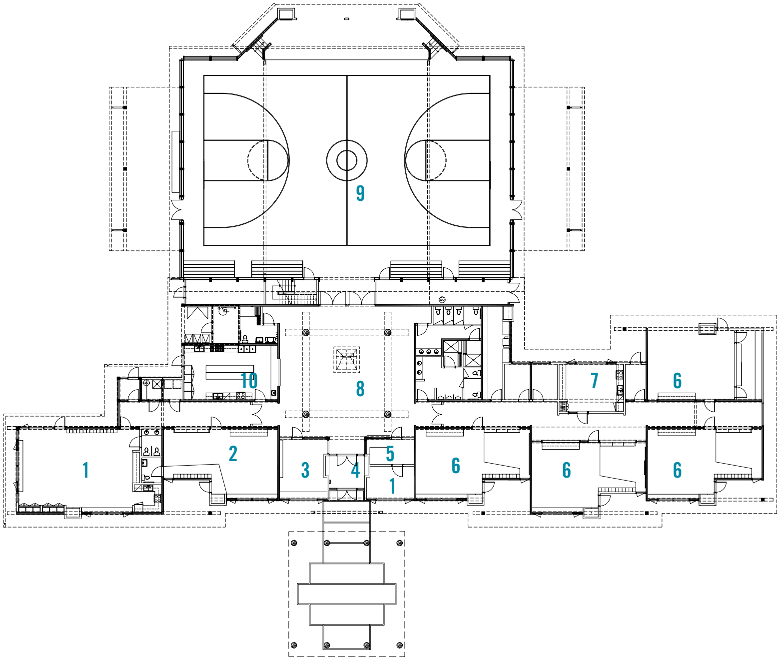
ARCHITECT
Lubor Trubka Associates Architects
Vancouver, BC

STRUCTURAL ENGINEER
CWMM Consulting Engineers Ltd.
Vancouver, BC

GENERAL CONTRACTOR
AFC Construction Ltd.
Courtenay, BC

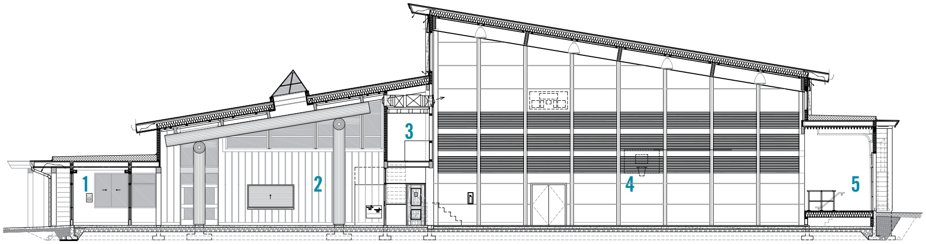
TIMBER SUPPLIER
Macdonald & Lawrence
Timber Framing Ltd.
Mill Bay, BC

PHOTOGRAPHY
Peter Powles
Vancouver, BC



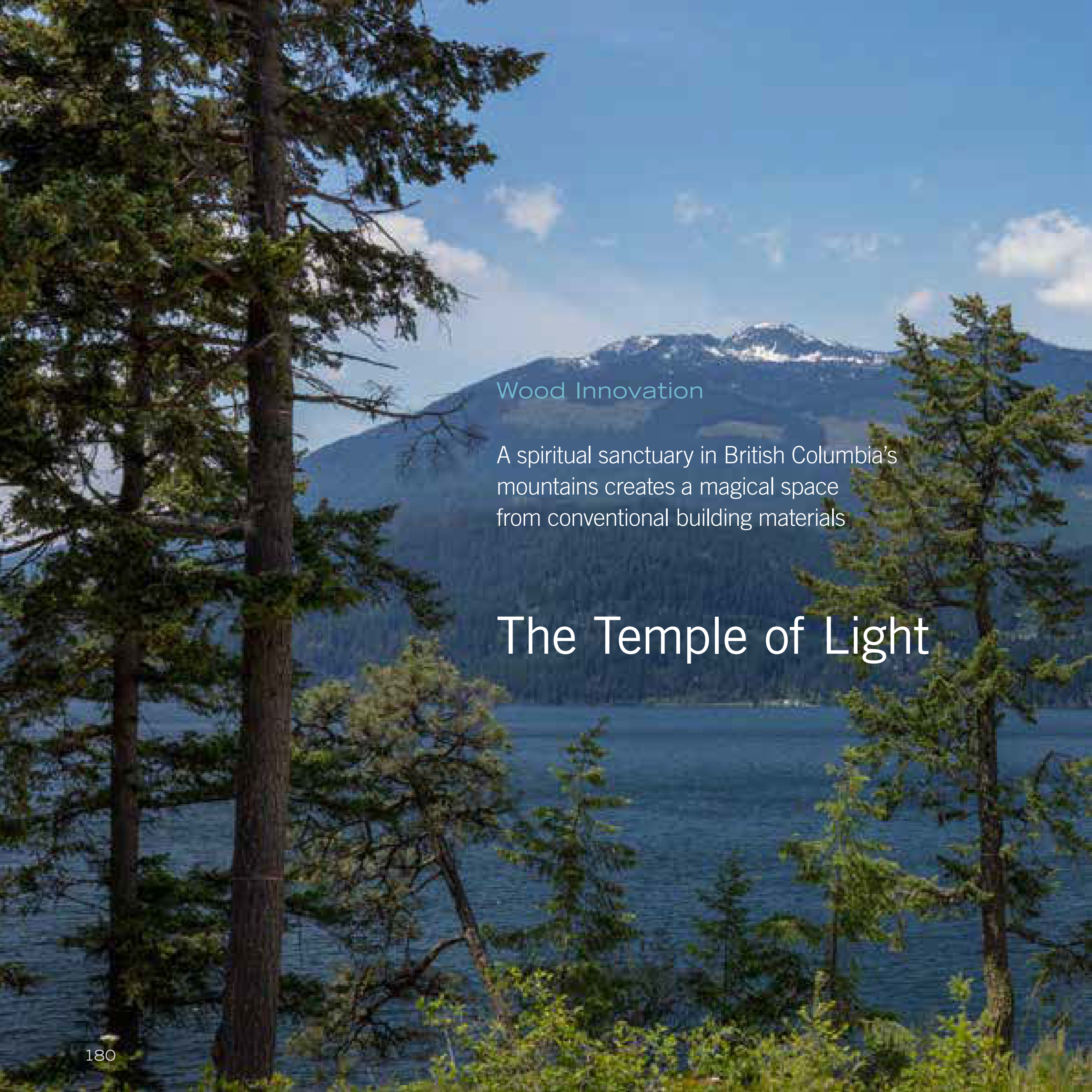
1. pre-school
2. kindergarten
3. library
4. lobby
5. reception
6. classroom
7. staff room
8. multipurpose room
9. gymnasium
10. kitchen

N FLOOR PLAN



1. lobby
2. multipurpose room
3. mezzanine
4. gymnasium
5. stage

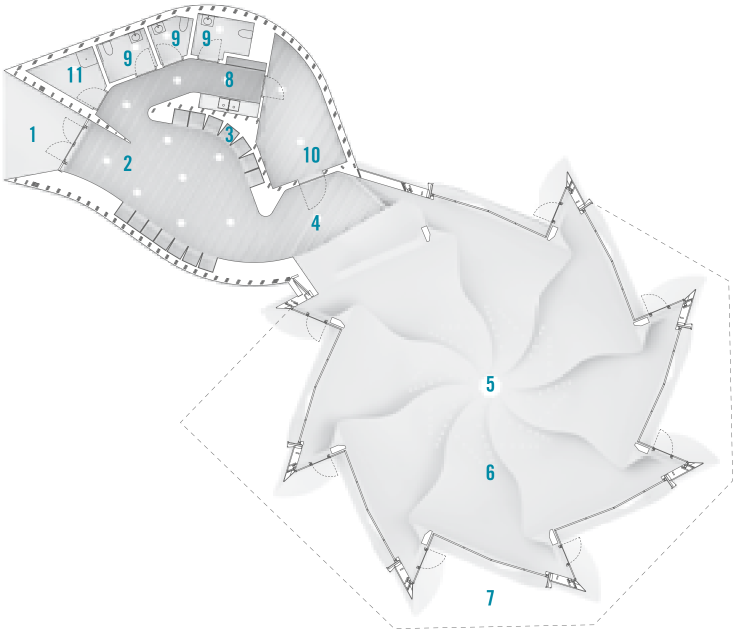
N CROSS SECTION



Wood Innovation

A spiritual sanctuary in British Columbia's mountains creates a magical space from conventional building materials

The Temple of Light



1. entrance porch
2. entry hall
3. coat & shoe storage
4. transition space
5. worship space
6. acoustic chandelier
7. exterior deck
8. flower arranging station
9. restroom
10. seating/musical instrument storage
11. janitor room

N FLOOR PLAN

In Kootenay Bay, B.C., the Temple of Light is a spiritual sanctuary for the Yasodhara Ashram, a popular destination for contemplation and celebration. After losing the previous temple to a fire in 2014, the community renewed the site by constructing a rarefi d, dome-like space on the original foundations. The newly rebuilt temple invites visitors to reflect, and elevates the experience of simply being present.

The curvilinear geometry of this project was achieved with relatively modest means and conventional building materials. The petal-like forms were made by arranging straight LVL elements along continuously sweeping rule lines on the dome's fluid surfaces. The concealed lumber provides natural division seams and robust engineered timber connection plates to facilitate subdividing the larger wood-framed petal shells into modular, prefabricated sub-panels.

Each sub-panel was manufactured to a high degree of precision off-site, with modern digital manufacturing methods; custom reusable jigs with knock-outs allowed the completed convex frames to be released once assembled. The timber sub-panels were then shipped to the site and mounted onto large glulam arches to enclose the domed primary worship space, and then glazed and sealed.

A holistic approach spanning novel fabrication practices, intensive client dialogue and sustainability measures enabled the project to be executed on a tight budget in a remote location, using local trades with remarkable results. The structure is designed to consume a low amount of energy thanks to its high-performance building envelope, efficient glazing, geothermal system and adjacent photovoltaic array.

The geometry of the worship space provides the community with new opportunities for celebration, music and dance that are directly enhanced by the structure's fluid form. The surfaces have been designed to mitigate the detrimental acoustic effects typical of dome-like spaces; for example, the curvilinear petal forms maintain a constantly changing angular orientation so there are no parallel vertical surfaces to cause significant harmonic resonances or reflections. The concave surfaces of the petal forms are not centrally focused, so acoustic hotspots from each petal do not overlap and occur predominantly above the height of a standing person. Absorptive capacity is provided by a hanging constellation of illuminated foam baffles that orbit the dome's central oculus. All elements work together to provide the temple with a rich, unique acoustic signature that has garnered the praise of both local and international musicians.

CLIENT
Yasodhara Ashram Society
Kootenay Bay, BC

ARCHITECT
Patkau Architects
Vancouver, BC

STRUCTURAL ENGINEER
Equilibrium Consulting
Vancouver, BC

GENERAL CONTRACTOR
Alfred Horie Construction
Vancouver, BC

TIMBER SUPPLIER
Spearhead
Nelson, BC

PHOTOGRAPHY
Jim Dow
Edmonton, AB
Nick Diamond
Nelson, BC

International Wood Design

A dramatic interior uses wood
to enhance modern Chinese design

Chongqing Yuanlu Community Center

Facing Yulin River in southwest China, the Yuanlu Community Center sits next to Longxing Ancient Town, a popular sightseeing stop in the city of Chongqing. Situated between rolling hills and the river, three connected buildings of diffe ent sizes are placed side by side against the hillside, adjacent to the riverside road.

Each space in the center is designed with various sizes depending on the functions within, including an exhibition hall, book bar, swimming pool and café. Traditional Chinese artistic concepts are integrated into the modern interior, while the surrounding gardens and courtyards also reflect the cultural context. In addition to the interesting relationship between volumes, changes in elevation enrich the spatial forms, creating dramatic contrast as the building alternates between levels and dimensions.

The design team intended to create flowing spatial patterns, linking multiple volumes organically and allowing them to flow into each other. Although forming a linear space, the corridors demonstrate varied spatial characteristics. Courtyards and patios encourage communal gatherings, while enhancing the structure's relationship to its surroundings and creating a sense of freedom to move between environments.

Exposed glulam beams are a crucial visual element inside the buildings, with their order and form emulating the sloping roofs in Chongqing. The design team converted the structural components to suit various applications and room shapes, so that the architectural form changes with each space, while wood is a constant element. In the book bar, winding wooden stairs and the surrounding bookshelves are

visually linked by the same finish throughout. With abundant natural light introduced from the roof, the radiant, open space enhances mobility, flexibility and a sense of wonder. As the daylight changes, the passage of time transforms the atmosphere.

In contrast, hexagonal aluminum plates are prominently featured as the primary interfacial material for the exterior, with each honeycomb plate finely wrapped, slotted and spliced. The reflective facade creates a futuristic impression, generating complicated and mysterious visual eff cts as the light changes.

CLIENT
Longfor Group Holdings Ltd.
Beijing, China

ARCHITECT
Challenge Design Pte. Ltd.
Shanghai, China

STRUCTURAL ENGINEERS
Dilong Chen, Juan Li
Luzhou/Fuzhou/Fujian, China

GENERAL CONTRACTOR
JAZ Build
Shanghai, China

PHOTOGRAPHY
Prism Images/Arch-exist
Chengdu, China

Jurors

From left to right:

LUBOR TRUBKA, ARCHITECT AIBC, FRAIC
Principal in Charge/Lead Design Architect
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ISL Engineering and Land Services

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STRUCTURLAM Intelligence In Wood

West Fraser

western archrib structural wood systems

RECOGNITION SPONSORS

MILLAR WESTERN

CANFOR

SANSIN

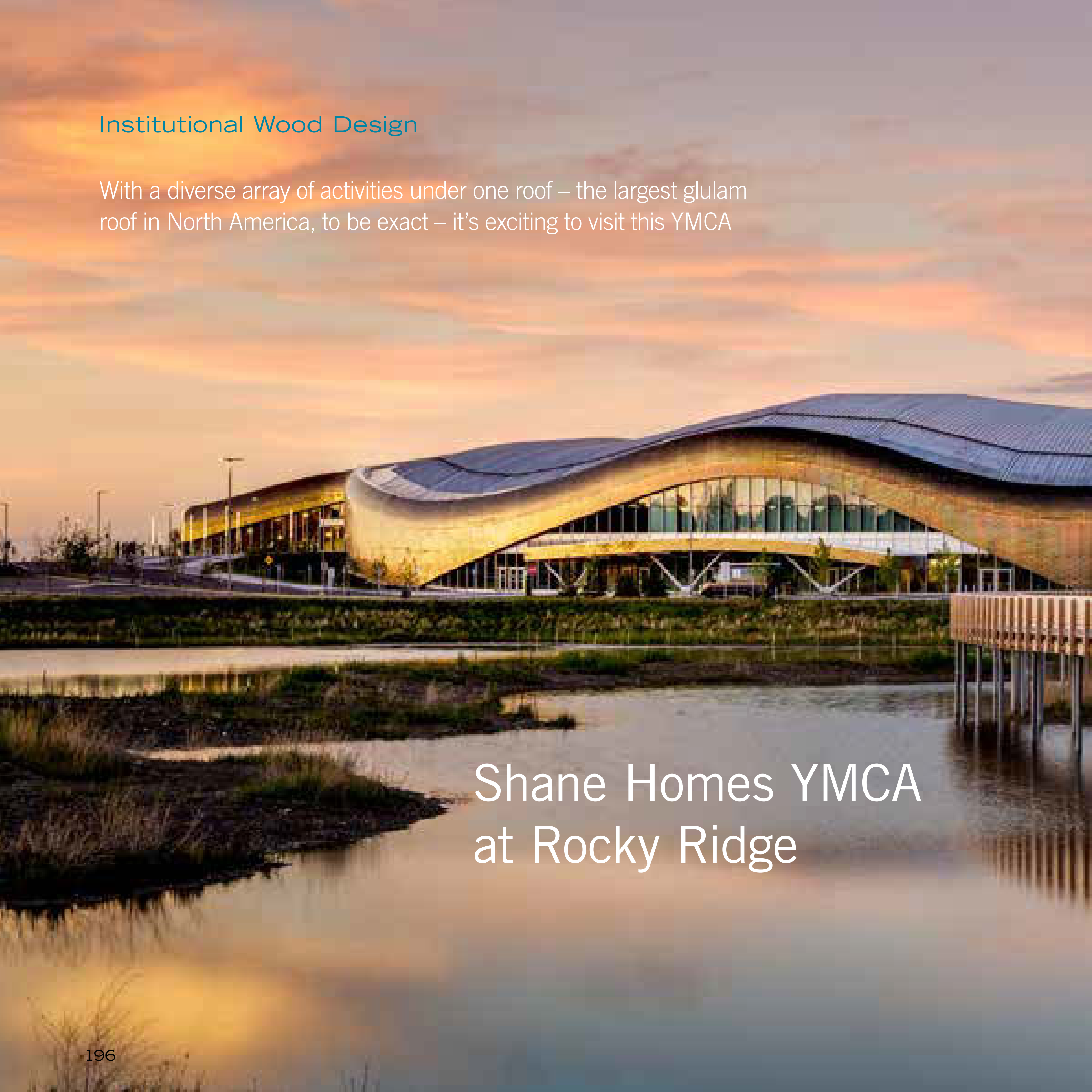
PrecisionCoat FACTORY FINISH

CONTRIBUTOR SPONSOR

Vanderwell

PRAIRIE

With a diverse array of activities under one roof – the largest glulam roof in North America, to be exact – it's exciting to visit this YMCA



Shane Homes YMCA at Rocky Ridge

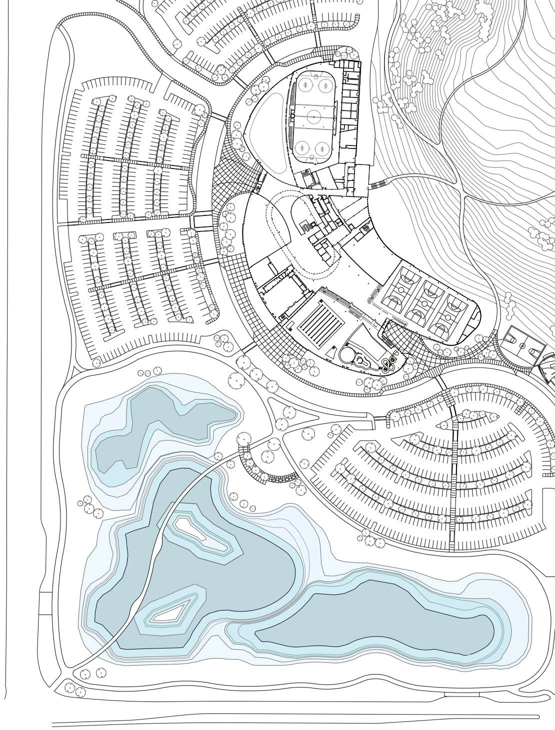
Nestled in Calgary's rolling foothills in the northwest corner of the city, the curvilinear design of the Shane Homes YMCA at Rocky Ridge is inspired by the surrounding landscape. The building is sited within a natural park featuring reconstructed wetlands. Multiple pathways and a timber pedestrian bridge curve throughout the site, linking to the regional pathway system. A skateboard park, two ice rinks, a running track, a 250-seat theater and a self-service library are just some of the center's many amenities for a community of more than 100,000 residents.

Universal inclusiveness and accessibility were pillars of the three-story design. At the reception area, entering on the second level from the sloping site allows the building to be vertically organized. Diverse uses are integrated into a single, open space in which all activities are visible, with most of the athletic facilities on the first level. A grand public concourse overlooks activity areas and provides visual access for spectators to the aquatics, gymnasium and ice functions. The library, visual arts components and theater are arranged around the active concourse on the second level, while the top level features a 200-m. running track with views of the entire volume. Program layering and an open, well-lit plan enhance the visual impact of the structural elements, which includes steel columns at the perimeter to support the roof beams.

Glulam timber is the primary structural component, allowing for a geometrically complex design at

1. recreation ice rink
2. hockey rink
3. fitness studios
4. three mixed courts
5. swimming lanes
6. aquatic park
7. change room
8. loading/service
9. boiler/chiller
10. air handling

LEVEL 1 FLOOR PLAN



SITE PLAN

considerably less cost than other materials. The dramatic silhouette is defined by the largest free-form timber roof structure in North America. At 284,006 sq.ft., the structure was the largest YMCA in the world at the time it was built (surpassed by another Calgary YMCA project completed in 2019).

The structural system consists of long-span glulam beams supported on steel. All building elements are set beneath a rolling roof structure that wraps the interior programs, expanding the volume over the areas where extra height is required, and lowering where it isn't needed. The low horizontal form of the building is stitched comfortably into the site's topography, elegantly mirroring the natural contours of the surrounding prairie features. To emulate the warm tones

of the prairie countryside, the exterior facade is comprised of brass tiles. The ribbon-like form of the facade creates large, curving expanses of glulam-supported high-performance glazing, accommodating key views from within the facility while selectively revealing the activity to passersby.

In the early stages of planning a free-form roof, several structural systems were considered; a glulam girder and purlin system was quickly identifi d for its ability to achieve the design objectives in a cost-eff ctive manner, largely due to prefabrication. To ensure fabrication timelines could be met, the design team determined an optimized, curved primary beam production system. This involved using one consistent glulam arch layout and moving sections of the beam in and out along this primary jig line. The single-roof glulam beam design resulted in significant cost savings for the client, while simplifying material shipping and storage requirements.

The design complexity, scale and schedule of this project presented many challenges that were tackled with grace, resulting in a structure that elevates the use of mass timber in an application that is both practical and beautiful. By understanding the limitations and potential of the fabrication process, the design team was able to coordinate its vision throughout the shop drawing, fabrication and erection phases. The tangible results included record-breaking enrollment for the facility, which will continue to anchor and inspire the community for many years to come.

CLIENT
City of Calgary
Calgary, AB

ARCHITECT
GEC Architecture
Calgary, AB

STRUCTURAL ENGINEER
RJC Engineers
Calgary, AB

GENERAL CONTRACTOR
PCL Construction
Calgary, AB

TIMBER SUPPLIER
Structurlam Mass Timber Corp.
Penticton, BC

PHOTOGRAPHY
David Troyer
Carlsbad, CA

Adam Mørk
København, Denmark

Jury's Choice

The narrow linear form of this structure creates an experimental reimagination of what a house can be

Montreal House


1308

The clients for this home – located in Calgary's Mount Royal neighborhood – envisioned a series of active and passive recreational spaces, an idea that manifests as a continuous and seamless series of living spaces that support free communication and interaction for their family.

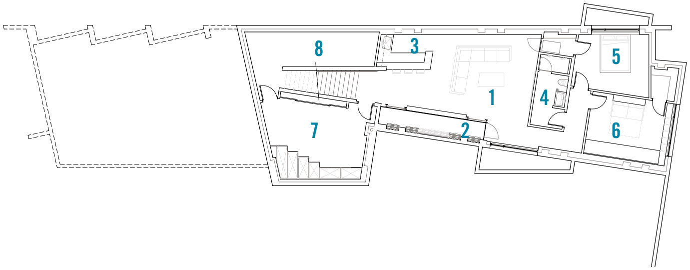
Responding to the neighboring house that occupies much of the property to the east, the house is sited as a narrow linear form, opening along the western length of the site into a broad side yard that captures the sun and becomes the frontage to the active interior spaces. The long, narrow house provides a garage at the rear, connecting to an adjacent road. Mature trees remained on site, allowing the house a subtle impact on the neighborhood.

As a generator of privacy and expression, a folded carapace roof is wrapped around the formal program of the house. The west facade is fully exposed, allowing for connections between the indoor living space and the garden, which becomes an urban courtyard. The carapace shields the house from encroaching site conditions to the east while simultaneously opening the volume of the living spaces to the western lawn. East-facing bedrooms puncture the protective carapace to catch the morning sun.

The house is honest in its expression of structure and material. A raw steel structure, exposed concrete stair walls and structural CLT roof panels tell a story much like the ever-changing Corten steel cladding. The sculptural fireplace is also clad inside and out in Corten steel, which elegantly shows the eff cts of weathering.

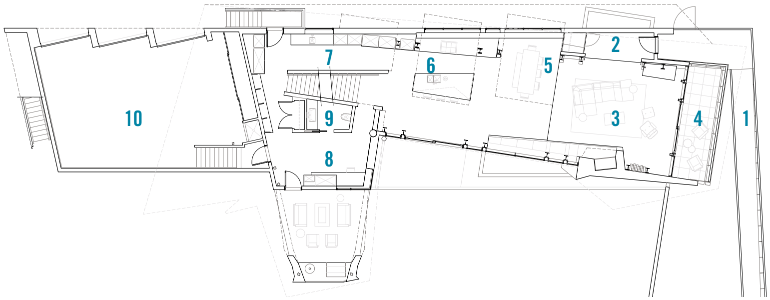
The architects used wood in the project as a tool to push the limits of design. Through early investigation of the structural benefits of CLT, the design team determined this material was a perfect fit for the Montreal House, allowing them to reduce the overall weight of the primary steel structure by relying on the roof to perform in several ways: The 28 CLT panels provide lateral bracing and act as a large diaphragm, reducing steel cross-bracing significantly. The roof was designed using two different thicknesses of CLT, three- and five-ply, based on performance requirements.

The design team also developed a series of subtle steel-beam-to-CLT connections, including a saddle fabricated at a specific angle and then welded to knife plates on the top flange of the wide flange beams. This separation allowed fasteners to be installed from the underside of the roof, providing a clean aesthetic. Installation of the CLT panels took two days and required no adjustment or modification to any of the fabricated panels.



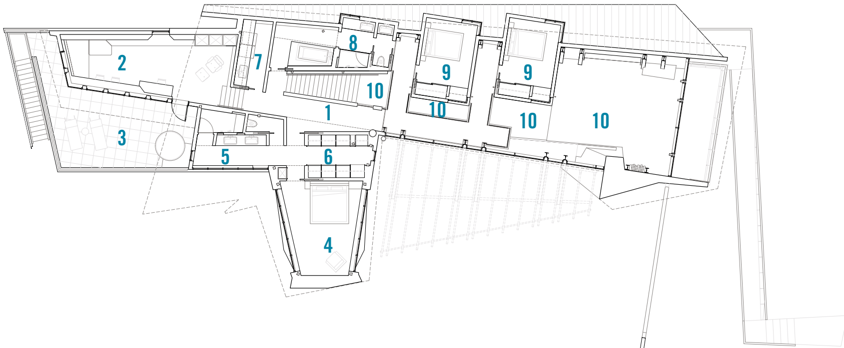
1. media room
2. wine room
3. wet bar
4. restroom
5. bedroom
6. craft room
7. art storage
8. mechanical

BASEMENT FLOOR PLAN



1. entry bridge
2. foyer
3. living room
4. porch
5. dining room
6. kitchen
7. pantry
8. garden room
9. half bath
10. bbq terrace

MAIN FLOOR PLAN



1. gallery
2. library
3. roof terrace
4. main bedroom
5. ensuite
6. dressing room
7. laundry room
8. restroom
9. bedroom
10. open to below

UPPER FLOOR PLAN

A series of 18 cantilevered glulam beams form a trellis to provide solar shading for the west-facing windows. These beams are supported at their midspan by a steel structure above and are inserted into an inverted hanger at the building face, to prevent uplift caused by the unsupported length of the beams.

