

Hamilton Ice Arena - Rocky River Recreation Center

HVAC Systems Optimization & Retrofit • Lighting Retrofit • Shared Savings Agreement

Heating, Ventilation and Lighting Improvements Expected to Save Up to 20 Percent of Annual Energy Costs

The Hamilton Ice Arena at the Rocky River Recreation Center, located in western suburban Cleveland, serves the city's residents including high school hockey players, school children and senior citizens, and hosts a regional hockey program that serves more than 400 players from Rocky River and surrounding communities. The winning high school hockey program helps build civic pride.

Challenge

The Hamilton Ice Arena needed attention. Lighting dated back to the original rink construction completed in 1970. Illumination proved so poor that any newly installed lights left a "halo" on the rink. Players found it difficult to see the puck – and the lack of illumination made it even more challenging for spectators to follow the puck. Inconsistent heating left warm and cool spots within the arena and warmth over the rink made events uncomfortable for the players who needed less heating to counteract their high activity levels.

City leaders wanted to offer a first-class rink that would meet current users' needs and even draw new residents to the city. Rocky River competes with surrounding communities to maintain and expand its population. Improving the lighting and the heating/ventilation could generate significant energy savings which could then be invested back into making improvements in the rink.

Solution

City leaders worked with Gardiner to analyze a city-wide facilities energy audit which identified potential for savings throughout city buildings. Given the prospective savings that could be gained from improving the lighting and heating, ventilation and air conditioning (HVAC) in the ice arena and the significant role that the arena plays in the lives of the city's current and potential residents, city leaders decided to update the Hamilton Ice Arena first.

Major improvements included replacing 45 metal halide light fixtures using a six-tube fixture with T5 lights in the arena to increase the clarity and quality of light and save energy. The new lights offer double the life expectancy of the previous lights while requiring an investment of nearly 50 percent less per bulb. More importantly, the new bulbs transformed the ability for both players and spectators to see in the arena, removing halos and dark spots and leaving the rink atmosphere clear, clean and crisp in appearance. The profile of the new lighting fixtures, which is located closer to the ceiling, eliminates the puck interference that they experienced with the old fixtures.



Comprehensive lighting retrofit with T5 lighting improved quality of light and saved energy.



HVAC systems & equipment optimization



Energy efficient gas-fired radiant heaters improved comfort while saving energy

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Solution

Improvements also included installing four efficient gas-fired radiant heaters, primarily over the stands and the area where residents put on their skates for the rink's "all skate" sessions. The previous heating system left the area over the rink uncomfortably warm for skaters and players. The new system greatly improved the comfort for the ice rink participants and spectators. To properly ventilate the space, two carbon dioxide (CO₂) sensors were added to monitor CO₂ levels in the space to indicate when to ventilate. When the sensor indicates the need for ventilation, outside air is increased.

Separate controls allow the rink facilities team along with Gardiner, to remotely control the gas-fired radiant heaters and ventilation. Operation of the heaters was reduced during unoccupied times. The web-based monitoring system, which tracks and controls operation of the gas-fired heating ventilation units, includes remote access and local overrides.

Results

City leaders anticipate that the improvements will save up to 20 percent in annual energy costs while improving lighting for players, skaters and spectators and occupant comfort for all. Administrators are so pleased with the results at the recreation center that they plan to undertake similar improvements in the city's civic center, another key building that serves both local residents and surrounding communities.

“Technology is a game changer in the industry and allows us to make some wise decisions. We needed to do that with a partner like Gardiner that has the expertise.”

Mayor of Rocky River



Project Overview

- HVAC Systems and Equipment Optimization
- Comprehensive Lighting Retrofit
- HVAC Retrofit
- Energy Efficient Gas-fired Radiant Heaters
- Carbon Dioxide Sensors (CO₂)
- Shared Savings Agreement
- 20 Percent Estimated Annual Savings in Energy Costs

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