

CASE STUDY

Galt Gardens Arena

Cambridge, ON - Indoor Air Quality & Energy Retrofit

Return on Air™ (ROA)

33%

Energy consumption reduction

39%

Greenhouse gas emissions reduction

**12,000
CFM**

Conditioned ventilation delivered

~1,200

Occupant seating capacity served

Background

Galt Gardens Arena, located in Cambridge, Ontario, holds the distinction of being the oldest continuously operating indoor ice rink in the world. Serving as the home venue for the Cambridge Winterhawks Junior B hockey team and hosting year-round community skating programs, the arena accommodates approximately 1,200 spectators and is owned and operated by the City of Cambridge. As a heritage facility with modern public assembly obligations, maintaining occupant comfort, air quality compliance, and operational sustainability has become an increasingly critical mandate for city facility managers.



The Problem

The original dehumidification system consisted of four 7.5-ton refrigerant-based defogger units that chronically failed to achieve satisfactory indoor conditions. Condensation on structural surfaces, persistent ice-level fogging during games, and ongoing occupant discomfort were unresolved complaints across multiple operating seasons.

Key deficiencies included:

- No demand-controlled ventilation - units ran at fixed output regardless of occupancy or air quality readings
- No integrated CO or CO₂ monitoring, creating safety gaps during Zamboni operations
- High combined energy draw from four simultaneous refrigerant compressor units
- Non-compliance with ASHRAE 62 ventilation standards for public assembly occupancy

The Solution

The City of Cambridge issued a design-build RFP for a full dehumidification system replacement with three stated goals: improve space conditions, reduce energy consumption, and lower the facility's overall carbon footprint. The selected solution was the Novelaire PrecisionDRY-ICE Energy Recovery Ventilator (ERV) - a purpose-built, single-unit system engineered for ice arena environments. Learn more at www.novelaire.com.

System capabilities:

- 12,000 CFM of conditioned ventilation air continuously delivered to the occupied space
- Full ASHRAE 62 compliance achieved through the integrated ERV heat/energy recovery section
- Integrated CO and CO₂ gas transmitters enabling demand-based ventilation control
- Single-unit architecture replacing four separate mechanical systems, reducing maintenance scope

Before vs. After Comparison

Metric	Legacy System (4x 7.5TR Defoggers)	Novelaire PrecisionDRY-ICE ERV
Unit count	4 separate units	1 integrated unit
Energy consumption	Baseline	33% reduction
GHG emissions	Baseline	39% reduction
Ventilation capacity	Insufficient - ASHRAE 62 non-compliant	12,000 CFM - ASHRAE 62 compliant
CO / CO ₂ monitoring	None	Integrated transmitters with demand control
Space conditions	Persistent fogging, occupant discomfort	Resolved - clear sightlines achieved

Creating the Great Indoors®

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