Kayu Batu cladding is used extensively on this project for its durability and ability to turn completely silver through the weathering process. Eventually the house will completely shift in color; as the Corten steel turns from silver to brown, the wood cladding will turn from brown to silver.

ARCHITECT
Sturgess Architecture
Calgary, AB

STRUCTURAL ENGINEER
Entuitive
Toronto, ON

GENERAL CONTRACTOR
Karson Builders
Calgary, AB

TIMBER SUPPLIERS
Structurlam Mass Timber Corp.
Penticton, BC

Bow Valley Exteriors
Calgary, AB

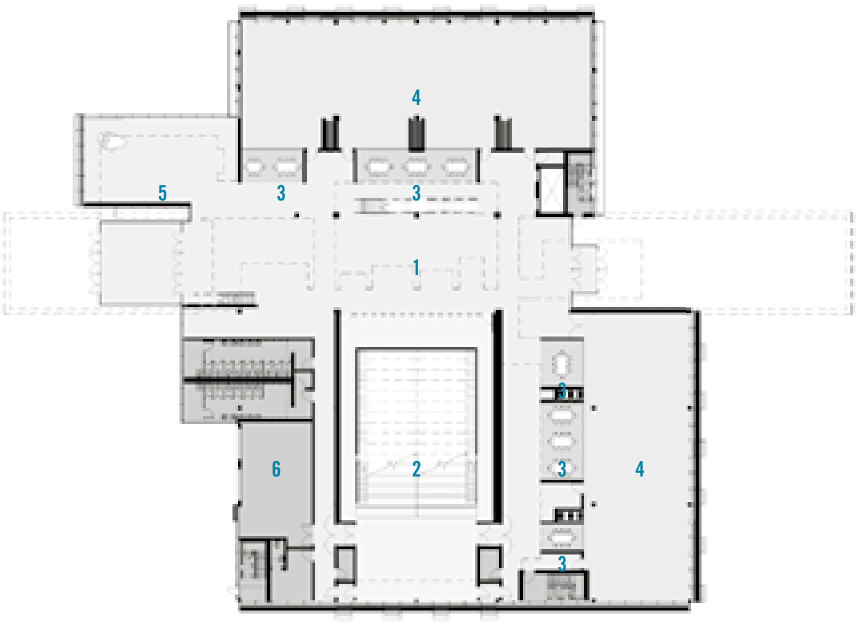
PHOTOGRAPHY
Lemermeyer Photography Inc.
Calgary, AB

Flexibility, transparency and collaboration were the guiding principles of Canada's first building dedicated to improving post-secondary learning

Taylor Institute for Teaching & Learning

The Taylor Institute for Teaching and Learning at the University of Calgary is designed to create, refine and share new models for education. Both in program and physical learning space, the 40,000-sq.ft. building is at the forefront of innovation in research into learning.

Supporting this culture of innovation are open, flexible spaces lined with wood to bring a warm and inviting quality to the public and social spaces within the building. These social spaces play a key role as they facilitate a collaborative exchange among the students and staff. The heart of the functional program is a wood-lined public forum capable of changing configurations using mobile technology and hidden seats, enabling it to function as a 400-seat theater, a flat-floor open space, a teaching lab or a community meeting space.

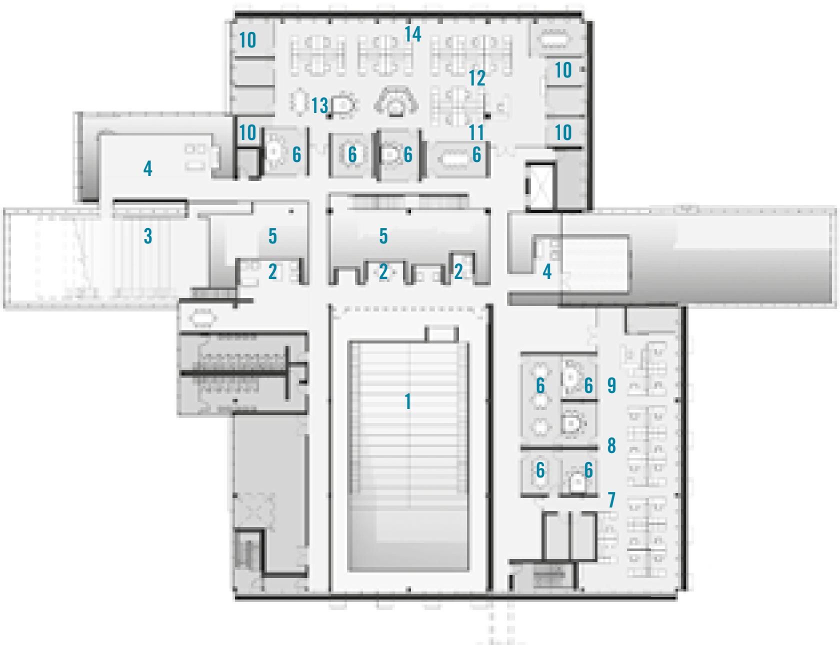


1. atrium
2. forum
3. observation/group meeting
4. learning studio
5. gallery/presentation space
6. loading

FIRST FLOOR PLAN

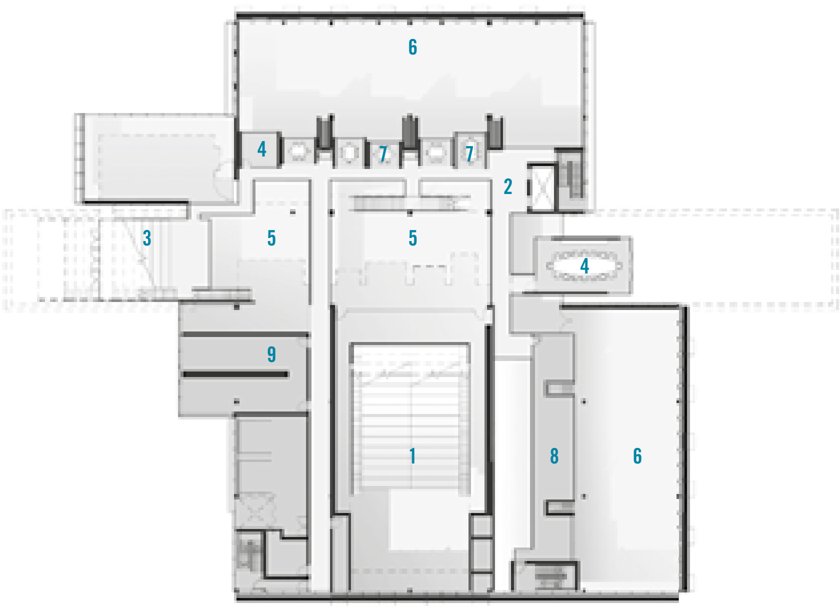
The defining design element is a commanding two-story central spine made of two Vierendeel steel trusses that cantilever over entrances at either end. The spine supports formal and informal wood-lined suspended meeting areas, including an aerial amphitheater located above the west entrance. Wood adds a lightness to this floating space, and throughout the building it provides a warm, rich element that brings variety to the texture and color of the interior as it responds to the changing quality of natural light that fills the building.

Adding to the sense of depth of the central spine are three bridges that connect the north and south portions of the building and the various wood "hanging pods" suspended from the roof that serve as small breakout rooms. The use of wood here, in contrast to the structural steel, is essential to create warmth. The wood panels also conceal acoustical finishes that soften the sound of the large atrium.



1. forum
2. atrium study pods
3. aerial amphitheater
4. lounge
5. atrium below
6. project development workroom
7. research team
8. instructional scholars
9. institute administration staff
10. education consultant
11. education curriculum specialists
12. instructional design
13. flexible instructional space
14. technology integration team

SECOND FLOOR PLAN



1. forum
2. informal learning mezzanine
3. aerial amphitheatre
4. staff meeting room
5. atrium below
6. learning studio below
7. observation/group meeting
8. electrical/IT
9. storage

MEZZANINE FLOOR PLAN

As a structural element, wood is featured in all flexible learning spaces in combination with steel; where ceilings are exposed, 315 x 912-mm. glulam girders support 215 x 684-mm. glulam purlins. Slightly slimmer sizes (265 x 912 mm.) are used at the roof level, given that the roof loads are smaller than the occupied second-floor loads. The largest glulam beam in the building is 530 x 950 mm. and

spans the width of the forum, at more than 60 ft. long. Span for span, it was determined early in the schematic design stage that glulam members were comparable in cost to structural steel members.

Numerous sustainable initiatives integral to the building's design, including the use of FSC-certifi d wood, contributed to the Taylor Institute achieving LEED Gold certification.

CLIENT
University of Calgary
Calgary, AB

ARCHITECTS
Gibbs Gage Architects
Calgary, AB

Diamond Schmitt Architects
Toronto, ON

STRUCTURAL ENGINEER
Entuitive
Toronto, ON

GENERAL CONTRACTOR
Cana Group
Calgary, AB

TIMBER SUPPLIER
Structurlam Mass Timber Corp.
Penticton, BC

PHOTOGRAPHY
Ed White Photographics
Vancouver, BC

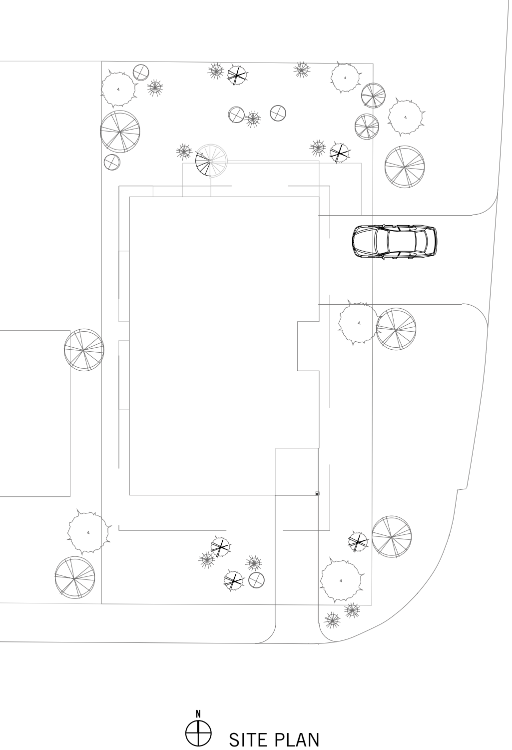
Residential Wood Design

A challenging build finds inspiration in the modest roots of Canmore's mining past

Tall Timbers

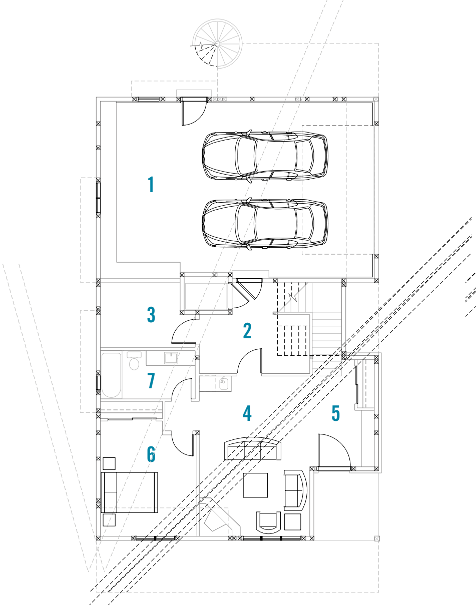
This mountain modern home is located on a corner lot in downtown Canmore, Alberta, an old railway and mining town with modest roots. Miners' homes are typically practical and modest in nature, without the complex rooflines and dormers seen in the romantic alpine style that's often used in mountain communities. Drawing from the local history and vernacular, the clients wanted a simpler contemporary home without undue ornamentation or complexity.

The corner lot has outstanding mountain views in most directions and ample sunlight from the south picture windows facing the towering Three Sisters Mountains, but it also created a challenging build: a full-size house on 56 percent of the standard lot. While using the maximum building area, floor area and height allowed in the district, cantilevers, decks and recesses were used to soften the appearance and lessen the mass from



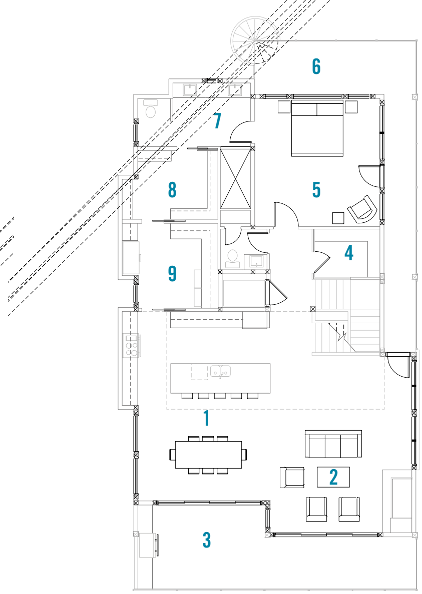
the street, while providing additional privacy and exterior spaces for the client. A strong stone base anchors the warm Western red cedar cladding and Douglas fir timbers that hold up the roof.

The large main roof spans from the rear master bedroom deck to the front dining deck, providing shelter and sun protection while unifying a complex form with varied mass. A secondary roof over the loft area creates the required height without detracting from the primary roof and creates a wonderful three-dimensional volume inside.



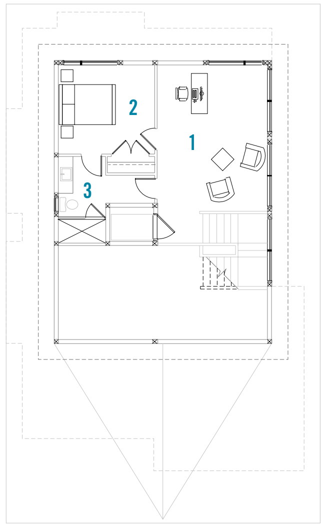
1. garage
2. mud room
3. mechanical
4. rec room
5. entry
6. bedroom
7. restroom

FIRST FLOOR PLAN



1. kitchen and dining room
2. living room
3. deck
4. wine room
5. master bedroom
6. deck
7. ensuite
8. walk-in closet
9. laundry/ pantry

SECOND FLOOR PLAN



1. office
2. bedroom
3. restroom

THIRD FLOOR PLAN

The strong roofline is emphasized by the heavy timber construction; 2x6 Douglas fir decking sits over 8x10 Douglas fir glulam rafters and 8x24 Douglas fir glulam beams, creating a breakdown of scale and mass. A simple rigid insulation with 2x4 strapping vented space was used on top of the timber frame, a very complete system with no cold bridging or vapor barrier penetrations.

The timber-frame roof is the only decorative element in the 3,072-sq.ft. home, which also features a rustic oak floor and Douglas fir doors and trim. A steel-framed staircase with minimalist railings and glazed barriers allows light deep into the house. A temperature-controlled, glazed wine room is located discreetly next to the stairs, only steps from the main living area.

Outside, the large, timber-frame eaves provide vital sun protection and – with the help of a small ceiling fan indoors – no blinds are required to control passive solar gain. The simple, unadorned timber-frame structure echoes the past miners' homes while allowing unrestricted glazing to bring the mountains inside.

ARCHITECT
russell and russell design studios
Canmore, AB

STRUCTURAL ENGINEER
Valley Engineering
Canmore, AB

ENGINEER
Jamie Fukushima
Vernon, BC

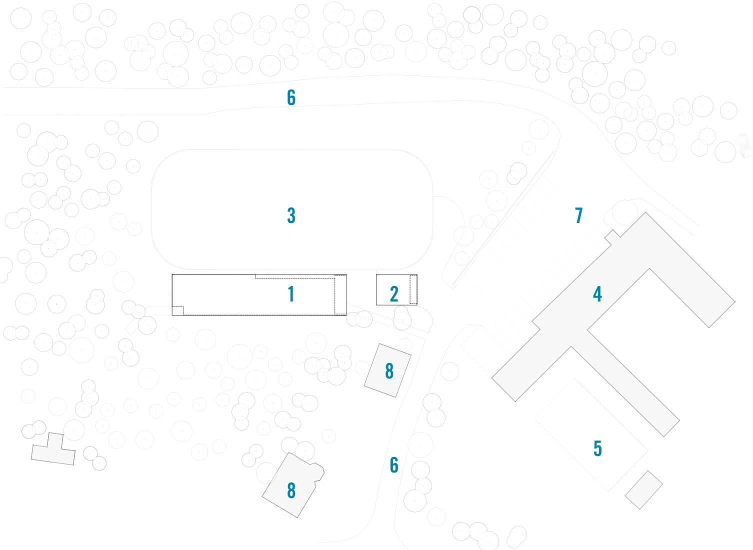
GENERAL CONTRACTOR
Lakusta Custom Homes
Canmore, AB

TIMBER SUPPLIER
International Timberframes Inc.
Golden, BC

PHOTOGRAPHY
Charlton Media Company
Calgary, AB

A recreational facility honors two Canadian traditions: hockey and the great outdoors

Camp Manitou Outdoor Hockey Facility

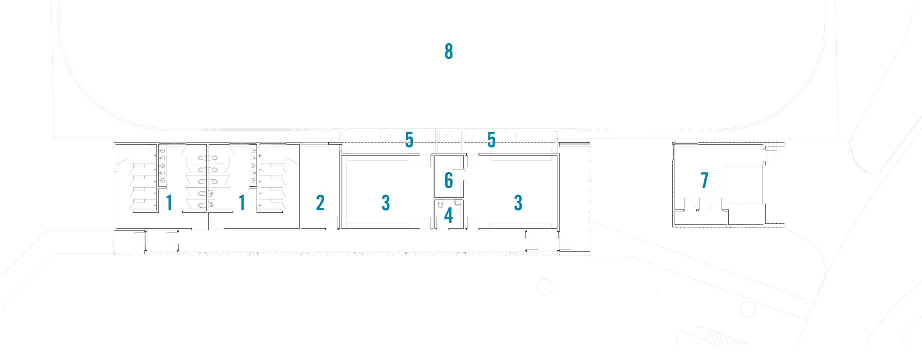


1. shower change building
2. Zamboni storage building
3. existing hockey rink
4. existing camp lodge
5. existing pool
6. gravel road
7. existing parking
8. existing camp building

SITE PLAN

Located on the Assiniboine River about a half-hour west of Winnipeg, Camp Manitou is a year-round outdoor recreational facility, providing 28 acres of fi lds and forests for kids to enjoy sports and nature. As part of extensive upgrades to camp facilities, the new shower change building and Zamboni storage building support both the camp's overnight cabins and the True North Youth Foundation's hockey academy programs. Sited on a narrow strip of land between the existing outdoor hockey rink and a mature stand of oak trees, the buildings are scaled appropriately to their context and draw on the iconic form of the Zamboni and traditional outdoor hockey rink benches.

Wood was used extensively throughout the buildings in a variety of ways. Structural elements include 2x6 wall framing, LVL lintels, wood I-joists and



1. shower/restroom
2. mechanical room
3. change room
4. universal restroom
5. hockey bench
6. storage
7. Zamboni building
8. hockey rink

FLOOR PLAN

pre-engineered wood trusses. The exterior rain-screen cladding is 5/4 x 5 ½-in. Western red cedar and plywood soffits are marine-grade fir plywood. The interior walls in the change rooms were clad with 4 x 8-ft. fir plywood panels. Dimensional fir was used for interior and exterior benches.

The use of wood was critical to the success of the project, as it allowed for prefabrication of major elements including load-bearing walls, interior partitions and roof trusses. This minimized the impact of inclement weather during the winter construction season and helped the project stay within budget.

More importantly, wood was used as a defining element to contrast with the more utilitarian charcoal metal wall panels that wrap the buildings' roofs and walls. The vertical Western red cedar siding and fir plywood soffits provide natural warmth while highlighting spaces carved from the simple forms to mark entrances, frame the player benches and provide shelter and informal gathering areas. In the evening, these wood-clad areas are further enhanced with strategic exterior lighting. Wood also was selected for public areas because of its inherent durability against the wear and tear of hockey sticks and pucks.

Inside the shower change building, Douglas fir plywood panels provide durability and warmth, again protecting the walls from wear and tear. The interior walls and ceilings of the Zamboni building are completely clad in Douglas fir plywood panels, providing both durability and flexibility for hanging tools and equipment, while also bringing a sense of refinement to what would otherwise be a purely utilitarian space.

Camp Manitou's outdoor hockey facility takes a simple building typology – "the shed" – and elevates it through a well-detailed, simple concept that celebrates hockey in the great outdoors while reinforcing the belief that architecture can align with its natural setting.

CLIENT
True North Youth Foundation
Winnipeg, MB

ARCHITECT
1x1 architecture inc.
Winnipeg, MB

STRUCTURAL ENGINEER
Crosier Kilgour & Partners Ltd.
Winnipeg, MB

GENERAL CONTRACTOR
Concord Projects Ltd.
Winnipeg, MB

PHOTOGRAPHY
Lisa Stinner-Kun
Winnipeg, MB

A temporary dining space erected on the shores of Manitoba's Clear Lake is also a feast for the eyes

RAW: Wasagaming

RAW: Wasagaming is a temporary fine-dining experience on the shores of Manitoba's Clear Lake, about three hours northwest of Winnipeg. As with other RAW projects, the title speaks to the people, land and history of the surrounding area. Using this as a guideline, both the design and culinary teams set out to create a project almost exclusively derived from regional materials.

The building is composed of more than 1,200 8-in.-diameter spruce logs, cut to 36 in. long, stacked one on top of the other. The logs were harvested by Parks Canada in previous years for the purpose of providing a fire belt around the town of Clear Lake and to repatriate the land to its pre-colonial flora. After the 14-day pop-up restaurant event ended in fall 2018, the logs were returned to Parks Canada to be used as firewood for future Riding Mountain National Park campers.

The final building solution was developed by re-envisioning the felled trees as units, akin to bricks. Each unit was turned 45 degrees on axis and the following stack was given a 12-in. offset, producing a line where each end of the wall diverges in opposite directions to the base line as each course is laid. The walls were then mirrored so the converging peaks on one end touched, creating an A-frame. In essence, the walls are long supported arches where the outside ends pinch inwards at the peaks and the middle bulges outwards.

RAW: almond – a pop-up restaurant located on a foundation of frozen ice at the crossing of the Red and Assiniboine rivers in downtown Winnipeg – has taken place each winter since 2013. The project also has traveled to several other communities, including two other locations in Manitoba (Gimli and Churchill) and Akasaka, Tokyo. Through RAW: almond projects, the organizers are able to explore concepts of food culture, sustainability and regionalism, inviting chefs and designers from around the world to take part.

ARCHITECT
AUX: Projects
Winnipeg, MB

STRUCTURAL ENGINEER
Wolfrom Engineering Ltd.
Winnipeg, MB

GENERAL CONTRACTOR
Colleyer Construction
Onanole, MB

PHOTOGRAPHY
Simeon Rusnack Photography
Winnipeg, MB


CAFÉ

Industry Award

A corporate campus in Calgary dares to reimagine the suburban office typology

ATCO Corporate Headquarters

ATCO's new corporate campus is a dynamic composition of two four-story office buildings and a partially submerged parkade, composed around a central quad and interconnected by the ATCO Commons, a central multipurpose facility. The parkade creates a plinth within the sloping landscape, upon which the buildings and quad are sited.

The Commons serves as foyer, living room, dining room and kitchen for the campus. As the heart of the campus, it connects multiple spaces across a variety of levels. At the core of each office building, a four-story atrium creates a communal space within the workspace and offe s visual connections to adjacent fl ors.

Offe ing panoramic views of the Rocky Mountains and the Calgary skyline, the design of the corporate campus responds to the local geology and biodiversity through a palette of deep earth tones, rich woods and warm stones, as well as locally sourced building and landscape materials.

One of the largest challenges of this project was the management of a complex and diverse stakeholder group, each of whom had a competing set of priorities and parameters. For example, the designs for the ATCO campus proposed a multi-building approach that challenged the city's bylaws governing suburban office developments. Early in the process, the design team met with city staff

to negotiate such issues as building height, access roads, front door definition and landscaping elements. The process with the city was collaborative and enabled the design team to reimagine the suburban office typology as written in the bylaws; the usual surface parking lot and transportation requirements were challenged to create a park-like setting with minimal surface lots and hidden service areas. The result is a suburban office campus that meets transportation and parking requirements in a pedestrian-oriented setting.

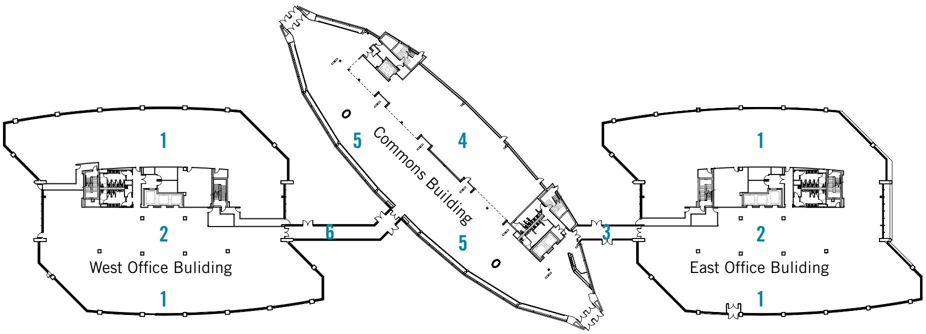
ARCHITECT
Gibbs Gage Architects
with Pickard Chilton
Calgary, AB

STRUCTURAL ENGINEER
MMP Structural Engineering Ltd.
Barrie, ON

GENERAL CONTRACTOR
CANA Group of Companies
Calgary, AB

TIMBER SUPPLIER
Western Archrib
Edmonton, AB

PHOTOGRAPHY
Jason Dziver
Calgary, AB



1. office area
2. lobby area
3. east connector
4. blue flame kitchen area
5. seating area
6. west connector

FLOOR PLAN

Jurors

ROBERT M. WRIGHT, PROFESSOR
Dean, Faculty of Forestry and Architecture
UNIVERSITY OF TORONTO
www.daniels.utoronto.ca

JOHN STEPHENSON, ARCHITECT, OAA, FRAIC
President, Ontario Association of Architects
PARTNER, FORM ARCHITECTURE ENGINEERING
www.formarchitecture.ca

ANDREW BAYNE, BESC, BSC, P.ENG., LEED®AP
Principal
RJC ENGINEERS
www.rjc.ca

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FPInnovations

Natural Resources Canada / Ressources naturelles Canada

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Ontario Structural Wood Association

RAYONIER Advanced Materials

resolute Forest Products

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Timber Systems

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FORESTS ONTARIO

LP

twg* COMMUNICATIONS

Cowbell Brewing Co.
Blyth, ON
Please see page 118

ONTARIO

Ontario Mass Timber Award

A college's center for innovation dares to be different by literally raising the roof

DARE (Discovery, Applied Research, Entrepreneurship) District, Algonquin College

The vision for the new DARE (Discovery, Applied Research, Entrepreneurship) District building at Algonquin College was to create an environment to help students develop the skills needed to become entrepreneurs, innovators and catalysts for social and economic growth – while also supporting Algonquin College's position as a leader in embracing traditional Indigenous knowledge.

