



Challenge

Best Food Services, a large Midwest supplier of oriental foods with 22 locations primarily serving the needs of food distributors and supermarkets had by 2015, recognized that they were at a point of needing to expand their capabilities to meet ever-growing customer demand. To further their business's growth, they needed:

- An additional 25,000 sq. ft freezer
- A 20,000 sq. ft cooler
- A 15,000 sq. ft refrigerated dock
- A sizeable dry storage area approximately twice the size of their existing dock

Priorities

BFS had three main objectives in figuring out how to respond to these needs. Beyond simply adding expanded capacity, BFS wanted to ensure that the path they chose would:

- Ensure sustainability
- Fulfill their commitment to corporate citizenship
- Lower installation, operation, and maintenance costs

In achieving an approach that would provide a sustainable solution, BFS had to contend with one of the biggest challenges facing the industry: the environmental impact of traditional refrigerants. Refrigerants that were once relied upon are now becoming less practical to use as government and other regulators continue to limit and ban their use. The environmental impact of these

gases is the driving force behind the regulatory curbs and continuing shifts across industry and consumer attitudes towards the destruction of the ozone layer and the threat of global warming. The synthetic chemicals that make up these refrigerants are the cause of these concerns.

Ensuring sustainability would in turn lead to taking care of their next priority, a commitment to good corporate citizenship. For BFS, a commitment to do good and to not cause harm in the communities they serve, and the wider environment on which we all depend, is a serious principle of their identity as a company.

Last, and certainly by no means least, they wanted a choice that would lower their costs. Doing so while at the same time meeting their other priorities might seem a too good to be true proposition, but lowering installation, operation and maintenance costs are actually feasible with the right type of solution. It just depends on having the knowledge and expertise required for making the right choice.

Answer

The most effective way to meet the challenge was by using CO₂. Various contractors offered other solutions that ranged from single-unit HFC systems to secondary parallel rack systems. But, BFS eventually found its way to Zone Mechanical, a highly regarded refrigeration installation contractor. Zone proposed that an Advansor CO₂ transcritical booster system from Hillphoenix could put BFS on the path toward lower operating costs, sustainability, and a greater level of engagement with their commitment to corporate citizenship.

Zone explained that along with the energy savings, the life cost of the equipment, and reduced maintenance costs would eventually more than offset the somewhat higher (~10%) first costs of an equivalent HFC system. An Advansor system would also propel BFS significantly further toward its goal of good corporate citizenship via the environmental benefits of CO₂ including:

- Natural refrigerant (unlike most other refrigerants, it is a natural substance without any synthetic chemicals)
- No ozone depletion potential (ODP = 0)
- The baseline for global warming potential (GWP) against which all other refrigerants are compared
- Non-toxic (can be safely vented)
- Significant achievable energy savings
- Highly affordable and regularly available

The resulting system Zone proposed, and with Hillphoenix designed and built, including several advanced components that leverage the advantages of CO₂ to achieve levels of performance and savings beyond practically any other approach. The Hillphoenix parallel rack system using CO₂ relies on:

- Bitzer compressors
- Luvata gas coolers
- Micro Thermo control systems running their proprietary algorithms

The Micro Thermo controller proved key in demonstrating the system's value to BFS. Preemptive warnings provided continuous visibility of operating conditions allowing BFS to stay ahead of problems. This is critical when a single system handles most of a facility's refrigeration needs. Zone Mechanical was responsive and helpful at every turn making it easy for BFS to get accustomed to the new system. For Best Food Services, the turn towards a more sustainable, responsible, and cost-efficient solution was a success.

Result

It has not taken long for Best Food Services to realize the benefits of going with CO₂ and the Hillphoenix Advansor Booster system. Although the numbers are still coming in, BFS is confident that they are not only saving money, but estimate they are achieving between 15-30% energy savings. Add in the reduction in annual maintenance costs and a 10% savings on refrigeration charge (at installation): a happy customer is the result. With this positive experience under their belt, BFS plans to soon outfit another facility in the same manner.