PROJECT REFERENCE

Energy Efficient Heat Recovery Wheels Cool the Family Arena in St. Charles, USA

Energy efficiency is a financial must when maintaining uniform indoor conditions for such a large space as the Family Arena, which is constantly bringing in large volumes of outdoor air.
The energy recovery wheels from SEMCO work dramatic results, saving approximately 450 tons of mechanical cooling.

FACTS

Customer:
The Family Arena in St Charles, USA

Need:
Energy efficient air distribution system which provides an even airflow throughout the seating area.

Solution:
HVAC system with four SEMCO EXCLU-SIEVE® energy recovery wheels.

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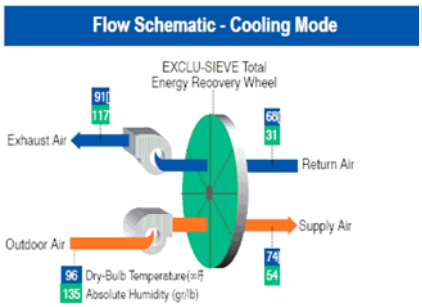
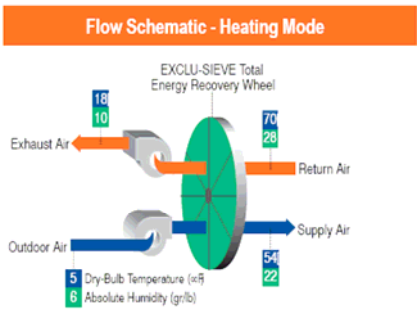
Energy Efficient Indoor Air Quality Solutions that Work

The Family Arena seats 10,000 spectators for hockey and soccer, 11,000 for basketball, and 8,300-11,400 for concerts.The presence of the ice rink in the new arena, coupled with the building's size placed some unique demands on the design of the system. The system needs to import 110,000 cfm of outside air to meet code requirements. Finally, it is essential to have an air distribution system which provides an even airflow throughout the seating area while minimizing air movement over the ice rink.



The outdoor air passes through the EXCLU-SIEVE total energy recovery wheel and is cooled and dehumidified.



The outdoor air passes through the EXCLU-SIEVE total energy recovery wheel and is heated and humidified.

Energy efficient solution

Wiegman & Associates, a firm located in St. Charles, MO, designed and installed a state-of-the-art HVAC system that is keyed to dewpoint temperature - rather than space temperature or relative humidity, to keep moisture levels low for the benefit of the ice.

The team designed a central system that incorporates four 13-ft tall SEMCO EXCLU-SIEVE® energy recovery wheels to optimize energy efficiency and take advantage of low humidity and temperature levels within the arena. Energy efficiency is a financial must when maintaining uniform indoor conditions for such a large space as the Family Arena, which is constantly bringing in large volumes of outdoor air. The SEMCO wheels work dramatic results, saving approximately 450 tons of mechanical cooling.

Benefits

The system provides large amounts of outside air to the sports arena without increasing energy costs. By pre-conditioning the ventilation air, the conventional heating and cooling system was downsized. On a good number of days, the conventional air-conditioning equipment does not even operate at all.

By pre-conditioning the outside air, the conventional heating and cooling system experiences less variations in operating conditions. It is as if it were operating in a mild climate year round.

SEMCO Total Energy Wheel transfers moisture in vapour form. There are no wet surfaces which could result in microbial contamination.

The Wheels provide 82.5% efficient recovery of both sensible and latent energy and they require minimal maintenance. Semi-annual lubrication of bearings and routine inspection are all that is called for.

The energy recovery system removes most of the moisture from the ventilation air. Because of this, a dramatic reduction in condensate formed on the conventional cooling coils has been documented at the Family Arena.

The requirements of ASHRAE Standard 62 are met.

SEMCO

SEMCO is a unique indoor environment products manufacturer serving the key disciplines of air distribution, noise abatement, temperature, and humidity control in the commercial and industrial building markets. SEMCO was acquired by Fläkt Woods in 2007.

Fläkt Woods Group

Fläkt Woods is a global company providing solutions for ventilation and air treatment for buildings as well as fan solutions for Industry and Infrastructure applications.

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