

Safe Operating Procedures for Fume Hoods (From SEFA 1-2002)

Issued by The University of Akron (University) Department of Environmental and Occupational Health and Safety (EOHS, x-6866): Coralyce Calderone, Director; Mark Deering, Environmental Compliance Officer; Alex Stakleff, Environmental Scientist; and, Jason McNicholas, Radiation Safety Officer

- **Always** locate equipment at least 6 to 8 inches beyond (inside) the plane of the sash.
- Equipment shall **never** extend beyond (outside) the plane of the sash or restrict the sash from closing.
- **Elevate equipment 2 to 3 inches above the work surface** to provide flow beneath and around the equipment. Ensure the elevated equipment is stable. Plexiglas or stainless steel slotted shelves can be used to elevate equipment and apparatus. Slotted or perforated shelves minimize disruptions to the airflow patterns.
- **If equipment cannot be elevated, keep a clear distance** from the back and sides of the interior of the hood. Recommended distance is **6 inches** around the work surface area in the middle of the fume hood.
- **Excessive equipment and apparatus in the hood should be avoided.** Rule is that equipment, apparatus, or other bulky obstructions should cover no more than 50% of the work surface.
- When placing equipment requiring electrical power in the hood the equipment must be properly grounded to reduce the potential for sparks. Power cords shall be run beneath the airfoil sill and plugged in outside of the hood enclosure in a properly grounded and approved outlet. **Extension cords, strip outlet and other temporary wiring devices shall not be used in the hood.**
- **High heat loads** create thermal drafts, which increase the face velocity through the bottom of the fume hood opening and cause the face velocities to lower at the top of the fume hood opening.
- Due to reverse airflow and vortices that typically exist in the top of the hood and behind the sash panels, **avoid generating large quantities of effluent** at the top of the hood or just inside the sash.
- Hood users should always be aware of the locations within the hood where concentrations of contaminants can accumulate. **Never allow your head to break the plane of the sash** during operations since this can allow contaminated air to pass through the area of your breathing zone.
- **Never change or modify the fume hood or cabinetry.** Do not remove panels, drill holes, attach hold opens on the sash or in any manner change the original design of the hood.
- When materials are being generated in the hood, ensure that you **slowly approach and withdraw from the hood.** The wake zone created by the movement near the face of the hood can change the airflow patterns and cause materials to withdraw from the hood through the sash.
- **Rapid arm and body movements near the sash and front of the hood must be avoided.** High concentrations can develop near the edge of the sash panels regardless of the location of the materials within the hoods working surface. Rapid movements near the sash edge or turbulence resulting from cross drafts could cause contaminated air to escape.
- When you are working in the fume hood the **sash height should be kept as low as possible**, but never exceeding the marked height for normal operations. When the hood is not being used, the sash must be closed.

Report any problem with fume hoods immediately to your laboratory supervisor and to EOHS at x-6866 (or after hours or on weekends/holidays to University emergency dispatch at x-7123). These include but are not limited to: broken sashes, deteriorated gaskets, fans not working properly, and airflow alarms activated.

Good housekeeping and hazardous materials handling, including safe research equipment setup and maintenance, proper workspace utilization, and proper hazardous materials and waste management practices, is essential to safe fume hood operation.

Note: Fume hoods are inspected on a regular basis by EOHS. Violations of the safe operating procedures and good housekeeping / materials handling practices described above can result in loss of hood privileges.

(EOHS, June 2006)