

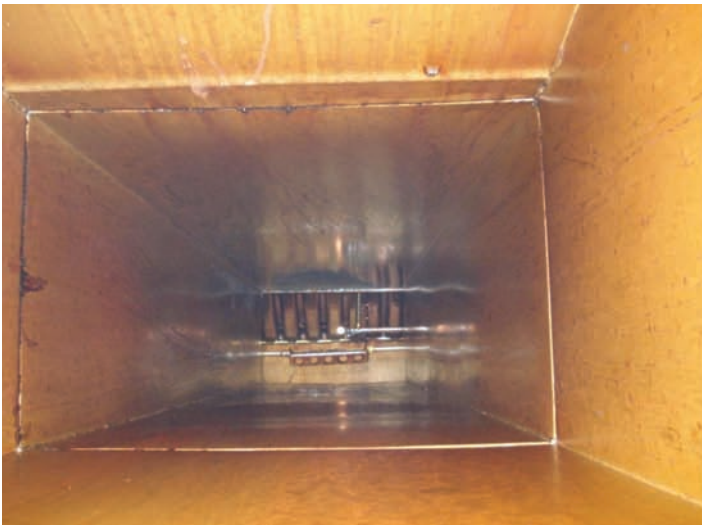
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PROACTIVE Grease Management

How “green” grease filters can improve fire safety and save costs.



An exhaust duct over a broiler, before a high efficiency grease filter was installed.

This article is intended to provide additional information on the high efficiency grease filters and a new technology used for proactive grease management for the commercial kitchen exhaust hoods, which was the subject of an article that was published in the December 2009/January 2010 edition of *Restaurant Facility Business*. These high efficiency grease filters were introduced into the market in the last 5 to 10 years to capture and remove a much higher percentage of the grease particulates generated by the cooking appliances, prior to it entering the kitchen exhaust system, resulting in much less accumulation of grease in the exhaust system, and improved fire safety. Most of these filters are used as primary grease filters in the exhaust hoods, are made of metal, are of a single-stage or multi-stage design, use baffles or other construction to remove grease, and require regular cleaning.

A new technology of high efficiency grease filters has been introduced into the market in the last 5 years which consists of a disposable grease removal device (DGRD), uses a fiber-based

filtering media, does not use baffles or other such construction to remove grease, but uses a multi-stage design since they are used as secondary filters in conjunction with typical pri-

mary baffle grease filters used in the exhaust hoods. A new version/generation of such a DGRD — introduced in 2009 — is highly efficient in capturing and removing the grease particu-

lates generated by the cooking appliances, prior to it entering the kitchen exhaust system. The grease filter is a non-metallic device and is completely disposable. This article will cover some of its benefits:

IMPROVED FIRE SAFETY

The filter's grease particle removal efficiency is about 95% to 99%, while the grease particle removal efficiency of a typical baffle filter in accordance with the same ASTM standard for grease particles of the same size (6 to 8 microns) is about 10% to 20%. The efficiency for the smaller grease particles of 3 to 5 microns size drops significantly for the baffle filters to about 2% to 6%, and for this filter it drops to about 58% to 90%.

This filter, like other high efficiency grease filters, acts equivalent to daily and ongoing cleaning of the exhaust system, keeping the hood, duct and exhaust fan clean. This, in turn, reduces fire hazards and improves fire safety. The risk of fire in an exhaust system increases if the grease filters, hood, duct and exhaust fan are not cleaned regularly and completely. The photos in this article were taken early in 2010 at a nationally known casual dining restaurant chain, with an average to high volume business. These photos are examples of significant reduction in the grease accumulation in the exhaust system and on the roof, when the filters are installed in the hood.

"GREEN" ATTRIBUTES

The grease filter has many "green" attributes, including:

- **Disposable and biodegradable:** Saves landfills from swelling.
- **Conserves water:** Millions of gallons of water are used and wasted every year in thousands of commercial kitchens to clean grease filters and exhaust systems, which are contaminated with grease from the cooking, as required by NFPA-96 and other codes.
- **Saves chemicals:** Substantial amounts of chemicals are used every year for cleaning the grease filters and the exhaust systems.
- **Less water pollution:** Reduces release of grease contaminants and cleaning chemicals in wastewater systems.
- **Less air pollution:** Tons of grease particulates are discharged into the atmosphere from kitchen exhaust systems, adversely affecting the air quality and environment, and creating a public health hazard.
- **Saves energy:** A substantial amount of energy is used every year in: (a) cleaning grease filters and exhaust systems, and (b) increased fan power in exhaust system operation due to contaminated filters and exhaust system, if the grease filters and the exhaust systems are not cleaned regularly and completely.
- **Saves costs** related to: (a) cleaning of the filters and exhaust system

and (b) maintenance of the restaurant roof.

COST SAVINGS

Here is an example of the cost savings for using the filters, for the operator of a restaurant kitchen with a 10-foot-long exhaust hood, which would use two filters over fryers and four filters over grills. Previously, the operator had to clean the baffle filters every night and had the exhaust system cleaned every quarter; with the new filters, the operator could save over \$2,000 per year. This cost saving would result from substantial reduction in water consumption for cleaning the baffle filters, labor costs associated with reduced frequency of baffle filter cleaning, reduced frequency of baffle filter replacement, and reduced frequency of the exhaust system cleaning. For multi-unit restaurant operators, the annual cost savings would be huge.

CONCLUSION

A variety of grease removal devices and grease filters of different types are on the market for use in the exhaust hood in commercial kitchens. The grease particle removal efficiency of most of these devices and filters of typical baffle design is very low — in the range of 10% to 20% for the grease particles of 6 to 8 microns size. Some of these devices with higher efficiency in the range of 60% to 99% are expensive and requires more maintenance. The

Comparing a fire extinguishing system nozzle, cable, etc. and exhaust duct over a broiler, 6 months with a high efficiency grease filter versus 3 months without.



The roof is still very clean and the grease overflow tray has no grease residue because there is no accumulation in the exhaust fan



The grease drain is completely dry and clean

Exhaust fan for hood over broiler 9 months since installation and last cleaning

technology used for the fiber-based, disposable, highly efficient filters is very simple. These “green” grease filters offer a low-cost, low-maintenance, simpler and cost-saving solution for grease management and improved fire safety in commercial kitchens. ♦

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