

Recommended Work Practices (continued)

Maintaining the Protective Air Barrier for a Safe Work Area (continued)

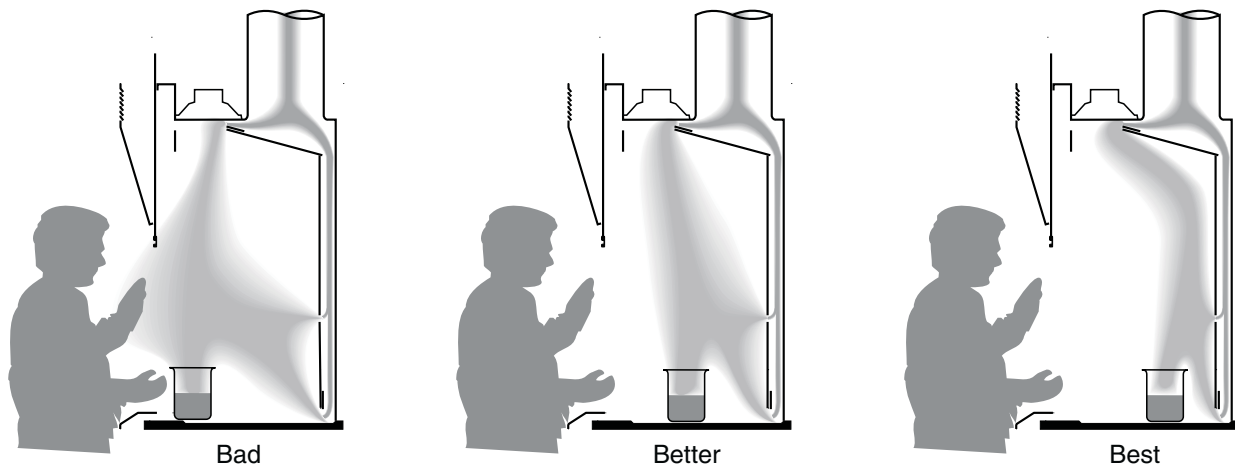


Figure 4 Effect of placement of contaminate source

Large containers or equipment such as furnaces, incubators and oil baths often interfere with air flow inside the fume hood by causing reverse flows and dead spots which may allow contaminants to escape from the hood. **Putting large, bulky equipment you are using on legs** will help reduce reverse air flows by allowing air to circulate beneath the equipment. (See Figure 5.)

The **fume hood should not be used for storage** of chemicals and apparatus. You should remove all but the containers and equipment you're actually using from the hood.

The air velocities used to provide containment in fume hoods are relatively low (in the range of 100 feet per minute) and the air flow patterns are easily disrupted. You should avoid making rapid movements while working at the hood or walking past the hood.

When you're working at your fume hood, you should always open the sash only as far as you need to for access to your work area.

The **lowered sash** increases the distance (**D in Figure 6**) between your breathing zone and the area where contaminants may escape. Also, the smaller hood face area makes the hood less susceptible to room drafts and other external air disturbances.

The sash also protects you by replacing part of the protective air barrier with a solid barrier against contaminants and splashing chemicals.

