

Air Filters, Air Cleaners and Airflow

One of the questions asked by owners of hospitality businesses frequently about Heating, Ventilation and Air Conditioning (HVAC) systems is, “What’s the difference between air filters and air cleaners?” To understand the answer, you’ve first got to know what an HVAC system is supposed to accomplish.

Your HVAC system must not only circulate air; it must remove dust and chemicals as well. Effective use of air filters and air cleaners together can achieve both goals. Air filters remove dust (airborne particulate matter), and air cleaners remove chemicals including gasses and vapors. Air cleaners are vital to a restaurant, for example, because they remove chemicals which typically produce odors.

When considering HVAC systems, make sure that air filters are rated at 65-85 percent by the ASHRAE dust-spot method (probably the best and most widely recognized rating standard). Always make certain that you are in compliance with all local laws and regulations governing smoking and ventilation in your establishment. Choosing air-cleaning devices is a bit more complicated. The most reliable type of air cleaners utilize activated carbon to remove chemical air contaminants. You’ll need to seek specific information on the projected service life of the cleaner you choose and make sure that it is appropriate for your needs.

This may sound like a lot of hard work, but keep in mind that both air filters and air cleaners are vital to an effective HVAC system, and an effective HVAC system is key to any accommodating business.

Managing smoke drift in your establishment is another concern for hospitality owners. One way to keep rooms smoke and odor free, and from annoying non-smoking guests is to control smoke drift. By managing the direction of airflow, you can keep smoke from going into non-smoking areas. It boils down to pushing and pulling. You do that by getting air going in the right direction. The concept of building air pressure relationships focuses on managing the air in a space and controlling where it will go.

A room has positive air pressure when more air is being supplied to it than is removed from it. Air from an area that is positive usually supplies some of the air to areas that are not. It has the effect of pushing air into other areas. Positive air pressure in non-smoking areas of your facility can prevent smoke from entering the space.

Negative air pressure occurs when more air is removed from the space that is supplied to it. Some of the air that is supplied to this space will come from an area that is under positive pressure; it has the effect of drawing air from other spaces. Negative air pressure can be used in the smoking areas to prevent smoke from drifting out of the area.

You always have to keep in mind that using air to “push” is always more effective than trying to use it to pull. Air supply diffusers and return grills can be used to provide directional airflow within a space, regardless of its air pressure relative to other spaces. This provides additional opportunities to designate non-smoking and smoking areas.

As every building is unique, the “airflow footprint” of a space is defined by which areas have positive pressure and which have negative pressure. Figuring out the airflow footprint of your property will be useful in identifying problem areas and may provide some solutions for odor problems you may have identified. The airflow footprint allows you to match airflow relationships to the uses of various spaces and solve problems with odors. Cooking odors, smoke and odors from restrooms can all be contained.

The direction of airflow and airflow patterns should be a conscious decision on the part of the owner or operator. Developing the proper airflow footprint for your facility requires planning and decision making. The airflow pattern allows for odors to be maintained in their areas of origin and directly exhausted from these areas.

Improving the quality of indoor air is an important concern for the hospitality industry. According to a nationwide poll by the Distinguished Restaurants of North America, 79 percent of the public think good ventilation can have an impact on solving smoking issues: Understanding ventilation and its role in improving the quality of indoor air can save you money and help ensure that all customers are comfortable and healthy at your property.

Article By George Benda, Chairman and CEO of Chelsea Group, Lt., an indoor air quality consulting firm. For detailed answers to your ventilation questions, call The Accommodation Program, sponsored by Options, Philip Morris U.S.A. at 1-800-929-1414 and ask to speak with an “on-call” engineer.