The 80,000-sq.ft. renovation comprises four distinct but integrated program spaces on three levels surrounding an exterior courtyard space. A former two-story library located at the center of the campus was taken back to its concrete shell and a new double-height third floor was added on top, housing the reimagined library and learning center that features a dramatic vaulted mass timber roof. The existing building was renovated to house a Showcase Zone on the first level, a Discovery Zone on the second level and a new feature stair along the west elevation that connects all three levels. A new single-story addition adjacent to the main building faces the courtyard and contains the Indigenous Commons.

The DARE District's design transforms the heart of the Ottawa campus, reflecting the contemporary vision of the college with its dynamic new spaces. The curved wood roof of the third-floor addition extends above the surrounding buildings, creating a distinct profile that has become a beacon within the campus.

The use of wood was key to achieving the distinctive roof profile. Mass timber components provided an ideal solution in creating the unique form. They also helped to accelerate construction of the project, with the roof components (comprised of 46 x 6.5-ft. NLT panels and glulam beams) fabricated off-site and craned into position quickly and efficiently.

The design also incorporates several features that enhance the visual appearance of the timber roof structure: slots in the underside of the NLT roof deck panels to allow sprinkler lines to be recessed into the roof; trenches in the roof deck's exterior gutter at the north end to reduce the impact of the drainage system; and placement of electrical wiring on the top surface of the NLT deck panels to service the interior lighting fixtures.

Adding a new floor on top of the existing structure offe ed a unique opportunity to create a dramatic double-height space that did not have to conform to the existing fl or-to-fl or heights or rectilinear form. However, it was also critical that the new roof did not extend above the adjacent existing roof heights to avoid adding snow loads onto existing structures. The curved profile allowed the space to reach a height of 24 ft. at the high point in the center while maintaining a more standard 12-ft. height along the north and south sides, achieving both goals.

The curved roof is an elegant expression of the new library and learning center housed within it. The exposed wood beams and soffit create a warm, inviting environment for the library interior and add a sense of drama and scale. The height of the space allows abundant daylight into the library through full-height curtain walls at both the east and west ends and clerestory glazing along the north and south sides. Interior linear and circular LED fixtures up-light the wood deck, enhancing the warm wood tones and animating the space. The exposed NLT also absorbs sound and, along with wood slat acoustic panels, contributes to excellent acoustics in the large, open volume.

Wood has a special significance for Ottawa, which has deep roots in the timber trade. Algonquin College's DARE District takes this traditional material and uses it to reflect this past as well as the new and innovative spirit that is at the heart of the project.

CLIENT
Algonquin College
Nepean, ON

ARCHITECTS
Diamond Schmitt Architects
Toronto, ON
Edward J. Cuhaci and Associates Architects Inc.
Ottawa, ON
Brook McIlroy
Toronto, ON

STRUCTURAL ENGINEER
Adjeleian Allen Rubeli Ltd.
Toronto, ON

GENERAL CONTRACTOR
PCL
Ottawa, ON

TIMBER SUPPLIER
Timber Systems Ltd.
Markham, ON

PHOTOGRAPHY
Doublespace Photography
Toronto, ON

1. collaborative learning space
2. applied research labs
3. employee learning exchange
4. energy innovation center
5. Indigenous learning commons/Nawapon
6. gathering circle – The Lodge
7. atrium
8. Indigenous courtyard/ Ishkodewan
9. main entrance to campus

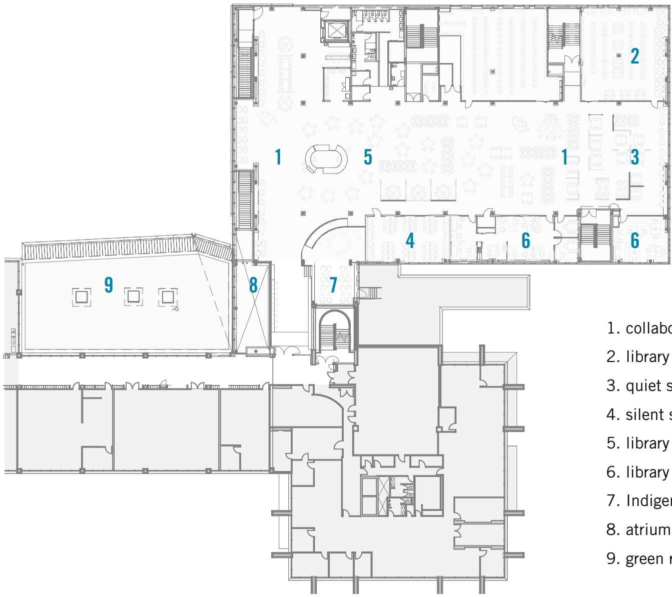
N

FIRST FLOOR PLAN

1. collaborative learning space
2. innovation center – incubator
3. innovation center – maker space
4. applied research labs
5. learning support labs
6. Indigenizing entrepreneurship area/ Pìdàban
7. atrium

N

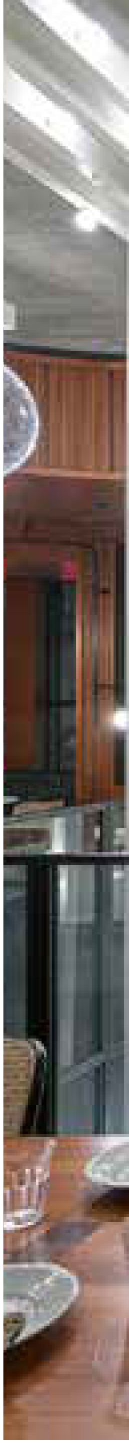
SECOND FLOOR PLAN



1. collaborative learning space
2. library collections
3. quiet study
4. silent study
5. library main desk
6. library staff offices
7. Indigenous knowledge sharing zone/Kejeyàdizidjigwogamig
8. atrium
9. green roof

N

THIRD FLOOR PLAN



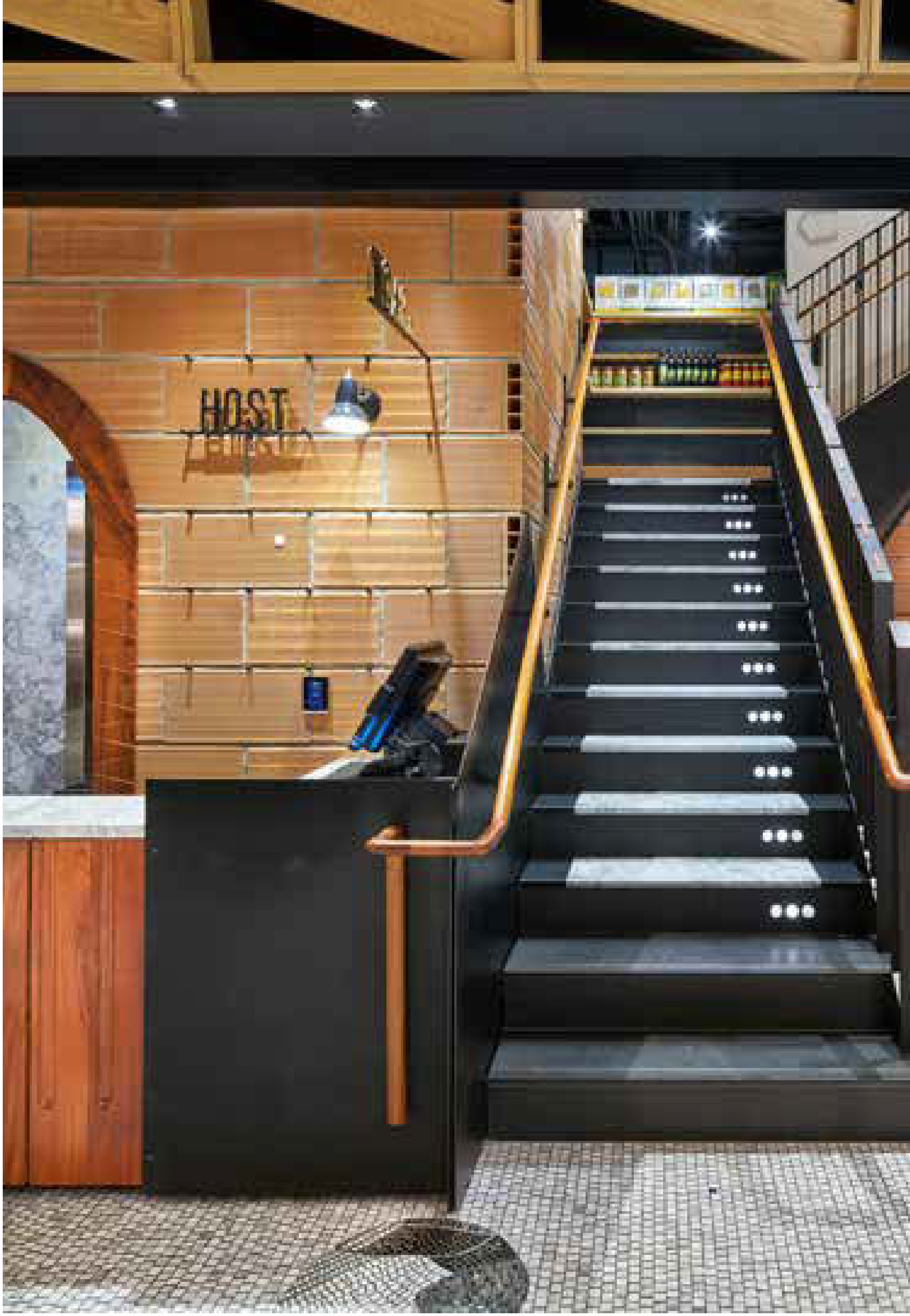
Interior Wood Award

A Toronto eatery brings together all the great tastes of Italy – and all the great ways to eat them – under one roof

Sud Forno on Temperance

Housed in a 19th-century heritage building in the heart of Toronto's financial district, Sud Forno offe s two unique dining experiences. The main floor (la Mensa) houses an Italian cafeteria-style approach with options to "grab and go" or stay, while on the second floor you'll find "Da Geppetto," an intimate and elegant dining space. At its heart, Sud Forno is a bakery designed to bring people together with food served at diffe ent speeds, with a monumental wood vault serving as the unifying element.

The lace-like, overarching structure is made of quarter-sawn solid white oak with a clear matte lacquer and Class A flame-control coating. It spans from the entrance and coff e bar, through the cafeteria-style seating and altar-like *tavola calda* (snack bar), and finally to the bakery and ovens captured at its end by a deep arch of mahogany.




HOMEMADE
GELATO
&
DELICIOUS
ALL PASTAS
CONTAIN: EGG +
FLOUR

The 7,000-sq.ft. design aims to expose the existing bones of the vintage building behind and between new installations of wood, steel, glass and stone. The space experiments with the classical sculpture idea of the *non finito* (literally, "not finished") where the exposed clay bricks, masonry pilasters and steel frames are read against the woven ceiling of solid wood boards to render a sense of ruin where the finished layer is eroded away – much like an unfinished wood lattice still awaiting its final layer of plaster.

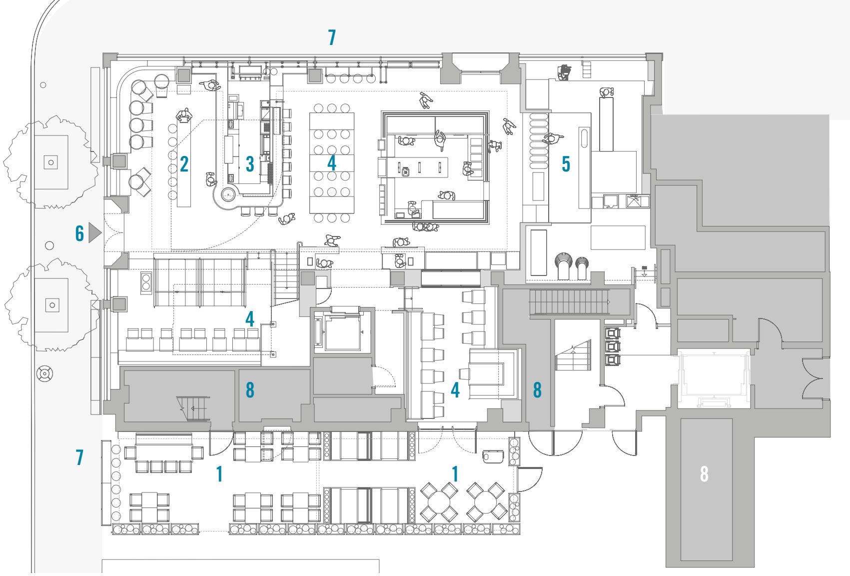
The large-scale wood element allows this multivalent food concept to unfold under a highly textured overhead canopy broken only by a custom-designed light fixture that spills through the vault from the second-floor concrete ceiling. White oak is reserved for the vault, whose texture is echoed by the stone mosaic floor upon which more refined millwork elements in rich mahogany are placed.

CLIENT
Terroni Restaurants
Toronto, ON

ARCHITECT
Giannone Petricone Associates
Toronto, ON

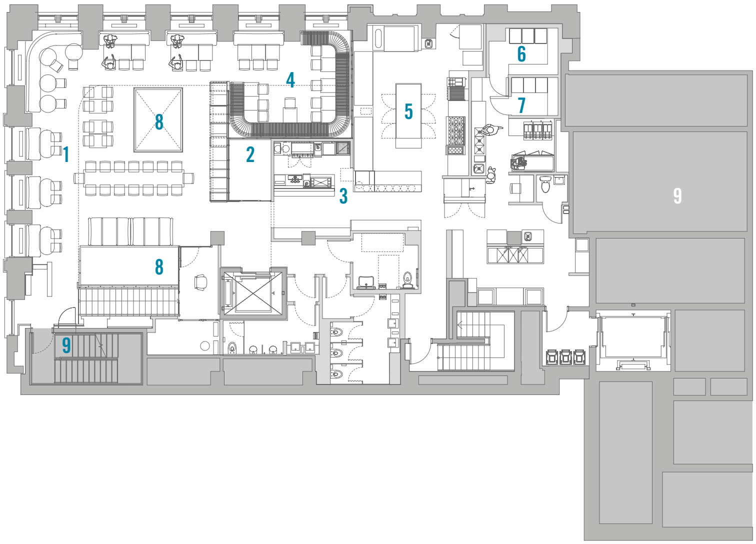
GENERAL CONTRACTOR
Sud Forno – La Bakeria Due Inc.
Toronto, ON

PHOTOGRAPHY
Richard Johnson
Toronto, ON



1. patio
2. café
3. bar sitting area
4. dining area
5. bakery
6. entrance
7. sidewalk
8. existing

FIRST FLOOR PLAN



1. dining room
2. wine storage
3. servery
4. the room
5. kitchen
6. cooler
7. freezer
8. void
9. existing

SECOND FLOOR PLAN

Residential Wood

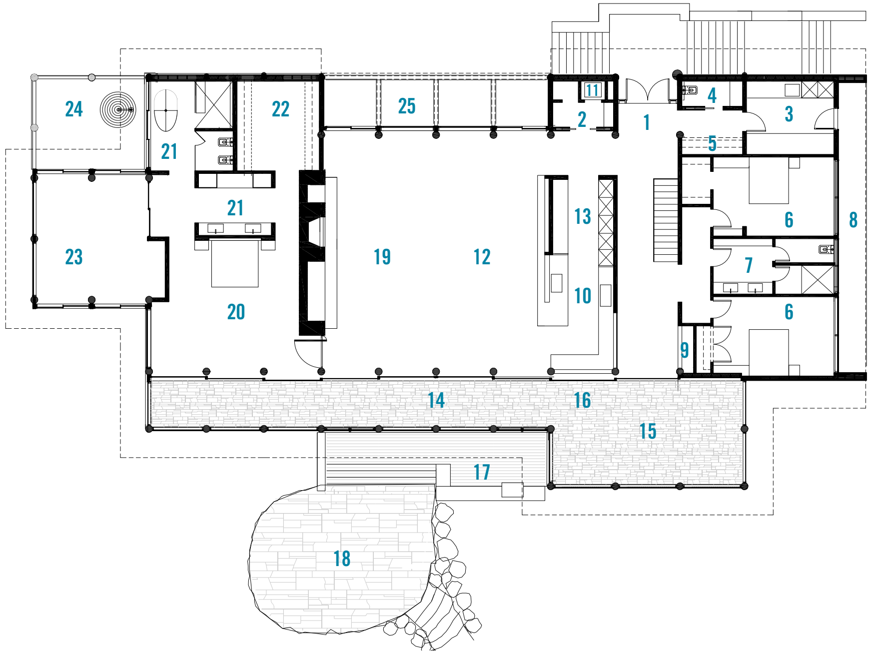
A remote escape from the everyday
embraces its sylvan surroundings

Clear Water Retreat

Clear Water Retreat is a 4,200-sq.ft. cabin set on a granite outcrop overlooking Lake of the Woods in northwestern Ontario. Oriented for lake views and maximum sun exposure, the cabin's exposed glulam skeleton allows for expansive spans between structural members, infilled generously with a wall of stackable sliding glass panels that open to a screened room beyond. These openings extend vertically into a vaulted double-height living space, shifting focus from the water toward the sky – a permeability between exterior and interior that bucks conventionally designed structures in the area.

The building embraces the dense, wind-driven forest and water beyond, with structural wood components and interior finishes responding to the wildness of the surrounding boreal forest. Interior wood-based finishes (flooring, millwork, furniture) support the architectural design and leave the landscape as the dominant, lasting experience. Prefabricating the glulam structure off-site streamlined the construction schedule and aided in the remote installation.

The retreat's private docking space and boathouse also respond to the natural surroundings, the neighboring cottage and the cultural context of the Lake of the Woods area. The relationship between the boathouse and its corresponding body of water encompasses every aspect of the project's architecture: sensitivity to climate,



1. entry
2. cooler storage
3. laundry
4. powder room
5. coats
6. bedroom
7. restroom
8. terrace
9. storage
10. kitchen
11. dumbwaiter
12. dining room
13. pantry
14. screened colonnade
15. screened sitting room
16. bar
17. outdoor cooking
18. outdoor seating
19. living room
20. master bedroom
21. master ensuite
22. master closet
23. gym
24. deck w/ shower
25. raised garden

FLOOR PLAN

humidity, noise, sunlight and, in particular, the panoramic views across the water from the elevated seating pavilion. The curving glulam roof of this treetop space mediates the shift from water to land, with structural members extending beyond the eaves and reaching upward, toward the pine forest. In the evening, the loft space glows as a beacon for late-arriving guests.

ARCHITECT
Secter Architecture + Design
Winnipeg, MB

STRUCTURAL ENGINEER
Wolfrom Engineering Ltd.
Winnipeg, MB

GENERAL CONTRACTOR
Makcon Enterprises Ltd.
Clearwater Bay, ON

PHOTOGRAPHY
Lindsay Reid
Winnipeg, MB

A condominium complex in Ontario’s Niagara Region sets the benchmark for future developments in this ecologically sensitive area

AquaBlu Condominiums

With its small-town charm, unique character features and proximity to major city centers in Canada and the U.S., Grimsby is rapidly becoming a place where people want to live. The lakefront town is one of the fastest-growing municipalities in the country, with a growth rate greater than that of the provincial and national averages – a rate that is forecast to continue over the next 10 years.

AquaBlu is among the first luxury waterfront condominium developments in this fast-growing town. Inspired by Miami's South Beach, the development's abundance of glass, contemporary detailing and lively aesthetics has set a new benchmark for future developments in the area.

AquaBlu is also one of the first buildings in Ontario to be completed under the new Ontario Building Code, which allows five- and six-story wood construction. The code change opened up many opportunities for the design team, but also posed challenges. For instance, the building code still requires that stair shafts and elevator cores be non-combustible; to accommodate this, masonry stair and elevator shafts were introduced into the wood construction. The behavior of these very different materials challenged the design team to develop project-specific details to ensure that the combination did not negatively impact the performance of the overall structure. Building components such as shrinkage-compensating ATS

hold-down devices by Simpson Strong Tie – developed specifically for wood mid-rise construction – were used to ensure that the building performance would not be impacted by the initial shrinkage that is typical of wood-framed mid-rise buildings.

The main wood structure, including not only walls but also the floors and roof, was built from prefabricated wood panels built off-site. This solution not only helped to advance the construction schedule, but also allowed for strict quality control in the plant. To best manage this method of construction, specific details were developed to ensure that the structure was properly assembled, and that continuity was provided for major structural elements built from multiple panels, such as long shear walls and floor diaphragms.

Using wood as the primary structure helped to enhance the project in many ways. Along with supporting local trades, suppliers and businesses in the wood construction industry, it helped to reduce overall costs compared to other methods of construction, offe ed design versatility and flexibility and allowed for a sustainable, low-carbon footprint. This last point was especially important considering the project's location, where residents embrace a lifestyle surrounded by waterfront, local wineries, small-town amenities and hiking trails.

As a new community landmark, AquaBlu is positioned perpendicular to the street, offe ing maximum views over Lake Ontario while reducing the impact of a large building along the streetscape. A pleasing pedestrian scale was achieved by stepping the building back at the north end, while still offe ing lake-facing terraces on the upper floors. Exterior finishes include a combination of materials such as glass, metal, masonry and insulated cladding in a color palette inspired by the surrounding landscape.

BUILDER
Homes by DeSantis
Hamilton, ON

ARCHITECT
KNYMH Inc.
Burlington, ON

STRUCTURAL ENGINEER
Leonard Kalishenko & Associates Ltd.
Toronto, ON

PHOTOGRAPHY
Phrankie Willson/KNYMH Inc.
Burlington, ON

Institutional Wood Design <$15M

Wood's warm aesthetic plays a central role in this gathering place for Indigenous students and their community partners

Indigenous Sharing & Learning Centre, Laurentian University

Built as a new addition to an existing campus building, the Indigenous Sharing and Learning Centre (ISLC) is a dynamic gathering space to support Laurentian University's Indigenous community. Inspired by the form of a traditional wigwam, the center accommodates large groups of diffe ent configurations, allowing for teaching, meetings and special celebrations.

From the beginning, this project in Sudbury, Ontario, was designed to use wood wherever possible – not just for finishes, but for all structural elements, from primary girders to wood deck and stud walls. Using wood allowed the team to better embrace the curved geometry of the space and celebrate the beauty of natural building materials.

The primary wood girders, tipped off the central structural axes to look like the gunwales of two canoes, support the dome's gravity loads while also resisting lateral loads in the room. Each glulam frame provides the strength and ductility to resist seismic loads in its own axis, while never exposing structural connections. Despite the ambitious 50-ft. span, modern glulam fabrication methods allowed for wood to perform nearly every structural role in the facility, only being assisted by a small steel tension ring to resist the thrust of the dome.

Flat-sawn Douglas fir planks line the interior walls and match the glulam arches above. Varying gaps between the fins provide views and direct access to the surrounding landscaped area, which was designed to accommodate outdoor teaching spaces, a fire pit and a small medicine garden as a direct extension of the educational and cultural programs that take place within the ISLC.

The center stands adjacent to an existing concrete Brutalist building and is easily recognized as a departure from this building style. The round room is set apart materially and geometrically, deviating from previous concrete and stone academic architectural traditions, while putting the structure on display to celebrate the importance of the Indigenous community at Laurentian. Wood provided the material palette representing the local Indigenous traditions and is a distinctly natural alternative to the concrete construction elsewhere on campus.

The warm aesthetic provided by the wood structure is intentionally exposed to view in the round room itself, so visitors can see the glulam purlins and girders which define the shape of the domed roof. Further interior wood finishes were applied at the perimeter to diffuse the light into the room while creating the impression of an all-wood enclosure, despite the glass facade beyond the fins.

CLIENT
Laurentian University
Sudbury, ON

ARCHITECT
Diamond Schmitt Architects
Toronto, ON

STRUCTURAL ENGINEER
Blackwell
Toronto, ON

GENERAL CONTRACTOR
Cy Rheault Construction
Timmins, ON

TIMBER SUPPLIER
Timber Systems Ltd.
Markham, ON

PHOTOGRAPHY
Tom Arban
Toronto, ON

Institutional Wood Design >$15M

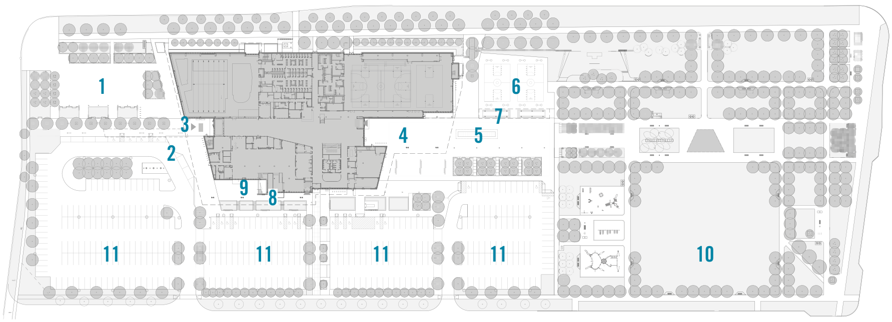
For the design team behind this community center, creating a building that brings people together starts at the top – literally

Aaniin Community Centre & Library

Located in Markham, Ontario, the Aaniin (pronounced "ah-nee," meaning "hello" or "welcome" in Ojibway) Community Centre and Library offe s a welcoming civic space that's designed to embrace its diverse Southeast Asian community, support connectivity and foster economic growth. Combining traditional recreational spaces with a business hub, digital media library and multisensory room, the 122,000-sq.ft. center offe s a compelling new model of service delivery tailored to the specific needs of its community.

Internally, the building is centered around a generous gathering space and stage, flanked by amphitheater seating, flexible storage areas and open mezzanines. Designed with specialized lighting, acoustics and AV system, this space functions more akin to a public square, enabling the center to host a variety of events, from an intimate music recital to a bustling cultural celebration for 500 people.

