Chedabucto Lifestyle Complex

Guysborough, Nova Scotia

Aspect	Key Facts
Project	Chedabucto Lifestyle Complex recreational facility
Location	Municipality of the District of Guysborough, Nova Scotia, Canada
Facility Features	16,000 ft^2 multi-purpose complex, including: Shinny rink, skating trail, artificial turf soccer field, 4-lane running track, outdoor pool, tennis courts, performing arts center, and fitness center.
Scope	Design, manufacture, and installation of a 150-ton CIMCO CO_2 thermal system with all-in-1 integrated heating, AC, and refrigeration; waste heat recovery from the ice-making process; plus ice battery for thermal storage
Expected Operational Lifespan	30+ Years
Benefits	• CO_2 refrigerant has negligible global warming potential (reduced Scope 1 emissions); • 100% waste heat recovery; • No risk of refrigerant phase-out (future-proof); • No ticketed operator required (A1 safety classification)
Efficiency	Average seasonal cooling COP: 3.8 (vs. 2.36 for traditional R407 HFC systems)
Timeline	Project finalized in 2018

Innovative CO_2 Thermal System Transforms Rural Nova Scotia Community

The Challenge

The Municipality of the District of Guysborough (MODG), located three hours east of Halifax, needed to build infrastructure that would attract and retain families in this rural Nova Scotia region. They required a multi-purpose recreational facility that could operate year-round while remaining cost-effective and environmentally sustainable despite the remote location.

The Solution

CIMCO designed, manufactured, and installed a 150-ton CO_2 Thermal Force One (TF1) system at the 16,000 ft² Chedabucto Lifestyle Complex. This groundbreaking system integrates heating, cooling, and refrigeration functions with waste heat recovery. The facility includes a shinny rink, figure-8 skating trail, artificial turf soccer field, fitness center, and more – all served by this single thermal system.

The TF1 system recovers waste heat from the ice-making process to provide 100% of the facility's heating needs. An ice battery functions as thermal storage, ensuring year-round performance regardless of whether the rinks operate. Using CO_2 as a refrigerant eliminates concerns about future refrigerant phase-outs.

The Benefits

The integrated system achieves an average seasonal cooling coefficient of performance (COP) of 3.8, significantly outperforming traditional R407 systems (COP 2.36). The operational efficiency creates substantial cost savings, allowing MODG to offer community programs at reduced rates.

"They did it because it was the right thing to do – both for the community and the environment," said David Fauser, Director of Sales and Marketing at CIMCO. "If this can be done in such a small community, it really can be done anywhere."

The complex serves diverse community needs, including providing improved facilities for the Guysborough Options for Adaptive Living Society (GOALS) program. With an expected operational lifespan exceeding 30 years and no need for specialized operators, the facility demonstrates that rural communities can lead in implementing sustainable, forward-thinking infrastructure.