

## Variable-Speed Hood Controllers Quickly Cut Kitchen Energy Consumption - By Glenn Hasek

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When looking for the 'low hanging fruit' in a hotel - those areas that offer the easiest and fastest opportunities to save energy - one piece of equipment that is often forgotten is the kitchen exhaust hood.

Unfortunately, most commercial kitchen hoods include single-speed fans that operate at 100 percent capacity all day long, even during idle (non-cooking) periods when ventilation rates can be safely reduced. The annual cost of wasted energy can be thousands of dollars per hood, or as much as \$2 billion a year for the entire foodservice industry.

One way to reduce energy consumption and costs is to control the speed of kitchen ventilation fans based on the demand for ventilation created by cooking. By powering down ventilation fans, one can reduce related energy costs by 25 to 50 percent or more. When hood fan speed is reduced, the ventilation system that adds outside air into the kitchen does not have to work as hard and less energy is required to condition (heat or cool) that air.

Additional benefits to not running kitchen exhaust fans all day long include: 90 percent less kitchen noise, and improved air quality and fire safety. One can also reduce humidity problems associated with a negative building pressure, improve hood and building air balance, extend HVAC equipment life, reduce grease buildup inside ducts and fans, as well as on the roof.

One company that has developed a highly successful kitchen ventilation control system is Milford, Ohio-based Melink Corp. Its Intelli-Hood system automatically varies fan speed based on load. A sensor is placed in the exhaust duct to monitor air temperature. A signal is transmitted to a processor to vary the fan speed in proportion to the actual heat load. An optic sensor inside the hood monitors when actual cooking is taking place. Upon the detection of any smoke/vapors inside the hood, it sends a signal to a processor to speed up the fans to 100 percent capacity until the effluent is removed.

### **Kitchen Comfort Level Enhanced**

'The system continuously monitors heat and smoke load,' says Steve Melink, president of Melink Corp. 'It improves the comfort level for those who work in kitchens.'

The cost for a variable-speed hood control system depends on the number of hoods and the size of the fans serving those hoods. Melink says cost can range from \$10,000 to \$50,000. Payback time averages about two years.

Only about 5 to 10 percent of commercial kitchens in the lodging industry use variable-speed hood control systems. Interest in these systems has picked up as of late, however, Melink says.

'Hoods, for the most part, have been 'out of sight, out of mind,'" he says, 'but lately, more and more architects are specifying our products.'

Several years ago, researchers at the San Ramon, Calif.-based Food Service Technology Center monitored energy use before and after the installation of a hood control system in a 30-foot canopy hood at the InterContinental Mark Hopkins Hotel in San Francisco. The researchers discovered that electrical demand from the hoods dropped by more than 50 percent. Projected annual electrical cost savings for the fans came to \$9,910. Reduction in makeup airflow reduced the annual cost of natural gas for heating by \$9,460. The total savings of \$19,370 resulted in a payback period of less than one year.

This article first appeared on the Green Lodging News website. To sign up to receive the weekly Green Lodging News newsletter, go to [www.greenlodgingnews.com](http://www.greenlodgingnews.com). Glenn Hasek can be reached at [greenlodgingnews@aol.com](mailto:greenlodgingnews@aol.com).

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