

Ventilation Trends

Issue 1, 2008

Insights in the Ventilation Industry

Going Green with Commercial Kitchen Ventilation • New Grease Duct • Self-Cleaning Hood System • CaptiveAire's Energy Management System

■ Going Green with Commercial Kitchen Ventilation

One cannot watch television, pick up a newspaper, or go on the internet without seeing the word “green.” Usually people associate “green” with being more energy-efficient and conserving our natural resources. Although it is important to be energy efficient, that is only one aspect of being green.

What does “green” mean when it comes to effective building and kitchen design?

As related to commercial buildings, **green building** is the practice of increasing the efficiency of buildings and their use of energy, water, and materials, as well as reducing build-impacts on human health and the environment.

Effective green building can lead to reduced operating costs by increasing efficiency and using less energy and water, improved public and occupant health due to improved indoor air quality, and reduced environmental impacts. This article provides descriptions of eleven commercial kitchen ventilation products and design concepts that can contribute to green building practices.

New technology. Fully tested hoods are green because lower exhaust rates are possible in comparison to less efficient hoods. The newest CaptiveAire hoods include a smooth entrance for effluent entering the hood and aerodynamic control of effluent circulation in the hood, including the “magic triangle” feature, which directs air circulation in the hood, toward the filters.

More hood overhang. Providing greater overhang of hoods over appliances has been proven (*Continued next page*)



CaptiveAire's versatile Grease Duct is both cost-effective and factory pre-engineered for easy installation.

■ New CaptiveAire Grease Duct Diverts Both Grease and Cost In Commercial Kitchen Ventilation

CaptiveAire, Inc. has developed a new grease ductwork system for commercial kitchen ventilation systems. The factory-built, ETL-listed Grease Duct surpasses standard, welded ductwork in quality and cost.

CaptiveAire's strong, stainless steel Grease Duct features pipe connections fortified by universal V-clamps. In conventional pipe systems, connections are welded. As a result of pinholes produced in the welding process, welded pipe connections can leak grease and cause fires.

Highly versatile, the CaptiveAire Grease Duct diameters range from 8” to 24”, with multiple lengths and accessories available. The Grease Duct is available as a stand-alone system or as part of a fully integrated ventilation package that includes an exhaust hood and fan.

CaptiveAire's Grease Duct is easy to assemble and requires no on-site cutting or welding, so kitchen operators avoid unnecessary installation trouble and expense.



CaptiveAire is the “Best in Class” commercial kitchen ventilation manufacturer for the 7th consecutive year in Foodservice, Equipment & Supplies magazine's national survey, for product quality, service & support, industry experience & understanding, and ability to deliver as needed.



From the Founder

A profound social and economic movement is under way that will determine how we will utilize energy and natural resources for years to come. This movement is known as “Going Green” and has far reaching implications with regards to commercial kitchen ventilation.

Going Green

CaptiveAire is continually striving to engineer and manufacture cost-effective environmental solutions for commercial kitchen applications. Green building can improve operating costs by increasing efficiency and thereby using less energy and water. In kitchen ventilation, greening also means air quality, which in turn promotes occupant, public, and ecological health. This year, CaptiveAire is proud to introduce two of our newest, cost- and energy- efficient, environmental solutions, the Captrate® filters and the Self-Cleaning hood. Both of these are discussed in this Ventilation Trends.

New Manufacturing Facility

CaptiveAire is also excited to announce the opening of a new production facility in Bedford, Pennsylvania. The opening of this plant will ensure shorter delivery times for our customers in the Northeast and help us maintain the high level of product quality and customer service that you have come to expect. *(Continued page 4)*

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Going Green, *continued*

in laboratory testing to reduce the exhaust rate needed to capture and contain effluent. Greater overhang can be obtained by providing deeper hoods and pushing appliances as far back as possible in canopy style hoods. In some tests, exhaust was reduced about 40-50% with additional overhang.

Hood end panels. Laboratory testing confirms that adding partial or full end panels (or even structural walls) to the ends of canopy hoods increases hood performance, such that exhaust rates can be reduced. As an industry first, the UL standard 710 listing of CaptiveAire’s ND2 canopy hood allows a 30% reduction in exhaust with small angled end panels installed.

Direct-drive exhaust fans. Electronically controlled direct-drive exhaust fans are an average of 10% more efficient than belt-drive exhaust fans. Direct drive fans have less friction while operating because they do not require belts, pulleys, or bearings. This reduction in friction increases operating efficiency and lower operating costs by eliminating belt and bearing replacement.

Demand ventilation. CaptiveAire’s Energy Management System (EMS) is a form of “demand ventilation,” in which exhaust and makeup airflow rates are both adjusted in relation to the cooking load. A temperature sensor in the hood/exhaust duct collar works with an electronic controller to modulate exhaust and makeup air fan speeds to save energy. A simple control panel provides for setting to fans to full speed if required.

Dedicated makeup. In about 80% of commercial kitchens, dedicated makeup air is provided in addition to fresh air from HVAC units that is also used as makeup air. Tempering dedicated makeup air to temperatures respectively lower and higher than HVAC thermostat settings helps save energy.

Direct-fired natural gas makeup heat. When indirect-fired gas heating employs heat exchange, and flue gases are vented to the outdoors, heat is lost to the environment. Direct-fired burners allow flue gases to remain in the makeup air, retain more of the air’s heat, and heat with more efficiency.

