

# Green Retrofit Solution

Arena's aging mechanical system replaced with ice storage and building automation system.

BY MARK MACCRACKEN

The Yardmen Arena in Belleville, ON is named for a small group of railroaders—known as The Belleville Yardmen—who raised over \$3 million toward its construction in 1978. After over three decades of operation the arena's aging mechanical system needed to meet ON Reg 463/10, made under the Environmental Protection Act—Ozone Depleting Substances And Other Halocarbons, which was coming into effect in December of 2010. Rather than just replacing the system with an updated version of the same thing, the city sought a "green" solution that would comply with the regulation, as well as lower annual energy expenses.

City officials ultimately settled on an ice storage system. The City of Belleville retained design/build contractor Geo. A. Kelson Company Limited, Stantec and Trane, to install the new chilled water system.

Completed in 2010, the installation already exceeds performance expectations by 25 per cent. The city of Belleville is now anticipating a three-year payback instead of the estimated four-year payback. Even on the hottest days in the summer, when temperatures often exceed 90F, the electric chiller remained off. Cooling is supplied from the ice storage tank and a 30-horsepower pump operating at half speed.

Prior to the retrofit, Yardmen Arena was the biggest energy consumer of all the city's assets. The ice storage system and chilled water system plant and ice controls,

which provide additional savings from Demand Response rebates from the Ontario Power Authority, have enabled the arena to see unprecedented energy savings.

"We now have a chilled water system that is half the size of the original and operates during off-peak hours, saving us money," said Peter Lyng, facilities manager, recreation, culture and community services for the City of Belleville. "Everyone is extremely enthusiastic since the new system was installed. People are looking to us as leaders for green solutions. The city's Green Task Force is ecstatic with the energy savings." <>

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The 3,257-seat (ice in) arena is home to the Belleville Bulls of the Ontario Hockey League.



A building automation system provides building control through a single, integrated system, while energy storage tanks provide cooling.



Photos: Murnaghan Photo