Central to the design is the idea of place-making. Located on a residual piece of farmland within a mixed context of residential, institutional and light industrial land uses, the project attempts to establish a sense of place within an otherwise placeless setting. Defined by a series of urban plaza spaces combining public art, flexible play areas, a splash pad and generous shade and seating areas, the project suggests a new paradigm of urban life. The building participates directly with this dynamic new public realm by creating an internal streetscape that offe s a continuity between interior and exterior spaces and a strong pedestrian connection across the site. This is reinforced with an array of secondary pathways inscribed across the site that interweave the community center and park into its larger context.



1. sculpture court
2. drop off
3. entry court
4. marketplace
5. splash pad
6. multi-sports court
7. shaded seating
8. youth terrace (second floor)
9. outdoor reading terrace
10. district park
11. parking

SITE PLAN

The design is generated around a massive wood roof, which serves as a powerful unifying element in pulling the various programs and spaces together. The expansive overhangs of the roof heighten this sense of connection and frame a series of unique outdoor rooms around the building, including a reading garden, youth terrace and marketplace. The use of wood as the ceiling material resonates with the community as a global symbol of warmth and shelter.

The roof – a massive diagrid structure of glulam beams and purlins – is designed for maximum efficiency and modularity. Three-dimensional king post trusses are used in the aquatics and gymnasium areas where column-free spans are a necessity, each utilizing an X-configuration with two top chords, two tension-rod bottom chords and a single king post at the intersection. The distribution of material in this manner minimizes the sizes of the top and bottom chords compared to a traditional two-dimensional truss configuration. The result is a uniform structural depth across the roof, with minimal visual presence of structural steel components to bring added focus to the wood structure.

Overall, the use of wood plays an important role in achieving the project's LEED Gold target and broader sustainability objectives. In all cases, a balanced set of initiatives has been employed to help maximize conservation of water, energy and resources in the construction and operation of the building. Wood was chosen for its renewable properties and its ability to be regionally sourced. It also was seen as the best choice of material given its low embedded energy, its clear benefits from a life-cycle assessment perspective and its ability to sequester carbon as a means of reducing harmful CO_2 emissions.

CLIENT
City of Markham
Markham, ON

ARCHITECT
Perkins and Will
Toronto, ON

STRUCTURAL ENGINEER
CH2M Hill
Toronto, ON

GENERAL CONTRACTOR
Bondfield Construction
Concord, ON

PHOTOGRAPHY
Tom Arban
Toronto, ON
Scott Norsworthy
Toronto, ON

Commercial Wood

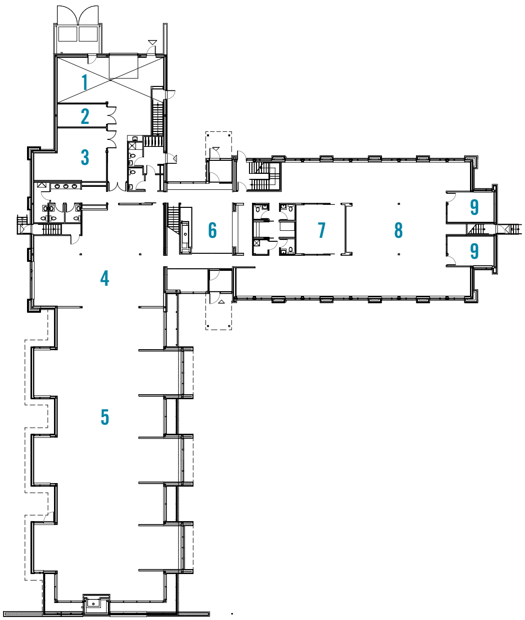
Many types of wood – in a variety of forms and formats – make this showroom a true showcase of beauty

OakWood Showroom & Design Centre

OakWood is an Ottawa-based company providing design and construction services to homeowners and custom home clients. Its philosophy is founded on sustainable practices, promoting renewable and reclaimed construction products, as well as energy-efficient designs.

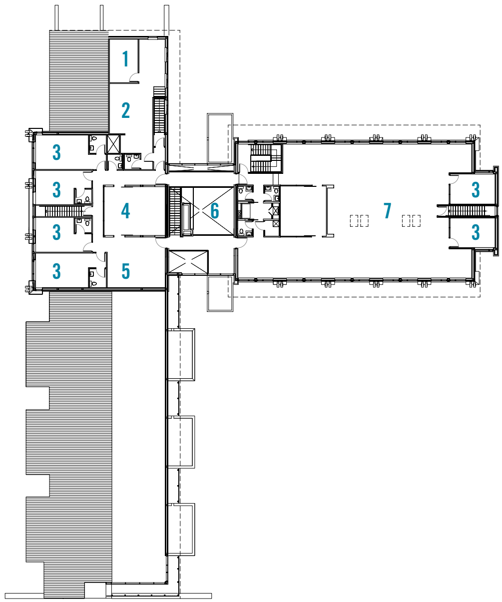
When the firm set out to design its own headquarters and flagship design center, it placed a priority on communicating OakWood's philosophy through its selection and visual application of materials and finishes. While OakWood wanted to demonstrate a variety of construction methods and material options in its new facility (designed to a LEED Platinum standard), it proposed wood on account of the material's beauty and flexibility – a bonus for both the building's occupants and the many visitors who come through the showroom.

The showroom is intended to be experienced from both the inside and outside via large panels of framed glazing along the path to the main entrance. With the design center's principal frontage facing south, softening of direct sunlight was required without compromising visibility to the inside. Here, large lattice screens of torrefied wood are positioned to control sunlight and reduce heat gain. These linear patterned veils contribute to an aesthetic that blurs the line between commercial and residential, while setting up an inviting, fine-scaled approach to the main entrance.



1. loading
2. storage
3. mechanical
4. seminar
5. showroom
6. lobby
7. conference
8. open office
9. office

FIRST FLOOR PLAN



1. IT
2. accounting
3. office
4. meeting
5. administration
6. conference
7. open office

SECOND FLOOR PLAN

Fittingly for a business named OakWood, a corrugated wall treatment finished in natural oak provides acoustic control and a warm, intimate decor for the commercial showroom interior. The application is reminiscent of Prairie School detailing, juxtaposing the contemporary furnishings and frameless glass walls that surround it.

One of the design features OakWood wished to showcase in its new building is a vaulted ceiling that customers might imagine having in their own home. A 10 x 13-ft. groin vault formed with lumber framing and finished in gypsum board introduces architectural character to a second-floor meeting room, while demonstrating the possibilities of achieving dramatic design features through simple wood framing.

Rough-hewn timber roof beams and brackets are exposed at the facility's office wing, exhibiting the option of timber-frame roof construction to customers who go there to conceptualize their renovation or new home.

Outside, a babbling brook flows through the naturalized garden, winding its way below a cedar deck "bridge" that connects the main walkway to the plaza and parking area to the east. This simple element demonstrates to customers the application of wood in garden landscaping, highlighting its charm within a natural environment. Locally sourced, reclaimed logs serve as benches along the front walkway and define the edge of the garden.

The success of this project relied on an imaginative approach to demonstrating contrasting material applications in a way that would still feel connected and homogeneous. This was achieved by the visible use of wood in various forms and formats, highlighting its relationship to other materials (including masonry, glass and greenery), while demonstrating its practical and functional advantages. OakWood's customers now have an environment for making important design decisions that can be seen and tested right in front of them.

CLIENT/GENERAL CONTRACTOR
OakWood
Ottawa, ON

ARCHITECT
Hobin Architecture
Ottawa, ON

STRUCTURAL ENGINEER
LRL Associates Ltd.
Gloucester, ON

PHOTOGRAPHY
Doublespace Photography
Ottawa, ON

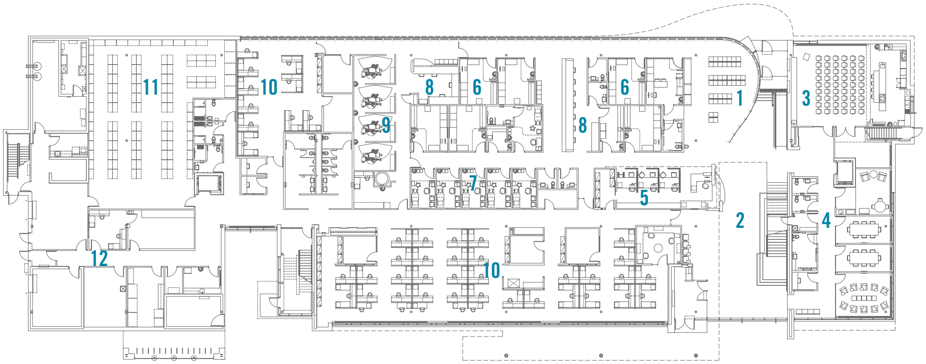
From movement to materials, this public health agency's headquarters promotes a healthier way to see the world

North Bay Parry Sound District Health Unit

From the outset, staff at the North Bay Parry Sound District Health Unit – providing health and emergency planning services to 120,000 residents across Northern Ontario – were determined to design a facility which would be practical, welcoming to the public and symbolize the importance of health promotion to the communities it serves. Reflecting the nature of its northern location was also a critical goal for both the clients and the design team.

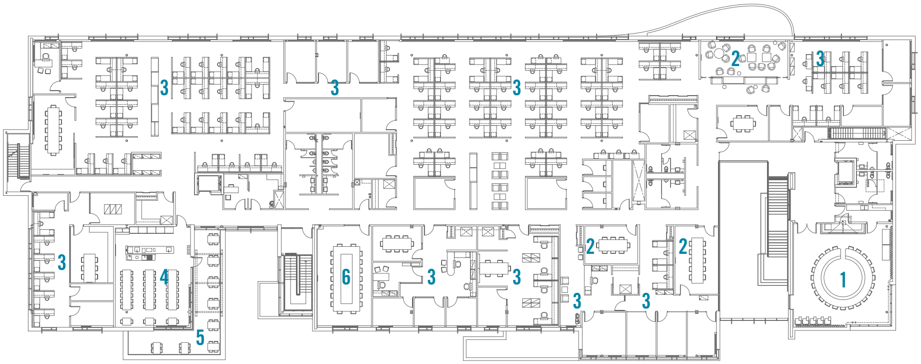
Recognizing that a connection to nature and awareness of one's location promotes a sense of cohesion and well-being, the designers made wood an essential element of the material palette to achieve these objectives. Wood's durability, in addition to a desire for environmental and economic sustainability, were also important factors.

Based on the concept that movement is fundamental to health, the design is inspired by the idea that "movement is life." Movement is expressed by dynamic lighting, curved lines connecting the interior to the landscape and warm rhythmic elements such as the Douglas fir curtain-wall along the street facade which curves inward to embrace the waiting area. Wood's warmth and natural beauty are further enhanced within the lobby by an exposed roof structure of glulam Douglas fir beams, decking and ceilings, as well as wood veneer panels extending from the exterior through to the lobby – all juxtaposed against a two-story limestone wall.



1. waiting area
2. lobby
3. classroom/teaching kitchen
4. meeting rooms
5. clinic reception
6. consultation rooms
7. exam rooms
8. charting area
9. dental area
10. office area
11. storage
12. maintenance/service area

FIRST FLOOR PLAN



1. boardroom
2. meeting rooms
3. office area
4. staff lunch room
5. staff roof terrace
6. training room

SECOND FLOOR PLAN

This wood-focused palette continues with wood accents in the lobby, including a long teak bench wrapping the grand stair, teak wood handrails and abundant white oak veneer doors and accents. White oak veneers and solid wood elements were the natural choice for "working walls," significant features designed as landmarks to define program areas while also providing alternative workstation and lounge space, impromptu meeting areas and storage of shared resources. These significant wood elements, as well as wood doors, millwork and furnishings, allowed designers to extend the benefits of a wood-rich environment throughout the office areas.

The 58,000-sq.ft. project also features more than 30 works of art by Northern Ontario artists, an installation made possible through the generosity of an anonymous donation and a partnership with a local public gallery. Many of these works are expressions of the landscape that surrounds the communities served by the North Bay Parry Sound District Health Unit, and together with the wood and stone, help to ground the building within its northern environs.

CLIENT
North Bay Parry Sound
District Health Unit
North Bay, ON

ARCHITECT
Mitchell Jensen Architects
North Bay, ON

STRUCTURAL ENGINEER
Read Jones Christoffersen Ltd.
Toronto, ON

GENERAL CONTRACTOR
Tribury Construction
Sudbury, ON

PHOTOGRAPHY
Lisa Logan
Toronto, ON

Jury's Choice

In the depths of Toronto's western suburbs, a redesigned library injects color into the community

Albion District Library

One of the busiest libraries in Toronto, the Albion District Library offe s a broad range of services – including cultural orientation, social integration, employment skills and access to technology and knowledge – for a diverse urban community. The existing branch, built in 1971, was in a poor state of repair and not meeting the community's growing needs. Poor planning presented challenges with regards to security, accessibility and staff fficiency.

Addressing deficiencies in the existing building, the new design needed to improve the built context and public realm while addressing the community's concerns around inclusivity, accessibility, wayfinding, public safety, legibility of built form and access to light and nature.

The design team came up with the concept of a walled garden made up of a colored scrim of terracotta ribs that wrap the building and evoke a garden in bloom. The scrim lifts to articulate the entry and key program areas, creating a colorful, dynamic form that is instantly recognizable. The building facade dematerializes to create screens to three visually connected courtyards that bring color, nature and light deep into the plan. These landscaped courtyards subdivide the large square plan into distinct program zones for children, teens and adults. This provides acoustic separation and enables the programming of diverse activities while allowing ease of supervision and patron service.

The use of wood for both structural elements and interior finishes supports the architectural expression and offers a material counterpoint to the polychrome terracotta. Within the library, the roof structure is exposed; the structural glulam wood purlins and tongue-and-groove cedar wood deck allow the ceiling to read as a continuous folded plane. In this sense, wood creates a continuity of material expression that allows the library to be seen as one open space.

Wood acoustic panels between the purlins create concealed volumes for mechanical ducts and sprinklers, mitigating interruptions in the ceiling plane. The same wood acoustic panels are used to clad the walls at the perimeter of the building, ascending and descending with the sloped window frames. Roof and walls thus become architecturally integrated, providing a warm enclosure that optimizes acoustic performance.

White oak is used for all the acoustic panels, door finishes and custom library millwork elements, as well as the base wood for the library shelving. This midtone wood with its pronounced grain was chosen for its durability and consistent appearance across diffe ent applications. A dark carpet and occasional pops of color in the form of upholstered lounge furniture provide contrast and accents against a consistent fi ld of wood finishes and structural elements. Wood was the material of choice for the interior and structure of the library, allowing a strong and coherent spatial expression that creates the perfect setting for a vibrant community hub.

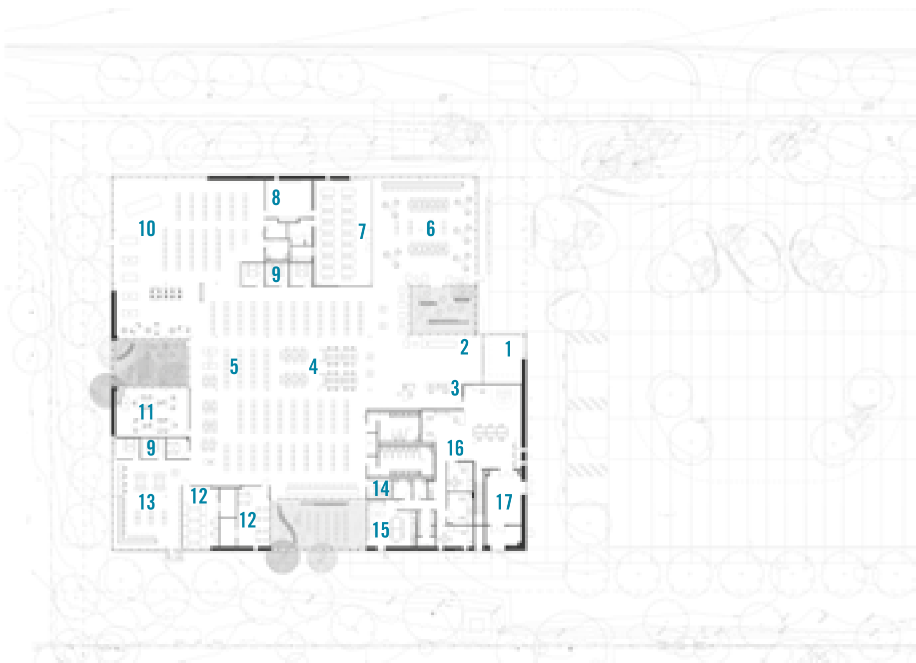
CLIENT
Toronto Public Library
Toronto, ON

ARCHITECT
Perkins and Will
Toronto, ON

STRUCTURAL ENGINEER
Blackwell Structural Engineers
Toronto, ON

GENERAL CONTRACTOR
Aquicon Construction
Toronto, ON

PHOTOGRAPHY
Doublespace Photography
Toronto, ON



1. main entry
2. self check-in-out
3. service/reference desk
4. business center
5. adult area
6. urban living room
7. large community room
8. small community room
9. study rooms
10. children's area
11. computer learning center
12. digital innovation hub
13. teen area
14. adult literacy office
15. staff room
16. work room/sorting
17. delivery

FLOOR PLAN

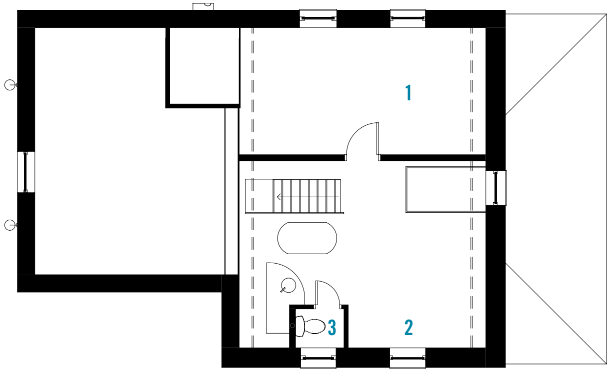
Jury's Choice

A Passive House project makes an active case for preserving the beauty of the past

The Reach

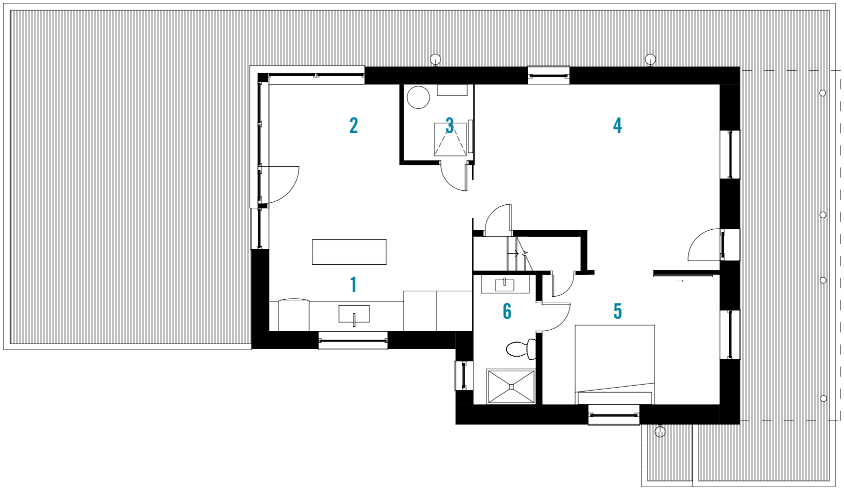
Perched on the top of a waterfront escarpment in Ontario's rustic Prince Edward County, this renovated farmhouse was a journey, as most renovations tend to be. Yet despite the slow progress, the design team managed to create a systematic combination of archaeological discovery, preservation, encapsulation and architectural reinterpretation.

The original farmhouse, built 130 years ago, was reduced to its barest hand-hewn wooden structure, then meticulously cleaned and sealed inside an airtight skin. A new jacket of R43eff structural insulated panels (SIPs) was then added to the walls. A new roof truss structure surmounting the existing roof provided the space to blow in 600 mm. of cellulose insulation with an R-value of R80, and a new front gable window was intentionally oversized to allow a glimpse of the original house within the new house.



1. bedroom
2. landing/restroom/sitting room
3. restroom

SECOND FLOOR PLAN



1. kitchen
2. dining room
3. utility room
4. living room
5. bedroom
6. restroom

GROUND FLOOR PLAN

One of the many challenges of this project was to get an airtight seal around the existing structure. To achieve this, the team had to lift all ground-level floorboards, insert an oriented strand board (OSB) layer and then relay the floorboards. The old board and batten walls had to be pried loose, working progressively around the building so that the floor could be sealed to the air/vapor barrier wrapping the house.

The design team had several goals for this project, among them the re-presentation of an existing wood structure as a new expression of something old and never seen before.

Heritage is the keyword here: The hand-hewn structure demonstrates the woodcraft of the late 19th century while the bones, though never visible in the past, have resurfaced like lost treasure found again.

Another goal of this Passive House project was to create a comfortable and healthy living environment with the most minimal use of man-made energy. On that front, the results speak for themselves; earlier this year, an electric "hair dryer" (in truth, a tiny electric heater purchased at a yard sale) maintained comfortable temperatures despite the -25°C temperatures of the Canadian winter outside.

ARCHITECT
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Toronto, ON

STRUCTURAL ENGINEER
James Horne
Picton, ON

GENERAL CONTRACTORS
Neil Thompson Contracting
Picton, ON

Green Giant Design Build
Picton, ON

PHOTOGRAPHY
Tom Ridout
Toronto, ON

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- FONDS de solidarité FTQ
- fermacell

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- SOPREMA
- Canadian Wood Council / Conseil canadien du bois
- Conseil de l'industrie forestière du Québec
- CertainTeed
- Ressources naturelles Canada / Natural Resources Canada — Canada
- StructureCraft
- STRUCTURLAM MASS TIMBER CORPORATION
- western archrib structural wood systems
- Weyerhaeuser

Voltigeurs de Québec Armoury
Quebec City, QC
Please see page 64

QUEBEC

Architectural Details Ensuring Durability

In both form and function, wood's versatility is on display

Opeongo Visitors Center, Parc national du Mont-Orford

Derived from the word *opeauwingauk* (sandy strait), the Opeongo Visitors Center can be found in Parc national du Mont-Orford, a mountainous, lake-filled destination located an hour outside Montreal. The chance to provide Mont-Orford with a distinct architectural signature strongly motivated the design team; however, there remained the challenge of ensuring that park visitors would accept a contemporary architectural style, very different from the more traditional chalet-style reception centers in other Quebec parks.

The organic configuration of the building, in symbiosis with the lake-facing site, justifi s its distinct layout. The 2,500-sq.ft. center features three volumes: the main structure, which houses a reception area that extends into a large terrace overlooking Lake Fraser; the second part of the building, used to store various water-sports equipment, as well as providing a rentals counter and locker rooms; and, directly aligned with the beach, a third volume that includes washrooms and a first-aid room.

Wood is used abundantly as per the client's wishes, and helps to harmonize the building with its natural environment. The central volume is clad with dark, open-slat cedar that allows for natural ventilation; the darker cedar is alternately punctuated by a lighter, smoother cedar facing, which


contributes to the building's visual consistency. The cedar siding also serves as a rain screen.

A thin wood roof connects the three pavilions, offe ing protection from bad weather or respite from the sun. Wood decking was chosen for its high load-bearing capacity and because its thinness allowed for modulating the roof shape to accommodate views and take full advantage of natural light. The project stands out for the fact that the designers were able to maintain the roof's elegant, thin profile across the entire structure.

Thanks to the various wood textures, essences and colors, the building appears to transform depending on the hour of the day; at night, the center volume takes on the appearance of a glowing lantern due to its open-slat siding. With generous overhangs, well-designed exterior column bases and a curtain wall to protect the interior columns, the building's longevity is assured – while its beauty is apparent.

CLIENT
Sépaq
Quebec City, QC

ARCHITECT
Anne Carrier architecture
Lévis, QC

STRUCTURAL ENGINEER
EXP Inc.
Quebec City, QC

GENERAL CONTRACTOR
Construction Groupe Prévost
Cookshire-Eaton, QC

PHOTOGRAPHY
Stéphane Groleau
Montreal, QC

Commercial Project Under 1,000 m²

A new facility brings both design elegance and sustainable sourcing to the fore

Golf Exécutif Montréal

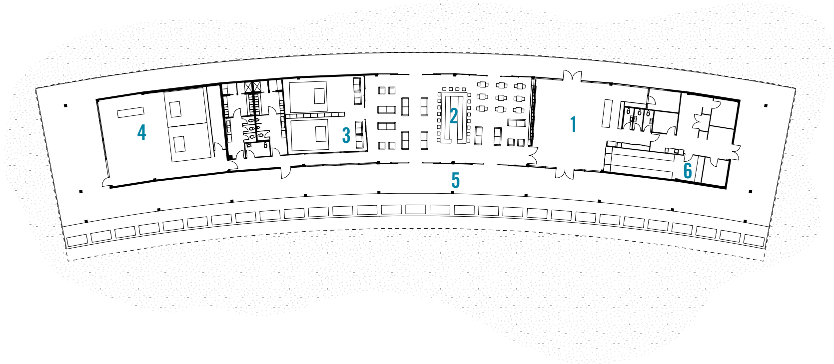
Located on L'Île-des-Soeurs just south of downtown Montreal, the new Golf Exécutif Montréal pavilion is characterized by geometric rigor and harmonious integration with the verdant site on which it is located. With a complete restaurant kitchen, bar, shop, golf simulators, offices and technical rooms, the program was developed to offer flexibility according to the seasons and the diffe ent types of events that take place.

The building consists of a glulam timber frame construction with a zinc exterior coating. The simple, elegant lines bring attention to its imposing, yet reassuring, structure. Immense windows promote continuity between the interior and exterior spaces, creating a place of practice, socialization and idyllic contemplation for golfers. Wood's aesthetic qualities bestow warmth and beauty, while allowing a harmonious integration into the environment.

One of the most striking features of the project is the large cantilevered wooden roof which serves as a weather barrier for users, elegantly following the curve of the golf practice fi ld. The roof span impresses by its size and the structural challenge it represents. In addition to their functional importance, the overhangs of the roof control solar heat gain, as does the installation of a white roof. The curves in the roof and building, both front and back, add a subtle touch of finesse to the whole.

The choice of wood also reflects environmental values such as sustainable sourcing and the use of natural and local materials. Supplied by Nordic Structures, the roof is built with black spruce, pine and fir from northern Quebec. As a prefabricated solution, CLT also was chosen for its efficiency and high performance.

