

# KWAKIUTL WAGALUS SCHOOL

**LOCATION**

Port Hardy, British Columbia

**SIZE**

1,637 m<sup>2</sup>

**COMPLETION**

2016

**ARCHITECTS**

Lubor Trubka Associates Architects

**STRUCTURAL ENGINEER**

CWMM Consulting Engineers Ltd.

**GENERAL CONTRACTOR**

AFC Construction

**ENGINEERED FABRICATION AND INSTALLATION**

Macdonald & Lawrence

**PROJECT OWNER**

Kwakiutl First Nation

## PROJECT OVERVIEW

The use of wood in buildings, and as part of daily life, is an integral part of the heritage and culture of the Kwakiutl First Nation. The Kwakiutl people consider the cedar to be the tree of life, so it was only fitting that their new school would feature cedar from local forests in every aspect of the building's design.

Special effort was made to highlight the use of wood as a prominent structural element as well as for interior and exterior finishes. The architects conducted multiple design planning meetings with the Kwakiutl community, which helped develop the form and plan of the school, helping guide their use of wood. The Chief and Council, community members, Elders, teachers and even future students were involved in this collaborative design process, which was

critically important because all involved wanted the building to ensure the transfer of historical value.

The heart of the school – the Multi-Purpose Room – was inspired by the form and structure of a traditional Big House, featuring cedar throughout. The entry canopy, which will be erected by members of the community over time, is designed as a teaching tool representing the traditional wood framing and structure of their historical buildings.

The use of wood also offered operational benefits. To simplify and economize the construction of the large gymnasium, they used an all-wood, prefabricated wall system that could be quickly erected on site by a small crew, involving local members of the community where possible.



*“The natural cedar is the school’s best feature. The foyer exemplifies the living culture of the Kwakiutl, where students learn how they will contribute to their community and world at large.”*

**Marion Hunt, B.S.W., Education Administrator,**  
99 Tsakis, Kwakiutl Band

## WOOD USE

Large, round timbers are featured in the entrance foyer, while the Multi-Purpose Room consists of four western red cedar posts supporting four cedar beams. The roof structure above was framed by Douglas fir glulam purlins and I-joists. Interior walls were clad with cedar planks installed vertically, reminiscent of the traditional cladding used in Big Houses. The ceiling and surrounding corridors were finished with custom acoustic panels featuring high grade, kiln-dried spruce-pine-fir turned on edge to manage sound.

The gymnasium was designed as a system of prefabricated tilt-up wood panels to speed up construction. It took just 19 days to erect the gym walls and nine days to add the roof, allowing them to enclose the gym quickly and avoid exposure to rain during construction. The panels contain conventional lumber framing between Douglas fir glulam edges. Panels were

prefabricated in Mill Bay, on the southern end of Vancouver Island, and transported 450 km to the site. Once on site, the panels were raised on the slab-on-grade within five days, with the partially-prefabricated wood roof erected the following week. The gymnasium’s interior wall paneling is stained plywood, chosen for its strength and durability. Custom acoustic paneling, constructed from dimension lumber, was strategically placed on the walls, with the ceiling plywood panels perforated to manage the acoustics of the big space. The gymnasium also features a maple hardwood sports floor.

Classrooms were constructed with glulam posts and beams together with conventional dimension wood framing. Wood doors and interior windows were framed by vertical grain Douglas fir architectural woodwork. Birch wood veneer finishes were also used.



Photos courtesy of Lubor Trubka Associates | Peter Powles Photography

## ESTIMATED ENVIRONMENTAL IMPACT OF WOOD USE

<p><b>V</b> Volume of wood products used: 361 cubic meters</p>	<p><b>GHG EMISSIONS ARE EQUIVALENT TO:</b></p>
<p><b>T</b> U.S. and Canadian forests grow this much wood in: <b>1 minutes</b></p>	<p><b>189 cars</b> off the road for a year</p>
<p><b>C</b> Carbon stored in the wood: 304 metric tons of CO<sub>2</sub></p>	<p><b>Energy to operate 94 homes</b> for a year</p>
<p><b>CO</b> Avoided greenhouse gas emissions: 591 metric tons of CO<sub>2</sub></p>	<p><small>*Estimated by the Wood Carbon Calculator for Buildings, <a href="http://cwc.ca/carboncalculator">cwc.ca/carboncalculator</a>.</small></p> <p><small>*CO<sub>2</sub> refers to CO<sub>2</sub> equivalent.</small></p>
<p><b>✓</b> Total potential carbon benefit: 895 metric tons of CO<sub>2</sub></p>	

## FOR MORE INFORMATION

This profile is published by Forestry Innovation Investment, the Government of British Columbia’s market development agency for forest products.

For more examples of innovative wood building projects throughout British Columbia, visit:

[naturallywood.com](http://naturallywood.com)