

# Case Study

April 2016



## Renison University College

*Thermal storage system outperforms expectations; shifts 97 percent of electricity use to off-peak hours; results in \$47,000 rebate • Waterloo, Ontario*

*Located an hour west of Toronto, Renison University College was founded by the Anglican community and is affiliated with the University of Waterloo. With an enrollment of approximately 1,300 students, the college offers degree programs in social work and the social sciences, as well as courses in languages, humanities, and culture. Renison University College is committed to assisting students in developing the skills needed to express their own ideas with precision and eloquence.*

### Challenge

As Renison University College's student body began to grow at a rapid pace, college administrators moved forward with expansion plans. Outlining their objectives for a new building, the college wished to use proven technology to minimize energy consumption and its carbon footprint, while keeping occupants comfortable. The college also required design flexibility to accommodate vertical expansion of the building when its programs and enrollment warranted additional space.

### Solution

The college's design/build consultants, AEC Developments and WalterFedy Architects and Engineers, contacted Trane to discuss the building's HVAC system design. To accommodate a potential vertical building addition, the option of using rooftop HVAC units was excluded, and the decision was made to move forward with a Trane® EarthWise™ Ice-Enhanced Air-Cooled Chiller Plant.

#### Shifting electrical consumption to off-peak hours

Trane and WalterFedy worked together to meet the college's objectives of energy savings, extended equipment life cycle, serviceability and space, designing a thermal storage system for the new building. Thermal storage allows the college to shift electrical consumption to off-peak daytime hours to avoid the assessment of penalties, and is more efficient at load levelling than a chilled-water-only system. Using thermal storage enabled Renison to reduce the size of its chiller from 90 tons



*To keep pace with a growing enrollment, Renison University College added a new 35,000 sq ft building to its campus, which incorporates thermal storage to minimize energy consumption and its carbon footprint.*

to 52 tons, as well as reduce the amount of duct work, helping to lower equipment and installation costs. In addition, using familiar technology allowed the college to continue using its existing HVAC contractors.

#### Implementing a high-efficiency system

The Trane EarthWise chiller plant system offers high efficiency, low emissions, sustainable building performance and documentation. The system leverages high-efficiency HVAC equipment and advanced building controls in a complete design concept that optimizes performance. Tapping into the collective capabilities of pre-programmed controls and a pre-engineered system package reduces risk, complexity and costs.