Carefully integrated into the wood structure, the electromechanical elements disappear in favor of creating the purest possible interior spaces. Particular attention was given to the use of natural materials without VOCs, which explains the omnipresence of wood in interior spaces (maple veneer walls and doors, charred-wood wall cladding, furniture, etc.). In addition, to promote local expertise and craftspeople, emphasis was placed on the selection of materials, suppliers and contractors from Montreal and other places in "la belle province."



1. lobby
2. lounge
3. simulators
4. multipurpose room
5. practice area
6. kitchen

N

GROUND FLOOR PLAN

CLIENT

Golf Exécutif Montréal
Montreal, QC

ARCHITECT

Architecture49
Montreal, QC

STRUCTURAL ENGINEER

WSP
Montreal, QC

TIMBER SUPPLIERS

Nordic Structures
Montreal, QC

Espace-Bois
Saint-Philippe-de-Néri, QC

GENERAL CONTRACTOR

Quadrax & Associés
Laval, QC

PHOTOGRAPHY

Stéphane Brügger
Montreal, QC


Desjardins
MALLETTE

Commercial Project Over 1,000 m²

This office building pays tribute to Quebec's rural roots while laying a solid foundation for the future

Complexe Synergia

Marking the entrance to the city of Saint-Hyacinthe is this six-story, 72,000-sq.ft. office building defined by its exposed wood structure. Complexe Synergia hosts the developer-builder's offices and reflects the client's dynamic nature with this significant fenestration: a contemporary statement reflective of the group's new generation of managers.

By showcasing the boreal forest's black spruce, the complex places wood at its heart, with not a single metal beam supporting it. This is the first non-residential project in Canada with an all-laminated wood structure, using a chevron post-and-beam bracing system and laminated CLT stairwells and elevator shafts.

Wood's properties – light, cost-eff ctive, environmentally friendly, warm and highly innovative – made it the ideal material for this project. The intent was to showcase this local material as part of a modern building, uniting tradition, innovation, Quebec roots and the future. Wood is visible inside as much as outside, in the finishes and in the structure, recounting the history of the forest and the classic Canadian log cabin. The structure also harmonizes with its context, the wood's wheat tones recalling the rural roots of Saint-Hyacinthe while its black aluminum panels, concrete and glass address the dynamic aspect of the major motorways nearby.

The result is a pared-down, organic look that gives free rein to architectural creativity. The foundation's raw, exposed concrete surfaces seem to emerge from the ground, blending with the building's immediate environment. The exposed wood structure is wrapped in a curtain wall, with windows over most of the surface to maximize natural light, which reaches more than 80 percent of the indoor workspaces. The complex sets the tone in an area with little urban structure.

This LEED Silver–certified project was built according to stringent environmental standards using local materials, with the latest in energy-efficient technologies including a solar wall and a heat-recovery function that preheats the air entering the ventilation system. Digital controls and sensors are used to measure CO_2 levels and adapt ventilation to building occupancy, while a system of heat pumps on a mixed water loop recovers heat expelled by the internal zones to warm the external zones. The building also features electric vehicle charging stations, plumbing devices that reduce water consumption, high-performance windows, drought-resistant landscaping, a large rooftop terrace, bike racks and employee showers.

CLIENT/DEVELOPER
Groupe Robin
Saint-Hyacinthe, QC

ARCHITECT
Lemay
Montreal, QC

STRUCTURAL ENGINEER
EXP Inc.
Quebec City, QC

DESIGN OF WOOD STRUCTURES
Nordic Structures
Montreal, QC

TIMBER SUPPLIER
Nordic Structures
Montreal, QC

PHOTOGRAPHY
Myriam Lafrenière
Montréal, QC

A functional space is transformed into a sensory experience inspired by wooden wharves of the past

Place des Canotiers

This project involved the transformation of a riverside surface parking lot into a high-profile public square, Place des Canotiers, located in Old Quebec City – a region that's included on the UNESCO World Heritage List. Archaeological remains of 19th-century wooden wharves from the site inspired the park's design; the parking lot was replaced with a parkade, and the resulting open space was landscaped. Alternating green and inorganic spaces, each with its own personality, mirror the shimmering effect of water. The architects' vision was to tap into the location's powerful impact, using a restrained, efficient and decidedly modern aesthetic.

Along the length of the parkade, a feature wall is reminiscent of an above-ground wharf, framing a wooden stairway that culminates in a panoramic viewpoint. The wall's hybrid structure, composed of wooden slats and steel columns, is an innovative solution that transforms a functional stairway into an urban experience, with the use of Western red cedar giving a subtle nod to the site's industrial past – while being the best option to prevent rot and provide stability. The wooden slats are mechanically affixed to the galvanized steel columns for additional stability and ease of replacement.

Every detail was considered with a view toward structural soundness and ease of maintenance: the use of durable wood, space for airflow between the slats, surface work to prevent standing water, steel coated with baked-on paint, unobtrusive mechanical fasteners to enable individual slat replacement, factory-applied surface treatments (liquid stain) and constant modularity in length. The aesthetic experience is enhanced by the wood's fine-sawn texture and variable vertical spacing to create viewpoints during the ascent.

The mechanical system that binds the steel and wood structure is designed to be simple, efficient and easy to disassemble. It also showcases the wood by using minimal components and subtle fasteners, making the wharf eff ct even more convincing. A single contractor constructed the hybrid structure to ensure perfect synergy among the components, with preassembly in the factory and final assembly on site. The

wooden slats boost the bracing eff ct of the metal structure and prevent visual overload from redundant structural components. From a standards and safety perspective, the use of fire-retardant lumber was a definite advantage.

The feature wall is the vertical inflection point between the public square and the parkade's green rooftops. Public washrooms, commercial space and a covered stretch of the wooden terrace are located on the ground floor. The double wall design provides axial framing for the ascent to the panoramic viewpoint, with sneak peaks through the gaps between the wooden slats. This striped pattern creates an interesting lighting eff ct at night and serves as a sun barrier for the parkade during the day – transforming a functional space into a sensory experience, while using materials that remind visitors of the site's historical past.

CLIENTS

Société québécoise des infrastructures
Quebec City, QC

Commission de la capitale nationale du Québec
Quebec City, QC

ARCHITECTS

Daoust Lestage
Montreal, QC

ABCP Architecture
Quebec City, QC

STRUCTURAL ENGINEER

Tetratech
Pasadena, CA

GENERAL CONTRACTOR

Pomerleau
Lévis, QC

PHOTOGRAPHY

Stéphane Groleau
Montreal, QC

Marc Cramer
Montreal, QC

Exterior Cladding

A playful synergy between natural and industrial materials emphasizes a construction company's core strengths

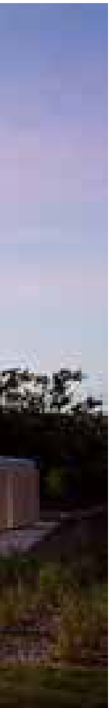
Corporate Offices, Pomerleau

Nestled between a highway and a forest in an industrial area bordering Lévis, Quebec, this unconventional office building for a major player in the Canadian construction industry redefines the language of the corporate environment, showing sensitivity to form, implementation and workplace quality.

The building unfolds into three distinct wings. The first is an elongated, two-story structure that hosts open-concept workspaces, with closed offices in the center. This configuration maximizes natural light penetration while showcasing stunning forest views and, ultimately, enhancing employee wellness and productivity. Common areas and coffee stations are positioned strategically throughout, promoting informal interaction and exchange.

The second wing is an impressive, sculptural volume with second-level cantilevers over the floor below, creating a sheltered main entrance. The architectural gesture ends in a blank facade, highlighted by large windows on each side. By its breadth and its relative angle, this volume contrasts with the long bar that emerges at the back of the site, becoming a signal element in the landscape.

The third wing is a one-story projection with a green roof. It hosts attractive, fully glazed meeting rooms and a dining room opening onto an intimate courtyard with a strong connection to the nearby forest. The integration of a




POMERLEAU

green roof and the overall "greening" of the project, as part of an effort to highlight the natural surroundings, is an innovative approach given the area's industrial character.

The central hall is the focal point of the different wings. Overlooking the courtyard in the foreground and the forest beyond, it also directly connects to the two main wings that define the building's reception, the main staircase and one of the meeting rooms.

The use of raw materials – such as polished concrete for the floors and steel plates for the reception furniture and stair railings – emphasizes the client's role in the construction industry. Exposed mechanical and electrical equipment reinforces this theme, as does the design of the building itself, with its wood and steel structure evoking construction framework. While different uses of wood reinforce the relationship with the surrounding forest, the visible steel framing accentuates the sculpted gesture of the outer facades.

The interior design is informed by innovative working styles that promote employee synergies. It features a wide variety of individual and collaborative workspaces, offering a choice of privacy levels, proximity to colleagues, ambiance, equipment and other variables, simultaneously fostering appropria-

tion of the space and creating a sense of belonging. External facades and interior partitions are extensively glazed to facilitate user orientation, to strengthen the relationship between exterior and interior and to create visual connections for building occupants. The unique selection of finishing materials, innovative lighting design and strategic layout fulfills the many objectives of this impactful project.

CLIENT/GENERAL CONTRACTOR
Pomerleau
Lévis, QC

ARCHITECT
Lemay
Quebec City, QC

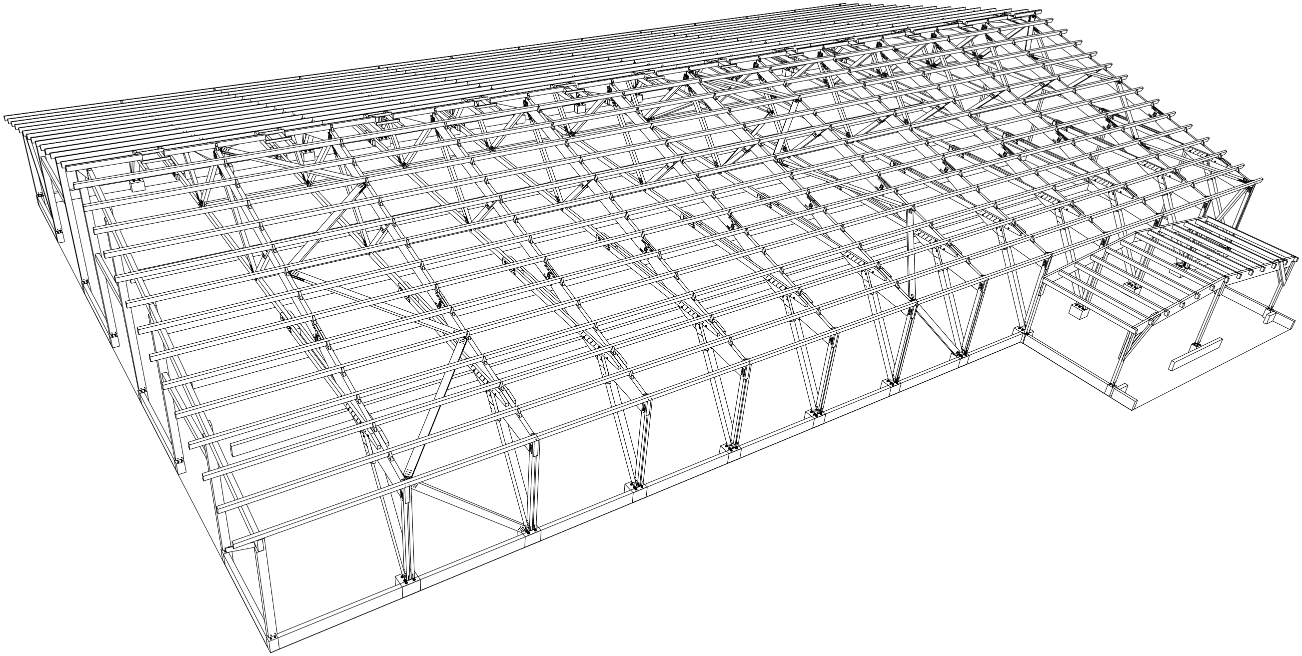
STRUCTURAL ENGINEER
Tetra Tech
Lévis, QC

PHOTOGRAPHY
Jonathan Robert
Quebec City, QC

Industrial Building and Structural Concept

Mass timber construction yields massive benefits for farmer and animals alike

Zwygart Organic Farm



PERSPECTIVE

The "ferme biologique Zwygart" is a farm building in Fortierville, about 60 miles southwest of Quebec City. Housing the cattle for an organic dairy farm, its free span structure was designed to replace old buildings on the site. The owner, originally from Switzerland, wanted to use mass timber to emulate the barns in his home country. The building benefits from natural fire resistance, better humidity regulation than a steel structure and abundant natural light thanks to two rows of skylights installed on each side of the ridge. Also, unlike a steel structure, mass timber carries little to no electrical current – a plus for the animals' well-being.

The goal was to achieve a 130-ft.-wide free span structure to accommodate future installations. The 220-ft.-long structure was erected by the owner and his family in two phases over a year, using 11 spruce-pine glulam bents spaced every 18 ft; each bent is made of a triangulated truss in the center, relying on an inclined post and vertical tension members. This geometry was chosen to optimize structural efficiency by transforming the bending forces of the whole system in tension/compression loads – a situation where mass timber is an optimal choice. The frame was then covered with varnished pine planks, adding beauty and ambient luminosity.

Although the structure endures heavy snow loads, few steel plate connectors were used in the system. The purlins rely naturally on the trusses, with only screwed wooden blockings to connect to the main structure, while tension tie chords are doubled to accommodate a timber-to-timber connection with the rafters. The whole in-plane stabilization of the trusses is achieved with timber diagonals, simplifying the connections compared to complicated and costly rigid systems. Compression forces are transmitted as much as possible via timber notches. Embedded connections in the timber make the structure's details more appealing, but also more efficient. Those design choices also increase the building's fire resistance.

A close collaboration between the engineer, the timber manufacturer and the client made this project possible. It demonstrates that wide-span timber structures are an efficient, elegant alternative to the existing standards in the industry.

STRUCTURAL AND DETAIL ENGINEERING
David Mizrahi
Montreal, QC

TIMBER STRUCTURE
Ambiance Bois
Beloeil, QC

GENERAL CONTRACTOR
SENC Zwygart
Fortierville, QC

PHOTOGRAPHY
David Mizrahi
Montreal, QC

Ambiance Bois
Beloeil, QC

Innovative Solution

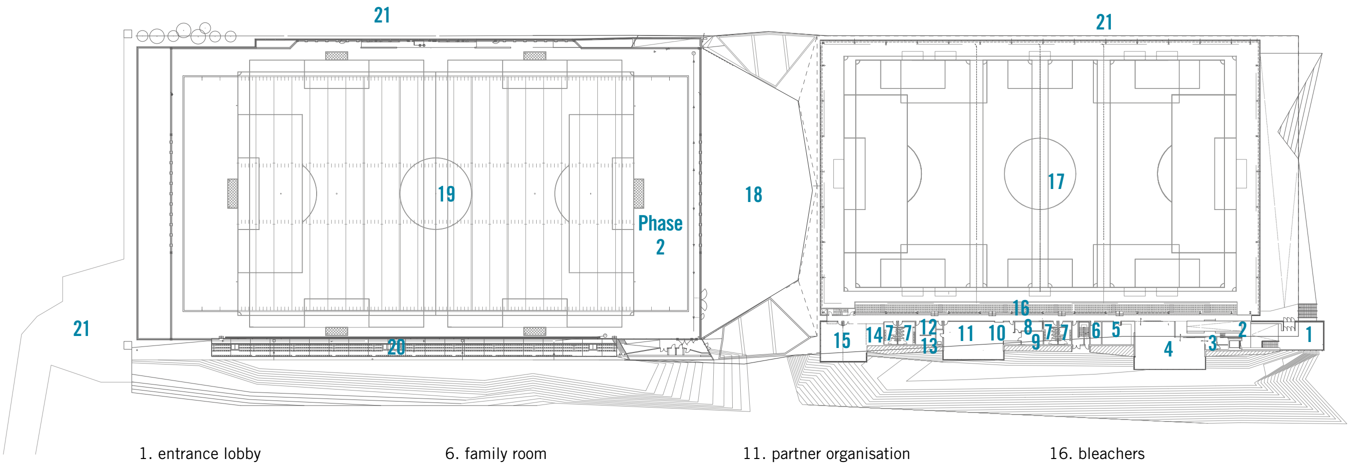
A massive indoor soccer stadium honors both the past and the future

Stade de Soccer de Montréal

Built on the site of a former quarry, this indoor soccer stadium emerges from the surrounding park's artificial topography like a layer of mineral stratum, recalling the geological nature of the site. The mineral stratum is suggested by a continuous roof that cantilevers over the entry plaza and folds down over the interior soccer field, extending to the ground to support spectator seating for the outdoor field in the next project phase. To ensure the unity of the soccer center over different programs and construction phases, the stratum appears as a single gesture with a laminated wood structure supporting it. The roof's crossing beams form a seemingly arbitrary lattice suspended over the entire site.

Along Montreal's Papineau Avenue, the structure adapts to the existing landscape by embedding its supporting functions within the berm. This integration accommodates an elevated pedestrian path and preserves the existing trees. A subsequent series of "crystals" emerge from the augmented landscape to provide daylight and views for the administrative and public spaces. A large glazed box containing the main lobby emerges from the terrain's southeast end, signaling the entrance to the soccer stadium. Despite the magnitude of the program, the series of structural louvers that compose the facade succeeds in retaining a human scale and the natural context for the adjacent residents.

The programmatic elements are organized efficiently by taking advantage of the linear site, as well as considering the program associations and usages of players, spectators and park visitors. The transparency of the building also promotes a sense of openness; the design attempts to elim-



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

N FLOOR PLAN

inate blind spots to ensure the safety of its users, while promoting an inviting atmosphere for soccer enthusiasts and the extended community.

The main structure of the roof consists of 13 principal wood beams spanning 226 ft., and each beam is supported by steel columns spaced at an interval of 26 ft. The beams are angled so that the supports at either end are on different column grid lines. Decorative beams attached to the bottom flange of the primary beams, placed in a diagonal pattern, provide the checkered effect visualized in the architectural concept. The east side of the roof protrudes from the facade by 33 ft., while on the west side of the building two shoulders span more than 131 ft. from the roof diagonally down to concrete abutments, located at ground level.

The roof decking consists of CLT panels that are supported by glulam purlins. These secondary roof members are spaced at 17 ft. apart and span 26 ft. between the principal beams. The principal members are constructed of glulam beams and CLT panels that are glued together to obtain box girders. Glulam beams were used for the top and bottom flanges, and CLT panels installed longitudinally were used for the webs. All the wood members (mainly black spruce, but also pine and fir) and steel connections were prefabricated in Chibougamau, Quebec, and shipped 430 mi. south to the construction site. The wood comes from FSC-certified forests, helping the stadium achieve LEED Gold certification.

CLIENT
City of Montreal
Montreal, QC

ARCHITECTS
Saucier + Perrotte Architectes
Montreal, QC
HCMA Architecture + Design
Vancouver, BC

STRUCTURAL ENGINEERS
NCK Inc.
Montreal, QC

GENERAL CONTRACTOR
Group TEQ
Montreal, QC

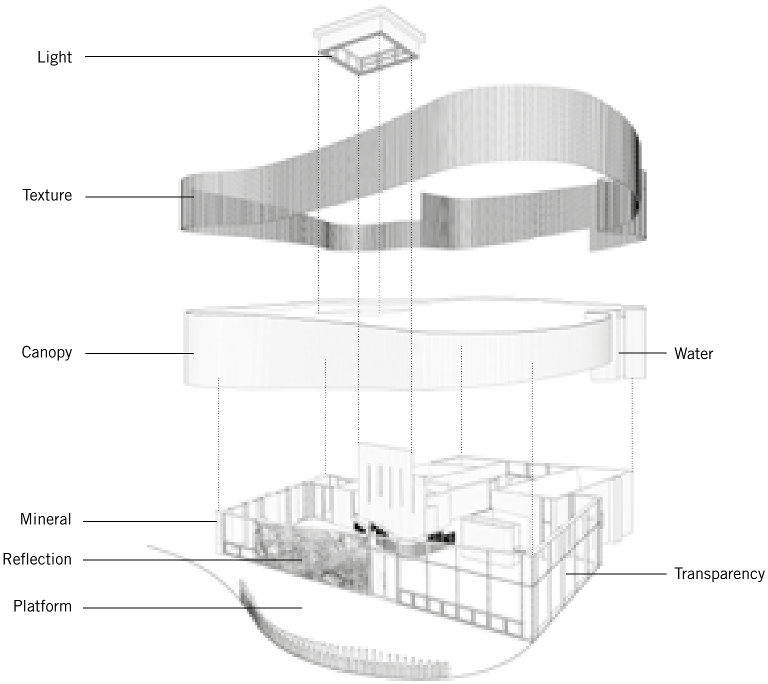
TIMBER SUPPLIER
Nordic Structures
Montreal, QC

PHOTOGRAPHY
Olivier Blouin
Montreal, QC

Institutional Building – Under 1,000 m²
and
Sustainable Development (tied)

A building designed to showcase the wonders of nature also highlights the benefits of designing in harmony with the environment

Discovery and Visitors Center, Parc national des Îles-de-Boucherville



AXONOMETRIC DRAWING

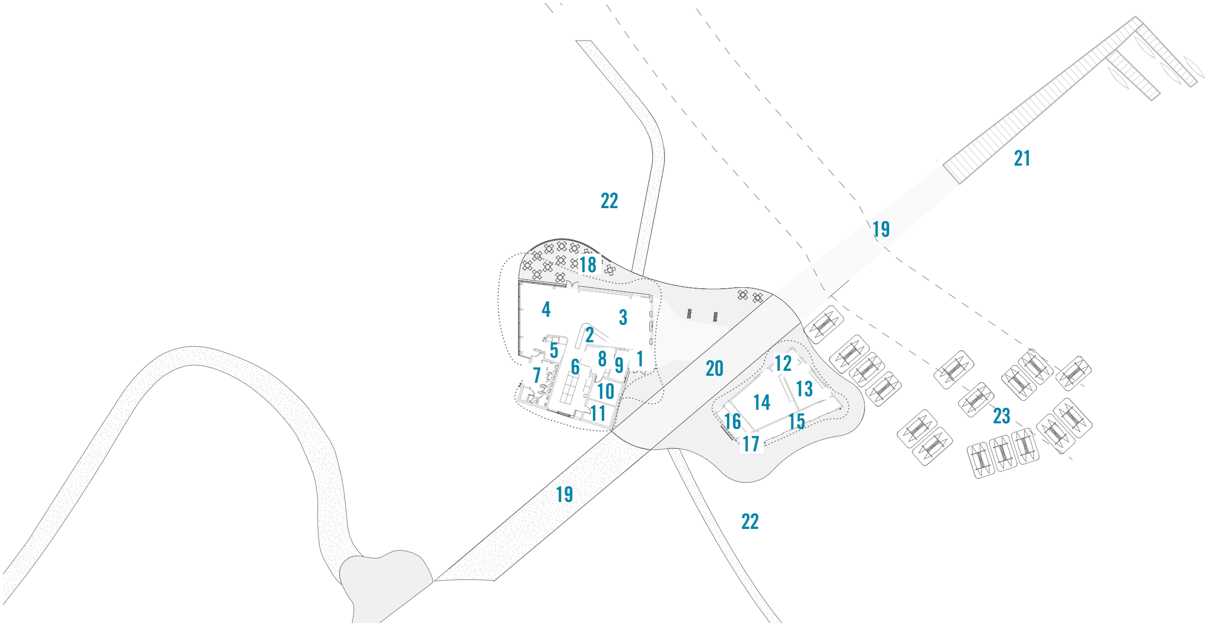
Parc national des Îles-de-Boucherville encompasses five islands in the St. Lawrence River, a short distance from Montreal. The new Discovery and Visitors Center is designed to be a showpiece for the province's network of national parks. Built entirely from wood, it exemplifi s an integrated approach to architecture that combines bright, inspiring interior spaces with high performance and a respect for context.

To improve access to the site and connection to the water, the program was divided into two volumes: one housing an interpretive center and the other housing outdoor equipment rentals. These two buildings define a public space that acts as a gathering space and gateway to the park.

Designed to introduce its many visitors to the natural world, the project both respects and reflects its environment. The building embodies the principles of bioclimatic design, with each gesture contributing to the aesthetics of the pavilion as well as to the overall sustainability of the project. Modeling of ventilation, daylight and energy systems was used to optimize building design and performance.

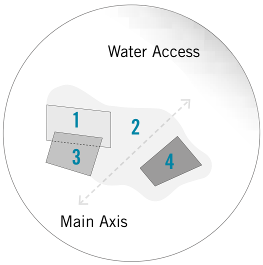
The location and form of the building were selected based on sun path analysis, wind patterns and a variety of ecological features. Environmental impact studies ensured that the integrity of local ecosystems was preserved or enhanced. This included lighting design to minimize the impact on nocturnal and migratory animal species, the collection and redistribution of rainwater to maintain hydrological cycles and plant health, and the careful shaping of the curvilinear building plan to preserve trees.

This ecological agenda carries through to the specification of materials and finishes. The structure uses FSC-certifi d wood, the cladding is locally sourced Eastern cedar and interior finishes have low or no VOC emissions. In addition to the sequestration of carbon, wood is low in embodied energy, with the construction of a wood wall resulting in a superior life cycle performance. Other strategies also were put in place to improve the life of the building and reduce maintenance requirements; for instance, the color of the wood stain chosen for the external cladding is that of an aged gray close to the color that the cedar will take when it has been exposed to the elements for several years.



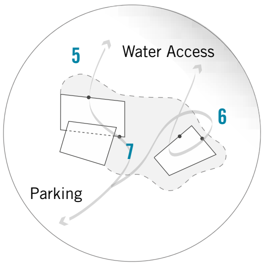
1. main entrance
2. information desk
3. discovery area
4. dining room
5. snack area
6. shop
7. unisex restroom
8. staff area
9. office
10. mechanical/ electric room
11. storage
12. information/equipment rental
13. nautical equipment storage
14. bicycle storage
15. camping carts storage
16. camping carts storage 24/7
17. storage
18. terrace
19. main access pathway
20. hub
21. dock
22. paths
23. kayaks/canoes storage area

N SITE PLAN



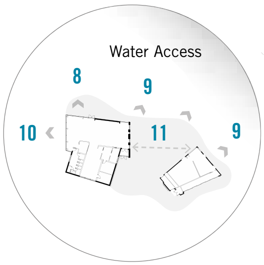
PROGRAM DISTRIBUTION

1. discovery zone
2. exterior hub
3. service zone
4. accessory pavilion



FLUIDITY OF CIRCULATION

5. terrace access
6. rental access
7. main access
8. panoramic view of willow trees



VISUAL CONNECTION WITH SURROUNDING LANDSCAPE

9. water view
10. panoramic forest view
11. visual connection

The interior of the discovery center is bathed in natural light thanks to large expanses of triple-glazed curtain wall facing the park. Low-level vents admit fresh air that drives the natural displacement ventilation system, exhausting stale air through vents at the top of the central light well. Wood slats and overhangs protect the glazing from unwanted solar heat

gain. Rainwater is redirected towards planted spaces, and potable water and sanitary outflow is reduced by using waterless urinals and high-efficiency fixtures.

