



Fact sheet



THE ICE HOUSE AT CARLETON UNIVERSITY

Project Overview

Carleton University's renowned athletic complex has expanded again! The Department of Athletics opened a state-of-the-art, \$13 million, twin-pad ice arena. With the completion of this facility the Women's Ice Hockey program has been elevated from Competitive Club status to full Varsity status.

The Ice House at Carleton is the most comprehensive adult facility of its kind in central Ottawa. The Ice House at Carleton will benefit the Ottawa community by offering a range of sport services: from summer camps and adult recreational hockey to ringette, figure skating and learn-to-skate programs. The main ice surface will seat 500 spectators, while the secondary complex will be able to accommodate 100 viewers.

Energy efficiency and Canada's commitment to the Kyoto protocol mandated that an energy-efficient ammonia-based refrigeration system be used for the refrigeration of the ice rinks with all of the rejected heat recycled back into the building environment.

All of the compressor heat is rejected through a plate and frame condenser into a glycol loop incorporating a thermal storage tank from which warm glycol is circulated to make up air units, domestic hot water pre-heaters, underpad frost protection and snow-melt pit heating system. A low humidity level in the rink is maintained year-round by the use of a 8000 CFM desiccant dehumidification unit, including 100% fresh air capability and a 640 MBH indirect gas fired post heating section.

The annual energy savings at "The Ice House" is expected to be the equivalent in GHG (tons of CO₂ emissions) to taking 250 cars travelling 20,000 kms each off the road.



CARLETON UNIVERSITY

Ottawa, Ontario

GENERAL INFORMATION

- Owner: Carleton University
- Project Type: New building
- Year of Construction: 2005
- Rink Area: Hockey -17,000 sq. ft.
- Number of pads: 2
- Building Area: Approx. 40,000 ft. sq.
- Number of Seats: 500
- Months of Operation (per year): 12 months

REFRIGERATION SYSTEM INFORMATION

- Compressors: Bitzer
- Horsepower: 3 x 75
- Plant Style: CIMCO Factory Skid
- Total System Tonnage: 165 TR
- Refrigerant: R-717
- Evaporator Style: Flooded Plate/Frame
- Condenser: Cooling Tower with Plate/Frame

MECHANICAL HEATING SYSTEM INFORMATION

- Makeup Air Preheating: Yes
- Service Water Heating/Preheat: Yes
- Underpad Frost Protection: Yes
- Snow-melt Pit Heating System: Yes

INTEGRATED CONTROLS SYSTEM DESIGN

- CIMCO 5000E connected to BMS system

HEAT RECOVERY INTEGRATION

- Yes

THERMAL STORAGE

- Yes ("closed tank")

OPERATING MEASURES

- Floating Head Pressure: Yes
- Load Shedding: Yes
- Floating Ice Temperature Control: Yes
- Setback Temperature Control: Yes
- Occupied/Unoccupied Settings: Yes
- INFRA Red Camera Control: Yes

SERVICE PROVIDERS

- Refrigeration Contractor: CIMCO Refrigeration
- Refrigeration Design: CIMCO Refrigeration
- Architect: Parkin Architects
- Mechanical Designer: Goodkey & Associates
- Controls Designer: REGULVAR
- Building Management System Provider: Carleton University

