LIU CENTER FOR THE STUDY OF GLOBAL ISSUES

FLOOR SPACE: 18,940 ft²
BUDGET: $4.95 million CDN ($260/ft²)
BUILDING POPULATION: 37
CONSTRUCTION DATES: 1999-2000

OWNER: University of British Columbia
ARCHITECTS: Architectura and Arthur Erickson
STRUCTURAL ENGINEERS: Bush Bohlman & Partners
MECHANICAL ENGINEERS: Keen Engineering Co. Ltd.
ELECTRICAL ENGINEERS: Robert Freundlich & Associates
LANDSCAPE ARCHITECTS: Cornelia Oberlander Landscape Architects
BUILDER: Haebler Construction Inc.
PARTNERS: UBC Sustainability Office, GVRD, Levelton Engineering, NRC, Artemide Canada

PROJECT NOTES

SITE AND WATER

- **Site:** New facility built on site of deconstructed building.
- **Water consumption:** Low-volume toilets and showers conserve water.
- **Water drainage:** Minimal impervious surfaces facilitate natural stormwater management.
- **Site vegetation:** The extensive tree coverage on site was preserved for natural shading.
- **Construction equipment:** Heavy machinery was restricted to avoid soil compaction.
- **Transportation:** Facilities for cyclists provided; having no on-site parking reduces pavement needs.

INDOOR ENVIRONMENTAL QUALITY

- **Air quality:** Air pollutants are reduced through low-VOC finishes and minimal use of secondary finishes.
- **Lighting:** Daylight maximized by narrow building width.

MATERIALS AND RESOURCES

- **Recycling:** Saved 60% of building materials costs by using salvaged and recycled glulams and decking from the building that previously occupied the site and recycled pavers, rubber stair treads, drywall, etc.
- **Deconstructing:** Recycled 93% of materials from building deconstructed to make way for new facility.
- **Concrete:** Used high-volume fly ash concrete to minimize environmental impact and optimize the material workability.

ENERGY AND ATMOSPHERE

- **Energy:** Consumes 50% less energy than ASHRAE standards.
- **Ventilation:** Natural cooling is facilitated by the building configuration, minimizing both operating costs and ozone-depleting emissions.

When the University of British Columbia set out to design its Liu Centre for the Study of Global Issues, they aimed for a building consistent with the values that would be taught therein. Of course, this is no small task, as the study of global issues is no small subject. In the end, the project stakeholders decided that the building needed to be simple, inspiring and comfortable, while at the same time having as little environmental impact as possible.

Testing, testing

The university's representatives front-loaded the design process, making many of the important commitments and decisions at the project inception. To do this, the team held stakeholder meetings and public meetings, and conducted environmental impact assessments of each of the building's systems, and even a feng shui review. Using thermal analysis software, the design team was able to predict the effects of the building's configuration on a natural ventilation system.

Using an old footprint

As its first step toward low-impact building, the Liu Centre was slated to be built on the site of UBC's deconstructed Pan-Hellenic House. In addition, 90 percent of the materials from this old building were reused in the construction of the Liu Centre and other UBC building projects.

The building was constructed in a rough H-shape, connecting a lecture room wing to an office and lab wing by a glazed corridor. In between the two wings, on either side of the corridor, there are courtyards that blend into the surrounding second-growth forest.

A concrete example

One of the more significant low-impact measures at the Liu Centre was its use of high volume fly ash concrete as the primary structure and architectural finish. The concrete used has a fly ash content of 50%, meaning that 33% less CO_2 was created in the building's construction than would have been the case if standard concrete had been used. In addition, this strategy was less expensive.

Inside of the concrete-and-glass outer structure, the building's occupants work with the benefit of offices that are both lit and ventilated naturally. Each occupant has individual user controls for light, heat and ventilation, and a user's guide to help them understand the building's principles and achieve maximum personal comfort.

These and many other measures helped the project team accomplish most of their objectives, ending up with a strikingly beautiful building that is both more comfortable for the people within and less imposing on the natural world outside.

Awards and Honors

2001 Lieutenant Governor General Award, Architectural Institute of British Columbia
2001 Innovation Award, Architectural Institute of British Columbia
2001 Award of Merit, Consulting Engineers of British Columbia
1999 Environmental Award, Association of Professional Engineers & Geoscientists

Case study sponsored by:

Seattle Public Utilities
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