The combination of a high-performance building envelope, careful implementation of bioclimatic design principles and efficient mechanical and electrical systems results in a building that uses 40 percent less energy than the reference building.

CLIENT
Sépaq
Quebec City, QC

ARCHITECT
Smith Vigeant Architectes
Montreal, QC

STRUCTURAL ENGINEER
WSP
Montreal, QC

GENERAL CONTRACTOR
Construction R. Bélanger
Lac-Mégantic, QC

PHOTOGRAPHY
Adrien Williams
Montreal, QC


THÉÂTRE GILLES-VIGNEAULT

Institutional Building – Over 1,000 m²

A state-of-the-art performance hall celebrates the cultural and natural landscape of Quebec's Laurentian region

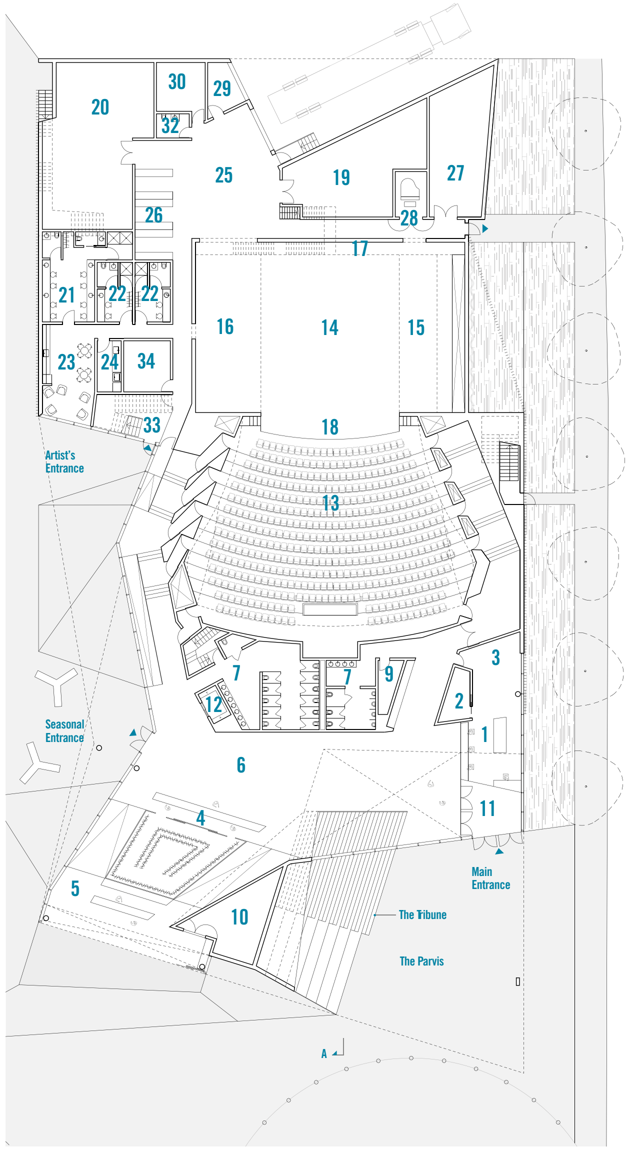
Théâtre Gilles-Vigneault

Théâtre Gilles-Vigneault in Saint-Jérôme, Quebec, sits on the town's main public square, where it functions as a focal point among existing civic and cultural buildings. This new performance space aims to create a renewed theater-going experience in a city just north of Montreal that is positioning itself as an important eco-recreational and cultural centre.

The 860-seat hall is conceived simultaneously as a social catalyst for the local community and an iconic cultural and economic driver for the region. Through its architecture, it celebrates both the growing cultural landscape of Saint-Jérôme and its local timber industry. From a cultural standpoint, wood constitutes an indisputable asset to the project in its ability to reference Quebec's material culture, inviting visitors to rediscover the distinct character of the Laurentian region and the links between its natural resources, technical know-how and built heritage.

Visible from the city's main public axis, the theater's majestic wood canopy, the dominant feature of the project, lights up at dusk to form a festive meeting point for the community. Glulam beams are used as ribbing, with each individual element arranged to optimize resistance in tension, compression, torsion and bending. Between the beams, CLT panels ensure the canopy's dimensional stability, due to their high resistance to unidirectional deflection. With striking, variable geometries, these panels make up the visible part of the canopy's structure, while on the upper part of the canopy they act as both decking and diaphragm.

1. box office
2. ticket deposit
3. ticket offices
4. cloakroom
5. shop
6. ground floor foyer
7. men's restroom
8. woman's restroom
9. maintenance storage
10. furniture storage
11. vestibule
12. elevator
13. parterre
14. acting area
15. court side clearance
16. garden side clearance
17. cross over
18. apron
19. depot
20. storage
21. 8 person dressing-room
22. 2 person dressing-room (2)
23. green room
24. utility room
25. landing stage
26. temporary storage
27. storage and repairs
28. piano room
29. technical director's office
30. technician's room
31. control room
32. technical employee's restroom
33. artist's entrance
34. electrical room



GROUND FLOOR PLAN

An integrated design process was implemented to ensure the uncompromised expression of the canopy as the project's defining architectural feature. As such, all disciplines meld into one; mechanical elements are fully concealed within the folded structure. The void space inside the canopy serves as a plenum, accommodating air return and curtain-wall convection, while sprinkler heads are distributed within the canopy's folds. Additionally, the canopy's exterior structure appears in perfect continuity with its interior through a series of architectural details that minimize thermal bridging.

The auditorium is composed of curved white oak surfaces, acting simultaneously as a poetic and performative device. These wooden ribbons, whose graceful geometry is sculpted by acoustic principles, are comprised of a permeable, double-layer assembly that allows for a uniform architectural expression while ensuring exceptional acoustic performance. The surface layer of wood is carefully calibrated and oriented to reflect sound, while the textile backing layer accommodates the necessary absorption coefficient in a variety of conditions.

ARCHITECT
Jodoin Lamarre Pratte Architects
Montreal, QC

STRUCTURAL ENGINEER
SDK et associés
Montreal, QC

GENERAL CONTRACTOR
Construction Demathieu & Bard
Saint-Jérôme, QC

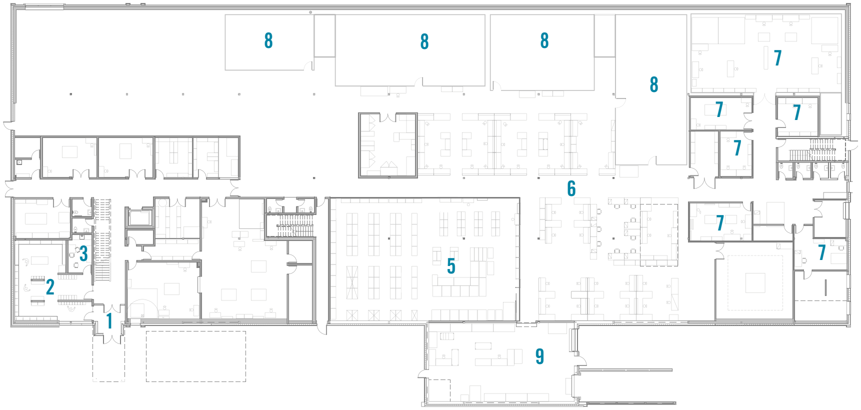
PHOTOGRAPHY
James Brittain
Montreal , QC
Adrien Williams
Montreal , QC


CREAFORM
AMETEK


Flexible, interconnected workspaces are only a small part of this complete ecosystem focused on comfort

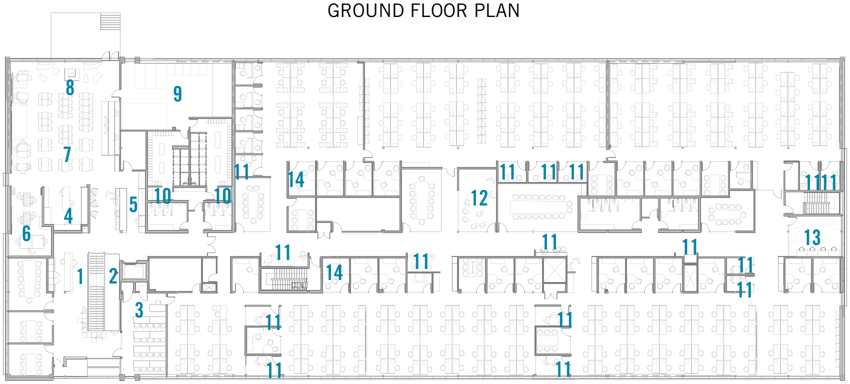
Corporate Headquarters, Creaform

A world leader in portable 3D measurement solutions and engineering services, Creaform wanted a new head office that blended comfort and functionality. While the ground floor spaces encompass all production-related activities, the upper level is articulated along a "main street" that connects seven "neighborhoods," corresponding to different administrative departments. This pivotal thoroughfare is dotted with flexible collaboration zones and glassed-in conference rooms. A large skylight also punctuates the space, bathing central spaces in natural light. The main street's conceptual approach evokes the broken lines used in triangulation – a clear nod to CT imaging and the fi ld of metrology – by integrating panels of diffe ent sizes covered with maple veneer, on which are inscribed the names of each neighborhood.



1. main entrance
2. cloakroom
3. infirmary
4. archive room
5. shop
6. production
7. lab
8. white room
9. landing stage

GROUND FLOOR PLAN



1. reception
2. museum wall
3. training room
4. kitchen
5. coffee bistro
6. play area
7. employee space
8. fireplace
9. gym
10. sport cloakroom
11. collaborative space
12. creativity room
13. quiet room
14. hybrid office

LEVEL 1

Open workspaces are located along the perimeter of the building to maximize exposure to surrounding green spaces and natural light, while closed offices and small conference rooms are grouped toward the center of the space. The design creates a complete ecosystem that strikes a balance between formal and informal work, and between concentration and collaboration, to give employees multiple options for varied work experiences.

The common areas grouped in a central core are designed to foster positive, informal meetings between employees from diffe ent work teams and promote easy communication between all company members. The high ceilings help distinguish these spaces from dedicated work areas.

The café, dining room and lounge (with fireplace) create a dynamic, expansive space that's an especially appealing environment in combination with a sizable gym, game area and outdoor patios.

Located in Innoparc Lévis, the building offers a special connection with nature and is directly accessible via the city's network of walking and bicycle paths. The structure stands out for its ecological features, which are in line with Innoparc's vision to create an innovative technology park designed to meet the highest sustainable development and mobility standards. The environmentally friendly layout preserves a large number of green spaces and trees, enhancing the overall aesthetic appeal and bathing interior work areas in natural light without affecting the visual comfort of building occupants.

In addition to offering beautiful views of the surrounding landscape, the workspaces on the first floor feature an exposed glulam wood structure that is seamlessly integrated into the roof. This element is a key factor in the aesthetic quality of the interior spaces and reinforces the project's biophilic dimension.

CLIENT
Groupe commercial AMT
Lévis, QC

ARCHITECT
Coarchitecture
Québec, QC

STRUCTURAL ENGINEER
Génie +
Québec, QC

GENERAL CONTRACTOR
Ronam constructions inc.
Lévis, QC

TIMBER SUPPLIER
Nordic Structures
Montreal, QC

PHOTOGRAPHY
Stephane Groleau
Québec, QC

Multi-Residential Building

A condominium complex breaks new ground for tall wood buildings

Origine

Surrounded by cycling paths and parks in the Pointe-aux-Lièvres area of Quebec City, Origine is the centerpiece of a new neighborhood designed to showcase sustainable development. During construction, the mass timber structure was the tallest wood building of its kind in the world, with 12 stories of residential condominium units (93 in total, from studios to three bedrooms) sitting on a one-story concrete podium containing a gym, a pool, a common living room and a large exterior terrace.

In a highly competitive market for condo construction, the choice of wood for a structure traditionally built of concrete was audacious. The idea behind that decision was to offer a unique product, and the environmental benefits of wood construction mean the project fits well with the eco-conscious development in which it is located. Also, because the site is near the St. Charles River, it has a very poor load-bearing capacity; if the building was made of concrete, it would have been impossible to reach such height. Consequently, mass timber was a practical choice for the structural system, allowing the team to plan a raft foundation system that would support a total of 13 stories. Concrete forms the ground-floor podium, while the primary structure is made of glulam timber posts and beams, with CLT floor slabs, shear walls, shafts and exterior walls. The FSC-certifi d wood comes from northern Quebec forests and consists mostly of black spruce.

The team had to develop custom solutions for lateral load resistance, which is usually transferred through concrete shear walls, even in wood buildings. In this case, the engineers invented a special shear key – metal plates inserted into prefabricated slotted holes – to hold the loads in the CLT walls.

Numerous fire tests and demonstrations were executed to allow the development of this pioneering project, with close collaboration between all involved professionals. Well above code limits at the time, Origine paved the way for taller wood structures in Canada, with its construction helping to develop a guide in Quebec for mass timber buildings of up to 12 stories.

DEVELOPER
NEB Group
Quebec City, QC

ARCHITECT
Yvan Blouin Architecte
Quebec City, QC

STRUCTURAL ENGINEERS
WSP
Quebec City, QC

Nordic Structures (timber)
Montreal, QC

GENERAL CONTRACTOR
EBC Inc.
L'Ancienne-Lorette, QC

TIMBER SUPPLIER
Nordic Structures
Montreal, QC

PHOTOGRAPHY
Stephane Groleau
Montreal, QC

Integration, interaction and innovation are the three "i"s defining urban efficiency

TOD. 1

As its name suggests, this 46-condominium project is in a Montreal neighborhood inspired by Transit Oriented Development (TOD) principles, where development is linked to public transit and sustainable development. Parks, play areas and green spaces are part of the program to promote neighborhood living and community spirit.

The urban integration of this housing complex takes part in three phases: TOD. 1 consists of a four-story base surmounted by two recessed floors to prevent a mass effect; next to it is TOD. 2, a three-story building; and TOD. 3, opposite to both structures, consists of a two-story building. In the center of the three buildings are gardens and common areas to promote interaction between residents. The project as a whole is designed to fit well with existing townhouses in the area.


2385

Wood is the favored choice of the client for its durability, warm appearance and authenticity. For this reason, the beams and columns are apparent in all condos and the wood is used as siding in the halls and corridors, as well as for fixed furniture items. The six-story structure of TOD. 1 is made entirely of CLT, 90 percent black spruce and 10 percent pine and fir. The same wood composition was used for siding and furniture elements.

This is one of the first projects of this type in Montreal; until a few years ago, local zoning regulations did not allow for mid-rise timber construction. As a result, there were some challenges along the way related to the lack of clear regulations on the use of solid wood in a multi-residential building of six floors. The Montreal Fire Department, for its part, imposed additional conditions to authorize construction. All constraints were overcome thanks to

close collaboration between the design team, consultants and the client. For instance, TOD. 1's architects, engineers and timber manufacturer have developed technical details to deal with specific requirements, such as the steel anchoring of cantilevered balconies and the lintels supporting masonry.

Another major challenge was the passage of mechanical elements in the beams. Inside the units, all beams have a standardized breakthrough for ducting. The manufacturer of the structure also sized the beams for minimal penetrations. For the output of the mechanical elements to the outside, the strategy was to tailor a housing that gathers the exhaust ducts of each unit.

Other features to boost the project's sustainability include use of materials and a bi-energy heating system that limit heat loss, air infiltration and moisture accumulation; a roof designed to limit the urban heat island effect; extensive use of non-invasive, drought-resistant plants on the grounds; and underground parking with spaces reserved for electric cars and bicycles.

CLIENT/GENERAL CONTRACTOR
Sotramont
Montreal, QC

ARCHITECT
Yelle Maillé et associés architectes
Montreal, QC

STRUCTURAL ENGINEERS
Les consultants L2C
Montreal, QC

Nordic Structures
Montreal, QC

TIMBER SUPPLIER
Nordic Structures
Montreal, QC

PHOTOGRAPHY
Yelle Maillé et associés architectes
Montreal, QC

Honorable Mention: Collaborative Project

Why move mountains when you can build your own?

Mont Réel,
University of Montreal

While constructing the new MIL Campus at the University of Montreal, a temporarily underused area of the site was identified as an ideal location for a series of ephemeral projects designed to promote community and educational activities. During the summer of 2017, one of the most ambitious of these projects was the construction of Mont Réel. Inspired by Mont Royal, the large hill that dominates Montreal's landscape, the architect chose to create a second summit, Mont Réel, a human-built mountain that presents as a 360-degree tribune in the form of a gigantic concentric stairway, with a sheltered grotto at its heart that protects occupants from wind and weather.

As the architect explains: "Built to be a supporting structure, Mont Réel provides space to explore similar characteristics as its reference, Mont Royal. Its slopes are modest, and the ascent of Mont Réel is not a matter of glorifying conquest in high altitudes, but rather a joint celebration of the poetic and popular power of gathering."

Mont Réel came to life when about 40 "mountaineers" – local and international artists, designers, engineers, builders and students – gathered to participate in a workshop "to move mountains." Since the architect wanted to make the construction into a community event, it was crucial to design a structure that could be assembled by volunteers. It was this need for simplicity that informed the use of a timber frame. Moreover, considering the ephemeral nature of the work, the low ecological footprint of wood was a considerable advantage.

Besides attracting participants from many different backgrounds and the neighborhood, Mont Réel saw many companies from Quebec's wood construction industry come together to

work on the project and promote their wood products. The principal structural engineering firm coordinated this massive collaboration and made the most of a wide variety of available materials by designing a constructive system using all the supplied products. The work was achieved by a team of volunteers, and the structural engineer was on site daily to help the team understand the structural features and ensure the quality and safety of the project.

To simplify the structure so that it could be built easily, the number of ground support points (piles) was reduced as much as possible depending on the beams and assemblies, thereby leaving the internal space open. The structure's peak, consisting of a radial truss, takes advantage of the height available under the top. Assemblies undergoing higher stresses were locally reinforced by the addition of elements made from standard, available and fi ld-adjustable products such as plywood. The resulting structure, starting from a regular and symmetrical plane, is modulated by edges with variable profiles to generate a more complex form, evoking the irregular contours of a mountain.

CLIENT
Goethe Institut
Montreal, QC

ARCHITECT
ConstructLab
Berlin, Germany

STRUCTURAL ENGINEER
Latéral
Montreal, QC

PHOTOGRAPHY
Maryse Boyce
Montreal, QC
Ashutosh K Gupta
Montreal, QC
Latéral
Montreal, QC

The demanding climate of Quebec's Far North informed every aspect of this First Nations health care facility

Naskapi Community Health Care Center

Located where Canada's boreal forest gradually gives way to the tundra, near the border between Quebec and Labrador, sits the Naskapi Nation of Kawawachikamach's new Community Health Care Center.

Built on a single story, four distinct wings – each containing space for emergency services, dentistry, social module re-adaptation services, and other support and administrative services – unfold around a central volume that houses the reception area. The asymmetrical unfolding of the wings around the middle axis creates maximal natural lighting with many windows and opens up the building to the surrounding landscape.

The rigorous climate of Quebec's Far North informed the project from the start, with the building nested on the site like a dark mass of rock eroded by the northern winds. Its envelope is modulated to minimize the eff cts of prevailing winds and to redirect snow accumulation, with sheltered alcoves providing comfort for staff and patients throughout the year. The striking roof is defined by its geometrical complexity, composed of wood roof trusses with a diversity of slopes of up to 45 degrees and a height of up to 7.3 m., supported by a system of glulam beams and columns. The glulam elements are supported by many columns, allowing a maximum span of 4 m., which makes the sections relatively light and easy to manipulate. The roof trusses, with a maximum length of 13 m., are placed every 600 mm; however, certain sections are spaced closer together to support possible snow accumulations. To facilitate transport, the longest trusses were cut in half and then reassembled on site after a trip of more than 600 mi. from the factories in southern Quebec to the site in Kawawachikamach, about 10 mi. northeast of Scheffe ville.

The prefabricated, lightweight wood framework was a natural choice for the design team, as the humid ground conditions aren't favorable for a heavy building. As well, it proved to be the

most economical, efficient solution for construction, supply and transport, and enabled the quickest assembly time, which is a critical element in a context where, at this latitude, the ground is fully thawed only three to four months a year.

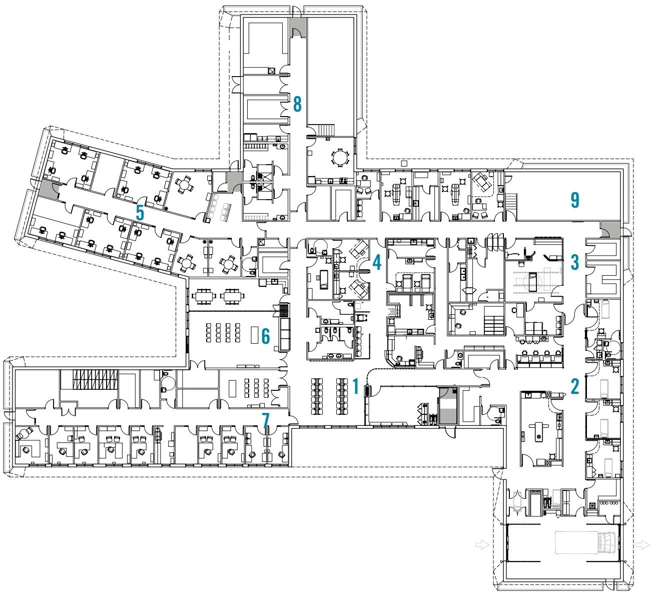
CLIENT
Société québécoise des infrastructures
Quebec City, QC

ARCHITECTS
STGM
Quebec City, QC
Éric Lirette Architecte
Baie-Comeau, QC

STRUCTURAL ENGINEER
Groupe-conseil TDA
Baie-Comeau, QC

GENERAL CONTRACTOR
EBC
L'Ancienne-Lorette, QC

PHOTOGRAPHY
Alexandre Guérin
Quebec City, QC



1. reception
2. emergency
3. radiology
4. dentistry
5. social module
6. multipurpose room
7. administration
8. services
9. mechanics

FLOOR PLAN

U.S. WoodWorks Wood Design Awards

U.S. WoodWorks Wood Design Awards

Each year, the Wood Design Awards offer an opportunity to reflect on the state of wood building design in the U.S. – to identify trends and consider what notable changes, if any, have occurred in the last 12 months.

For example, there has been a great deal of discussion about the potential for tall wood buildings and advanced wood systems and technologies – potential that is very much reflected in the U.S. award-winning projects. Our independent jury chose to recognize what is currently the tallest wood building in the U.S. (though likely not for long) as well as several other buildings that utilize wood in innovative ways.

However, the awards are a chance to celebrate quality and creativity at many scales; not only to acknowledge the use of new and innovative systems, but to recognize building designers across the country who express wood structure in elegant ways. To that end, it was equally exciting to see designers of light wood-frame, heavy timber and hybrid projects honored for their achievements.

As always, I extend my sincere thanks to the individuals who brought all of these projects to life, whose pursuit of excellence continues to expand the possibilities for wood buildings.

Jennifer Cover, PE
President and CEO
U.S. WoodWorks

Jurors

PATRICIA CENTENO, AIA, LEED AP
Associate Principal
BAR ARCHITECTS
www.bararch.com

MICHAEL E. HICKOK, FAI
Founding Senior Principal
HICKOK COLE ARCHITECTS
www.hickokcole.com

RAY KIMSEY, AIA, LEED AP
President
NILES BOLTON ASSOCIATES
www.nilesbolton.com

TANYA LUTHI, PE
Senior Associate
FAST + EPP
www.fastepp.com

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WESTERN RED CEDAR LUMBER ASSOCIATION REALCEDAR WRCLA www.wrcla.org

UNITED STATES

Multi-Family Wood Design

Using wood can spur technological innovation and support the evolution of building codes – you can (carbon) bank on it

Carbon12

At the time it was built, Portland's eight-story Carbon12 was the tallest wood-frame building in the United States. The condominium complex houses two retail units on the ground floor and 14 residential units above – each with a large balcony and direct access from the elevator and two stairwells. The building features exposed timber throughout, including glulam columns and beams, and CLT ceilings. It also has a solar-ready roof and state-of-the-art mechanical underground parking system.

The wood in the building acts as a significant carbon bank, continuing to store carbon that the trees absorbed during their growth. The trees were sustainably harvested to protect other natural assets such as rivers and animal habitats, and the site was replanted to once again begin the cycle of carbon absorption.

Along with the inherent environmental benefits of wood, Carbon12 is equipped to be resilient in an earthquake or other natural disaster thanks to its buckling-restrained brace-frame core. The CLT acts as a horizontal diaphragm, pulling lateral forces back to the core, and the glulam beams and columns provide gravity support.

Because large wood members char at a predicable rate in a fire, thereby protecting the integrity of the structural elements, the wood itself offers fire protection for the structure as well as the wood-to-wood connections. The project was rigorously reviewed by the Oregon Building Codes Division and the City of Portland Bureau of Development Services to ensure that the building is at least as safe as new buildings made from other materials in all aspects. Through this process, Carbon12 set an example that supported changes to the 2021 International Building Code that will allow tall wood buildings across the U.S.

To maintain the exposed wood on the ceilings without the precedent of tested assemblies, the design team engineered an acoustic assembly to meet or exceed Sound Transmission Class (STC) and Impact Insulation Class (IIC) ratings of 60. The assembly isolates the floor from the structure of the building to avoid vibration and sound transference from one unit to the next. By addressing the acoustics on top of the CLT, the structural material can act as the finished surface.

Together, these measures add up to a modern building that significantly elevates environmental standards for the building industry, as well as for its occupants.

ARCHITECT
Path Architecture Inc.
Portland, OR

STRUCTURAL ENGINEER
Munzing Structural Engineering
Portland, OR

GENERAL CONTRACTOR
Kaiser Group Inc.
Portland, OR

PHOTOGRAPHY
Andrew Pogue
Seattle, WA

Commercial Wood Design – Mid-Rise

A modern interpretation of early 20th-century timber-frame construction anchors a neighborhood while celebrating traditional industrial architecture

ICE Block 1


west elm

Many development projects are stalled by unforeseen obstacles. In this case, a three-alarm fire destroyed a former ice company warehouse that was slated for restoration. In its place, the developer wanted to honor the original structure's ambiance and history, while creating a modern hub that would enrich the neighborhood, a thriving arts and entertainment district. Construction began in mid-2016 and, two years later, Ice Block 1 welcomed its first occupants. Referred to as "a bustling village within a city" by local media, this timber-frame mid-rise building is the first of its kind in Northern California.

