

QUALITY ICE, SAVINGS, AND WORLD CHAMPIONS-ALL AT THE PETTIT NATIONAL ICE CENTER IN MILWAUKEE

In order to run a world-class facility, you have to constantly look at ways to improve efficiency and reduce operating costs – especially when it comes to controlling the environmental conditions inherent with ice arenas.

As a national indoor speedskating training facility, Milwaukee's Pettit National Ice Center boasts of 97,000 square feet, two international – size hockey/figure skating rinks and one 400-meter speed skating oval. According to operations director Jim Gulzynski, the arena wanted to dramatically reduce energy consumption yet still provide the best ice possible on which to train and compete.

THE PROBLEMS

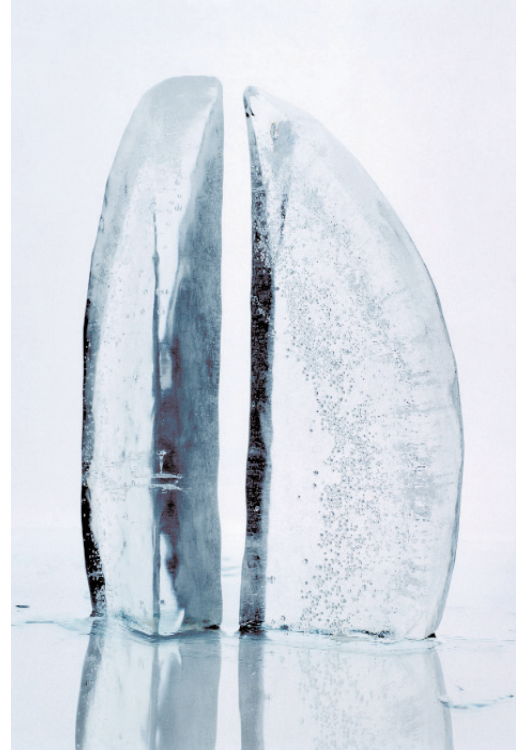
As moisture condenses on the rink, the ice softens and forms puddles until the refrigeration system can freeze the condensation. This causes skaters to fall onto the wet ice and the refrigeration system operating costs rise dramatically.

High humidity also causes fog, obscuring the ice action and leading to safety problems. Excess moisture condensing on the roof structure causes dripping on spectators and damage to the ice. The condensation causes deterioration, "Ever since Pettit opened its doors in early 1993, the refrigeration system was extremely costly," says Gulzynski. "In order to dehumidify and maintain a 55°F air temperature, the air had to be cooled to about 35°F to get the water out and then reheated back up to 55°F."



The Pettit National Ice Center keeps the air cool and dry, and the ice in peak condition, with natural gas-burning desiccant dehumidification systems.

DryCool Case Study: The Pettit National Ice Center



FACTS

By Installing the IceAire System, Pettit National Ice Center has:

- \$81,000 Annual Cost Saving
- High-Quality Ice Surface
- Fresh Air Without High Humidity
- Fast Recovery From Resurfacing
- No Fog
- Reduced Maintenance Cost
- Improved Comfort

THE SOLUTION

While attending a conference for rink managers, Gulzynski learned about Munters' gas-fired desiccants and their excellent track record in humidity control applications. Then, Pettit's engineering firm, Ratai Zak, Inc., showed them a cost analysis between Munters DryCool® IceAire desiccant unit and the center's refrigeration system – and the savings were significant.

"It was just unbelievable," Gulzynski recalls. "By saving more than \$81,000 a year on energy costs, we can pay for the units themselves in about 18 months."

According to Bob Inda of Wisconsin Gas Market Services, the center will burn 32,000 therms of gas annually. Consumption is especially high during off-peak, warm weather periods.

"Because gas desiccant systems draw in air from the outside, reduce the moisture in it and then recirculate it inside, they have a major effect on creating ideal hard, dry ice and proper indoor air climates," says Inda. "And they're much more efficient to run."

Most of all, Munters' system helped the world's best all-around speed skaters stay on the fast track during February's World Cup competition. According to K.C. Boutiette of Tacoma, Wash., who sped to a 1:52.99 track record in the World Cup men's 1,500-meter event, the ice conditions at Pettit were ideal.

"The ice had a great grip, better than ever," Boutiette told the Milwaukee Journal Sentinel the day of the competition. "The new dehumidifiers must really be working. The Pettit staff really knows what they're doing."

THE ICEAIRE SYSTEM

IceAire systems use gas which is less expensive than electricity in handling latent energy. The system handles a mixture of fresh air and return air from the arena. Humid air passes through a rotating desiccant wheel, which removes the moisture. Then a



Pettit National Ice Center is one of numerous ice arenas nationwide which use cost-saving desiccant

fan delivers the air back to the arena. Even at peak summer design conditions, the IceAire system supplies air to the arena drier than if the temperature outside were 0°F. This exceptionally dry air allows the system to hold the arena at a condition of 40% rh all year long.

The IceAire system does not include heating or cooling components because those functions are performed adequately by the combination of the ice surface itself, and existing heaters mounted inside the space. Those heaters operate less frequently since the IceAire system was installed because desiccants warm the air as they dry it. This provides another benefit during cool seasons, when dehumidification is still needed.

Spectator and skaters enjoy the warm dry air from the IceAire system much more than the cold, saturated air which was blown into the arena by the ineffective cooling-based dehumidification system.

BENEFITS

\$81,000 Annual Cost Saving

By keeping the arena dry, the ice refrigeration system operates so efficiently that Pettit saves over \$81,000 a year.

High-Quality Ice Surface

With no excess humidity to condense on the rink, the ice stays hard even

during summer month. Puddles don't form, so skaters stay dry and comfortable. And without condensation dripping from roof supports, no mushrooms form on the ice, so resurfacing requirements are reduced.

Fresh Air without High Humidity

Indoor air quality issues have received much negative attention in ice arenas. With IceAire, Pettit is able to bring in fresh air without the problems caused by excess humidity.

Fast Recovery From Resurfacing

Since air is dry, the ice recovers quickly after resurfacing operations, so there's more skating and less waiting.

No Fog

The familiar fog problems of humid seasons are eliminated because IceAire keeps the arena free from excess moisture. Spectators can fully appreciate the ice action, and skaters can enjoy a safer, fully visible ice sheet.

Reduced Maintenance Cost

Without high humidity, the building structure does not corrode, and mildew does not grow on paint as in the past. So cleaning and repainting costs are reduced. And since insulation stays dry, it costs less to heat and cool the building.

Improved Comfort

With a dry arena, there is no cold roof condensation to drip down the collars of spectators. The cold, damp experience of the past is gone.