



The buildings are designed as a series of linked pavilions to engage the surrounding landscape. An innovative exterior truss system supports the roof structure to provide a column-free laboratory environment.



1



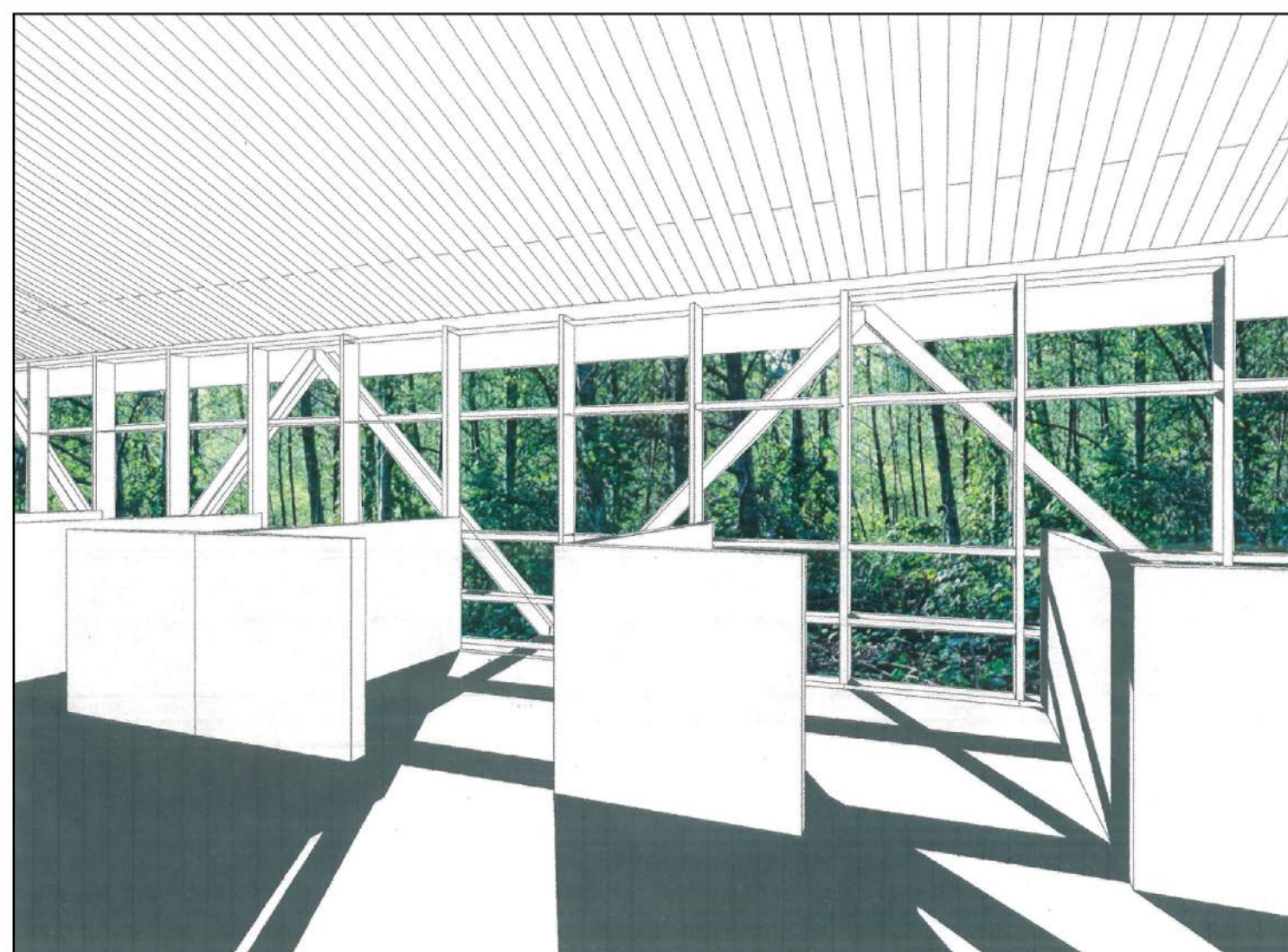
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3



The building occupies the portion of the site most severely impacted by former industrial use. Additional planting reinforces existing tree cover and understory vegetation.



