



LOCATION
6270 University Boulevard, Vancouver, B.C.

OWNER/DEVELOPER
University of British Columbia
Infrastructure Development

ARCHITECTS
Diamond Schmitt Architects /
HDR/CEI Architecture Associates, Inc.

GENERAL CONTRACTOR
Scott Construction

STRUCTURAL CONSULTANT
RJC Engineers

MECHANICAL CONSULTANT
AME Consulting Group

ELECTRICAL CONSULTANT
AES Engineering Ltd.

LANDSCAPE ARCHITECT
PFS Studio

TOTAL SIZE
165,840 square feet

TOTAL COST
\$88 million

Undergraduate Life Sciences Teaching Labs – UBC

by ROBIN BRUNET

The University of British Columbia’s (UBC) focus on life sciences has helped B.C. become a leading centre for world-class research and teaching in this sector, so it’s unsurprising that the University has persistently lobbied for – and received – funding to upgrade its facilities, one example being the 2011 renewal of the south and west wings of its Bioscience Complex.

In the case of UBC’s Undergraduate Life Sciences Teaching Labs, which is part of that complex, talk of renewal “went back many years, but firm planning on the project didn’t begin until about 2014,” according to Kyle Reese, senior project manager, Infrastructure Development/Project Services at UBC. But in January of 2016, former premier Christy Clark announced funding toward an \$88-million upgrade of the complex; this, along with federal funding, turned a long-time dream of providing modern teaching labs for undergraduate life sciences programs into reality.

Strictly from a logistics point of view, the upgrades would task the skills of Diamond Schmitt Architects, HDR/CEI Architecture Associates, Inc., and Scott Construction. “The new wing we’re building is surrounded by three other facilities with only one access point that is in constant use,” says Reese.

Despite the tight confines, the LEED Gold project is ambitious in scope and includes demolition of the existing centre wing, renovation of the existing

north wing, and the addition of a new east wing, which will complete a quadrangle of buildings and create a new and expanded courtyard at the heart of the Bioscience Complex. It will also provide a consolidated home for undergraduate students and teaching faculty in biology, microbiology and immunology, biochemistry and molecular biology, and cellular and physiological sciences, plus new facilities for botany and zoology.

The new spaces will include teaching laboratories; support areas (such as preparation rooms and environment chambers); plant and specimen collection areas; instructors’ and student association offices; and a versatile 240-seat learning lecture theatre and classrooms.

Reese says, “The centre wing, built in 1948, was not suitable for renewal, which is usually our policy: structurally it was very high risk and had an unusual form and poor layout. Renovating the north wing, which was built in 1973, wasn’t an easy undertaking because a considerable amount of asbestos had to be carefully removed, plus the structure had to be seismically upgraded.

“As for the new structure, our goal was to maximize the efficiency of space and provide an interior courtyard – but beyond that we deliberately refrained from getting specific on a visual aesthetic and left that to the architects.”

Peggy Theodore, Toronto-based principal at Diamond Schmitt



Architects, formed a collaborative partnership with HDR/CEI and relied on that Vancouver-based firm as, amongst many other things, “our eyes and ears on the ground. A lot of the design up to the contract documents phase was from Diamond Schmitt, but from that phase onward the work was split up.”

The design of the building offers a primary facade of insulated aluminum panel with vertical strip glazing that references the surrounding buildings. The design also stacked services (to save space) and created a layout

emphasizing a double-loaded corridor with program space on either side, capped by the 240-seat theatre.

Reese says, “Materials were kept simple: wood panelling in the feature areas and epoxy-painted drywall in the labs with casework and accent colours.” Theodore adds, “For the renovated north and new east wings we used glazing that contains a frit pattern taken from a stem cell image.” Flooring would alternate between polished concrete in common areas and moisture- and chemical-resistant epoxy for the labs.

RENDERINGS COURTESY DIAMOND SCHMITT ARCHITECTS

Theodore says that the creation of informal gathering spaces both inside and outside were extremely important to the success of the new structure, “and since the renovated north wing fronts University Boulevard, we opened up this area at grade in order to allow more light into the quadrangle.”

With over 150 workers on site at peak, co-ordination of activity became a priority as soon as construction began in August of 2016. “The sequencing of trades is complex, and just-in-time deliveries of material is the only way to get the job done,” says Trent Berger, project manager for Scott Construction.

Berger notes that while a severe winter of 2016 added to the challenge of demolishing the centre wing, soil conditions complicated the excavation of the new structure. “There were metal and lead deposits from the operation of the old labs over the decades, plus all the underground pipes had been covered with asbestos that had flaked off,” says Berger. “However, despite all this, and thanks to daily meetings with UBC to help co-ordinate everything, we’re on track to occupy the building early next year.”

How the finished building performs will be of immense interest

to Drew Kennedy, project manager for consulting mechanical engineers AME Consulting Group. “As of June we’re anticipating the delivery of a Thermenex system that will be installed, along with specialty plumbing, in the new facility,” he says.

Thermenex uses a water-filled pipe that functions as a hub for thermal energy exchange. The pipe is not a loop, it has no pumps, it’s simply a long length of pipe with a temperature differential from one end to the other, allowing all heating loads to be considered as cooling sources and all cooling loads as heat source, and resulting in zero thermal energy waste.

In terms of overall sustainability, Theodore says, “Our mutual goal for energy usage is 310 kwh/m2/yr, which is very good for a building with lab activity.”

Even though in June the project was only halfway complete, Reese is pleased with the progress and excited about the outcome. “We have a team that works well together, so we couldn’t ask for more,” he says.

Theodore concludes, “This is a massive project that required constant input and support from a huge team of consultants and operations specialists, stakeholders, a design panel, and others. We’re very happy with how everything is coming together.” **A**



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