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Ice Rink Chiller Replacement Supports Campus Sustainability Commitments.

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Chemours , I.B. Storey, and Trane Technologies™ bring Schneider Arena into the 21st century, putting Providence College on "solid ice" for long-term environmental impact and performance excellence with Opteon™ XP10 (R-513A) refrigerant.

The situation presented to Providence College is very much a familiar one at campus and community ice rinks across North America. The icemaking and chiller equipment in Providence's Schneider Arena was far too old to effectively meet the school's athletic demands. Moreover, it had become a financial drain due to inefficient operation and was a "fossil" in terms of being able to support their campuswide sustainability program. Schneider Arena's solution came through a collaboration of Chemours, I.B. Storey—one of North America's rink engineering firms—and Trane Technologies™, who worked together to provide the school with a customized package that today is turning out consistently high performance on the ice.

"Since installing the new ice rink chiller package, our ice quality and the performance of our system has been great. It's rewarding to know you can have energy-efficient, ecofriendly products that do not sacrifice performance."

Eric R. Dursin
CIRM
Schneider Arena Manager

The Challenges

In 2013, Schneider Arena had a grand reopening after a massive renovation that expanded the building's capacity and added many new facilities and amenities. Although this project turned Schneider Arena into one of the finest on-campus facilities in the country, the chiller room and equipment were not part of the upgrade. Several years later—with that equipment approaching the 20-year mark—it was time to bring Schneider Arena's ice sports capabilities up to par with the rest of the arena.

The project for the chiller room presented several challenges:

1. **Minimum downtime**—Schneider Arena was in constant use, serving the college's men's and women's hockey, men's lacrosse, the Providence College club hockey and intramurals, as well as many Rhode Island youth, junior, and high school hockey programs.
2. **No room for expansion**—The new equipment packages had to fit within the footprint of the current chiller room.
3. **Sustainability**—Providence College had launched a major sustainability program, making commitments to reducing its carbon footprint year over year. The new chiller packages had to offer, energy-reducing properties that that responded to the school's environmental commitments.
4. **Longevity**—Whatever the solution, the college needed it to be durable in terms of equipment performance and endurance in terms of compliance in an evolving regulatory landscape.

The end result, of course, had to ensure optimal safety for athletes, spectators, and the campus community, as well as perform like the champions that were to skate on its surface day in and day out.

Defining the Solution

Providence College turned to the rink engineering firm of I.B. Storey to coordinate the project, resulting in the company collaborating with Chemours and Trane Technologies to develop the ideal solution for Schneider Arena. As this team assessed the best options for the school, they also focused on logistics that allowed them to accomplish all the work that needed to be completed during the shutdown period for the arena's ice sports.

> *"Ice arenas on college campuses are a hub of student life and camaraderie for the people of the surrounding communities. Therefore, the materials and equipment that go into the systems that keep them operating must uphold the integrity of the sports that happen there, ensure the safety of the people that go there, and preserve a campus culture demonstrating commitment to the future. The team I.B. Storey brought together proudly delivered on all these counts."*
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> **Ian Storey**
> President, I.B. Storey

When it came to the refrigerant, facility managers never even considered ammonia—the refrigerant used in the previous system—due to safety concerns. They immediately embraced the attributes of Chemours Opteon™ XP10 (R-513A), which in comparison to ammonia, was attractive due to its low toxicity and nonflammability. Moreover, this hydrofluoroolefin (HFO) blend offers zero ozone depletion potential (ODP) to align with school's mandate. The new ice rink chiller packages included Opteon™ XP10-charged Trane Technologies™ RTWDs. In addition, the chiller replacement and renovations were integrated with infrastructure updates that included deepening and enlarging the snow melt pit, excavating, and redoing the ice resurface tunnel, and adding an ice resurface water fill meter.

Exceeding Expectations

Everything—from the moment crews first started work in the mechanical room until the new ice rink chiller began operation—was achieved in the college's designated six-month shutdown period. In terms of space, Schneider Arena now operates on a system offering a high level of performance in a more compact area. Lastly, Providence College's community of athletes, students, and supporters continue to praise the impact the upgrades have made on their sports and leisure. Everyone is thrilled with the performance and its contributions to the school's model of energy efficiency and sustainability.

> *"Safety is paramount in a project like this because students, faculty, players, visitors, and facility staff are constantly in the building. It's one of the reasons Providence College switched from ammonia, and why Chemours recommended a refrigerant solution that supported its development objectives. Opteon™ XP10 (R-513A) offers the total package. It's nonflammable, offers low toxicity, and delivers outstanding thermodynamic performance when paired with Trane's equipment technology."*
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> **Charles Allgood, PhD**
> Technical Fellow, Chemours

As an official partner of the National Hockey League (NHL®), Chemours provides education on customized approaches and continual support to help arenas find balanced and innovative solutions that can evolve with them and the surrounding world. We work closely with the arena's staff to understand their challenges, needs, budgets, businesses goals, and visions. Chemours and its partners assess the facility, its purpose, and the people it serves. We provide education about everything from current requirements and upcoming regulatory changes to the immediate and long-term benefits of retrofits or new equipment.

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For more information on the Opteon™, visit optforbetter.com/NHL.

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