2019 WOOD DESIGN AWARDS - WINNER

Residential Wood Design

Measured Architecture, Vancouver

Shift House, Vancouver

"A large volume of wood was used which is very standard, but the innovation of exposing it is not."

- jury comments

Photos – all Courtesy:
Wood Design Awards in BC

The centrality of exposed wood to Shift House cannot be overstated, both in terms of its aesthetic and in achieving the budget goals of a young family. The home's striking exterior features extra-long, two-foot by five-inch yellow cedar shingles, modernized with seven custom colours, then installed on a near 45 degree bias, with two same coloured shingles always paired together to create an illusion of a 10x10-inch hexagonal shape. The combination of the diagonal shingles with carefully composed windows creates a dynamic elevation that rewards viewing from any angle, and in any light or season.

While the shingles are stained and refined, the architects provided contrast through the use of unstained, tongue-and-groove Western red cedar as secondary cladding, which will not require any upkeep, aging gracefully with the building. Western red cedar is also used to wrap the elevations and provide continuity throughout the exterior of the building. The roof encompasses a unique rain control system of internal gutters and downspouts. Structure and environmental control thus work in concert here – the design integrating framing and enclosure innovations. The net result is unusually clean lines on all elevations, exploiting the unique flexibility of wood-frame construction. Inside, wood framing is used to create a variety of living spaces. Wood allowed for a flexible and continuous design, while keeping the budget manageable. Reduced drywall requirements decreased costs, with the added advantage of bringing the structural beams and plywood of Douglas fir to the visual forefront.

Program of the Canadian Wood Council

Submitted to Wood *WORKS!* BC - 2019

2019 WOOD DESIGN AWARDS - WINNER

Multi-Unit Residential Wood Design

Adera Development Corporation, Vancouver

Virtuoso, Vancouver

Photos – all Courtesy:
Wood Design Awards in BC

"An achievement to use the CLT... in structure and finish."

- jury comments

A six-storey, mass timber hybrid building with nine townhomes and 97 apartments, Virtuoso combines modern architectural form with stunning West Coast modern design. Richly coloured accents offset a sophisticated palette of natural materials such as cedar and brick interplayed with HardiePanels. Virtuoso is the first private, residential multi-family building to be constructed using cross-laminated timber (CLT) in Canada, a massive achievement for the developer and a significant step forward in terms of sustainable construction innovation.

Virtuoso uses CLT in its flooring systems, as it matches the strength and durability of concrete and steel at a fraction of the weight. It is also a carbon sequestering material that uses wood exclusively from sustainably managed forests. Using highly skilled trades for construction assembly, CLT excels as an on-site construction material and ensures a higher level of precision during the assembly process. CLT panels are exposed with each balcony overhang, enhancing the building's style while highlighting this unique and beautiful wood material. Private rooftop lanais, wrap-around balconies and a shared courtyard, complete with tranquil waterfall features and a stunning pergola, offer ample access to enjoying nature. Adera's innovative floor and wall assembly system significantly reduces sound transmission between homes, enhancing residents' peace and tranquility, far exceeding standards in both traditional wood-frame and concrete construction.

