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ORCHID INSPIRATIONS

BILLOWING OUT OF THE EARTH, THE NEW VISITOR CENTRE AT VANDUSEN BOTANICAL GARDEN IN VANCOUVER HAS BEEN COMPARED TO SOARING BIRDS' WINGS OR BREAKING WAVES. THE DESIGN WAS ACTUALLY BASED ON THE FORM OF AN INDIGENOUS CANADIAN GROUND ORCHID



The inspiration for the new Visitor Centre at VanDusen Botanical Garden in Vancouver was an old black and white photograph of the unfurling leaf of an orchid in Karl Blossfeldt's 1928 book *Art Forms of Nature*. Incredibly, the photograph was spotted on the same evening by legendary Canadian landscape architect Cornelia Hahn Oberlander and Harley Grusko, a project designer at Perkins + Will. Both decided it was the perfect symbol for the planned green-roofed visitor centre, which had to educate and excite visitors about the world of plants and demonstrate the best of environmental stewardship.

The Vancouver Board of Parks and Recreation wanted more visibility for the gardens. "So we needed something that was dramatic and very organic," says Jim Huffman, lead designer for the centre and Perkins + Will Associate Principal. "We were already looking at floral shapes. This image helped solidify our direction."

The centre's six undulating roof 'petals' radiate out from a central, conical skylight. The skylight spotlights an atrium, which is the hub of the building and the entrance to the gardens. The centre includes a library, exhibition and classroom spaces, shop, and café. Huffman points out a golden 'sun catcher' of tubular perforated aluminium, furled around the inside of the skylight. It is a solar heat sink that warms up in summer, drawing hot air out through windows in the skylight. "The building works like a plant," says Huffman, explaining that it harvests sunlight and collects and stores all the water and energy it requires.

Designed to exceed platinum Leadership in Energy and Environmental Design (LEED) certification, the centre nestles into the landscape. It uses net zero energy and water and is naturally heated and cooled.

Solar hot water tubes on the roof heat water, which is used in taps and for underfloor heating. The hot water is

stored in 58 geothermal boreholes, extending 60 metres under the earth, and pumped up when required. Rainwater is collected from one roof and used as grey water, while all sewerage is treated in bioreactors on site then used in the gardens. As a result of these initiatives, the architects want to enter the building for Living Building Challenge certification, which takes a holistic approach to sustainability and is based on actual performance of a building over 12 months. Almost all building materials were sourced locally. During construction, the Living Building Challenge would not accept local beetle-killed Pine as sustainable, so the architects used FSC certified and reclaimed wood instead.

Huffman says they selected a site close to the road so the striking building could attract visitors. Rammed earth walls, pigmented like natural sandstone, protect the building from street noise. On the other side of the centre, huge glass walls open onto the gardens.



WORDS LINDA VERGNANI
PHOTOGRAPHY NIC LEHOUX

ARCHITECT PERKINS + WILL
LANDSCAPE ARCHITECT SHARP & DIAMOND WITH CORNELIA HAHN OBERLANDER
LOCATION VANCOUVER | CAN
PROJECT VANDUSEN VISITOR CENTRE

The petal roofs appear to float above the walls, an illusion created by a band of clerestory windows. Some of the grassed roofs dip to the ground, so wildlife like squirrels can roam up and enjoy the salad bowl on top. The sheltering roof over the entrance swoops up like a wing, supported by laminated Douglas Fir columns.

Each of the 70 roof panels was pre-constructed and brought to site with insulation, ceilings, and lighting already installed. The ceiling is lined with slatted wood that ripples over the atrium and other spaces. "This to me is like the underside of a chanterelle," says dynamic, 91-year-old Oberlander. "It has just the perfect yellowish colour." Indeed, the billowing ceiling does look like the underside of a mushroom.

The indefatigable landscape architect trained with Walter Gropius, and was responsible for landscaping buildings that define Vancouver, such as the Museum of Anthropology, Robson Square, and the Law Courts.

For the plant palette surrounding the visitor centre, Oberlander selected British Columbia plants listed in 1792 by naturalist Archibald Menzies, who accompanied Captain George Vancouver on his exploration of the coast. The roof is grassed with eco turf, a hardy mix of native grasses interspersed with wild lily bulbs.

The landscaping includes a rainwater garden that filters runoff from the original parking lot, taking it through wetland plants to a stony streambed that drains into an existing ornamental pond. Already Canada geese and ducks are dabbling through the stream.

"This place is amazing," says Huffman. "When you are drawing, you think: 'Will it ever get built?' From many different angles, this building is quite unique, quite outrageous."

Linda Vergnani is a freelance writer on architecture and design.

PREVIOUS The green roof with the conical skylight which protrudes 13.5 metres above the building
LEFT The sweeping roof over the entrance
ABOVE A walkway leads to the entrance

VANDUSEN VISITOR CENTRE

CLIENT Vancouver Board of Parks and Recreation
ARCHITECT Perkins + Will
LANDSCAPE ARCHITECT Sharp & Diamond with Cornelia Hahn Oberlander
GENERAL CONTRACTOR Ledcor Construction
STRUCTURAL ENGINEER Fast and Epp
MECHANICAL & ELECTRICAL ENGINEER Cobalt Engineering
CIVIL ENGINEER R. F. Binnie & Associates
CODE CONSULTANT B. R. Thorson
ENVELOPE CONSULTANT Morrison Hershfield
COMMISSIONING AGENT KD Engineering
COST CONSULTANT BTY Group
ACOUSTIC CONSULTANT BKL Consultants
LIGHTING DESIGN Total Lighting Solutions

TIME TO COMPLETE 5 years
TOTAL FLOOR AREA 17,000m²
BUDGET \$2,082,044

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(604) 684 5446 perkinswill.com

SHARP & DIAMOND
(604) 681 3303 sharpdiamond.com

FURNITURE Custom by builder.

FINISHES Coatings and sealants from Bohle Adhesives. Carpet from Bentley Prince Street, available in Australia from Whitecliffe Imports. Cladding from Whitewater Concrete. Curtain walls from Columbia Skylights. Flooring from Retroplate Systems. Masonry and stone from Ocean Concrete.

FIXED & FITTED Glass from PPG. Insulation is 'Walltite Eco' from BASF. Millwork from Pacific Woodworking. Photovoltaics from Sunda Solar Tubes, and solar panels from Sharp USA. Bio-reactor waste water systems from Ecofluid. Roofing from Soprema and ZinCo. Steel structural systems from Clearbrook. Wooden prefab structures from Structurecraft.

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