CANADIAN COAST GUARD SEARCH AND RESCUE STATION

LOCATION
Port Hardy, British Columbia

SIZE
622 m²

COMPLETION
June 2014

ARCHITECT
Chernoff Thompson Architects

STRUCTURAL ENGINEER
Herold Engineering Ltd.

CONSTRUCTION MANAGER
Island West Coast Developments Ltd.

ENGINEERED WOOD FABRICATOR
Western Archrib

PROJECT OWNER
Department of Fisheries and Oceans

Project Overview

The community of Port Hardy (population 4,000) is located on the north coast of Vancouver Island, separated from the mainland by the waters of the Inside Passage. It is an important hub for the commercial fishing industry, with half the wild fish caught off the British Columbia coast being offloaded here each season. In addition, there is a popular sport fishery and significant recreational boating activity adding to the volume of marine traffic.

This project, situated on the downtown waterfront, replaces existing operational and residential accommodation for the Canadian Coast Guard detachment. The program is split between two buildings, and includes functional operations space, administrative offices, training areas, equipment storage, staff living space and related facilities. The operations building is on the water's edge, just 1.5 metres above the high-tide line, while the residential building sits behind it on top of a 6-metre high cliff.

Strategic organization of the building program and massing, together with careful placement of windows, ensures that the officer in charge has clear views from the main living areas over and around the lower building to the harbour and the main docks.

In realizing the client's ambition to provide functional and attractive living and working space, the project also had to overcome the technical challenges of the topography and the harsh marine environment, address sensitive ecological issues, and preserve several culturally significant First Nations middens located on the site. The flexibility, lightness, durability and low environmental impact of wood construction made it an ideal choice for this project.

Photo credit: Sama Jim Canzian Architectural Photography

"Because of the inherent lightness, flexibility and ductility of wood-frame construction, it is particularly well suited to the construction of post-disaster buildings at this scale."

***Lee Rowley**, Principal, Herold Engineering Ltd.*

Wood Use

Given the relatively remote location of Port Hardy, careful consideration was given to the design to ensure the maximum use of local materials and labour. Dimension lumber was locally sourced and connection details made simple, keeping with the local building traditions and expertise.

Both buildings are designed and constructed to post disaster standards, meaning that they must be capable of resisting seismic loads 50% higher than those required for a conventional building. In addition, structures must have a regular geometry in plane and section to ensure seismic forces can be evenly distributed throughout the building.

Both structures are predominantly wood-frame with glue-laminated timber (glulam) beams used to span the living area in the residential building and the open plan offices in the operations building. In this latter case, the glulam roof beams bear on a deep lateral beam and cantilever beyond the building to support the projecting eaves.

Local wood species were used where possible. Both buildings feature western red cedar for horizontal tongue and groove cladding and eaves fascias. Douglas fir tongue and groove decking was used for the roof, and is left exposed internally. It is complemented by slatted wood panelling in the living room of the residential building, and in the main corridor of the operations building.

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ESTIMATED ENVIRONMENTAL IMPACT OF WOOD USE

- Volume of wood products used: **154 cubic meters**
- U.S. and Canadian forests grow this much wood in: **25 seconds**
- Carbon stored in the wood: **130 metric tons of CO_2**
- Avoided greenhouse gas emissions: **255 metric tons of CO_2**
- Total potential carbon benefit: **385 metric tons of CO_2**

GHG EMISSIONS ARE EQUIVALENT TO:

- **81** cars off the road for a year
- Energy to operate **41** homes for a year

**Estimated by the Wood Carbon Calculator for Buildings, cwc.ca/carboncalculator.*

**CO2 refers to CO2 equivalent.*

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

The wood grain featured in this profile is western red cedar.