1. View to Courtyard 2. A fully-glazed exterior wall reduces the need for artificial illumination and provides natural ventilation in the Laboratory, while enhancing the quality of the work environment. 3. Double height glazing delineates the Front Entry and provides a naturally illuminated administrative module; glazing on the South-west facade brings natural light into the interior. 4. Study of view and natural light in Office area.

The **PACIFIC ENVIRONMENTAL SCIENCE CENTRE** is a 5,645 m² consolidated laboratory facility for Environment Canada's Conservation and Protection Laboratories, Field Labs, and Microbiology Labs located on a 58 acre waterfront conservation area on the Burrard Inlet.

A former landfill area, experimental environmental remediation measures were taken in order to enhance the existing waterfowl habitat. Given the site context, the Federal Government's leadership role in environmental affairs and public expectations, it was imperative that this "flagship" project demonstrate ecologically-conscious principles.

SUSTAINABLE FEATURES

- **Reduced Building Area:**
The Centre consolidates Environment Canada's laboratories, field-related support and administration. Meeting rooms and support services are centrally located, to be shared.
- **Sustainable Redevelopment:**
In the project's construction, environmental measures were taken to conserve and enhance existing wildlife habitat on this former landfill site;

Portions of the site were contaminated by industry in its early history; the building occupies the most severely impacted portion of the site, minimizing further disturbance.
- **Sustainable Landscaping:**
The buildings are design as a series of linked pavilions to engage the surrounding landscape; additional planting was planned to reinforce and repair existing tree cover and understory vegetation; pavement was minimized.

Deciduous trees in front of the curtain wall provide shading in summer months.

- **Water Efficiency:**
The laboratories are supplied with groundwater and seawater from the Burrard Inlet.

- **Recycled and Renewable Materials:**
Simple first generation materials, such as architectural unit masonry; unfinished concrete floors; structural steel sections; standing seam metal roof; and aluminum + glass curtain wall, determined the design expression;

A durable standing seam metal roof + structural trussed are made from 100% recyclable steel;

Interior finishes included 100% wool carpet, and low-VOC paints, glues, sealants;

On site, recycled plastic parking curbs were installed; low dust aggregate was specified in place of concrete paving for hard surface areas

- **Natural Ventilation + Daylighting:**
In order to maintain indoor air quality, windows in laboratories and offices are operable

The South-facing window walls capture sunlight in office areas.

- **Waste Reduction, and Elimination:**
Mechanical systems and structure (concrete masonry walls and steel web trusses) were integrated into the interior aesthetic to reduce the finishing requirements.

Labs and workstations were designed with flexibility in mind along a central circulation spine with column-free interiors and continuous curtain wall exteriors.

- **Innovative Design + Energy Efficiency:**
Shadow studies determined optimal passive solar performance; a computer program TRACE 600 was employed to simulate and analyze energy consumption and life-cycle costing of different HVAC systems. Alternates included solar energy, heat recovery, Variable Air Volume (VAV), radiant heating and efficient glazing systems.

A direct Seawater Intake System was designed for cooling, drawing water from Burrard Inlet.

Efficient "Power Smart" Low-E windows, and efficient equipment such as a VAV mechanical/ventilation system to meet supply air demand zone-by-zone; perimeter radiation heating for labs and offices; and high efficiency boilers and motors were installed.

The Energy Management Control System provides Direct Digital Control (DDC) of the HVAC system in different building zones; Efficiency and optimal comfort is achieved through a monitoring system, timers w/ manual override, and set back or shut down over night.

Pacific Environmental Science Center

North Vancouver, BC

Area: 5,645 m²

Status: Completed November, 1994

Client Reference: Dr. Paul Kluckner,
Director Laboratories,
Conservation & Protection,
Environment Canada

Cost: \$12.5M (Budget)
\$10.75M (Tendered cost
including allowance for salt water
intake system)

Key People: Deborah Scott,
Principal-in-Charge and
Project Architect

Mr. Brian Laing,
Project Manager,
A&E Services,
Public Works Canada

www.scottarch.ca



Scott Morris Architects
Architecture + Interior Design
2 St. Clair Avenue East, Suite 903, Toronto, Ontario M4T 2R1
Tel (416) 924-2177 Fax (416) 924-7398