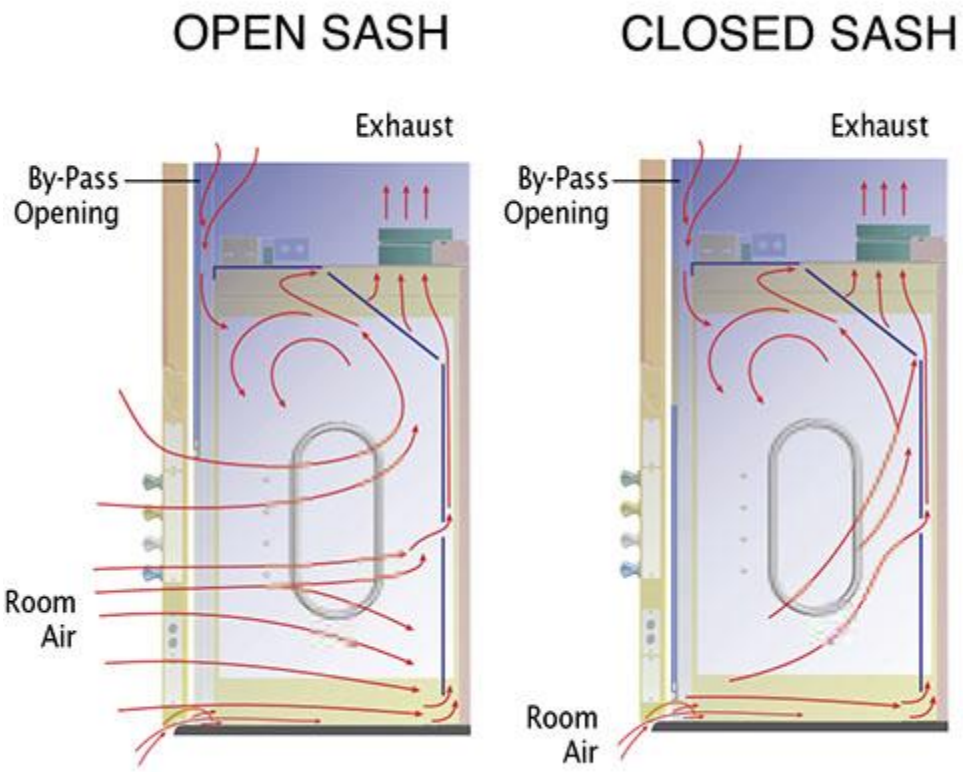
Fume Hood Basics: 5 Best Practices

By Beth Mankameyer, Sales Engineer
On Tuesday, December 22, 2015

A laboratory can be an extremely hazardous place to work. It is imperative that workers using a fume hood are aware of good practices so they are not working against fume hood performance. To ensure safety, the user must be constantly mindful of what they are doing in order to experience the best containment.

The following five practices are a good place to start if you need a review of fume hood operating basics. Always be sure to refer to the safety procedures of your laboratory if any questions arise.

1. Know your specific hood's purpose



Understand what a fume hood is - A fume hood is an enclosure that is designed to capture and contain harmful chemical vapors. These vapors are taken away from the user via a blower that is either remotely located, typically on a rooftop, or integral to the fume hood. The fume hood is connected to a remotely located blower by ductwork. With

an integral blower, ductwork is simply connected to the outlet of the blower, and directed out of the building.

If you have a carbon-filtered fume hood, the integral fans on the fume hood will direct the contaminated air through the filters, and recirculate the air back in to the room. These enclosures are designed to protect personnel only, and therefore are not the same as a “laminar flow hood,” which protects the product only, or a “biological safety cabinet” that protects the product and personnel.

2. Keep your sample more than 6 inches inside the hood

Operate at least 6 inches inside the fume hood behind the plane of the sash. This is important for safety as a good working practice, stated by industry standards such as ANSI/AIHA Z9.5. This means that any equipment placed in the fume hood should not be touching the airfoil along the front of the work surface.

The airfoil is an important containment feature that should never be used to set a beaker upon or blocked. The holes in the airfoil allow air to sweep the work surface clean of any contaminated air, pushing it straight back to the baffle to exhaust.

3. Close the sash when possible

When the fume hood is not in operation, close the sash! This is for safety, and may also contribute to energy savings for your laboratory. If your laboratory is working on a variable air volume (VAV) system, and includes sash sensors to control the volumetric flow (CFM) of the air, you can save your laboratory a significant amount of money per year in operating costs because when the sash is lowered, the volumetric flow is lowered to an accepted minimum.

4. Don't store anything in your hood

Do not use your fume hood as a storage cabinet. From labs I have seen, this is the biggest offender. Doing so can lead to accidental spills of a large concentration of chemicals. When chemicals are not in use, be sure to store them in cabinets appropriate for the chemical.

There are solvent storage cabinets for flammable chemical storage that are manufactured to protect the internal contents in the event of a fire. Acid storage cabinets have a corrosion-resistant lining to protect the structure, and easy access to vent the cabinet into the fume hood to keep chemical concentrations low.

5. Perform periodic tests of your hood

Test the face velocity of your fume hood at least annually. Things may change in the mechanical system and face velocities may decrease, making for unsafe conditions for the operator. The operating face velocity should be chosen based upon the manufacturer's published data, and the safety officer's input after taking into account procedures inside the fume hood.

The manufacturer's published data is usually 60-100 fpm face velocity for general chemistry use. Taking a face velocity profile will allow the certifier to become aware of cross-drafts due to supply air sources or others issues in the lab. Becoming aware of these issues keeps the laboratory in check for inefficiencies and unsafe areas.

The five basic principles listed above are a great start to double checking everyday laboratory practices. In order to ensure safety while using a fume hood, proper training is required, so be sure to know how to properly operate your fume hood before using. Always reference your organization's operating procedures and ask your safety officer for assistance with any safety questions.