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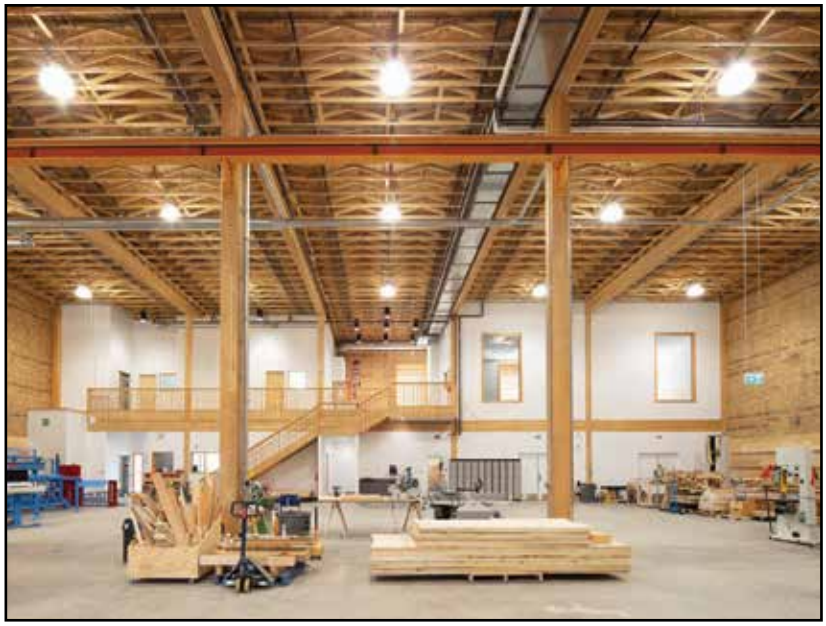
Submitted to Wood *WORKS!* BC - 2019

2019 WOOD DESIGN AWARDS - WINNER

Environmental Performance

Stantec Architecture Ltd., Vancouver

UNBC Wood Innovation Research Laboratory, Prince George



"A showcase for using wood in an industrial setting in a highly efficient way."

- jury comments

Photo: Courtesy:
Wood Design Awards in BC

The UNBC Wood Innovation Research Laboratory (WIRL) is a 900-square-metre, over-height, single-storey structure housing a specially constructed strong wall and floor designed for state-of-the-art seismic testing. The first Passive House-certified building in Canada for an education client is modest and simple, influenced by Passive House design principles and wood innovation. The dark metal panel exterior wraps a warm wood interior with an exposed wood structure. The exterior cladding is interrupted at the two entrance corners with vertical wood siding, detailed with a metal blade to protect the wood. Wood is used throughout the interior as both structural and cladding material.

The size, detailing and orientations of windows are strategically positioned, with the majority of the glazing placed on the south façade and all shaded by external shading devices to reduce solar gain. Designing the walls and roof systems required innovative and careful planning to counterbalance Prince George's extreme climate. The wall truss design is unique due to the Passive House requirements, but the structure is made with conventional building materials fabricated by a local residential truss manufacturer. The completed construction set a new standard for airtightness, securing the best North American result of any building under Passive House standard. With a score of 0.07, WIRL surpassed the Passive House requirement by nearly a factor of 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.

Program of the Canadian Wood Council

Submitted to Wood *WORKS!* BC - 2019

2019 WOOD DESIGN AWARDS - WINNER

Commercial Wood Design

Asher deGroot, MOTIV Architects Inc., Vancouver

Swallowfield Barn, Langley

"Love the repetition and offset of the form and ability to integrate wood on every level."
- jury comments

Photos – all Courtesy:
Wood Design Awards in BC

The simplicity of Swallowfield Barn's form is intentionally reminiscent of traditional North American barns. It serves as a home to farm animals with a hayloft used as a community gathering space. The barn's striking, off-kilter roof profile creates a warm and inviting entrance visible on axis through the gardens and orchards from the farmhouse.

The free-spanning cathedral roof structure, conceived of in collaboration with world renowned wood engineer Eric Karsh, consists of closely spaced LVL moment frames with a unique flush ridge connection, achieved with a pair of glued-in threaded rods run through to clamp the intersecting rafter. 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 wood materials to a new level, expressing the beauty of their strength and visual simplicity. The repetitive roof structure draws the eye upward to the long linear skylight at the ridge, which infuses the space with warmth and a calming diffused light. The building is clad entirely in vertical Douglas fir siding, reclaimed from prior use as boardform concrete formwork. Here, the marks and stains of the boards' previous use as concrete formwork are left visible, maintaining the patina and memory as the material ages and weathers. Using volunteer labour and recycling numerous materials for the build allowed the project to be constructed for a fraction of typical construction costs.

