Air-Quality Options: A Comfortable Dining Room Environment is Not an Option

BONDED FILTER CO.

What You Don't Know About HVAC Filters

A dining experience can be a one-time affair due to a number of factors not entirely in control of the facility manager. The list is pretty extensive, from slowness of service to overall quality of the meal, but for the facility manager there is one critical aspect of the dining experience that is controllable, air quality. From a low humidity level to an acceptable ambient temperature, a patron's decision to return is more likely if the air is clean and the temperature helps create a pleasant environment.

Air Filters are one of the most cost-effective and easily maintained aspects of the restaurant HVAC system, and also potentially the least understood or discussed.

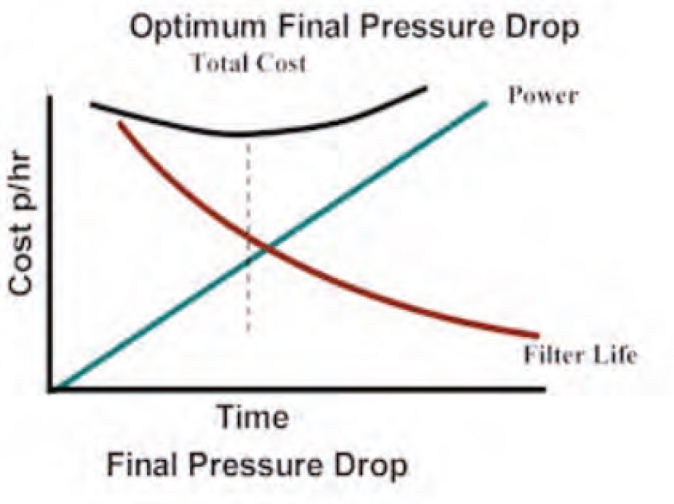
The FM's checklist of HVAC preventative maintenance can be a rather long one, but to achieve acceptable air standards for your environment, you need more than just good filters; you need regular maintenance, and with certain filters, you get the benefits of fewer service calls for filter maintenance. All of which add up to annual cost savings and clean air and happy customers that return time and time again.

WHY FILTRATION IS IMPORTANT TO THE AC SYSTEM

Although it may be impossible to achieve a "like new" operating standard for a ten-year-old rooftop unit, when it comes to your choice in filtration, your options can make a big difference in the operation of older units and the cost of some maintenance procedures. In fact good filtration can extend the life of any unit.

The purpose of HVAC filters is to remove airborne particulates from the air stream. These particulates, if they escape filtration, can have a direct impact on the overall efficiency of the unit. The ideal filter removes airborne particulates and balances the pressure drop with efficiency. Why is the pressure drop important? According to an article published by the National Air Filtration Association (NAFA), "Pressure Drop Considerations in Air Filtration," because energy comprises "such a large portion of the cost and because pressure drop is the precursor of this energy usage, providing clean air depends most on efficiency and pressure drop." In the chart on this page, you can see the "change-out point" of an air filter—"that point where the pressure drop increases electrical consumption and overtakes the initial cost of the filter."

bfc
BONDED FILTER CO.



KEY TERMS

Gap: The free air space left between the filters. Filters with a surrounding frame of cardboard or metal create air bypass which allow unfiltered air to pass.

Air bypass: Because the filter is responsible for capturing dirt while allowing air to pass, bypassed particulates can foul the cooling coils, lowering overall HVAC energy efficiency while negatively impacting the air quality of the indoor space and other components of the system.

FILTERS USED IN TYPICAL RESTAURANT ENVIRONMENTS

Box-pleated filters: The most commonly used filters, they provide levels of filtration equivalent to their low cost. One main problem with these filters is caused by their cardboard frame, which allows for a great deal of air bypass and also restricts airflow. Cardboard can be upwards of 25 percent of the filter face. This results in reduced energy efficiency. When these filters are placed side by side, they reveal a considerable gap. This also results in reduced energy efficiency.

Poly-pads in metal holding frames: The holding frame in these filters is metal, and like cardboard, it's rigid and allows for various amounts of air bypass . The results create a gap. The media used is generally of a lower efficiency and can be inexpensive, but filter life is greatly reduced, yielding unwanted "shedding" of particulate downstream.

SOLUTION

Pleatlink®: Bonded Filter Co. has a patented filtration system that minimizes obstructions to airflow, reducing pressure drop through the filter. These filters also virtually eliminate air bypass. These two benefits result in reduced maintenance costs, improved air quality and increased overall efficiency of the HVAC unit.

AIR QUALITY BENCHMARKS

A recent industry guide to Indoor Environmental Quality and Comfort, documented benchmarks and best practices for achieving acceptable indoor, environmental standards. As part of an overall program to improve air quality, the guide recommends the use of the appropriately rated MERV filters, combined with a replacement schedule policy.

A Few Words About MERV (Minimum Efficiency Reporting Value)

ASHRAE developed the MERV rating as a scale for rating the effectiveness of air filters. Generally speaking, the restaurant environment requires a filtration rating of MERV 6 or higher. It must be noted, however, that regardless of the filtration capability of any filter, if there is a gap, the actual levels of filtration are reduced, in some cases by one full MERV value.

How often should I change filters? Clogged filters are highly detrimental to the efficient operation of HVAC units. But how often is replacement or cleaning necessary? Normally those determinations are made with working knowledge of the specific units you have and the unique conditions in which they operate. In many cases, 60 to 90 days is the standard interval for service; however, we believe that for the vast majority of installations 90 days is the optimal maintenance interval. As stated above, you're trying to achieve a balance between material and labor costs and energy efficiency.

***

Air filters are one of the most cost-effective and easily maintained aspects of the restaurant HVAC system, and also potentially the least understood or discussed between the facility manager and the maintenance provider. Research shows that in some cases, proper filter maintenance can extend the life of a unit by at least one year, over the course of approximately 12 years (the average life of a rooftop unit). With the right filter, maintained properly, savings in replacement and repair costs and energy use will exceed the cost of the entire filtration program.

At the time of printing, the NAFA article, “Pressure Drop Considerations in Air Filtration,” was available online at www.nafahq.org/pressure-drop-considerations-in-air-filtration.

Bonded Filter Co. |One Vantage Way Suite D-210 |Nashville, TN 37228
800-758-2789