

# STMA ICE ARENA

## COOL SAVINGS AT LOCAL ICE RINK

CASE STUDY  
MINNESOTA



Ice time was getting harder and harder to come by in the city of St. Michael. A growing number of skating clubs and hockey associations needed more ice time than the single outdated rink could provide. It was time for a renovation, a second rink, additional athletic facilities, and new technology to make the rink compliant with environmental regulations for years to come.

So STMA School District #885 made a plan to build a 37,000 square foot expansion of the existing ice arena to share with the surrounding community.

The new NHL-size, refrigerated, year-round ice rink, with seating capacity for approximately 600 spectators, six team locker rooms, concession stand, lobby, community room, bathrooms, and related support spaces began to take shape.

### Renovate and reap savings

The project began with the guidance of Xcel Energy's Energy Design Assistance (EDA) program, which helps with the new construction process by maximizing energy-saving opportunities that complement the style and design of the building. The program provides computerized energy modeling to identify various efficiency measures available, potential costs, payback terms and rebates.

They choose from measures such as energy-efficient lighting, heating and cooling systems, controls systems, and more.

In addition to choosing energy-efficiency measures, STMA needed a new ice-making system. The 20-year-old system would soon be non-compliant with new environmental regulations. They opted for a first-of-its-kind solution.

"We're the first chiller system in the nation to run on carbon dioxide," says Terry Zerwas, Director of Buildings and Grounds. "Canada uses this technology in several of their rinks. They cost more money up front, but they're cheaper to operate."

In fact, the heat generated from the same refrigeration system is reclaimed and used to keep the ground under the ice arena floor from freezing. They are re-using what would otherwise be wasted heat. This measure, along with the others implemented, will give them 28 percent energy savings over building to code.

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Dr. Ann-Marie Foucault,  
Superintendent of  
St. Michael-Albertville Schools



PROJECT SNAPSHOT	
Xcel Energy rebate	\$ 95,000
Estimated annual energy cost savings	\$ 70,000
Peak energy reduction	169 kW

"We're known for doing more with less," explains Dr. Ann-Marie Foucault, Superintendent of St. Michael-Albertville Schools, who says they have to be very creative with what little money they get from the state.

"We have to be good stewards of taxpayer dollars. It costs more to upgrade to energy-efficient equipment for the building, but Xcel Energy rebates made the payback on our investment less than three years, so it seemed like a no-brainer. Plus, we'll save money on our energy bills for years to come, and having a destination ice rink means we're bringing more teams here to skate, which brings dollars into the community."

Lighting was another area of focus. Zerwas had been working on a five-year plan to install LED lighting wherever possible at schools and other district-owned properties. They installed LED lighting throughout the building, including the outdoor lighting at the athletic field and tennis courts, and the seasonal inflated dome over the athletic field. Dimmers and occupancy sensors were also installed in numerous areas.

The biggest energy saving measures installed at the STMA Ice Rink include:

- Refrigeration heat reclaimed to heat floor beneath ice rink
- LED lighting, dimming controls and occupancy sensors

The measures will save STMA an estimated \$70,000 each year in energy costs.

### Expansion worth the work

The skating community and others who use the rink and adjacent facilities are thrilled with the new spaces. They're not just for skaters: various clubs and organizations can rent the community room for meetings and other activities.

"Hockey families love it and we're getting other local hockey associations asking to buy ice time, so it's already generating money for us," Foucault says.

And now with two rinks, they have enough ice time to go around.

