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SUSTAINABLE  
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CONSTRUCTION AND  
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# Awards



**W**hen Merrick Architecture was contracted to design the University of Victoria's Social Sciences and Mathematics Building, the project was immediately appealing to the firm for its sustainability objectives and its demand for total flexibility.

"Universities have a lot of turnover and their spaces have to work hard," says Christine Lintott, principal at the firm and project architect. "We developed a concept that allowed for the creation of generic spaces that could be adapted to different uses over time."

The 100,000-square-foot building sits on the footprint of an old parking lot, to reduce the impact on the surrounding green space. That's in accordance with the university's mandate to incorporate as many sustainable principles as it can into every new development, from land use decisions to density to operations. With five levels of high fly-ash content concrete and recycled reinforcing steel structure, the building contains classrooms, laboratories and four-tiered lecture theatres.

Merrick set out to create a building that generates its courtyard landscape, and one that both defines and embraces outdoor teaching opportunities. "The environmental studies department will be growing native plants in the courtyard and using the landscape area as an extension of their academic programs," Lintott explains.

The roof, too, is its own landscape, and has been planted with succulents and drought-resistant plants like strawberries. "This is the first large-scale green roof on Vancouver Island using native soils," says Rod Parker, owner of Parker Johnston, the company contracted to complete the roof and exterior paneling. The 40,000-square-foot roof has been planted using soil mix and plants from the university's site. "The university saved a lot of money by doing this," he says, placing the savings figure at approximately \$100,000.

Parker Johnston used Swisspearl wall panels, cement board panels imported from Switzerland and covered for their estimated 75-year life expectancy with minimal maintenance. "The panels have their own colour built in, so they require no painting," he says. "This greatly reduces their maintenance cost over years and their footprint on the environment." The installed panel assembly cost around \$40 per square foot, while standard wall systems are priced at \$30 per square foot. The latter, however, require annual maintenance of \$2-to-\$3 per square foot, "so over the long term, this is a better solution," Parker says. "This is an expensive system, but it's bullet proof."

There were many 'firsts' in this building, not the least of which was the feature entry roof. "As far as we know, this is the first structural application of



PHOTOS: MIK WEST



## Social Sciences and Mathematics Building – University of Victoria

by Lauren Kramer

pine beetle wood harvested from the Prince George area," says Lintott. Timber columns and tresses constructed from pine beetle wood are used to support the building's atrium, providing an opportunity to showcase products that can be manufactured "from what is essentially waste material," she says.

"The provincial government has shown a real interest in this project as a result," Lintott continues. "Its use shows there are commercially viable opportunities for this product, and esthetically, the accents of the wood features, including the pine beetle wood, soften the building."

The Social Sciences and Mathematics Building is naturally ventilated and day lit to provide high quality indoor spaces for its users. "There's no canned air in the building," Lintott explains. "When you open your window, that air percolates through the building into the corridor and makes its way into

the centre of the building's three-storey space, where it is drawn up and out. That means it's a really high quality, fresh air environment."

Large expanses of glass maximize natural lighting, so that most of the time lights won't need to be turned on. "Even the indoor corridor spaces use borrowed light from the outside windows, which is quite unique," she says.

Rutland Glass was contracted to install the 50,000 square feet of exterior glazing. "The very confined worksite posed many challenges," says Dave Lund, company spokesperson. "A unique multivent system consisting of standard opening vents in combination with SV-2000 Roto-Vents manufactured by Alumicor Ltd. offers maximum ventilation and air circulation through our curtainwall system while still maintaining the integrity of the highly energy efficient envelope."

Architectural highlights for Rutland included an expansive segmented SSG main entrance, a diffused glass lantern feature and extensive use of structural glass railings. "This latest addition to the campus is as esthetically pleasing as it is functional," Lund says.

Getting all the trades to the site on time was a challenge, admits Dave Richardson, senior estimator at Campbell Construction, which served as construction managers and also built





the structure. "The fact that we built the structure with our own forces was an advantage because we only had ourselves to rely on, so we could get the job done when we needed to and thus set the pace for other trades to follow," he explains. "But in this particular construction market, some trades are spread much too thinly, so it was difficult to get some trades to perform as quickly as we would like them to."

Although taking longer to complete than in a less hectic construction market, the project, which started in March 2006, was completed in time for the scheduled move-in, and under budget, too, notes Richardson.



PHOTOS: MIK WEST

#### **LOCATION**

University of Victoria  
Victoria, B.C.

#### **OWNER/DEVELOPER**

University of Victoria

#### **ARCHITECT**

Merrick Architecture – Borowski Lintott  
Sakumoto Fligg Limited

#### **PROJECT MANAGER**

University of Victoria –  
Facilities Management

#### **CONSTRUCTION MANAGER**

Campbell Construction

#### **STRUCTURAL CONSULTANT**

Peterson Galloway Ltd.

#### **MECHANICAL CONSULTANT**

Stantec Consulting Engineers

#### **ELECTRICAL CONSULTANT**

Applied Engineering Solutions

#### **LANDSCAPE ARCHITECT**

Vaughan Landscape Planning and  
Design

#### **GEOTECHNICAL ENGINEER**

Levelton Engineering

#### **TOTAL AREA**

100,000 square feet

#### **TOTAL CONSTRUCTION COST**

\$30.5 million

"Another challenge was due to ground water conditions on the project, and with below-grade lecture theatres, the project team was forced to pay extra attention to ensuring that water conditions were properly addressed." This site has underground water courses and old drainage pipes and trenches running in all directions, he explains. "There was a lot of site services rerouting and an extensive system of drains and sumps to ensure everything drained properly."

Add to the equation an active campus with students circulating between buildings and other construction projects ensuing simultaneously, and the logistical difficulties are easy to imagine.

But by today's standards, this building is doing "all the right things," says Chris Peterson, principal at Peterson Galloway, the project's consulting structural engineers. "We expect this building will receive Gold certification under the LEED system, a high level that means its design and approach was environmentally sensitive, using sustainable practices." What's more, this is a "durable building that won't wear out over time," Lintott says. ■