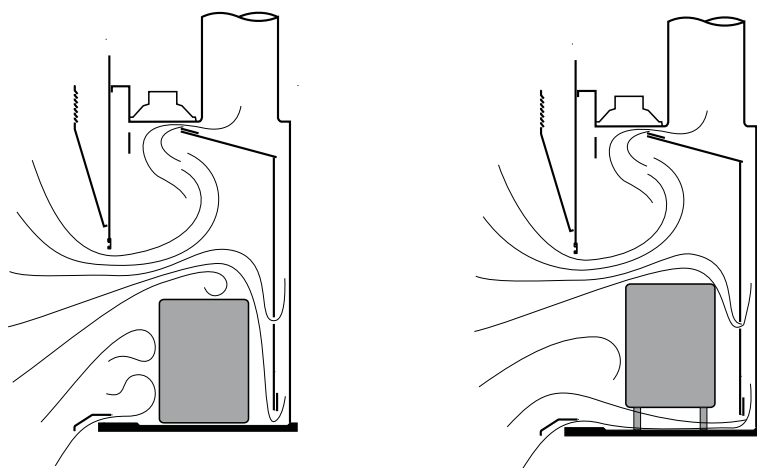


Figure 5 Effect of large equipment

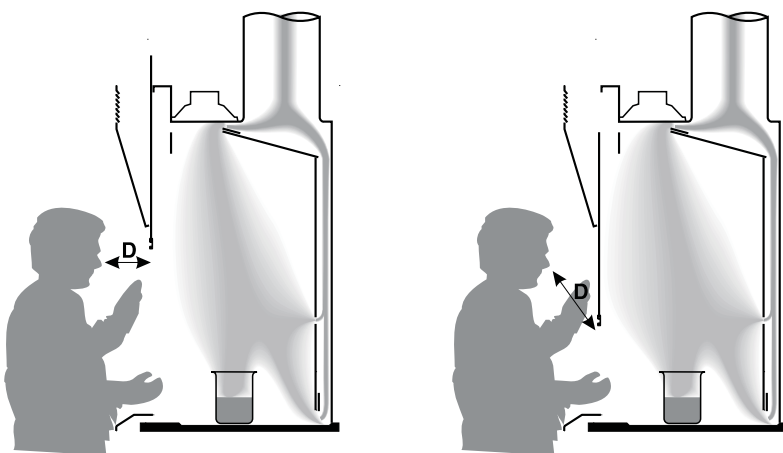


Figure 6 Effect of lowering the sash

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The lowered sash however, could create another problem because contaminants are present in the area behind the sash and may lead to increased corrosion of equipment in the hood. With a lowered sash, it is important for the operator to wear gloves when skin contact with airborne contaminants is objectionable.

If your hood has horizontal sashes, be sure they're all in place when you're working with contaminants inside the hood. Operating the hood with any of the sashes removed reduces the protection they provide by decreasing the velocity of the air entering the hood face. If you remove any hood sashes while setting up equipment, be sure to replace them before beginning the actual procedure.

If the hood has a sash stop with manual override to limit sash travel or is marked for a safe sash height, then the sash should not be raised above this point while contaminants are being generated within the hood.

If you don't need continuous access to the equipment inside the fume hood, you should close the sash completely. (See Figure 7.) The closed sash will protect you from the flying debris of a small explosion or runaway reaction. It will eliminate the effects of room drafts or other adverse air currents.

You should note, however, that keeping the sash closed can lead to increased corrosion of equipment inside the hood because any contaminants will be dispersed throughout the hood interior.

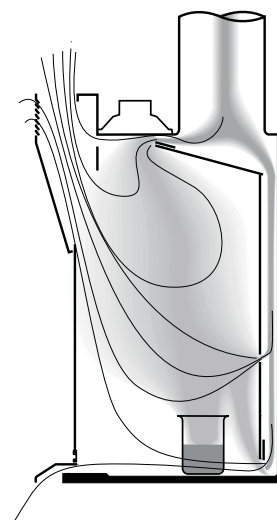


Figure 7 Airflow through By-Pass with Sash Closed

Fume Hood Safety Checklist

- The hood is the correct type for the work to be performed.
- The flow monitoring device indicates adequate air flow.
- The baffle setting is correct for the intended use.
- There are no unnecessary chemicals in the hood.
- All equipment is at least six inches behind the hood face.
- All procedures are performed with the laboratory worker's head remaining outside the hood.
- Equipment with large flat surfaces parallel to the hood face is placed on stands with legs.
- The sash is lowered to the minimum possible height.
- All safety equipment is close to the hood in case of fire or explosion.
- All laboratory workers are following the procedures outlined in this booklet, as well as any additional fume hood safety guidelines supplied by the hood manufacturer.

For More Information

We at Kewaunee Scientific hope these guidelines will be helpful to you as you choose, use and maintain your laboratory fume hood. If you have

questions we haven't answered in this section, please contact your local Kewaunee sales representative.