



PHOTOS: TERRY PATTERSON PHOTOGRAPHY

Nanaimo Cruise Ship Facility

by Laurie Jones

After navigating a sea of red tape, the Nanaimo Port Authority was pleased to see the long-awaited cruise ship and passenger terminal open with the arrival of the *Norwegian Pearl*, a 2,394-passenger ship in early May.

"The Port has been receiving cruise vessels in Nanaimo's Inner Harbour since 2002 and we have had as many as 15 in one season," says Bernie Dumas, president & CEO, Nanaimo Port Authority (NPA). "In 2005, the board of directors and the management of the Nanaimo Port Authority began to look at a better option to discharge passengers from the ships on a permanent dock, rather than shuttle them ashore by boat." In 2006, the NPA engaged CH2M HILL Canada Limited, a Vancouver engineering firm that specializes in cruise ship terminals, and a number of options were considered.

"The current 35-acre assembly wharf had been used for decades by the forestry industry," says Dumas. "The initial concept by CH2M HILL Canada Limited was to use the original berths, but environmental and geotechnical analyses revealed the need for almost 100,000 cubic metres of dredging. The environmental impact would be severe, so alternative arrangements were pursued."

Interest in creating a workable solution remained strong, and things changed when funding began to come through. "In 2008, the Port Authority received \$5 million from the Province of B.C., and the Island Coastal Economic Trust (ICET) provided an addition of \$3.5 million," says Dumas. "The Federal Government contributed \$8.5 million through the Infrastructure Stimulus Fund and the NPA added \$5 million from its reserves for a budget of \$22 million."

Construction began in August 2010 on a floating dock designed by North Vancouver's Worley Parsons, based on specifications by PND Engineers, a Seattle-based company with experience in building Alaskan cruise ship docks. Built in North Vancouver, the main component of the floating dock is a pontoon that is 350 feet long, 50 feet wide and 20 feet deep. "The pontoon is moored to a number of pilings, and is where the passengers will embark and disembark," says Thomas Hoffschild, project manager with CH2M HILL Canada Limited. "The dock consists of 320 metric tons of rebar and has the equivalent of 130 large truckloads of concrete. It was built in North Vancouver by Vancouver Pile Driving Ltd., a contractor for the marine works side."

Construction of the terminal building was finished in record time – from May 2010 to May 2011. Several unique building procedures were implemented in the land works side where the Welcome Centre and second-floor administration offices of the Nanaimo Port Authority are located.

Norwegian Pearl's inaugural visit May 7, 2011.



"This included the need for ground stabilization up to a depth of 30 metres onto bedrock using vibro-compacted stone piles. These piles prevent the underlying soils from liquefying and the building sinking in an earthquake," says George Hrabowych, project manager. "On top of these stone piles, a reinforced pad of compacted fill was built to allow the use of conventional strip and pad foundations for the building. Another important design feature was the discrete use of roof bracing by the structural engineer to avoid spoiling the view in the glazed hall."

Hrabowych says it was a pleasure to work with the consulting teams from local companies, and having the opportunity to work with the Snuneymuxw (Nanaimo) First Nation. "We had over 1,000 man-hours from First Nations people as they worked with various sub trades and contractors." The Snuneymuxw played an integral part in ensuring the project proceeded in a sustainable manner by addressing environmental needs. It was also important to respect the Douglas Treaty rights.

The West Coast design of the Welcome Centre and offices is a mix of wood and glass, a product of the architectural joint venture between David Poiron Architect Inc. and Ben Checkwitch Design. "The building was constructed with a combination of a steel frame and glulam post and beam," says David Poiron, principal, David Poiron Architect Inc. "Part of this facility is dedicated to Canada Border Services Agency (CBSA), a high-security office for passenger verification. Once people pass through this area, they will be in a beautiful, wood-framed open hall with floor-to-ceiling windows on three sides looking out to Nanaimo's Inner Harbour and the city."

He notes that durable slate floors were chosen to withstand foot traffic, and materials are neutral to reflect the site and waterfront. "The curved glulams were an interesting addition as the Douglas Fir wood slats wrap around the ceiling and inner columns, making the interior look like the hull of a giant

ship," says Ben Checkwitch, principal, Ben Checkwitch Design. "This reflects the history of wood production on the assembly site and the region in general." Dividing the Welcome Centre's main room and the Canada Border Services Agency section is a retractable First Nations mural, created by local artist Noel Brown.

While in the Welcome Centre, guests will see another unusual structural design – the floating box that houses the NPA administration offices. "It appears to be floating in mid air, but it actually has hidden structural steel components holding it together," says Colin East, project manager, Heatherbrae Builders Co.

The facility has the latest technology and construction to meet future needs of the industry. "We are expecting to handle all the ships on the Alaska run, most of which would originate in Seattle," says Dumas. "The terminal is designed to accommodate larger vessels in the future, with some additional dredging. We are very proud of the project and the fast turnaround. It will change the waterfront in Nanaimo with a style that we can incorporate into other buildings on the assembly wharf." ■

LOCATION

100 Port Drive
Nanaimo, B.C.

OWNER/DEVELOPER

Nanaimo Port Authority

PROJECT MANAGER/STRUCTURAL & CIVIL CONSULTANT (LAND WORKS)

Herold Engineering Ltd.

PROJECT MANAGER/PRIME MARINE WORKS CONSULTANT (MARINE WORKS)

CH2M HILL Canada Limited

ARCHITECTS IN JOINT VENTURE (LAND WORKS)

David Poiron Architect Inc. and Ben Checkwitch Design

GENERAL CONTRACTOR (LAND WORKS)

Heatherbrae Builders Co.

GENERAL CONTRACTOR (MARINE WORKS AND VIBRO-COMPACTION)

Vancouver Pile Driving Ltd.

STRUCTURAL CONSULTANT (MARINE WORKS)

Walters Chambers & Associates Ltd.

MECHANICAL CONSULTANT (LAND WORKS)

Rocky Point Engineering Ltd.

ELECTRICAL CONSULTANT (LAND WORKS)

RB Engineering Ltd.

GEOTECHNICAL CONSULTANT (LAND WORKS)

Lewkowich Engineering Associates

FIRE PROTECTION CONSULTANT

Des Design Ltd.

ENVIRONMENTAL/GEOTECHNICAL SUB CONSULTANT (MARINE WORKS)

EBA Engineering

MARINE WORKS SUB CONSULTANT

PND Engineers Inc.

CIVIL CONTRACTOR (LAND WORKS)

Windley Contracting Ltd.

TOTAL AREA

13,000 square feet - Welcome Centre

TOTAL CONSTRUCTION COST

\$24 million