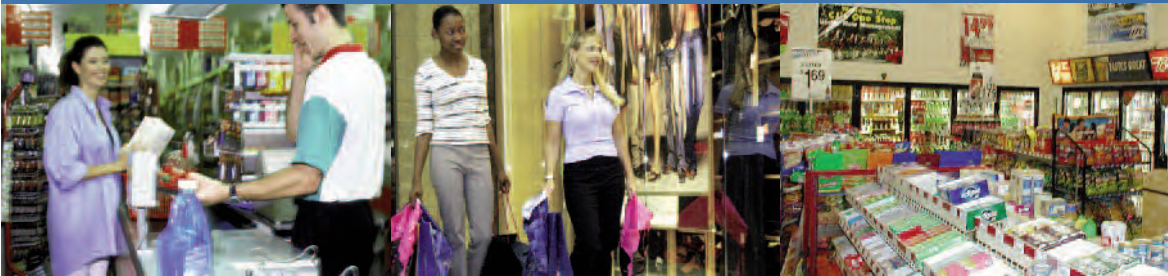


Dehumidification : Supermarkets, Convenience Stores, and Retail

Cost-Effective Climate Control for Supermarkets, Convenience Stores, and Retail





Supermarkets

Supermarkets use an enormous amount of energy everyday controlling their stores' temperature and climate. Reducing the amount of humidity in the air will substantially drop operating costs and create a more pleasant store environment. Costs associated with display cases and refrigeration can be reduced through the latent refrigeration load, defrost cycles, and anti-sweat heater run-time. The number of defrost cycles can be reduced by as much as 50 percent per day, which is possible because less frost builds up at low humidity. The anti-sweat heaters can be cycled off as well, saving electrical load with no risk of condensation or fogged display doors. With the peak electrical demand lower, the areas with high demand charges will be saving in power costs. With up to \$25,000 in annual savings, it is incomparable. Munters is the established leader to provide dehumidification, heating and cooling for the supermarket industry. With 20 years of experience serving the supermarket industry and more than 5000 installations, Munters has proven to be the most reliable and cost effective option for maximum comfort and energy efficiency.

Convenience and Drug Stores

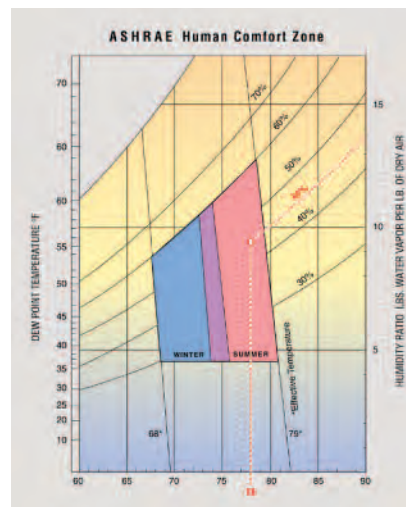
Controlling costs, ensuring food and customer safety and providing climate comfort is important for convenience stores. Moisture on exposed food items allows increased microbial growth, which impairs food safety. Condensation builds on the floors and

they remain wet even after being mopped, which is a safety hazard for customers and employees.

Munters has a system to control the humidity problem and reduce operating costs. Centralized refrigeration systems in convenience stores maintain cold to freezing temperatures in food display cases and walk-in storage coolers. These refrigeration systems consume 40 to 50 percent of the total energy in the store. Lower humidity allows the compressors to run less and save energy. In addition, many display cases have electric heaters in their doors to prevent fogging of the glass. Lowering humidity saves energy by eliminating the need for these heaters to operate. Munters can assist in lowering operating costs, providing customer comfort, and prevent safety hazards.

Retail Stores

ASHRAE 62 design standard requires a minimum of 15 cfm per person of outdoor air to provide proper indoor air quality. Unfortunately, outdoor air is laden with moisture. If the moisture is not addressed it can lead to high space humidity levels, mold issues, and a damp uncomfortable environment for customers and employees. Dehumidification of the outdoor air eliminates mold issues, creates a more comfortable environment for customers and employees, and reduces HVAC operating costs by lowering the temperature setting.



Research by ASHRAE was consolidated in the 1993 edition of the ASHRAE Handbook of Fundamental. It shows that during summer months, the majority of the population is most comfortable between temperatures of 74°F and 80°F with coincident relative humidities between 25% and 45% RH. The Munters system is ideally suited to maintain that condition by supplying fresh air from the weather that is neither too cool, nor too humid - ideal for human comfort during summer months.

The Desiccant Solution

Munters has been utilizing desiccant technology for over 70 years to control humidity in a wide variety of applications. The heart of the system is the HoneyCombe desiccant wheel. This dehumidifying wheel acts like a sponge, adsorbing moisture from the air, enabling commercial buildings to maintain the desired humidity levels.



Desiccant-dried air has much more dehumidification capacity than the saturated air from conventional cooling coils. So less supply air is required for a given load. Since the Munters system moves less air, the fan energy consumption is considerably reduced. Also, the desiccant wheel removes the latent load from the cooling coils in the air-handler. Since the load is reduced, the Munters system uses smaller compressors than conventional cooling-based systems. And since the cooling coil need not remove moisture; the evaporator temperature can be much higher, which increases the overall cooling system efficiency.

The savings are apparent even in smaller stores. For example, a recent independent engineering analysis of a 30,000 sq. ft. store in New York showed that the Munters fan power was 9kw less and the compressor power was 34 kw lower than for the cooling-based alternative. That represented a 25% reduction in HVAC energy costs, which pays off 24 hours a day, 7 days a week for the 15-year life of the store.

Humidity control allows the temperature set point in the store to be raised without sacrificing comfort. The human body is cooled by



evaporation of moisture from the skin. When humidity is kept low, evaporation is increased & the body cools more efficiently. To offset the increased cooling by evaporation, space temperature must be raised or people will be too cold. In a typical convenience store the temperature can be raised 2 to 3 degrees after humidity control is added. Energy expert's estimate that total cooling costs are reduced 4 to 5% for each degree the thermostat setting is raised.

Benefits

- *Improve LAQ*
- *Prevent Liabilities*
- *Reduce Operating Costs*
- *Reduce Energy Consumption*
- *Customer & Employee Comfort*



Munters is the world leader in humidity control with products and services for dehumidification, humidification and cooling of air. Customers are found in a wide range of segments, the most important being insurance-, utilities-, food-, pharma- and electronics- industries.

Manufacturing and sales are carried out via the Group's own companies in more than 25 countries in Europe, Americas, and Asia. The Group has 2,900 employees and net sales of SEK 4,100 million. Munters is listed on Stockholmsbörsen, the Stockholm Stock Exchange. For more information see www.munters.us



16900 Jordan Road
Selma, TX 78154
Tel: 210-651-5018 or 800-229-8557 Fax: 210-651-9085
www.munters.us

BR 0003 Rev. 05, 01/08