

CITY OF VANCOUVER MATERIALS TESTING FACILITY

CASCADIA REGION GREEN BUILDING COUNCIL



FLOOR SPACE: 4,280 ft²
BUDGET: \$550,000 CDN (\$128/ft²)
BUILDING POPULATION: 130
CONSTRUCTION DATES: 1998-1999

OWNER: City of Vancouver
ARCHITECT: Busby + Associates Architects
PROJECT MANAGER: David Desrochers, P. Eng., City of Vancouver
LANDSCAPE: Vancouver City Staff
STRUCTURAL ENGINEER: Fast & Epp Partners
MECHANICAL ENGINEER: Keen Engineering Co. Ltd.
ELECTRICAL ENGINEER: Reid Crowther & Partners
CONSTRUCTION MANAGER: Ken King & Associates

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PROJECT NOTES

SITE AND WATER

- Site: Building site developed to minimize erosion, and to be within proximity to the existing warehouses that would supply the recycled building materials.
- Site vegetation: Native plants were maintained in drainage swales near the building.
- Water drainage: Roof drainage directed to a grassy swale, keeping storm water out of the City's drainage system.

ENERGY AND ATMOSPHERE

- Ventilation: Cross-ventilation and operable windows used instead of air conditioning.
- HVAC: No CFC or HCFCs needed to cool building.

MATERIALS AND RESOURCES

- Recycling: 80% of materials, equipment, millwork and furniture recycled and reused, saving \$140,000.

INDOOR ENVIRONMENTAL QUALITY

- Air quality: All lab areas isolated from each other and ventilated separately to keep toxins out of the building's habitable areas.
- Lighting: Natural light is abundant, and all occupants are near windows with views of the Fraser River.

The City of Vancouver's project of a new Materials Testing Facility on the site of the Asphalt Plant began with a tight budget. One of the bidding architecture firms, Busby + Associates, suggested that instead of demolishing warehouses on the site and building a new facility, the project could be achieved within the budget constraints by using reclaimed warehouse building materials. Not only would this plan save the City money, it would serve as a powerful testament to Vancouver's commitment to the environment. The City agreed on the value of such an approach and the project team set out to design and build this testing facility, with a goal that 90% of the new building (including all building materials, furniture, equipment, etc.) be recycled and reused materials.

SHOPPING FOR "JUNK"

Of course, with such high aims, the project team was forced to reach new levels of flexibility. Much of the design of the building wasn't determined until the project team knew what kinds of materials they would have to work with. They came up with a list of desired materials, and set out to see what was available. They were able to collect five 60-by-10 foot wood trusses, as well as 100 glulam beams and roughly 30,000 square feet of tongue and groove lumber—all for \$2,000 CDN.



The team allowed the available items to dictate the shape of the building. Even after solid design ideas were developed, parts of the building were allowed to remain in flux pending the kinds of materials that became available. The design eventually took the form of a two-story rectangular building with testing laboratories downstairs and offices and meeting space upstairs, flooded with natural daylight.

The team went to local salvage companies and recycling depots to collect additional materials such as doors, windows and plywood sheathing. They also salvaged from Vancouver City property lighting fixtures, panel boards, furniture, lab equipment and plumbing fixtures. Even the sophisticated exhaust fans were recycled from a decommissioned pulp mill and modified for lab use. In the end, the team was able to build and furnish the building using 80% recycled materials—not quite the desired 90%, but extraordinary nonetheless.

WATERING A POND

In addition to having almost no draw on the City's resources, the Materials Testing Facility poses no burden at all on the City's storm drainage systems. Instead, all storm water is funneled to an oil/water separator, and then to settlement ponds. Eventually, the water is fed into a 350-foot grassy swale of native plants, and further processed back into the natural moisture cycle.

AWARDS AND HONORS

2001 INNOVATION AWARD, ARCHITECTURAL INSTITUTE OF BRITISH COLUMBIA
 2001 WHAT MAKES IT GREEN?, ARCHITECTURAL INSTITUTE OF AMERICA
 2001 HONORABLE MENTION, INTERNATIONAL DESIGN RESOURCE AWARDS
 2000 AWARD OF MERIT, CONSULTING ENGINEERS OF BRITISH COLUMBIA
 2000 WHAT MAKES IT GREEN?, ARCHITECTURAL INSTITUTE OF AMERICA

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