

UA Little Rock Fume Hood Certification Protocols

Laboratory fume hoods are used to prevent harmful exposure to hazardous substances. The following safety guidelines and EH&S protocols are used by UA Little Rock in-house personnel to ensure the equipment is maintained in proper working order.

Annual EH&S Certification

To ensure proper laboratory fume hood exposure control performance, EH&S personnel will annual certify chemical fume hoods. During this process, each of the following criteria must be observed:

1. Quantitative Assessment Criteria: Laboratory fume hoods shall provide a minimum average effective face velocity of 100 feet per minute (fpm) with a minimum 80 fpm at any point.
2. Qualitative Assessment Criteria: Laboratory fume hoods shall maintain an inward flow of air at all openings, which shall be demonstrated using smoke tubes or other suitable qualitative methods.
3. Air Flow Indicator: An airflow indicator shall be located so that it is visible from the front of the fume hood. Follow manufacturer's procedures for calibration during installation. Follow manufacturer's schedule for periodic calibration and maintenance parameters thereafter. Performance criteria for various airflow indicators are as follows:
 - a. FPM Readout: Average readout is 100 fpm
 - b. Audio/Visual Alarms: Go into alarm mode if average face velocity drops to 80 fpm

Certification Frequency

Laboratory fume hoods used to prevent harmful exposures are required to be certified as follows:

1. Annually, at a minimum
2. Whenever a laboratory fume hood has been modified
3. Whenever the exhaust duct system connected to a hood has been modified

Required Equipment & Materials for Certification

1. Thermal anemometer (calibrated as specified by manufacturer)
2. Titanium tetrachloride, dry ice in water, or other means of visualizing airflow
3. Tape measure
4. Laboratory Fume Hood survey forms

Certification Procedure

To attain certification, a laboratory fume hood must pass both the quantitative and qualitative evaluation:

1. Quantitative Evaluation – Face velocity measurement
 - a. Position the sash at the 18" height.
 - b. Set a simple grid pattern w/ grid interval of 1 foot or less.
 - c. Locate thermal anemometer at center of every segment and measure/ record velocity.
 - d. Calculate average face velocity and identify minimum value.
 - e. If average face velocity is greater than or equal to 100 fpm, with a minimum of 80 fpm at any point and a maximum average of 350 fpm the unit has PASSED the quantitative evaluation.
 - f. Record all collected data on Laboratory Fume Hood Survey Form.

2. Qualitative Evaluation – “Smoke Test”
 - a. Generate “smoke” in direction perpendicular to exhaust flow from locations of containment.
 - b. Generate “smoke” around the perimeter of the designated face, and any other location within the fume hood where turbulent airflow is thought to exist (i.e., around any large obstructions).
 - c. If the smoke is contained within and exhausted from the fume hood, the unit has PASSED the qualitative evaluation.
 - d. Record all collected data on Laboratory Fume Hood Survey Form.
3. Air Flow Indicator (where applicable)
 - a. Record the type and condition of airflow indicator on the Laboratory Fume Hood Survey Form.
 - b. If the air velocity indicator is not functioning, contact EH&S to issue work order to evaluate if it is out of calibration, broken, etc. and to repair it.
4. For units that PASS both the Quantitative and Qualitative Evaluations, please do the following:

- a. Document that unit has passed performance inspection on the Survey Form and affix a yellow certification sticker. The unit is certified for use to prevent harmful exposures to hazardous substances.
 - b. The certification sticker marks sash height positions to show the maximum opening at which the hood performance was certified.
5. For units that FAIL, immediately do the following:

- a. Inform users, Faculty/Lab Manager, and department that the unit has FAILED performance inspection and CANNOT be used for containment of hazardous materials until the unit has been certified.
- b. Document that the unit has failed performance inspection on the Survey Form.
- c. Affix RED DANGER STICKER to hood stating that it CANNOT be used for preventing harmful exposures to hazardous chemicals.
- d. If fume hood appears to have failed certification due to improper hood use/ setup (i.e., due to equipment blocking baffles), indicate as such on the Survey Form and communicate to the Laboratory Manager for correction prior to any retesting.
- e. If fume hood appears to have failed certification due to mechanical deficiencies, immediately contact Facilities Management to initiate repairs to reduce hood downtime.
- f. Repeat performance evaluations after necessary corrections have been made.