Minimal-impact North Vancouver Outdoor School, Canada

Project data

Type of project
Architecture (education)

Estimated start of construction
July 2008

Main author

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Comment of the Holcim Awards jury North America

This project was commended due to its comprehensive planning approach for rebuilding an environmental learning center which has been degraded over the years and damaged by frequent, serious flooding. The responsible entities took advantage of this need for complete reconstruction and developed an overall master plan that assures a maximum preservation of the surrounding natural ecological reserve land and also demonstrates state-of-the-art in sustainable construction.

As a result, the new school and exhibition buildings will be completely self-reliant and fulfill net zero energy and net zero CO2 requirements. The elevated buildings offer free view and access to the beautiful nature in the neighborhood and avoid potential future damage from flooding. In addition, the building components and systems will become part of the learning experience and therefore fundamentally change the educational concept.

Project description by author

The site: situated on 165ha of designated ecological reserve land in Paradise Valley, British Columbia, the North Vancouver Outdoor School (NVOS) is unique among a handful of educational environment centers in Canada. This diverse biological landscape includes significant stands of old growth forests, wild salmon streams and amphibian ponds. The property contains the largest recorded concentration of nesting bald eagles in North America. The Dave Marshall Salm- 

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Quantum change and transferability

The environmental learning center is conceived as a prefabricated building, minimizing its impact by reducing construction duration. The building modules would be transported to the site and lifted by crane or helicopter onto the elevated structural platform. The building is an example of how to build within a sensitive ecosystem and flood plain while maintaining visual continuity with the forest floor.

Ethical standards and social equity

As a publicly-funded institution, the local school district is committed to transparency in all of its policies and business practices. The procurement process will be governed by the same policies. The design process has involved a range of participants including staff and faculty employed at the site and school district, biologists, technical experts, community and neighbors.

Ecological quality and energy conservation

Prefabrication reduces construction damage. The primary heat source will be ground source heat pumps, providing all heat energy and domestic hot water. The building will be naturally lit during daylight hours, and naturally ventilated. Micro-hydro systems will capture excess flow from streams on site. Photovoltaic and micro wind turbine systems will be deployed within the cleared area at the hydro transmission line.

Economic performance and compatibility

By optimizing the use of energy operating costs will be reduced over the building’s life. Prefabrication raises quality of construction, reduces risk, reduces damage to the site, and results in an economy of resources and cost savings. By elevating the building above the floodplain, damage will be avoided. Service life of the structure will be attained through detailing and material selection.

Contextual and aesthetic impact

Masterplan guidelines: development will be consistent with environmental educational mission of the Outdoor School, the Nature Conservancy covenant and the Living Building Challenge (Cascadia Region Green Building Council). Systems will be incorporated into the learning experience. Buildings will be relocated away from the river, creating a riparian buffer zone, and will be consolidated to achieve economies of scale. Subjective values such as location, ambiance, and forest setting will be given a high level of importance. Services, infrastructure, agricultural functions and open space activities will be located in the cleared transmission line corridor. The environmental learning center is designed to blend into its forest setting with a minimum of impact, and to interface intimately with its surroundings.

Relevance to target issues by author

Air, water and waste.

Habitat: strategies.

A diverse biological landscape.

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