



EAST TENNESSEE STATE UNIVERSITY

Facilities Management

Policy Number: 700.20

Title: Chemical Fume Hood Policy

Implementation Date: 2002

Last Audited: August, 2017

Last Revised: October 23rd, 2017

Introduction

The laboratory chemical fume hood is the most common local exhaust ventilation system used in laboratories and is the primary method used to control inhalation exposures to hazardous substances. When used properly, fume hoods offer a significant degree of protection for the user.

Scope

This plan shall address chemical fume hoods used to control hazardous substances in the laboratory. This plan does not address biosafety cabinets, glove boxes, histology grossing tables, clean benches, bench-top exhausts and similar local exhaust ventilation.

Purpose

The purpose of this document is to provide guidance for the use, maintenance, and testing of chemical fume hoods on campus.

Procedures

Face velocity measurements are performed in accordance with ANSI/AIHA Z9.5-2003, *Laboratory Ventilation Standard* and ANSI/ASHRAE 110-1995, *Method of Testing Performance of Laboratory Fume Hoods*.

Laboratory chemical hoods determined to have an average face velocity less than 90 feet per minute using an air velocity meter will be repaired. Safe work procedures have been developed to protect ETSU Facilities Management maintenance personnel and laboratory students, faculty and staff from potential exposure to hazardous materials while laboratory ventilation exhaust systems are inspected and repaired.

RESPONSIBILITIES

Facilities Supervisors:

- a. Assure that employees assigned to work on laboratory chemical hood exhaust systems are adequately trained and utilize the appropriate personal protective equipment.
- b. Assure that maintenance work requiring the shut-down of the system is coordinated with the laboratory or department.

Facilities Maintenance Employees:

- a. Perform work in a manner consistent with this policy utilizing the appropriate personal protective equipment.

Pre-Maintenance Procedures:

- a. Whenever service requires that a laboratory chemical hood be shut down, the designated laboratory supervisor or department chair must be informed of the time and duration of the shutdown. Facilities Management is responsible for arranging the shutdown.
- b. Whenever work is scheduled on the laboratory ventilation system, laboratory staff must confirm that hazardous materials have been secured. Laboratory staff is also responsible to assure that a work area in laboratory space is cleared of laboratory equipment; maintenance staff need room to place their tools and may occasionally need room to place a ladder.

NOTE: Facilities maintenance employees shall not remove, alter or move laboratory equipment or chemicals. Laboratory staff is responsible for removing items from laboratory hood cabinets.

- c. Immediately before an exhaust system will be shut down, the sign shown in *Attachment A* must be placed on the sash of the chemical hood.

MAINTENANCE PROCEDURES

PERSONAL PROTECTIVE EQUIPMENT

At a minimum, Facilities Management maintenance personnel are required to:

1. Wear the following personal protective equipment when working on the clean side of the hoods: *chemical resistant gloves, eye protection or face shield.*
2. After completing maintenance tasks, wash the outside of re-useable gloves or discard disposable gloves.
3. Wash hands and face.

(Please contact EH&S for additional guidance in regard to proper personal protective equipment or chemical questions.)

Safe Work Procedures for Working on Radioisotope Hoods

1. Contact ETSU's Radiation Safety Office at 439-6056 before working on a chemical hood exhaust system where a room is posted with a radioactive materials sign.
2. A determination with ETSU's Radiation Safety Officer (RSO) as to what course of action is needed.
3. A clearance survey by the RSO may be performed to determine if the inside of the hood is not contaminated with radioactive materials. A survey may be necessary to determine if down line ductwork is contaminated from legacy radionuclides in an air stream. It may be necessary to perform surveys on chemical hoods in clean labs, which have a radionuclide history.

Responsibilities

The Environmental Health and Safety Office will:

- a. Conduct annual chemical fume hood testing.
- b. Assist departments or individuals to the extent feasible with compliance.
- c. Provide training upon request related to chemical fume hood use.
- d. Place a sticker on chemical fume hoods indicating the date of testing, the name of the person performing the test, and the average face velocity.
- e. Provide PPE for Facilities Management employees.
- f. Inspect the framing, gaskets, seals and fasteners of all chemical hood sashes during annual laboratory safety inspections to ensure integrity.

Departments that have chemical fume hoods shall:

- a. Use the hoods in accordance with their design and limitations
- b. Report any problems associated with the hoods to Facilities

General Work Practices for Chemical Fume Hoods

- a. Operate the hood at the proper sash height as indicated on the EH&S profile sticker located on the front of the hood.
- b. Do not use the hood as a storage cabinet for chemicals and/or equipment. Materials stored in fume hoods should be kept to a minimum and stored in a manner that will not interfere with airflow.
- c. Do not use a hood for any function it was not designed for, such as perchloric acid and radioisotopes. The generation of perchloric acid vapors requires specially designed fume hoods with wash-down systems. Failure to use a wash-down system will result in the deposit of explosive

perchloric acid crystals that may detonate in the hood ductwork. Hoods used for radioisotopes must be approved by the Radiation Safety Office.

- d. Keep all items in hood at least 6 inches from the front of the hood. This greatly improves capture rate for volatile chemicals.
- e. Keep hoods clean and organized and clean up any chemical spill immediately.
- f. Chemical hoods are not a substitute for personal protective equipment. Wear gloves, safety glasses, lab coats, etc. as necessary.
- g. Know the toxic properties of the chemicals with which you work. Be able to identify signs and symptoms of overexposure.
- h. If your hood is not working properly or if have questions regarding the proper use of your chemical hood, contact the EH&S Department at 439-6028

Contact Persons

Associate Director of Environmental Health and Safety
Environmental Compliance Manager
Health and Safety Specialist

Approved by: _____
William Brady Rasnick, Jr., Associate Vice President, Facilities
Management

Date approved: _____

Audited: August, 2017

Revised: October 10th, 2017
October 23rd, 2017

Attachment A

HEALTH AND SAFETY NOTICE

ETSU Facilities Management will be shutting down laboratory ventilation system on:

Date: _____

Building: _____

Floor: _____

Time: _____

DO NOT USE laboratory chemical hood(s) during this time.

Please call Facilities Management at 439-7900 if you have any questions.

HEALTH AND SAFETY NOTICE

This Chemical Hood is currently being serviced.

**DO NOT USE laboratory chemical hood(s)
during this time.**

**Please call Facilities Management at 439-7900
if you have any questions.**