

What are some different types of fume hoods?

If you work with chemicals, it's important that you invest in a ventilation system to keep toxic fumes out of the air. Fume hoods are necessary when working with gases, vapors or dust that are hazardous in the event of exposure. They protect you from breathing in particles that can lodge in the lungs or enter the bloodstream.

Fume hoods also work to protect you from explosions and chemical spills. The safety glass is designed to "spider" instead of shattering in the event of an explosion, keeping those in the area safe from glass and chemicals when explosions occur. Most hoods also include spill-containment features, which can be especially important when working with exceptionally hazardous materials.

Whether you work on personal projects or in a lab, it's important to determine what type of fume hood you should invest in.

1. Bench-top Fume Hood

A bench-top fume hood is a hood that sits on a work surface approximately 36" above the floor. Along with the hood, you will need a supporting base cabinet, a work surface, and an exhaust blower.

This type of fume hood will also need ductwork, which should be factored into your installation costs. **Check out** some fume hood and cabinet combinations [here](#).

2. Floor-mounted Fume Hood

A floor-mounted fume hood, or a walk-in fume hood, is installed from the floor up instead of sitting on another surface.

It resembles a small room, allowing you to work inside the space. This is ideal when you may need to use oversized tools or equipment, such as drums, processing units or robots while working with toxic chemicals. The large doors allow you to roll large apparatus or tables into the area as needed. These fume hoods can range in size depending on your needs but are generally the size of a small closet. Standard models range from 6 to 24 feet wide, 7 to 16 feet high, and 4 to 8 feet deep. However, these can be custom-made to fit your desired dimensions.

3. Double-faced Fume Hood

A double-faced fume hood is most ideal for demonstrations. It has entrances on both sides and allows for 360-degree viewing. This type of fume-hood can come as a typical bench-top or wall installation or as a portable unit. These are usually in classrooms or laboratories where teaching demonstrations are frequent.

Portable double-faced fume hoods are especially useful in shared learning environments, where the hood may need to be moved from one classroom to the next.

4. Portable Fume Hood

Portable fume hood is also known as recirculating range hoods. They are ductless, which means that they operate off of a carbon filter system.

These hoods are cheaper, easier to install, mobile, and use less energy. The installation process requires no ductwork or wall penetration. They're usually smaller or on wheels, so you're able to move them to different areas of your lab. If energy-usage is important, these are eco-friendly when compared to the energy usage of full-sized fume hoods.

While portable fume hoods may seem like an easier option, there are a few disadvantages to this model. The method in which toxins filter out can put workers at a higher risk of exposure. Filters also need regular maintenance.

Portable fume hoods are ideal if you work with less than 10 chemicals or small amounts of chemicals. The chemicals also need to be able to filter through the carbon.

How a Fume Hood Works

A fume hood is a ventilated enclosure in which gases, vapors, and fumes are captured and removed from the work area. An exhaust fan situated on the top of the laboratory building pulls air and airborne contaminants through connected ductwork and exhausts them to the atmosphere.

The typical fume hood found in Princeton University laboratories is equipped with a movable front sash and an interior baffle. Depending on its design, the sash may move vertically, horizontally or a combination of the two and provides some protection to the hood user by acting as a barrier between the worker and the experiment.

The slots and baffles within the hood direct the air and, in many hoods, can be adjusted to allow the most even flow. It is important to prevent the baffles from becoming blocked, by excessive material storage or equipment, since this significantly affects the exhaust path within the hood and as a result, the efficiency of hood capture.

The beveled frame around the hood face, called the airfoil, allows for even air flow into the hood by eliminating sharp curves to reduce turbulence. If you want to learn about fume hoods , [click here](#).