Makeup Unit – HVAC interlock. Typically, HVAC units serving commercial kitchens are controlled by thermostats in the kitchen, without sensing outdoor temperature. On the other hand, dedicated makeup unit heating is usually controlled by sensing outdoor air temperature, without sensing kitchen temperature. With typical controls, simultaneous heating and cooling of the kitchen can occur – an obvious waste of energy and unintended effect on kitchen comfort. A simple interlock circuit can prevent dedicated makeup air heating when kitchen cooling is operating.

Perimeter supply plenum (PSP) makeup.

PSP makeup saves energy because less makeup air is diffused to the kitchen. Air curtain, face discharge, back wall, or other similar makeup designs allow a greater diffusion of makeup air into the space. With less air diffused to the kitchen, there is less heating or cooling of makeup air required; therefore less load on the HVAC unit.

Improved grease filtration. Though grease filters are required when hoods exhaust “grease laden vapors,” many older filter designs have been revealed by testing to a new industry standard test method to be less efficient than thought. Two new filter designs available for CaptiveAire hoods remove significantly more grease particles than older designs. It’s green to exhaust less grease to the outdoors.

Air balance and hood performance verification.

Ensuring that exhaust and makeup airflows are set to design numbers, and then adjusting airflows to ensure capture and containments of effluents, is the final step in green building design and operation.

Square-foot for square-foot, restaurants rank among the most energy-intensive commercial spaces. Cook up some savings – every dollar saved through “green” practices is a dollar profit.

■ CaptiveAire Announces New Production Facility In Bedford, Pennsylvania

CaptiveAire is excited to announce a new production facility in Bedford, Pennsylvania. The 83,912 square-foot facility will produce power roof ventilators, make-up air units, exhaust hoods, duct work, and heaters. The plant location is designed to better serve our northeastern customers and opens in the summer of 2008.

CaptiveAire, Inc. is currently comprised of sixty direct sales and engineering offices across the US and Canada, in addition to four strategically located manufacturing facilities located in North Carolina, Iowa, Oklahoma, and California. With oil prices over \$100 per barrel, CaptiveAire can eliminate distance-incurred incremental shipping charges, and lower the risk of delays and damaged products. Our five manufacturing locations put us closer to our customer’s destination.

North Carolina-based CaptiveAire, Inc. began in a one-room facility in 1976. In 2007, CaptiveAire’s sales reached over \$200 million. CaptiveAire is continually voted “Best in Class” by industry Dealers and Consultants, according to Foodservice Equipment & Supplies magazine.

■ Kitchen Operators Clean Up With CaptiveAire’s Self-Cleaning Hood System

CaptiveAire’s Fully Integrated Self-Cleaning Hood System helps keep your kitchen ventilation system clean with maximum grease extraction efficiency. Daily use of the CaptiveAire Self-Cleaning Hood drastically reduces the need for frequent, painstaking cleaning of the grease duct and hood.

The hood system’s hot water wash component sprays hot water and equipment-safe cleanser through the exhaust hood plenum, quickly cleaning out the day’s cooking grease that is time-consuming to remove later.

The efficient stainless steel Self-Cleaning Hood System is ETL- and NSF-listed, and is easily installed in CaptiveAire’s ND2 and SND2 exhaust hoods. The hood system also allows kitchen operators to adjust washing times and water usage.

Self-Cleaning Hood System features and benefits:

- Fully Automatic Operation
- Hood fabricated from 100% Stainless Steel
- Drip-less nozzles with internal strainer
- Easily serviceable
- Adjustable surfactant injection timing and volume (factory set for 1 second injection with 1 minute delay)
- Adjustable wash length (factory set at 3 minutes)
- Standard riser spray nozzle for duct cleaning
- Water usage is 0.7 GPM per foot of hood
- Available EMS control package to reduce fan loads during idle periods
- Installed in utility cabinet for easy start-up
- ETL- and NSF-listed product

For more information, call CaptiveAire at 800.334.9256
Or visit www.captiveaire.com



From the Founder, *continued*

We invite you to attend one of CaptiveAire's kitchen ventilation seminars this year to learn more about new kitchen ventilation innovations.

Please visit

www.captiveaire.com

for a schedule of seminars near you.

We look forward to seeing you and wish you the best in 2008!



Bob Luddy

Founder & President

Ventilation Trends is a biannual ventilation industry newsletter produced by CaptiveAire. This publication delivers thoughtful insights, resources, and research on products and processes in the ventilation market.

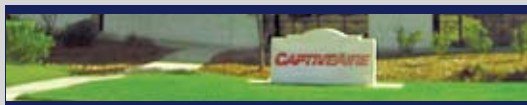
CAPTIVEAIRE

p 800.334.9256 | f 919.882.5204

www.captiveaire.com

feedback@captiveaire.com

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■ CaptiveAire's Captrate® Filters Provide Innovative Solutions for Commercial Kitchens

CaptiveAire has released the Captrate® Filter line, including the new Solo filter and a redesigned Combo filter. The Captrate® Combo filter uses the latest technology in multi-stage grease filtration, delivering unparalleled efficiency for restaurant hood systems. The first stage consists of an optimized S-baffle designed to remove and drain the larger grease particles. The second stage features a packed-bed of porous ceramic media, designed to capture the smaller grease particles associated with commercial cooking. The combined result is a front-end filtration solution delivering extraordinary grease removal for restaurant hood systems.

CaptiveAire's Captrate® Solo Filter is a single-stage filter featuring a unique S-Baffle design in conjunction with a slotted rear baffle design, to deliver exceptional filtration efficiency of single-stage devices. The Captrate® filter is available in standard industry sizes, and is designed to capture and remove a high percentage of the total grease particle emissions produced during commercial kitchen cooking operations.



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4641 Paragon Park Road
Raleigh, NC 27616