A. Basic Survey Procedures

1. Face velocity or “pitot traverse” methods are acceptable techniques for measuring ventilation system performance.

2. Sash Positions
   a. Vertical rising sashes will be surveyed at a height of 18 inches.
   b. Horizontal sliding sashes will be opened to two sash widths and checked in the center.
   c. Combination sashes will be surveyed with the horizontal sections closed and the vertical sash raised to 18 inches.
   d. Walk-in hoods (floor mounted, California style hoods) will be surveyed with the front sash down and the back sash raised to 18 inches above the top of the front sash.
   e. Sashes will be checked to ensure that they slide smoothly in the track. Report any problems to Facilities.

3. Face Velocity Surveys
   a. The preferred method of measuring face velocity is to use an Alnor EBT 720 macromanometer. When a velocity matrix (covering ~1 ft²) is used, readings will be taken at equal distances across the face of the hood. Therefore, a 6 ft hood will require 5 readings and a 4 ft hood will require 3 readings.

   b. When the Macromanometer is not available, the laboratory hood face velocities will be measured using a hotwire anemometer. The face openings will be divided into sections of 6 inches in height and no more than 12 inches in length. Therefore a hood 6 feet in length will have 15 sections (face opening will be ~54 inches wide).
      i. Velocity readings are to be taken at the center of each section
      ii. A reading is to be taken at face center in addition to other readings.

4. Controller and Monitor Checks
   a. The controller/monitor reading will be checked against face velocity results. If the reading is not within 10% of the face velocity result, the controller or monitor must be calibrated.
b. The manufacture’s specifications will be used for calibration procedures.
c. The visual indicator should be in the normal range (green) for monitors that do not have numeric readings.
d. Numeric readings will be recorded.
e. The emergency flow will be checked to ensure proper function (controller only).
f. High sash alarms will be checked as appropriate to ensure proper function.

5. Auxiliary Air Hoods

a. Auxiliary air hoods must be checked to ensure that the air curtain is not interfering with the face velocity.
b. Face velocity will be first checked at the normal sash height of 18 inches and then checked at 12 inches. A negative reading indicates that too much air is being supplied to the face of the hood: contact Facilities.

6. Other Checks

a. Lights: Broken/nonfunctioning lights will be reported to Facilities.
b. General condition of hood: Hazardous conditions will be noted and reported to the PI along with any conditions which may adversely affect fume hood function.
c. Pressure controlled labs (ES&T Building): Will be checked for proper room air pressure (-0.008). Variations will be reported to Facilities.

7. Pitot Traverse Surveys

a. Pitot traverse measurements will be performed per the procedures described in Industrial Ventilation.
b. Static pressure measurements will be recorded.

B. Acceptable Limits

1. General Purpose laboratory fume hoods will be considered acceptable with an average face velocity of 80 lft/min to 100 lft/min.

   a. Fume hoods performing less than 80 lft/min will be tagged with a “DANGER HOOD IS NOT SAFE!” tag.
   b. Fume hoods that are not working will be tagged with a “DANGER HOOD IS NOT WORKING! DO NOT USE!” tag.

2. Hoods in laboratories with carcinogens or extremely hazardous materials will be considered acceptable with an average face velocity of 100-120 lft/min.

3. Velocities in excess of 120 lft/min require additional testing by smoke to verify that nothing is exiting the hood.
4. Refer to *Industrial Ventilation* for acceptable ventilation system performance for non-laboratory hood ventilation systems and/or refer to original specifications for the installed ventilation system.

5. If a ventilation system does not perform according to criteria, a work order to repair the ventilation system shall be initiated by EHS.

C. Periodic Ventilation Testing

1. To be repeated every 6 months.

2. Changes in face velocity or Static Pressure (pitot traverse) of more than 10% will require a repeat of the procedure. If face velocity or static pressure remains within the acceptable range, the new values will be accepted.

3. Retesting is required after a repair or maintenance is performed.

D. Follow-up Procedures

1. Work orders will be submitted to the appropriate Facilities Maintenance group by GT EHS for deficiencies such as unacceptable face velocities, or controller/monitor issues, etc.

2. GT EHS will follow-up within two weeks to ascertain the status of fume hood repairs.

3. Fume hoods which have been repaired will be rechecked and tags will be removed as appropriate.

E. References


2. *Industrial Ventilation*, American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio, 2001