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2019 WOOD DESIGN AWARDS - WINNER

Interior Beauty Design

Unison Architecture Ltd., Vancouver

Ts'kw'aylaxw Cultural and Community Health Centre, Lillooet

"Very sculptural and inspiring."

- jury comments

Photos – all Courtesy:
Wood Design Awards in BC

The three-storey, 18,000-square-foot Ts'kw'aylaxw Cultural and Community Health Centre is a holistic health and wellness hub focused on primary care, with social, cultural, wellness and recreational activities under one roof. The project uses wood to integrate beauty with Passive House design principles including insulated prefabricated wood panels for exterior roof and walls, triple glazed fir wood windows, and the required high efficiency HVAC systems.

All three levels are linked by a vibrant cantilevered vertical circulation atrium dressed in vertical grain hemlock. The circulation atrium is fronted by a three-storey Douglas fir glulam grid that supports a veneer curtainwall and minimizes thermal bridging. The natural light flooding this space brings the vertical grain hemlock to life. The community hall on the ground floor uses a hybrid system of glulam columns and prefabricated super-insulated spruce-pine-fir (SPF) wall panels to support the robust wood structure of the floor above. This structure consists of nail-laminated SPF decking and deep glulam beams punctuated with white wood-fibre acoustic panels. The subdued second-floor multi-purpose space, finished with birch veneer plywood and more acoustic panels, is defined by the natural character of the timber above. This project's extensive use of wood also includes a peeled red cedar colonnade, cedar soffits, solid birch entrance doors, and an untreated site-sourced aspen feature wall in the Elders' cylinder on the third floor.

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2019 WOOD DESIGN AWARDS - WINNER

Institutional Wood Design: Small

Formline Architecture, West Vancouver

Indian Residential School History and Dialogue Centre, Vancouver

"The roof structure is quite amazing...an example of very thoughtful and careful detailing."

- jury comments

Photos – all Courtesy:
Wood Design Awards in BC

The design of the 606-square-metre Indian Residential School History and Dialogue Centre (IRSHDC) reflects the diversity of the Indigenous peoples of Canada, rather than being identifiably associated with any particular culture group. Its purpose is to acknowledge the suffering of the 150,000 Indigenous students who attended 132 residential schools across Canada, honour the memory of the more than 6,000 children believed to have died in these institutions, and promote dialogue that connects past struggles to today's movements for human rights.

The project uses a hybrid structure of spruce-pine cross-laminated timber (CLT) roof and wall panels, and a Douglas fir glulam curtain wall system to create the shell of the building. The CLT roof panels evoke lightness, countering the dark concrete exhibit space housing residential school data. The pavilion above has canted circular Douglas fir glulam columns supporting the broad overhangs. Concealed steel beams float above the CLT panels hung by welded riveted flat plates seen on the underside. Around the perimeter, glulam columns support the weight of the roof with a lightweight glazed curtain wall attached to it. The exposed, whitewashed CLT on the interior further enhances the feeling of lightness. The exterior is composed of curtain wall glazing and charred reverse batten clear A vertical grain Western red cedar. The woven Western red cedar cladding the wall along the stair is composed of strips of cedar woven around Douglas fir dowels and framed in cedar.

