Refrigeration Plant Replacement—Ammonia to XP10

The Challenge: Markham Village Community Centre had an aging ammonia-based refrigeration system with heightened concerns on safety, regulation compliance and maintenance. The owner needed to address these items without a resulting operating cost increase post construction.

The Solution: In 2019 I.B. Storey Inc. Rink Engineering Experts were engaged to evaluate options and develop a comprehensive solution. Opteon™ XP10 refrigerant was leveraged in combination with automation & equipment upgrades yielding superior sustainability results (financial & environmental). The upgraded system incorporated safety and maintenance improvements and advantages.

About XP10

- Non-Toxic
- Non-flammable
- 630 GWP

Contact Chemours for more information on Opteon™ Refrigerant products at nhl.com/opteon

OFFICIAL REFRIGERANT SOLUTION OF THE NHL®
Project Challenges Addressed

- **Safety, Regulatory and Capital**: Utilizing Opteon™ XP10 Refrigerant saved ownership from extensive upgrade expenses on plant room to meet ammonia-based codes and regulations allowing for funding to be used in a fiscally responsible manner placing less financial burden on the overall municipality. This approach was clearly the best option in consideration of surrounding area density (residential and commercial space).

- **Operating Cost**: A modest utility savings was achieved which providing a better quality of ice achieving a primary objective of the owner.

- **Service Delivery**: The existing plant sizing was from a different era limiting service delivery. The upgrade incorporated a 49% increase in capacity permitting enhanced service delivery without an increase in utility costs.

Refrigeration Upgrade & Billing

<table>
<thead>
<tr>
<th>Refrigeration Plant Capacity TR (Identical Conditions)</th>
<th>Daily Average Facility Electricity kWh</th>
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<tbody>
<tr>
<td>Pre Construction</td>
<td>Post Construction</td>
</tr>
<tr>
<td>0</td>
<td>50</td>
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About the Facility

Markham Village Community Centre is located next to the Markham Village Library and features an arena with 6 dressing rooms and seating on one side of the pad for 450 people. The Centre also has a board room, a community meeting room and a lounge for hosting community events.

About I.B. Storey

Recognized as the leading Application Specialists in rink engineering, I.B. Storey has been providing customized, innovative approaches for over a decade. The firm’s experience is unparalleled in finding solutions for a wide ranging client base from community to semi-professional and professional facilities across North America.