

CASE STUDY – July, 2012

Urban Fare Express Installs First Hillphoenix Advansor Transcritical CO₂ Booster System in North America

When Overwaitea Food Group (OFG) chose The Village on False Creek as the location for its newest Urban Fare Express, the bar for sustainability was set high. As a leader in retail sustainability, OFG had already established aggressive goals for green operations in every area of its business, and The Village on False Creek is known as one of the most livable and sustainable communities in the world, having earned the highest level of Leadership in Energy and Environmental Design (LEED®) Platinum certification for a neighborhood of its size.



OFG is once again setting a benchmark for green retail practices by installing a Hillphoenix Advansor transcritical CO₂ booster refrigeration system in its False Creek store. Urban Fare Express is one of only a handful of HFC (hydrofluorocarbons) -free grocery stores in Canada, and this is the first Hillphoenix Advansor transcritical CO₂ booster refrigeration system installed in North America.

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OFG began experimenting with CO₂ refrigeration systems in 2010. This followed a long history of commitment to the environment starting with its first Environmental Stewardship Award nearly 20 years ago.

In addition to its move toward CO₂, many OFG stores feature a variety of smart technologies designed to reduce energy consumption, including:

- High-efficiency lighting with motion sensors in freezer cases
- Energy reduced refrigeration systems
- Energy efficient freezer doors
- High-efficiency, programmable deli and bakery ovens
- Waste-heat recovery systems
- Building automation systems that adjust lighting, heating and air conditioning as needed

“Recycling, sustainable seafood, reusable bags, energy-efficient stores and our efforts to be the number one supporter of local products and producers are just some of the ways we show our commitment to sustainability every day,” said Carmen Churcott, vice-president, OFG.

The HFC-free store of the future

HFCs have been the refrigerant of choice for decades in the supermarket industry. However, HFCs are a greenhouse gas and contribute to global warming. Increasingly, food retailers are moving toward more sustainable natural refrigerants including CO₂. It takes 2000-4000 pounds of carbon dioxide to equal the global warming potential of just one pound of leaked HFC refrigerant.



“We chose a transcritical CO₂ booster system because it’s 100 percent HFC-free,” said Ralph Thiel, director, store planning & construction for Overwaitea Food Group LP. “We’ve seen a number of synthetic refrigerants phased out over the years, and with its high global warming potential, we expect that eventually the current HFC’s will be phased out, too. CO₂ transitions us to a natural refrigerant that we can live with in the future.”

Hillphoenix Advansor Transcritical CO₂ Booster System Advantages

- The Advansor transcritical CO₂ booster system utilizes CO₂ as the only refrigerant covering both medium-temp and low-temp loads.
- CO₂ has a high temperature heat of rejection, making it ideal for hot water heat reclamation applications and efficient hot gas defrosting.
- CO₂ systems operate under much higher pressures than conventional HFC-based systems. Many CO₂ systems require steel piping throughout and carry a higher risk of pressure-related system breakdowns. The Advansor system eliminates those concerns by perfecting the use of pressure reducing valves so that everything inside of the store operates under lower pressure, as it would with an HFC-based system. Contractors can use copper piping and retailers can rest easy knowing that their Advansor system maintains pressures within a range normally found in traditional DX systems. OFG’s Urban Fare Express has a back-up auxiliary condensing unit on a back-up generator in case of power failure. The smaller condensing unit cools the CO₂ and keeps the pressure low to prevent the loss of CO₂.
- Hillphoenix R&D capabilities ensure that CO₂ technology is a viable option for every merchandising configuration. From walk-ins to custom specialty cases, Advansor technology is available across all Hillphoenix product lines.

Retrofitting challenges become green opportunities

Construction of the 23,000 square-foot Urban Fare Express entailed retrofitting a former Olympic Village structure to accommodate a grocery store and all of its associated systems. One particular challenge included putting the gas cooler in the parkade. Such a configuration had to include special sound attenuating mufflers and ducts to move hot air outside of the garage structure.



Aside from the green appeal of CO₂, it's a much less expensive (less than \$2 per lb. compared to \$20 per lb.) alternative to HFC refrigerants. So why haven't more retailers made the switch? CO₂ systems are still relatively new to supermarket applications. As companies like OFG demonstrate the advantages of CO₂, industry acceptance will no doubt increase.

"Our company is dedicated to CO₂ in all new stores in urban settings and any location where there is a population base with enough tradesmen to be trained on CO₂ technologies," said Thiel.

Advansor transcritical CO₂ booster systems are designed and manufactured in the Hillphoenix, Conyers, Ga. Refrigeration systems facility. They are currently building and shipping to supermarkets throughout North America.

About Overwaitea Food Group

The Overwaitea Food Group is a leading retail grocery chain in British Columbia and Alberta. OFG currently operates more than 124 stores under the Save-On-Foods, Overwaitea Foods, Cooper's Foods, Urban Fare, PriceSmart Foods and Bulkley Valley Wholesale banners and employs more than 13,000 team members.

About Hillphoenix and Advansor

Hillphoenix Inc., a Dover Company, is based in Conyers, Ga. The company designs and manufactures commercial refrigerated display cases and specialty products, refrigeration systems, integrated power distribution systems and walk-in coolers and freezers. Visit www.hillphoenix.com or call 800-283-1109 for more information.

Hillphoenix acquired Denmark-based Advansor A/S in 2011. The Danish company specializes in the design and manufacture of HFC-free, CO₂ transcritical booster refrigeration and heat pump systems for supermarkets and light industrial applications. Advansor and Hillphoenix combined have more than 600 CO₂ systems operating in supermarkets in the United States, Europe and Canada, making them the most experienced manufacturer of CO₂ refrigeration systems in the world.

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