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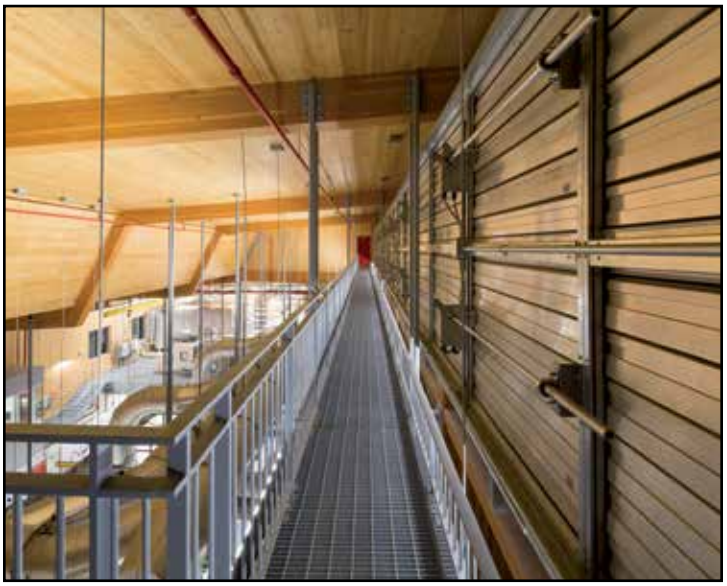
2019 WOOD DESIGN AWARDS - WINNER

Institutional Wood Design: Large

DIALOG, Vancouver

UBC Campus Energy Centre, Vancouver



Photos – all Courtesy:
Wood Design Awards in BC

"Allowing people to see the wood and wood products used... is a nice focus to see in an industrial setting."

- jury comments

The primary structure of the UBC Campus Energy Centre (CEC) is constructed of renewable, locally sourced cross-laminated timber (CLT) panels supported by glulam columns and 20-metre clear span beams. It has a Douglas fir glulam timber post-and-beam frame, with infill walls of seven-ply CLT panels lining the walls of the boiler bay. CLT panels used for the sloping roof span the full width of the space. The 60-foot-high spruce-pine-fir CLT walls create a continuous enclosure around the mechanical equipment, giving the vast space a sense of warmth unusual in an industrial building. The apparent simplicity of the structure is the result of some innovative details devised by structural engineers, Fast + Epp.

The boiler room roof is divided into three sections, with the much steeper mid-section supported by an inclined hybrid wood-steel truss, concealed from below by the CLT ceiling. The steel carries the majority of the load, but the wood (both CLT and glulam) provides significant stability to the members that would otherwise experience buckling issues. The administration block has an electrical room enclosed with concrete masonry walls for a two-hour fire-resistance rating and an office area using CLT walls for a one-hour FRR. The hybrid wood system reduces the overall construction carbon (the sum of the GHG emissions associated with the extraction, processing, fabrication, transportation and installation of all building components) by 88.3 (CO_2 equivalent) tonnes.

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2019 WOOD DESIGN AWARDS - WINNER

Prefabricated Structural Wood

Evan Williams, Victoria Truss 2007 Ltd., Cobble Hill

Curved Trusses for Tyron Road, Victoria

"Showcases what can be done with curved trusses."

- jury comments

Photos – all Courtesy:
Wood Design Awards in BC

Specially designed trusses in this project allowed for ample open spaces and light while keeping the home true to its original architectural design. Victoria Truss 2007 Ltd. converted the original roof design to trusses with all the curves built into them, as well as trusses on all the curved and non-curved roofs. The roof structure also has a sloped LVL; the trusses were designed with a pocket to be inside the truss system, allowing for most of the roof to be done with prefabricated components. The result is a more efficient, environmentally friendly building with abundant ventilation space in the attic. The truss components are designed to account for loading conditions created by the curved roof and building shape that caused special slumping and drift loading on the building.

To address erection challenges presented by the unique truss shape, a method was designed 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. Where a stick-frame structure would require a time-consuming process involving lasers, string lines and multiple measurements, the curved trusses were simply dropped in where required. With careful planning and diligence, all the trusses were placed without incident or delay. 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.

Program of the Canadian Wood Council

Submitted to Wood *WORKS!* BC - 2019

2019 WOOD DESIGN AWARDS - WINNER

Western Red Cedar

Lubor Trubka Architects, Vancouver

Kwakiutl Wagalus School, Port Hardy

"A very nice integration of traditional cultural designs that feel contemporary."

