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SMALL FOOTPRINT, BIG IDEAS: U OF WATERLOO’S LEED® PLATINUM EV3

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OVER AND ABOVE: U OF WATERLOO'S GREEN EV3

A new LEED® Platinum building for the University of Waterloo's Faculty of Environment minimizes its physical and environmental footprint and simultaneously makes a vibrant addition to the campus

BY PAMELA YOUNG

The structural ingenuity of this design build project enabled the university to achieve its goal of minimizing the footprint of the 57,000-sq.-ft. EV3. Much of the new building spans over EV2, one of two older Faculty of Environment buildings on campus. Supported by two massive trusses and a series of columns positioned clear of EV2, EV3 is structurally independent from the older building, which could not have supported its additional weight. Glimpses of the steel trusses enliven the experience of walking through the building.

"Where we could expose them, we did," said Kevin McCluskey of Pearce McCluskey Architects (formerly Akitt, Swanson and Pearce Architects Inc.)

Mr. McCluskey explained that the building is organized around the sky-lit atrium that cuts through it on an east/west axis, partially enclosing what was formerly an EV2 exterior wall. North of the atrium is the four-storey student zone, which contains classrooms, meeting rooms, common areas, a café, the design studio and a 150-seat auditorium. South of the atrium, on the two floors of EV3 that span over EV2, are the faculty zone's offices, meeting rooms and multipurpose spaces.

Faculty of Environment defines itself as an institution that "creates knowledge, nurtures learning and promotes action to achieve sustainable futures." The four-storey atrium that is EV3's most public and dramatic space translates this mission statement into something tangible. Its double-height living wall, linked to the building's HVAC system in a way that enables plants to play a role in purifying the air throughout the facility, is now a thriving, leafy expanse. (Initially the greenery struggled in the space, but increasing the amount of artificial light the living wall received solved the problem.) In addition to monitoring and controlling the operation of EV3's HVAC systems and exterior lighting, the Building Automation System monitors interior lighting, total power use, and water consumption. Monitors in the atrium show how much energy EV3's rooftop photovoltaic solar array is generating, and track energy use and water consumption within a building projected to consume just over half as much energy and only about 12
Massive trusses and columns positioned clear of the older building beneath it provide EV3’s structural independence

corner, which houses the café at grade, the second-floor design studio and student common areas on the two topmost floors. In the faculty zone, all offices on the perimeter have operable windows; many other offices face onto the atrium or one of the glazed-roof courtyards on the fourth floor.

While one of EV3’s most attractive features is a third-floor patio overlooking the green roof that was installed on top of EV2’s existing roof, other, less visible, aspects of this project merit attention. Most interesting of all, perhaps, is the fact that a design build project, constructed on a relatively modest budget of approximately $22 million ($386 per square foot) and fast-tracked to qualify for funding under the federal government and the province of Ontario’s Knowledge Infrastructure Program (KIP), has earned a LEED Platinum rating. Only a few years ago, that designation was considered beyond the reach of all but the most ambitious sustainable building projects. Vividly green in more ways than one, the University of Waterloo’s EV3 suggests that “sustainable” is becoming more attainable.

per cent of the water that a conventional reference building of comparable size would require.

Rainwater harvesting and constructed wetlands play a role in reducing potable water consumption. “Wastewater is funnelled off the roof and discharged into a vertical flow system,” Ms. Ramsay explained. “The plants pull contaminants out of the water, and the water is then stored in two underground cisterns and pumped back into the building to flush toilets and water the living wall.”

LEED puts a lot of emphasis on exposure to natural light and views to reduce the demand for artificial lighting and increase occupant comfort, and EV3’s design team met these requirements with considerable finesse. In the student zone, glazing wraps around the building’s acutely angled northwest

PROJECT TEAM/SUPPLIERS

Design Builder: Cooper Construction Ltd.; Architect: Pearce McCluskey Architects; Structural, Mechanical, Electrical and Civil Engineering and LEED Consultant: WalterFedry Engineers; Landscape Consultant: Brodie & Associates;

Filing Cabinets and Classroom Chairs: Ki; Classroom Tables: Teknion; Desks: Tayco; Task and Guest Seating: Haworth; Reception Seating/Tables: Krug; Custom Bamboo Furniture and Millwork: Shoufany Custom Woodwork; Linoleum: Forbo and Tarkett Commercial; Broadloom: Mannington Commercial and Crossley; Bamboo Flooring: Nadurra; Acoustical Ceiling Tile: Armstrong

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