The four-story, mixed-use office/retail building in the heart of Midtown Sacramento consists of a concrete podium topped with three stories of mass timber framing on a 20 x 24-ft. grid, bolted together with raw steel connectors; the timber frame is articulated on the exterior with a grid of steel channels bolted to the facade that translate the interior beams and columns to the building face. A clear glass envelope integrates the building with its environment, allowing passersby to view the interior features and occupants to enjoy the urban setting. Solid wall surfaces clad with galvanized corrugated siding act as bookends for the glass.

Inside, the glulam beams and purlins are left exposed, with Douglas fir decking. The third and fourth levels

are constructed of concrete topping slab, acoustic mat and plywood sheathing over exposed tongue-and-groove Douglas fir planks. The designers cantilevered the glulam beams off the tops of the glulam columns, creating an offset connection and allowing the beam deflection to counteract gravity loads. This allowed for shallower beam depths and resulted in a stronger bay frame, giving the upper floors a brighter, open aesthetic.

The building is expansive, with east and west wings connected on the upper levels, while the main level accommodates inviting outdoor terraces; in total, it includes 131,980 sq.ft. of office and retail space, along with 41,030 sq.ft. of below-grade parking and a 14,450-sq.ft. elevated outdoor deck with multiple access points – both stairs and ramps – to welcome pedestrians and cyclists.

In a nod to the area's industrial heritage, the exterior design features large structural steel braces and reflective aluminum fins and panels layered onto the facade grid, while outdoor podium spaces are shaded with traditional corrugated steel canopies suspended from the walls by exposed steel rod brackets.

A mix of restaurants and retail/ commercial occupants, including West Elm and a craft brewery, means this popular destination is enjoyed by hundreds of people on a daily basis. As the architect intended, Ice Block 1 celebrates wood in the simplicity of its design.

CLIENT
Heller Pacific
Sacramento, CA

ARCHITECT
RMW architecture & interiors
Sacramento, CA

STRUCTURAL ENGINEER
Buehler Engineering
Sacramento, CA

GENERAL CONTRACTOR
Ascent Builders
Sacramento, CA

PHOTOGRAPHY
Bernard André
Woodside, CA

Tyler Gahagan
Sacramento, CA

Chad Davies
Redondo Beach, CA

Commercial Wood Design – Low-Rise

A maritime museum looks to the sea for a bounty of design inspiration

Thompson Exhibition Building at the Mystic Seaport Museum

For Mystic Seaport Museum's new Thompson Exhibition Building, the design team was asked to create a building that would embody the institution's identity as the "Museum of America and the Sea." To that end, the team used curving glulam wood ribs to imply a sailing ship's top timbers, which are the members that delineate a hull's shape. Wood purlins span between the ribs to suggest the planking that forms a hull's skin. Douglas fir, sourced in Canada close to the fabricator and shipped to Connecticut, was used for the glulam structural members; Douglas fir was the species preferred by New England shipbuilders after the U.S. Civil War.

The laminated members received no staining, just two coats of water-based polyurethane sealer. Horizontal boards on the exterior are red cedar, protected with two coats of Brazilian rosewood oil penetrating finish, and held off of the enclosure as a rain screen. The interior finish is Douglas fir plywood,

which serves as the roof sheathing. The building's construction type required no demonstrated fire-resistance rating of structural members; however, the glulam offers an enhanced level of fire resistance because large wood members char at a predictable rate in a fire, insulating the remaining wood cross-section and allowing it to retain structural capacity. The members and sheathing remain visible in this project as an interior wood expression.

Wood columns and struts support a long porch along the north edge of a new quadrangle, creating the effect of a sailing vessel's masts and spars. Railing cables and turnbuckles are used around the deck to conjure a ship's rigging. At large windows at either end of the building, the team channeled the richly detailed cut-away drawings of ocean liners.

Not wishing to overlook the more natural wonders of the ocean, the building's overall form also recalls natural phenomena, like a wind-driven wave crashing onto the shore. On its interior, the design team curled the structural ribs at either end inward, all the way down to the floor, suggesting the spiraling vertebrae of marine creatures.

The building also incorporates many sustainable elements, notable among them a geothermal heating and cooling system consisting of 20 wells drilled 465 ft. deep. The wells are incorporated into the museum's climate control system with full redundancy.

Overall, the building stands for what its designers came to regard as the "geometry of the sea:" the spiral shape of sea life, movement of ocean swells, crash of waves on the shore, billow of sails and faring of wooden hulls. Wood was found to be the ideal material for these purposes, because it can economically enclose a large clear-span space while forming complex, organic geometries.

CLIENT
Mystic Seaport Museum
Mystic, CT

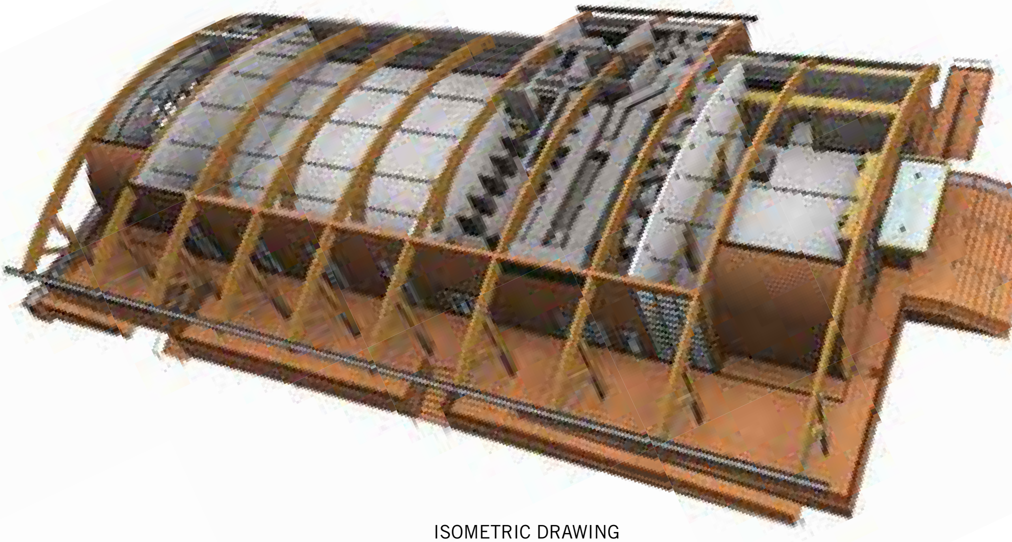
ARCHITECT
Centerbrook Architects and Planners
Centerbrook, CT

STRUCTURAL ENGINEER
DeStefano & Chamberlain
Fairfield, CT

GENERAL CONTRACTOR
A/Z Corporation
North Stonington, CT

PHOTOGRAPHY
Jeff Goldberg – Esto
Mamaroneck, NY

Derek Hayn
Centerbrook, CT



ISOMETRIC DRAWING

Wood in Government Buildings

This civic building strives to be a good neighbor in a landscape of human-scaled spaces

Del Mar Civic Center

As the seat of government for a small coastal California city, the Del Mar Civic Center is constructed with wood to fit within the context of a laid-back beach town known for intimately scaled Craftsman wood architecture. The warmth of the expressed wood structure creates a welcoming, comfortable interior for the city's main civic gathering space, which includes both a Town Hall and government offices. Located directly adjacent to a neighborhood of single-family homes, the wood is congruent with the expressive wood construction of the residential architecture, while providing a strong civic presence. The 1.5-acre property is also adjacent to Camino Del Mar, the town's main thoroughfare.

The Civic Center functions as a series of interconnected structures, courtyards, terraces and open spaces that follow the contours of the site while preserving spectacular views of the Pacific Ocean. In addition to the 3,000-sq.ft. Town Hall, the complex includes a 9,000-sq.ft. City Hall and 20,000-sq.ft. Town Commons, as well as parking for 140 vehicles, most of which is discreetly tucked below ground. Most of the site is dedicated to an open public space with planted gardens, courtyards and an area for the community farmer's market.

City Hall is composed of two primary spaces (city council chambers and administrative offices) that are connected by an enclosed breezeway. To accommodate large group meetings, the breezeway is fitted with speakers and an accordion-like glass wall that can be opened to merge the two spaces. Council chamber seating and the custom-built dais are mobile to allow for special events.

Decades in the making, the Del Mar Civic Center is, at its core, an expression of place and civic commitment. With its emphasis on indoor and outdoor public gathering spaces, the modest yet considered complex strives to be a good neighbor in this landscape of human-scaled spaces and well-loved nature.

The Civic Center's design is derived from its local context: residential in scale and built using warm, natural materials, such as wood and colored concrete inspired by the sandstone bluffs below. Spaces flow into each other, as well as from inside to outside, like a set of family beachside cottages. The landscape showcases native and drought-tolerant plants, including Torrey pines that have defined the area for generations. Careful placement of new pines – a species noted for its significant loss of needles and cones – will minimize maintenance and ensure their long-term care and survival.

The Town Hall, a community meeting space, is symbolically pulled to the edge of the site to reinforce the public nature of the complex. Low-slung in stature, the interior is open and features exposed wood beams that take their inspiration from the needles and branches of the Torrey pine. A cupola tops the space and, paired with operable clerestory windows, provides natural ventilation. The wood cupola forms a glowing beacon marking the gateway to Del Mar.

The area's mild climate means the complex essentially functions off the grid; it was designed for net-zero operations. Passive ventilation provides cooling (windows are programmed to open when appropriate), site water is captured for reuse and a rooftop solar array with battery system meets approximately 75 percent of the center's electrical demand.

CLIENT

City of Del Mar
Del Mar, CA

ARCHITECT

The Miller Hull Partnership
San Diego, CA

STRUCTURAL ENGINEER

Hope-Amundson | Coffman Engineers
San Diego, CA

GENERAL CONTRACTORS

RA Burch Construction
Ramona, CA

EC Constructors
Lakeside, CA

PHOTOGRAPHY

Chipper Hatter
Oceanside, CA

Colton Tisch
Solana Beach, CA

Nearly two million books and works of art are stored in style

Library Annex, University of Arkansas

Located in an industrial area, the University of Arkansas Library Annex is one of the first structures in a new district for the relocation and expansion of the university's art and architecture schools; a contemporary architectural style was desired in anticipation of these future developments. To meet this preference, the rectangular volumes are simply massed, and cladding is applied in a clean, straightforward manner.

Housing nearly two million books and works of art, the Library Annex uses state-of-the-art warehouse equipment, shelving and technologies to store material in a compact, efficient manner; this allows for speedy retrieval and re-entry when students use materials. The lower-height work areas are stretched along the front of the larger, book-box volume. The building also includes a break room and work areas where library materials are quarantined, preserved, repaired and digitized.

CLT was used for the roof, walls and floors of the 27,000-sq.ft. structure, which also includes glulam beams, columns and moment frames. Prefabrication of the CLT and glulam system helped speed construction and minimized job site waste, resulting in a cost-competitive replacement for the traditional steel and tilt-up concrete structure initially suggested by the client. Inside, the wood is left exposed, warming and brightening the space to create a comfortable work environment.

As wood isn't the first structural material that comes to mind when building a warehouse in which to store valuable flammable material, the design team originally explored typical steel, concrete and masonry structural systems. When the benefits of a glulam and CLT structure began to be understood, however, it was easy to generate support for an all-wood structure – although no one involved with the project had previous experience with this structure type. One of the first benefits was that it helped keep the project in budget and still provided some level of resistance to the wind-blown debris generated by tornadoes. Another benefit is the higher level of fire resistance a mass timber structure provides over a comparable, unprotected exposed steel frame.

Since the area is prone to tornadoes, the team opted to clad the larger, high-density storage volume with a stone-filled gabion basket base wall to protect against low-flying projectiles, and a heavily charred wood upper shroud that can be easily repaired or replaced, while providing a fire- and insect-resistant facade.

All CLT wall and ceiling panels and glulam beams and columns are unfinished and exposed, with the exception of a 10-ft.-wide horizontal mechanical chase. Similarly, an exposed wood roof deck eliminated the need for lay-in ceilings in the processing and work areas, allowing for 15-ft. ceilings. With these and other design decisions, what could have been an ordinary warehouse storage facility is instead an attractive addition to the university's campus.

CLIENT
University of Arkansas
Fayetteville, AR

ARCHITECTS
Miller Boskus Lack Architects
Fayetteville, AR

Perry Dean Rogers &
Partners Architects
Boston, MA

STRUCTURAL ENGINEER
Robbins Engineering
Little Rock, AR

GENERAL CONTRACTOR
Con-Real
Arlington, TX

PHOTOGRAPHY
Chuck Choi
Arlington, MA

Institutional Wood Design

A modern dining facility uses wood and natural light to create a space that's both spacious and cozy

Canyon Commons, George Fox University

Overlooking Hess Creek, a local area known for its flora and peaceful walking trails, George Fox University's Canyon Commons celebrates both the site and the school's values. The dining hall's location near the center of the campus, across a natural ravine, anchors a recent expansion to the east. By concentrating glass

on the building's west side, Canyon Commons connects with the natural features of the ravine. The structure was positioned to take advantage of views while minimizing site disruption, including tree removal.

A welcoming terrace with a deep, sheltering overhang forms the entrance at the south and – together with the east terminus of a new timber bridge spanning the ravine – connects Canyon Commons to the heart of the campus. The entrance gives access to a café with a large, welcoming fireplace. Connection to the main dining room passes by three flexible, multipurpose rooms that can be combined into one large space for campus functions.

The corridor providing circulation throughout the building is a tall, narrow space bathed in light by a series of skylights set randomly askew relative to the structure and walls. The whimsical placement of the standard, off-the-shelf skylights creates a rich pattern of reflections on the central demising wall that changes throughout the day and season. Each illumination has a unique impact on the experience of the place; this was inspired by discussions with the client about the value of the individual within the George Fox community and the world at large. This theme carries through the length of the building and is apparent even from the outside, looking across the ravine to the dining room.

Within the dining room, multi-purpose rooms and café, the long-span glulam structure and floor-to-deck fiberglass windows provide a strong connection to nature with direct views to the wooded ravine, while bringing the natural wood material into the space. The efficient use of skylights in the central corridor brings daylight to the farthest reaches, balancing light from the west-facing windows with reflected light on the east wall.

Glulam beams are the most prominent element in the dining spaces, allowing the other materials

(wood joists, unpainted plywood sheathing, surface-applied acoustical panels) to quietly do their job as the ceiling. A polished concrete floor unites the space. Walls in the central circulation are painted white to reflect light, with movable acoustical walls between the dining room and multipurpose rooms allowing for greater flexibility of room size.

The wood structure, constructed with glulam beams and posts, alludes to the trees of the ravine, contributing to the humane and warm interior while reducing impact on the environment. Views of the ravine are enhanced by high ceilings and glass that extends between the beams to the underside of the roof deck.

CLIENT
George Fox University
Newberg, OR

ARCHITECT
Hacker
Portland, OR

STRUCTURAL ENGINEER
KPFF
Portland, OR

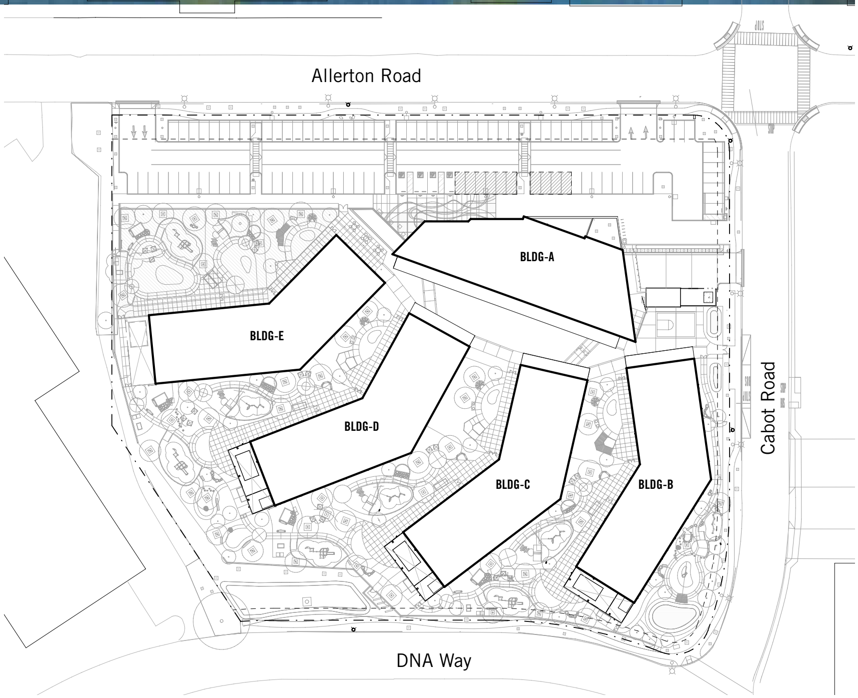
GENERAL CONTRACTOR
Andersen Construction
Portland, OR

TIMBER SUPPLIER
Wood Tech Services
Eugene, OR

PHOTOGRAPHY
Jeremy Bittermann
Portland, OR

A commitment to health and sustainability drove the decision to use wood

Genentech Child Care Center



Allerton Road
BLDG-A
BLDG-E
BLDG-D
BLDG-C
BLDG-B
Cabot Road
DNA Way

SITE PLAN

A delightful space in which kids and teachers can thrive, the Genentech Child Care Center is built from simple, natural materials. Products were selected and screened according to Perkins and Will's Precautionary List, to prioritize materials that reduce exposure to harmful substances. Exposed wood, washed with natural light, lends a soft, biophilic quality to the space to nurture healthy, happy generations to come.

In addition to the four classroom buildings – elongated, finger-like forms that run north-south to maximize daylight in each classroom space – the Child Care Center includes a main administration building, art lab, science lab, commercial kitchen, outdoor learning environments and multipurpose rooms.

The project was designed to encourage wellness, promote environmental sustainability and provide a beautiful space where children can learn and grow. The newest green building on the Genentech campus, it operates as a net-zero energy and net-zero carbon complex, and is the biotech company's first building to be LEED Platinum certified. The use of mass timber represented a 25 percent savings in embodied carbon compared to a steel structure and contributed to a higher-performing envelope. Genentech also realized a $120,000 material cost savings by using wood instead of structural steel.

Roof structures for the one-story buildings include exposed glulam beams and CLT panels, eliminating the need to introduce potentially unhealthy interior finishes, while contributing to a warm, natural space. Glulam columns, left exposed within light wood-frame walls, create an area where children can touch and experience the natural wood at their level. Most of the mass timber joints were designed as concealed connections, providing improved fire resistance and leaving a streamlined aesthetic. According to the design team, the project is 57,140-sq.ft. Type VB construction.

The decision to build this campus using wood reinforced Genentech's commitment to performance, innovation, environmental sustainability and well-being, and supported the company's belief that a healthy future begins in its own backyard.

ARCHITECT
Perkins and Will,
in collaboration with Genentech
San Francisco, CA

STRUCTURAL ENGINEER
Rutherford + Chekene
San Francisco, CA

GENERAL CONTRACTOR
Rudolph and Sletten
San Carlos, CA

TIMBER SUPPLIER
Structurlam Mass Timber Corp.
Penticton, BC

A bright new spot in Detroit's dining scene beckons visitors to the heart of Motor City

Lumen at Beacon Park

Situated along Grand River Avenue, Lumen at Beacon Park welcomes visitors into the center of downtown Detroit. This urban revitalization project and new public space was created to anchor the emerging neighborhood, spur economic development and provide a community gathering place in the vibrant downtown district. The structure's modern geometry is defined by strong, cantilevered roof forms pointing toward the historic Grand Army of the Republic (G.A.R.) Building and the park's elliptical lawn. A central grand staircase leads to a roof deck on axis with the historic Book Tower Building. Connections to the park landscape are further created with a green roof and folding glass walls, providing a flexible indoor/outdoor floor plan that supports restaurant seating, a farmer's market, musical performances and a community meeting room.

Initial site placement carefully considered the urban adjacencies and access to continue a seamless fabric along Grand River Avenue, while providing a new presence on a once vacant lot. To attract the general public, a wood-clad roof cantilever dramatically reaches over the park space. To further integrate the new structure into the site, the building provides high levels of transparency, with folding glass walls along the primary facades that promote an active relationship between the restaurant, park and public. A roof deck also provides additional gathering space with a unique vantage point of the cityscape and park.

In addition to its urban relationships, the intent for flexible indoor/outdoor spaces also was driven by the client's desire for adaptable spaces that could support a wide variety of building and park programming. To achieve this, the design team drew inspiration from Detroit's automotive legacy, specifically the mid-century Ford Mustang. The efficiency, compactness and beauty of this vehicle was highly relatable to the design challenges faced with a flexible space needing complex structural, mechanical and programming coordination.

When investigating the primary material choices for this flexible building space, the design team explored materials that suited both interior and exterior applications and were environmentally considerate and cost-effective – while also providing an inviting building that is highly visible from surrounding areas. Wood was a clear option for these factors. Sapele mahogany was chosen as it was affordable, sustainable and easily manipulated for a variety of applications as an exterior wall and soffit cladding, interior wall paneling, mechanical louvers and interior louver ceiling system.

All sapele mahogany used in the project was FSC Chain of Custody certified. The chosen wood applications help to reduce energy used in manufacturing, finishing and the materials life cycle. All custom louvers and boards were hand fabricated, finished and sealed by local craftsmen, and the rough carpentry, sheathing and finish carpentry was locally milled within 8 mi. of the project site.

CLIENT
DTE Energy
Detroit, MI

ARCHITECT
Touloukian Touloukian Inc.
Boston, MA

STRUCTURAL ENGINEER
Studio NYL
Boulder, CO

GENERAL CONTRACTOR
Tooles Contracting Group LLC
Detroit, MI

Roncelli Inc.
Sterling Heights, MI

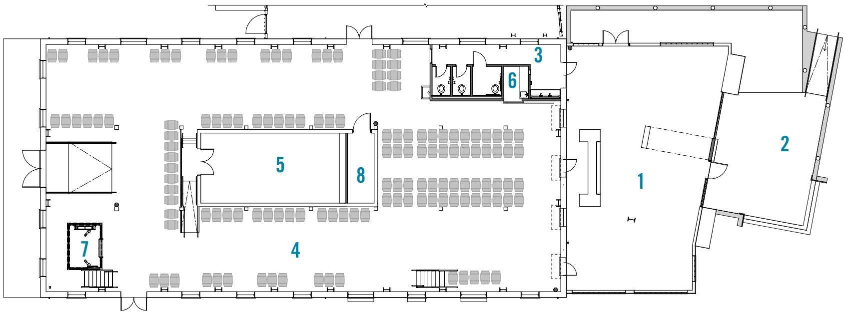
TIMBER SUPPLIER
General Hardwood Co.
Detroit, MI

PHOTOGRAPHY
Anton Grassl
Boston, MA
Jason Keen
Detroit, MI

Durable and Adaptable Wood Structures

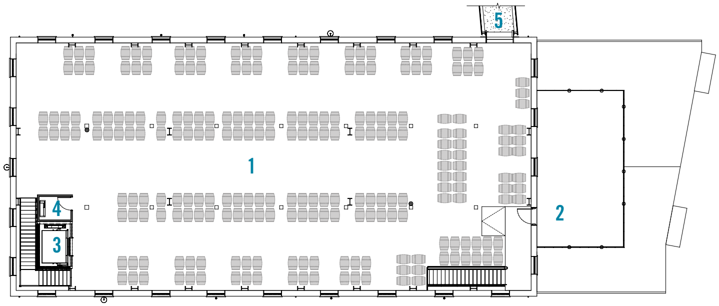
Nothing was thrown away in this project to reinvigorate a historic naval structure that has stood the test of time

Savage & Cooke Distillery – Mare Island Building 45



1. tasting room
2. deck
3. restroom
4. barrel gallery
5. VIP tasting room
6. restroom
7. elevator
8. electrical room

FIRST FLOOR PLAN



1. barrel gallery
2. roof deck
3. elevator
4. elevator control room
5. bridge

SECOND FLOOR PLAN

This historic naval structure was renovated and retrofitted to house a whiskey barrel storage facility with two tasting rooms. Savage & Cooke's Building 45 was constructed in 1864 on Mare Island in Vallejo, California, as a school for apprentices when the Navy was establishing its first West Coast base on the island. The structure has proved to be durable, surviving a fire in 1923 (which required the roof to be rebuilt) and multiple earthquakes. The existing building preserves the historic construction of its time, with heavy timber girders that are continuous across the entire 56 ft. of the building, and wood joists of such high quality that there are no knots.

A unique feature about this adaptive reuse project is the extent to which the existing wood framing was both preserved and exposed in homage to the beauty and durability of the original materials. All framing is Douglas fir timber and is rough-sawn, maintaining its full framing depth and width. Painted in its prior life, the framing at both floors was sandblasted (and abated) to expose the beauty of the historic wood for the revitalized use.

The main structure is an existing two-story, unreinforced brick masonry–bearing wall building with a wood roof and second floor supported by a grid of interior wood posts. Most of the main building is used for barrel storage and event space. A single-story concrete addition at the front of the structure has a wood-framed roof and serves as the main tasting room. An interior concrete vault in the center of the main structure has been turned into a VIP tasting room. An elevated bridge attaches the building to a similar structure that contains a production facility and offices.

The building is located at a high-seismic site in California, so the focus of the structural renovation was on the seismic design. Internal steel framing and a secondary gravity system along the perimeter of the unreinforced brick masonry bearing walls were added to improve lateral-force resistance. Steel was chosen as the least invasive material to seismically strengthen the structure instead of additional concrete or masonry walls, which would have obstructed more of the existing wood and brick.

The design team used creative methods to preserve the historic structure, working with the city to meet required fire ratings and proof-loading the existing wood framing to determine its capacity to support the weight of the whiskey barrels. This proof-loading verification, in addition to two added layers of floor sheathing (plywood and tongue-and-groove), allowed the existing timber girders to be strengthened with steel framing on one side only, leaving more of the wood exposed.

Supplemental wood framing was sourced from other parts of the project where wood was removed; nothing was thrown away. Throughout construction, a stockpile of wood for the structure was carefully organized by size and type. The contractor found that matching the historic wood was challenging, so sourcing it from around the island was the best approach. All electrical wiring in the structure was carefully hidden with wood blockouts stained to match the vintage wood. In the finished building, the whiskey barrels fill the floor space and help celebrate the surrounding structure, providing a revitalized space for events and tasting for many years to come.

