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A Decade of KEV Innovation

Nelson Dilg

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Almost every article I have read on the subject of kitchen exhaust ventilation (KEV) in recent years has concentrated on inspection, fires, cleaning cost or greasy roofs. While all of these areas are of eminent importance, we are missing a great opportunity to increase awareness regarding the many technological advances in energy efficiency and filtration that have occurred in KEV in the last 10 years.

In fact, the available means of removing grease-laden vapor, soot and smoke from cooking operations have improved significantly over the last decade. Modern filtration can reduce the pollutants in exhaust air until the exhausted air is cleaner than the fresh intake air. Finally, some folks are starting to realize the benefits of energy efficiency achieved through modern demand control.

Something for Everyone

There are many ways of achieving greater energy conservation and cost savings. Restaurants simply have to find the solution that suits their needs. Until recently, the available technologies were limited and offered only by a few vendors that did not have test results or experience to back up their claims. But since then, many companies have made names for themselves and have developed viable products. Today, most major manufacturers offer some version of demand control ventilation (DCV) and, somewhere, there is a product that would benefit your operation.

In my experience, DCV came on the scene as a device that altered fan speed by measuring the density of cooking vapor through a photo eye mounted in the hood. Since then, that technology and many others have vastly improved due to product generations and trial and error.

Effective DCV can now be achieved through the measurement of vapor density, the variance between ambient room temperatures and exhaust temperatures, a cooking appliance's level of natural gas consumption or other means. The results can automatically adjust the rate of exhaust for one or all hoods in a kitchen, interface with make-up or conditioned supply air and report all of these findings and activity to a building management system or a website.

Innovation isn't done yet, though. Every advance in these technologies paves the way to even better solutions. In the pursuit of greater energy efficiency while controlling cooking vapor exhaust, there is a solution for every need.

Similarly, advances in exhaust filtration technologies have resulted in opportunities for improvement in effluent quality that were once considered unachievable. In fact, there are so many effective means of filtration that I cannot list all of them here, but I will discuss those that are the most promising and the best proven.

Advancements in KEV

The most exciting advancement in exhaust filtration is ultraviolet light. Though UV is still comparatively costly to purchase, it is the most effective means of eliminating grease and odor, and it is the surest means of fire prevention. If the system contains no grease, the risk of fire is greatly diminished. UV products have come a long way, and improvements are sure to continue. Eventually there will be a UV product that will be a good fit for your needs.

The three most important aspects of secondary hood-bound filtration to consider are:

- Can their condition be easily assessed (without inconvenient disassembly)?
- Does the engineering appear to be easily understood and rigidly reliable?
- Is the product UL listed for this specific application?

Remember, the addition of secondary hood filtration will require additional filter maintenance. Anything that suggests otherwise should be suspect. To an even greater extent, secondary filtration downstream offers additional alternatives. The greatest options available may lie in disposable filtration. There are many choices in disposable media filters. If you are challenged with sensitivities to effluent quality, there is a downstream filtration product for you.

One thing to consider about downstream filtration products is the maintenance costs. Many products appear to be competitively priced at the time of installation but are extremely expensive to maintain. As these technologies continue to improve, there may be a new solution coming down the pipeline that will cost less to purchase and install and offer better results. Also, keep an eye out for ozone generators. They represent a potentially fascinating advancement.

In the end, what is most important is that you, the facilities maintenance professional, best understand and utilize the equipment that is at your service and under your care. Take the time to query your peers and learn all that you can before you select a product. Poor product selection can result in a great deal of pain for you and others. When it comes to grease exhaust filtration and energy efficiency, learn all you can from the experts; you won't be sorry.

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