- jury comments

Photos – all Courtesy:
Wood Design Awards in BC

Kwakiutl Wagalus School incorporates cultural values of significance into its design and features local cedar in almost every element of the building's design. The Kwakiutl people consider Western red cedar to be the "tree of life" so showcasing local cedar in the school was only natural. The structure is a combination of post-and-beam and strategically placed sheer walls, utilizing a multitude of engineered wood and natural lumber products.

The multi-purpose room, inspired by the form and structure of the traditional Kwakwaka'wakw Big House, uses four large Western red cedar posts and beams hand-adzed by Kwakiutl community members to provide a rich textured surface on this monumental structure. Reminiscent of traditional cladding used in Big Houses, the interior walls are clad with vertical Western red cedar planks. The classrooms are constructed with glulam posts and beams together with conventional dimension wood framing. Custom-made cedar shiplap boards clad the exterior, and cedar soffits with articulated cedar fascias provide an elegant transition between the cladding and the roof. The gymnasium uses a system of prefabricated wood tilt-up panels that were assembled on site within five days by a small crew. Exterior cladding for the gymnasium comprises of the custom-made Western red cedar shiplap boards installed in the form of large slanted scallops, adding three-dimensionality to the façade that fragments the scale of the large walls.

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2019 WOOD DESIGN AWARDS - WINNER

Wood Innovation

Patkau Architects, Vancouver

Temple of Light, Kootenay Bay

"...an experience out of wood."

- jury comments

Photos – all Courtesy:
Wood Design Awards in BC

The complex, curvilinear geometry of the Temple of Light was achieved with relatively modest means and conventional building materials by fabricating its sweeping petal-like forms utilizing principally straight engineered timber elements. These straight members are arranged along continuously sweeping rule lines that reside on the dome's petal-like surfaces. These straight members also provide a natural division seam and robust connection plate that facilitated subdividing the larger, wood-framed petal shells into modular components. Each sub-panel was manufactured to a high degree of precision off site using modern digital manufacturing methods in custom, reusable jigs with knock-outs that allow the completed, convex frames to be released once assembled. The pre-clad sub-panels were then shipped to the site, efficiently assembled to enclose the domed primary worship space, and sealed.

This unusual wood construction technique enabled this project to be executed on a tight budget, in a remote location, using local trades with remarkable results. The complex play of light and sound on the temple's evocative, curvilinear wood-framed surfaces confounds the relative simplicity concealed within. This project is predicted to consume less than 108 MJ/m^2/yr owing to its high performance building envelope, efficient glazing, geothermal system and adjacent photovoltaic array.

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2019 WOOD DESIGN AWARDS - WINNER

International Wood Design

Jie Lee, Challenge Design Pte. Ltd., Shanghai, China

Chongqing Yuanlu Community Center, Chongqing, China

"A stunning project."

- jury comments

Photos – all Courtesy:
Wood Design Awards in BC

Wood is used in the Chongqing Yuanlu Community Center to closely link space and structure. Exposed Canadian Douglas fir glulams provide a crucial visual element on the interior while the order and form similar to traditional Chongqing sloping roofs are adopted for expression. Architectural design converts the three buildings of varied sizes into structural components and arranges those components in a certain changing mode so the architectural form changes with the space. Hexagonal aluminum plates on the exterior are finely wrapped, slotted and spliced for complicated and mysterious visual effects.

A BIM system is used to achieve overall project control. All exterior retaining walls and roofs are constructed with a light wood frame (SPF and OSB). Each structural component is optimized using programming design, manufactured by CNC machines and installed on site. Using 3D positioning resulted in very few errors during installation and increased the speed of construction. The wooden column foot connection design is novel, and the horizontal and vertical errors can be flexibly adjusted at the same time. Steel members are arranged at the stress concentration point to completely hide the steel connections. The novel steel-wood connections, a technology from Canada, add complexity to the design but also increase the difficulty in constructing the wood structure. The light weight of the wood material meant fewer workers required to carry it, which greatly improved the on-site installation efficiency.

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