CLIENT
Savage & Cooke
Vallejo, CA

ARCHITECT
RIM Architects
San Francisco, CA

STRUCTURAL ENGINEER
ZFA Structural Engineers
San Francisco, CA

GENERAL CONTRACTOR
Terra Nova Industries
Walnut Creek, CA

TIMBER SUPPLIER
Foster Lumber
Fairfield, CA

PHOTOGRAPHY
ZFA Structural Engineers
San Francisco, CA

Regional Excellence

Forget drab waiting rooms and bare white walls – the beauty of this dental office is enough to make anyone smile

Blue Ridge Orthodontics

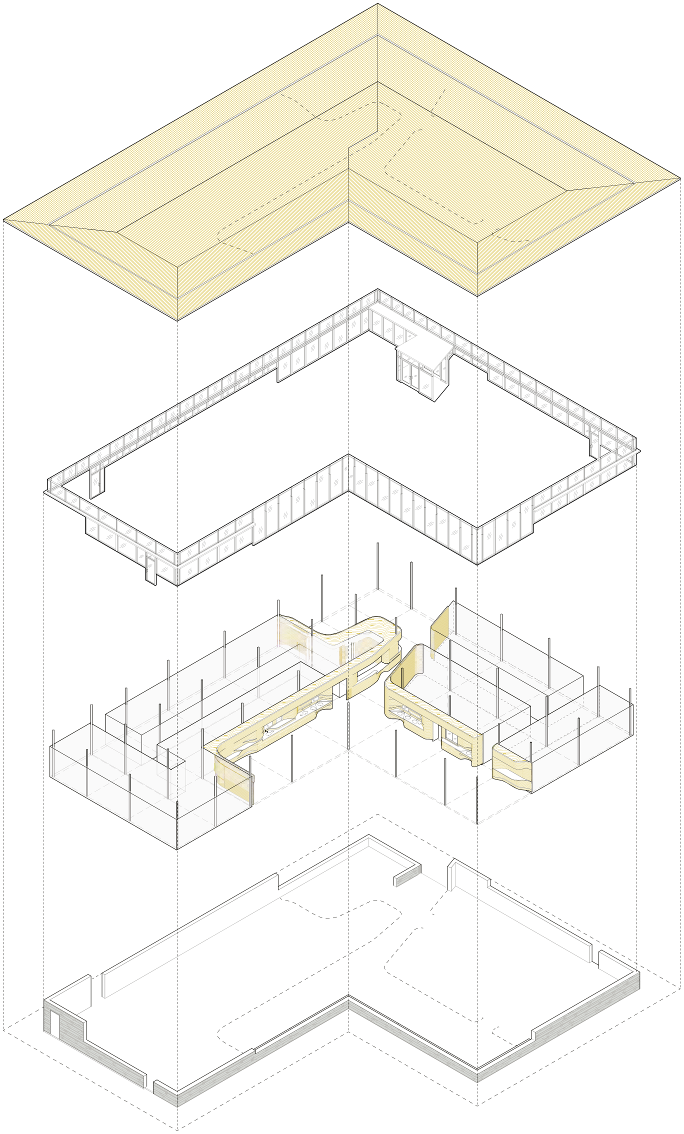
Blue Ridge Orthodontics envisioned a new, signature office space that would create a spa-like experience. To accomplish this goal, the design builds on the tension between the commercial street development and natural potential of the site. Restrained exterior geometry frames an interior that provides a fluid transition to an unexpected, natural feature beyond the building: a lush, verdant garden, sheltered in its lee.

Two conceptual elements work together to facilitate this transition: a soaring roof and a layered, sculptural wall, both of which are expressed in wood. The roof, with deep overhangs clad in tongue-and-groove radiata pine, unifies the building by providing a steady presence over the central open spaces and a consistent edge along the perimeter, framing views to the exterior with its upturned wood soffit. The upward angle of the soffit allows light into the interior, with the transition through the glazing acting as a minimal threshold that articulates the roof geometry. In contrast to the angular roof and underlying grid of the building, the sculptural wall defines the central spaces with its flowing form, which programmatically separates the individual clinical rooms from the administrative wing.

Built on a 6-in. plinth, this 9-ft. wall is constructed of 136 layers of dimensionally stable, poplar plywood – the result of a complex, precise fabrication that required close coordination between architect and fabricator. The layers of the wall were CNC-cut using CAD templates provided by the architect and assembled into sections prior to on-site installation. The layering of the panels resulted in significant

variations in panel height, despite the superior quality of the plywood. To overcome the challenges presented by the dimensional variances, the architect relied on the craftsmanship and experience of the fabricator. The result of this successful cooperation is a singular, sculptural element that blends precision with the inherent imperfections of the natural material.

While expressive in form, the wall's interweaving curves respond to a pragmatic, rational organization, as they incorporate necessary functional elements into the undulating surface.



AXONOMETRIC DIAGRAM

This massive, sculptural element pulls the open spaces of the building through a compressive threshold between the entry and open treatment area, and ultimately directs focus to the garden beyond.

Wood was chosen as the dominant material to express the defining building components. For both elements (soffit and sculptural wall), the material offered natural, complementary textures and tones as well as the ability to be easily sculpted into the desired shapes. The resulting forms create a visual counterpoint between the natural imperfections of the wood and precise nature of their fabrication. The harmony of this relationship energizes the interior spaces, enabling Blue Ridge Orthodontics to provide its services in a memorable environment – turning an orthodontist appointment into an unexpected retreat from the rhythm of daily life.

CLIENT
Blue Ridge Orthodontics
Asheville, NC

ARCHITECT
Clark Nexsen
Asheville, NC

STRUCTURAL ENGINEER
Kloesel Engineering
Asheville, NC

GENERAL CONTRACTOR
Beverly-Grant Inc.
Asheville, NC

PHOTOGRAPHY
Mark Herboth
Raleigh, NC

Regional Excellence

Reduced labor costs were among the many benefits of this mass timber project

Lark Hotel Addition


THE LARK

The recently completed, four-story expansion of the Lark Hotel added 29 guest rooms, a new lobby and a full-service coffee and espresso bar to the existing hotel in downtown Bozeman, Montana. The folded facade of the addition exposes the wood structural system, showcasing the inherent beauty of wood complemented by contemporary lighting and brightly colored furniture. A large-format, accordion-door system accentuates indoor/outdoor relations, inviting guests and residents off Main Street and into the coffee shop.

The floor assembly is composed of 5.5-in. CLT panels coupled with a 5-in. assembly of lightweight concrete, sound mat, plywood and hardwood-finished floor. The layered assembly allows for the warmth and beauty of exposed wood throughout the hotel rooms, hallways, stairways and lobby, while providing a field-verified IIC rating of 52.

Exposed mass timber diaphragms and lightweight wood shear walls provide lateral resistance. A roof system utilizing CLT and upturned beams maintains shallow rooflines, with long spans displaying the robust nature of wood.

Fire separations in the addition are provided with the exposed CLT assemblies. Metal fasteners are encapsulated at connection points within the mass timber beams. The charring properties of wood isolate fasteners

from exposure to the dangers of fire, reducing the number of required sprinkler heads and maintaining the visual appearance of uninterrupted wood construction.

Limited space for construction staging required an approach that could deliver an expedited schedule and limit disruption to the hotel's operations, without compromising the intended architectural expression. The prefabricated mass timber construction coupled with wood's

low thermal conductivity allowed the design team to provide a sustainable, energy-efficient building envelope in a fraction of the timeline typical of traditional construction techniques. Noise, contractor manpower and on-site storage for construction materials were greatly reduced, limiting interference to the operations and guest experience of the existing hotel.

In short, the Lark Hotel's addition displays the benefits of mass timber's structural capabilities, material expression and constructability, and is an excellent showcase for the benefits of incorporating wood technology into the pursuit of design excellence.

ARCHITECT
Thinktank Design Group
Bozeman, MT

STRUCTURAL ENGINEER
Nishkian Monks
Bozeman, MT

GENERAL CONTRACTOR
North Fork Builders
Bozeman, MT

TIMBER SUPPLIER
AHC-Derix Laminated Timber Solutions
Burnaby, BC

PHOTOGRAPHY
Dan Armstrong
Bozeman, MT

Regional Excellence

A building for the discussion of democratic ideals reflects the timelessness of its mission

Liberty Fund Corporate Headquarters

Founded in Indianapolis in 1960, Liberty Fund is a non-profit foundation dedicated to spreading the libertarian views of its founder, Pierre F. Goodrich, who wished "to encourage the study of the ideal of a society of free and responsible individuals." For its new headquarters, the foundation selected a wooded eight-acre site along US-31 in nearby Carmel, Indiana. The 61,000-sq.ft. building is meant to be its home for the next half-century; however, the design is intended to reflect the timelessness of the organization's mission.

The building's plan is articulated in an angled quadrangle around a central courtyard. Daylight and natural views permeate almost all areas, while wood defines and delineates the most important ones: the main entrance, the perimeter windows of the core and the structure holding the roof and books.

Custom-fabricated, tree-like columns made of engineered glulam are prominent inside the library and building entrance, helping to convey a sense of integration with nature throughout the building. The columns create an open clerestory that allows the roof to float above the library.

As the building's main focal point, the glass-clad research library is wrapped with 30 stainless steel sun screens, each one etched with names and events important to liberty in each century during the past 3,000 years. As the sun sets and the interior lighting takes over, the library's vast collection and innovative wood structures become increasingly prominent.

The beauty of the wood is not only its strength, but also its delicacy. Wood screens inside and outside the building filter light and views in a way reminiscent of walking through a forest. The wood creates spaces to inspire the contemplation of liberty with a beauty that's enhanced by the wood's contrast to stone. The design team specifically put wood as a marker at the main entrance because its beauty brings a sense of humanity to the protective stone walls around it.

The south wing, which focuses on the educational aspects of the mission, includes the Goodrich Room, a state-of-the-art Socratic discussion space. Acoustics in the space allow for comfortable discussion at a conversational level without amplification. Careful use of wood in the ceiling and on the walls assists in making this possible. Dining, exercise and employee break areas are also in this wing. The north wing of the building houses the Fellows and supports their investigation and publishing work.

Designed to LEED Silver standards, the building is a place for investigation and research in which human creativity and nature support each other. Materials and assemblies that reflect respect for the natural and intellectual legacy that were central to Goodrich's business and educational endeavors were implemented, including rain gardens, geothermal heating and cooling, LED lighting, reflective roofing, glazing and fenestration, insulation assemblies, locally sourced materials and native plants.

The Liberty Fund building is a rare opportunity in contemporary architecture: a structure intended to integrate ideas of permanence and timelessness while reflecting the ideals and legacy of great achievements in humanity.

CLIENT
Liberty Fund
Carmel, IN

ARCHITECT
Rowland Design
Indianapolis, IN

STRUCTURAL ENGINEER
CE Solutions
Carmel, IN

GENERAL CONTRACTOR
Shiel Sexton
Indianapolis, IN

TIMBER SUPPLIER
Glue-Lam Erectors Inc.
Trafalgar, IN

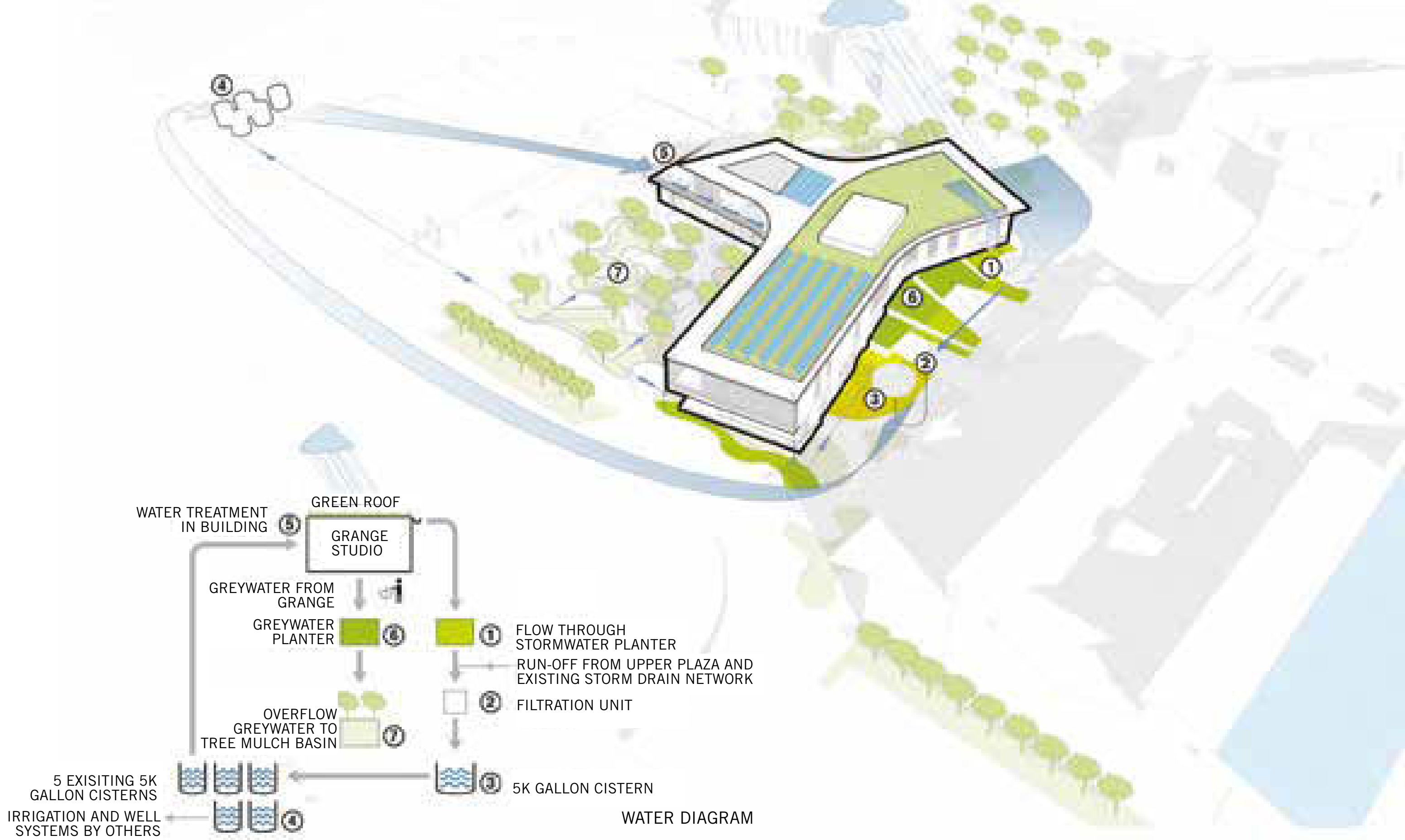
PHOTOGRAPHY
Daniel Showalter
Carmel, IN

1. vestibule
2. entry
3. corridor
4. courtyard
5. restrooms
6. staff break area
7. dining room
8. break out area
9. Goodrich room
10. kitchen
11. storage
12. package delivery/ pickup
13. mechanical
14. exercise room
15. conference room
16. copier room
17. reference library
18. archive
19. office
20. lounge
21. main stair
22. file room
23. electrical
24. outdoor utility

FLOOR PLAN

A holistic approach to building design reinforces this private high school's sense of place

Janet Durgin Guild & Commons, Sonoma Academy



WATER DIAGRAM

Drawing inspiration from the beauty of the surrounding area, the two-story, Y-shaped Janet Durgin Guild & Commons is organized around a series of outdoor experiences. The 19,500-sq.ft. building includes maker spaces, a cooking lab, kitchen and dining areas, gardens and indoor/outdoor classrooms for the Sonoma Academy high school. Staff and students wanted a facility that would preserve and enhance natural habitats, operate as a sustainable ecosystem and be in dialogue with its surroundings.

Dominated by a transparent, dynamic skin and sheathed with a lattice of sliding wood screens and deep wooden eaves, the building meshes nature and technology, invites movement and interaction and speaks to ecological value. Low-impact, healthy and natural materials were prioritized. Timber, steel, earth block, concrete and glass comprise the foundation, relaying simplicity, durability and transparency.

A soaring, CLT roof welcomes visitors. Expansive wooden soffits, visible from all access points, offer protection from the elements while defining transient spaces and areas for social interaction. The roofline stretches to the horizon, gently hugging the central courtyard and beckoning visitors to ask where the outdoors end and the indoors begin.

As if originating from the nearby Taylor Mountain Range, Western red cedar blankets the facade – a poetic interlude to the glass and steel structure. Sliding screens and mechanical sunshades made from salvaged Western red cedar filter sunlight and reduce demand for mechanical heating and cooling. Watershed block – an ecological replacement for traditional concrete block – and reclaimed wood from local houses and a tunnel in Oregon were used extensively for the building enclosure and dining space. Locally crafted ceramic tiles and wood tables are on display, demonstrating the school's commitment to regional talent and natural materials.

The interiors mirror the exterior, reflecting a simple, clean approach that plays with materiality, natural light and purity of line. Exposed elemental building materials double as the interior palette, and no view is compromised: 90 percent of regularly occupied spaces are naturally lit with panoramas synchronizing the interiors with the outdoors, providing unobstructed access to natural light, fresh air and bucolic vistas.

The lower level houses the Guild, an area comprised of STEM-inspired shops, art classrooms, technology rooms, media production studios, offices and meeting spaces. It nestles into the hillside and has a large elevation that acts as a retaining wall, holding back the earth and grounding the building into the landscape. On the upper level is the Commons, a teaching and commercial kitchen with dining center and outdoor learning spaces, complete with flower, herb and fruit tree gardens. Floor-to-ceiling, operable glass walls blur the lines between nature and the artificial.

By taking a holistic approach that supports environmental literacy and occupant wellness, with a light carbon footprint and low operating costs, the project has transformed the campus, creating a vibrant student and community center. The resultant design strengthens the strong sense of place apparent in the school and tells the story of the region's architecture, landscape, people, sustainability and everyday life.

CLIENT
Sonoma Academy
Santa Rosa, CA

ARCHITECT
WRNS Studio
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STRUCTURAL ENGINEER
Mar Structural Design
Berkeley, CA

GENERAL CONTRACTOR
XL Construction
San Francisco, CA

PHOTOGRAPHY
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Regional Excellence

Everyone involved in this train station renovation was on board with the benefits of wood

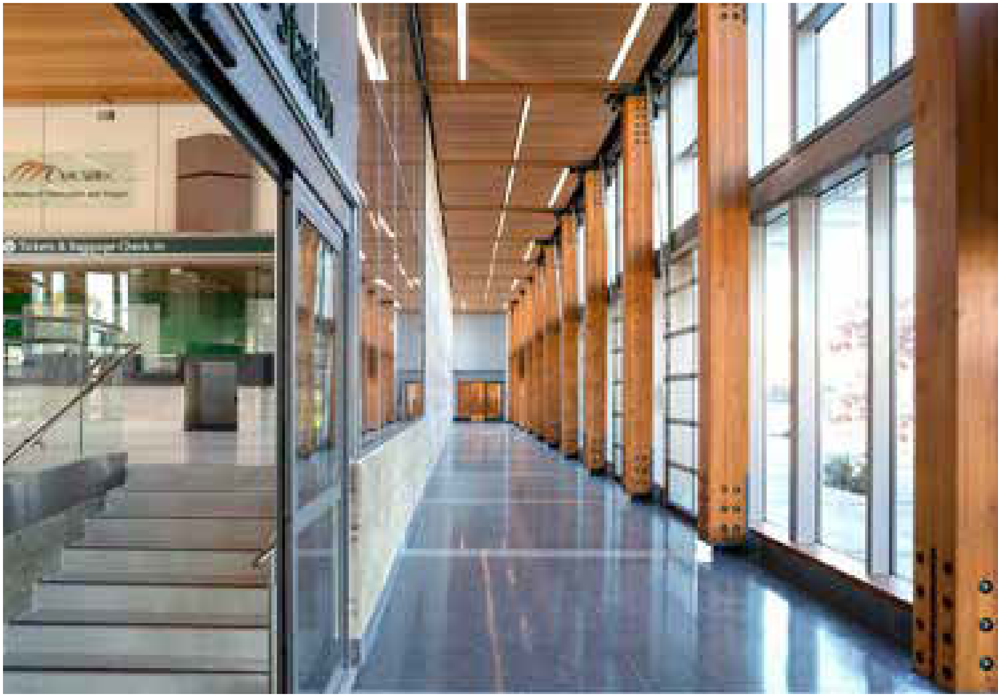
Amtrak Cascades Station at Freighthouse Square

The Amtrak Cascades Station is nestled in the historic 1909 Freighthouse Square complex, located on the Sound Transit–Tacoma Rail section of track in Tacoma, Washington. Most of the building sits on a raised plinth to elevate and align the public spaces with the platform level. The entrance, a street-level arcade located on the opposite side of the station from the platform, offers protection from the elements along the length of the building, while connecting to the public waiting and ticketing areas through a combination of stairs and ramps.

The station has two types of spaces: those that serve the public, including the waiting area, ticketing, washrooms, entry arcade and platform; and back-of-house functions of the ticketing office, which include offices, baggage handling, storage and staff facilities. The clients expressed a desire to visually connect the street level through the interior public space to the platform with walls of clear glazing, allowing the public to orient themselves easily through the facility.

To visually organize the building into a clear and concise order and rhythm, an evenly spaced series of glulam columns and beam frames form the superstructure. These columns are fully visible from the exterior, with the natural, organic warmth of the mass timber framing providing a calm and orderly appearance within the building.

Every effort was used to keep the wood structure exposed and visible to the public. CLT panels are used for the roof deck, which is supported



by glulam beams and columns. The fire-resistant properties of the large wood members offer an added level of safety that was welcomed by both the fire marshal and the client. Plywood over metal studs is used extensively to provide shear and full wall backing for items hung to the wall.

To meet the requirements of a high-seismic region, steel was used within the walls for lateral support. To achieve acoustical objectives, hemlock boards with acoustic insulation are used in public areas and the ticket booths, and walls feature acoustic panels made of Douglas fir framing with acoustic insulation covered by stretched fabric. CLT was also an energy-efficient choice, with the roof deck mass providing additional R-value and reducing the amount of roof insulation required.

CLIENT
Washington State Department of Transportation
Olympia, WA

ARCHITECT
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STRUCTURAL ENGINEER
WSP
Seattle, WA

GENERAL CONTRACTOR
Garco Construction
Tacoma, WA

TIMBER SUPPLIERS
Zip-O-Laminators
Eugene, OR

SmartLam
Columbia Falls, MT

PHOTOGRAPHY
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Seattle, WA


MO OSTIN BASKETBALL CENTER

Regional Excellence

Complex curves and simple innovations team up to make this sports facility a winning effort

Mo Ostin Basketball Center, UCLA

As the University of California, Los Angeles (UCLA) campus evolved, the need arose for additional resources to support its award-winning athletic programs. The Mo Ostin Basketball Center provides a pioneering wellness center and equitable support system for the men's and women's basketball teams, frees up previously overbooked athletic facilities and anchors an athletics precinct.

Two unique design elements resulted from extensive site studies: First, the team arrived at a Tetris-like site configuration that did not require constructing an upper-level practice court; although the client had expected a stacked configuration, fitting both courts on the ground floor proved to be a significant factor in cost control. Second, energy demand is minimized with the installation of mixed-mode conditioning in the courts and via north-facing skylights that ensure high levels of glare-free, indirect daylight. The weight room, which is raised over the main entrance and faces the sports plaza, also has glass skylights. These features have enabled the building to operate without artificial light or ventilation, which supports a carbon-neutral future.

In each basketball court, two natural ventilation intakes supply fresh air, and all ductwork is underground to keep the courts clean and clear. Each court also has its own air handler when mechanical conditioning is needed. This mixed-mode configuration allows for a drastic reduction in energy use throughout the school year.

The facility's use of wood reflects the wooden field houses and fundamental roots of basketball. Inspired by the sport's Midwestern origins, Kevin Daly Architects designed the facility to appear as a contemporary wooden shed. Its roof structure eschews glitz for modesty and strength, in line with the sensibility of UCLA's beloved basketball coach, John Wooden.

The design team knew that only wood could achieve the complex curves of the facility's skylights while keeping the project affordable. The material's flexibility facilitated the complex geometric arrangement of the roof. Glulam joists made of Douglas fir were cut and placed at slightly different angles to accommodate the sloping roof, forming the building's signature, undulating silhouette. In addition, wood's lightness enabled the roof to function as a wooden diaphragm, freeing the facility from relying on thick columns for support.

CLIENT
University of California, Los Angeles
Los Angeles, CA

ARCHITECT
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Los Angeles, CA

STRUCTURAL ENGINEER
Thornton Tomasetti
Los Angeles, CA

GENERAL CONTRACTOR
PCL
Los Angeles, CA

PHOTOGRAPHY
Eric Staudenmaier
Los Angeles, CA


ELEMENTARY

Regional Excellence

A school where the building itself is part of the learning experience

Wisner-Pilger Public Schools Addition

On June 24, 2014, two tornadoes ripped through the Nebraska town of Pilger, destroying Wisner-Pilger Elementary School. Studies considered the viability of rebuilding the 1909 structure, but the devastation was too great. After exploring a variety of options, school officials decided to move all grade levels (pre-K to 12) to one campus in the nearby town of Wisner.

The project design was driven by the unique pedagogy of the school district. A variety of spaces were created to be tactile, breaking down long corridors and creating connections to the outdoors. Natural birch plywood, custom metal wall panels and tackable, writable surfaces are used to evoke a creative, engaging learning environment.

The overall building, including a facility that already existed on the site, is organized to create synergies for both academics and activities. The elementary classrooms are arranged in interconnected pairs along a perimeter that surrounds resource spaces. This setup was carefully designed to follow the classroom cycles and breakout educational methods used by the educators. Different types of room environments were created to allow a range of open and closed spaces that cater to a variety of tasks. Interactive corridor walls incorporate math, geography, astronomy and languages into displays that help contextualize classroom activities.

The structure features exposed glulam to allow a firsthand investigation of how the building functions,

while also bringing the warmth of a natural material into the learning environment. The 8x8 columns and 39-in.-deep beams create an open, engaging atmosphere in the dynamic heart of the school.

Natural daylighting strategies bring ample brightness into the classrooms and resource spaces. An in-depth analysis of design options determined the optimal mix of diffuse skylights, clear windows and windows veiled with a perforated metal screen. The exterior shell of the building was evaluated to determine the appropriate amount of wall insulation and window ratios to optimize efficiency while also creating a stimulating environment. Several simulations were run to maximize daylighting while minimizing glare in the classrooms.

The classroom windows are arranged specifically to support the educational activities. High windows are kept away from the teaching walls to minimize glare on whiteboards, while low windows are situated near reading carpets and nooks. Standard-height windows are placed to allow views for students at their desks. Overall, the varied arrangement creates a dynamic facade while serving the educational needs of each grade level.

CLIENT
Wisner-Pilger Public Schools
Wisner, NE

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BVH Architecture
Omaha, NE

STRUCTURAL ENGINEER
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Lincoln, NE

GENERAL CONTRACTOR
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