University of Illinois Materials Research Lab (MRL)

September 2019

Important Dates and Reminders

DAILY REMINDERS

- Use buddy system when working in labs
- Do not leave labs unlocked
- Be aware of your surroundings
- Remove lab PPE before leaving lab spaces. PPE is not allowed in public areas

Safety Newsletter

This month's topic is Chemical Fume Hoods

Chemical Fume Hoods

Chemical fume hoods provide protection from vapors, splashes, and impacts caused by chemicals and their reactions. However, fume hoods do not completely eliminate the hazards, they must be used correctly to minimize the chance of exposure.

Safe Work Practices:

- Open the sash or sashes only as much as is required to perform your work comfortably. Never open it beyond the indicated position when hazardous chemicals are present. Position the sash to maximize protective shielding.
- Verify that the chemical hood is drawing air. Check the flow monitor if present, or hold a Kim wipe in the hood and check its movement. Note: Do not let go of the wipe. Wipes sucked into the ductwork will block airflow and may cause damage requiring expensive repairs.
- Perform all work at least 6 inches into the hood and do not store items near the opening where they interrupt airflow and pose a spill hazard.
- NEVER put your head in the hood when hazardous chemicals are present.
- Do not position large equipment or containers of chemicals in the back of the hood where they block airflow. Elevate equipment by placing it on blocks, jack stands, or legs so that air can flow underneath to the bottom baffle slot. To store items in the back of the hood, install shelves to elevate containers. Keep inside the hood only what needs to be there and remove everything that can be stored outside.
- Route service connections under the airfoil and secure all loose and dangling electrical cords, tubes and tubing with tie-raps, twist ties, or rubber bands.
- Discontinue work and close all containers with hazardous chemicals if the alarm sounds. If possible, mute the alarm, put an out-of-order sign on the hood, and contact your department business office to arrange for repair.
- When the hood is not in use, keep the sash at a six-inch opening. This will significantly reduce energy consumption and the sash will act as a shield in the event of an unexpected release.
- Ductless fume hoods are not recommended due to limitations on chemical use within the hoods and required maintenance. OSH and F&S do not provide support for ductless fume hoods. Verification of proper operation and maintenance/repair is solely the responsibility of the owning department

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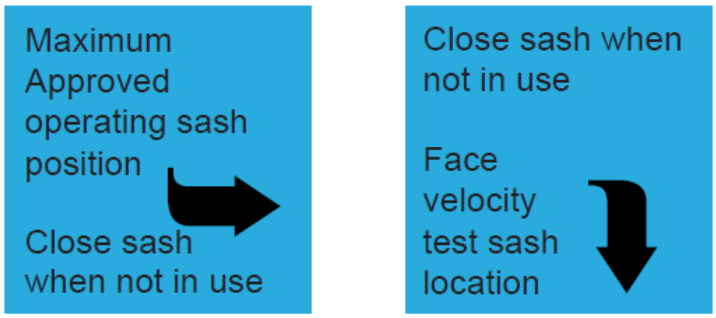
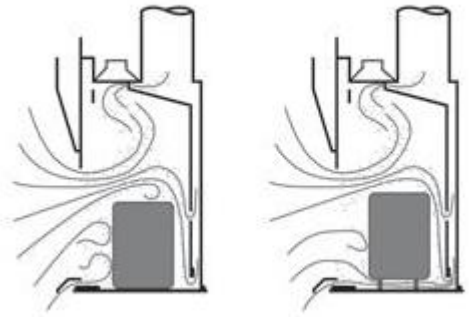
For vertical sliding sashes, the maximum operating height of the sash is typically 18 inches; a larger opening limits the performance of the hood. The opening should be minimized on hoods with horizontal sliding sashes and the user should work with one sash directly in front of them with their arms on either side of the sash.

Maximum sash opening are identified using blue stickers. On combination hoods that include both the vertical and horizontal sashes, it is best practice to put the vertical sash all the way down before opening and using the horizontal sashes.

Opening the sash beyond the optimal position will dramatically lower the air velocity and allow vapors to escape into the room. Blocking the airflow with large equipment in the hood can also lead to insufficient vapor capture and potential exposure.



The blue arrow sticker on the left indicates the maximum operating height for a hood with a vertical sash (moves up and down).The blue arrow sticker on the right indicates teh sash test locations for hoods with horizontal sashes (moves side to side).



In the left image, the airflow to the bottom slot is blocked, allowing vapors to escape into the room. In the right image, air flows underneath the elevated equipment, improving efficiency of the hood.