

Desiccant Dehumidification System Offers Profitable Shopping Environment and Significant Energy Savings

With 68 supermarkets scattered throughout most of central and northern New York, as well as northern Pennsylvania, P&C Foods no longer worries about humidity problems at its Canastota, N.Y. location—ever since they installed Munters SuperAire system, that is.

A division of the Penn Traffic Company, P&C was plagued by very high levels of humidity in its stores and soaring energy bills. About two years ago, company engineers began looking at ways to better manage the conditions created by their conventional refrigeration methods and discovered that Munters' desiccant system was their answer for creating a dryer environment.

THE PROBLEMS

Currently, the 33,350 square foot store has 60 doors opening to frozen food cases and 54 feet of frozen island cases.

Faced with an undersized HVAC system and store humidity levels ranging from 55% to 65%, product appeal was suffering due to frost build-up and energy costs were running higher than ever.

Anyone who's ever shopped in the frozen food section is all too familiar with the ice that forms in frozen food cases. P&C knew that if their engineers could reduce the humidity to 35% and maintain it, both its customers and employees would be more comfortable. They reasoned that a pleasant shopping environment would be a profitable one.

P&C investigated desiccant-based technology after learning that their Ohio division had installed some 30 systems with satisfactory results.



P&C Foods of Canastota, New York is one of thousands of supermarkets nationwide already realizing the significant energy savings that desiccant dehumidification systems offer.

Commercial DH Case Study: P&C Foods



FACTS

By Installing the SuperAire System, P&C Foods has:

- \$18,500 Annual Cost Saving
- Lower Construction Costs
- Improved Comfort in Refrigerated Aisles

MUNTERS SOLUTION

Low humidity saves operating costs for display cases by reducing latent refrigeration load, defrost cycles and anti-sweat heater run-times. Traditional HVAC systems can keep the temperature constant, but the moisture level creeps up. That means the refrigeration system must work 15% harder than if the humidity was kept low.

Anti-sweat heaters on case edges and doors can consume between 25 and 40 kw per hour. When SuperAire keeps the store dry, those heaters can be cycled off, saving electrical load with no risk of condensation or fogged display doors.

“We saved \$7,100 dollars from the anti-sweat heaters alone,” says Paul Joslyn, energy manager for P&C.

Paul also found the frozen door cases defrost only once every four days. This “forced defrost” guarantees system integrity and has saved an additional \$3,300.

HVAC SYSTEM SAVINGS

Munters system saves HVAC costs because desiccant systems allow for smaller compressors, reduced fan horsepower and higher evaporator temperatures. Desiccants have much more dehumidification capacity than conventional cooling coils. So less supply air is required for a given load. The Munters system uses less compressor tonnage than conventional DX cooling-based systems. Since the cooling coil need not remove moisture, the evaporator temperature can be much higher, which increases the overall cooling system efficiency.

Paul says the installation proves that an add-on type project is cost effective.

“Having the desiccant system clearly provides benefits to our customers,” Paul adds.



Paul Joslyn, energy manager for P&C Foods, stands next to Munters' desiccant SuperAire system which was retrofitted to their existing unit.

BENEFITS

- \$18,500 Annual Cost Saving
Munters saves money in three areas:
 - Display cases consume less power when humidity is kept at 35% rh.
 - HVAC systems are more efficient.
 - Peak electrical demand is lower.

After monitoring the Munters system, P&C reports total annual savings of 139,000 Kwh, or \$18,500.

Lower Construction Costs

Desiccant systems reduce operating costs and construction costs because they require smaller duct size.

Improved Comfort

Since Munters keeps air dryer, customers stay more comfortable and tend to shop longer. Studies have shown that greater shopper comfort translates to increased sales.

ABOUT MUNTERS

Munters leads the industry in supplying desiccant-based air conditioning systems to commercial and institutional buildings. With over a thousand custom-designed systems installed, Munters has more than three times the installed base of all other manufacturers combined.

Further, Munters is the only manufacturer of desiccant components with geographically separated manufacturing plants. Replacement parts are always available no matter what may happen at any one plant. So you can rely on Munters to provide on-going support for your system.

