LETHBRIDGE COLLEGE - TTRIP

TRADES AND TECHNOLOGIES RENEWAL AND INNOVATION PROJECT

An energy-efficient, net-zero design –
The largest construction project to date in the college's history.

Managing Building Information to Optimize Lifecycle Performance

Location
Lethbridge, Alberta

Project Completion
June 2017

Project Cost
$70 Million

PROJECT DESCRIPTION

The Trades and Technologies Renewal and Innovation Project (TTRIP) is the largest construction project in the college's history. The three-and-a-half-year project has resulted in the largest trades training facility south of Calgary. The completed building measures 168,812 ft2, cost $77 million and provides state-of-the-art learning and training spaces for students in a variety of skilled trades and technologies programming, as well as a 7,000-square-foot innovation space. This impressive new build has expanded the college's trades and technology program capacity by 65%.

Diamond Schmitt Architects, in association with Sahuri + Partners, designed the facility and Bird-Stuart Olson oversaw the construction. The open concept design features a mix of wood, concrete, and glass, creating a natural atmosphere complimented by an abundance natural sunlight. The new building consists of high-bay shop spaces constructed in steel and timber, surrounding a central cluster of offices and classrooms in concrete and timber.

Beyond design, the building is equally impressive from a functional standpoint. Modern spaces for students in welding, automotive, engine and heavy-duty mechanic programs have garnered much excitement and attracted and increase in enrollment for the College's trades and technology programs.

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The construction upgrades included new ventilation, exhaust, and electronic systems. Over 30% of the construction budget was allocated to mechanical and electrical components that powers various state of the art building systems. These systems support the school's welding, automotive, engine, and heavy-duty mechanics programs. The two phased structure of the project added additional complexities to the commissioning and handover of building systems – a challenge that Bird-Stuart Olson did not shy away from.

The connection of the new facility to the adjacent buildings on campus required extensive upgrades to existing roof structures. These upgrades involved extensive asbestos removal and abatement, which was followed closely by structural upgrades and the application of new roofing substrates.

During the warranty period, there was a concern around occupant comfort due to building temperature control. Bird-Stuart Olson implemented building analytics during the spring of 2018 to identify and resolve operating anomalies. We quickly uncovered several abnormalities - such as slabs being heated while the building should be in cooling - and worked with trades to quickly resolve them.

We are pleased to report that the accurate data provided by our analytics and reporting, Bird-Stuart Olson delivered an optimally operating building per the design standard within the one-year warranty period with no call backs.

INNOVATION AT WORK

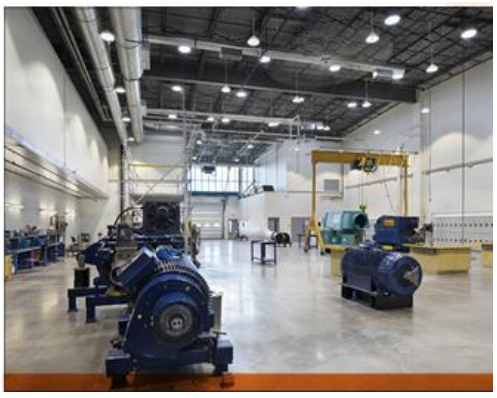
Through analytics we have been able to discover and track number of building operational anomalies and work with the team to provide improvements in areas such as:

Heating Slabs

The buildings slab heating system sensor readings revealed an issue where one sensor in particular was reading too warm which has been addressed, along with other issues with the operation of the slab control valves which have been corrected.

Variable Air Volume (VAV) Controls

Analytics identified half a dozen VAV boxes not able to controls to the flow setpoint, this issue has been rectified and the flow readings have stabilized, and the dampers modulate appropriately now across the VAV system.



Building Pressure Control

Occupants identified building pressures issues, through analytics we were able to improve the Air Handling Units fan speed control which resulted in improved stabilized building pressure control, the building now rarely experiences a loss in pressure which can be normal for buildings with periods of high traffic through doorways or other large openings. The building is now benefiting from the pulling in cold outdoor air during winter months.

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