



Procedure No 400.11  
Subject: Laboratory Chemical Fume Hoods  
Reference: ANSI/AIHA/ASHRAE  
Distribution All Employees

Implementation date: 2002  
Review Date: November 2008

<b>Purpose:</b>	The purpose of this policy is for Laboratory employees using chemical hoods to be protected from hazardous chemicals. ETSU laboratory chemical hoods are tested annually by Environmental Health & Safety.
-----------------	--

### General Work Practices for Chemical Fume Hoods at ETSU

- Operate the hood at the proper sash height as indicated on the EH&S profile sticker located on the front of the hood.
- 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.
- 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.
- Keep all items in hood at least 6 inches from the front of the hood. This greatly improves capture rate for volatile chemicals.
- Keep hoods clean and organized and clean up any chemical spill immediately.
- Chemical hoods are not a substitute for personal protective equipment. Wear gloves, safety glasses, lab coats, etc. as necessary.
- Know the toxic properties of the chemicals with which you work. Be able to identify signs and symptoms of overexposure.
- 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

**Improper Hood Usage**



**Proper Hood Usage**



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 Physical Plant maintenance personnel and laboratory students, faculty and staff from potential exposure to hazardous materials while laboratory ventilation exhaust systems are inspected and repaired.

### **Scope**

This policy applies to all ETSU Physical Plant maintenance employees. Contractors hired to work on the laboratory ventilation exhaust system will be notified that hazardous materials are used in the chemical hoods.

### **RESPONSIBILITIES**

#### **Facilities Supervisors:**

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

#### **Facilities Maintenance Employees:**

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

#### **Pre-Maintenance Procedures:**

1. Whenever service requires that a laboratory chemical hood, biological safety cabinet or other local exhaust system be shut down, the designated laboratory supervisor or department chair must be informed of the time and duration of the shut down. The Facilities shop supervisor is responsible for arranging the shut down.
2. 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.**
3. 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

**Physical Plant employees are only authorized to work on the clean side of the laboratory ventilation system. Any repairs on the dirty side of the chemical hoods require a safety evaluation and written approval from the Associate Vice President Physical Plant.**

**Clean side work for our purposes deals with maintenance and repairs on the laboratory ventilation exhaust system without cutting into or sticking in part of the body into a duct or hood enclosure. The following are some examples of clean work authorized by the Physical Plant but is not entirely inclusive of all work that can be performed safely:**

1. Inspect the fan housing, vibration isolator and the duct work for leaks. Seal leaks.
2. Checking the condition of the fan motor and sheave for problems, i.e., v-belt tension, v-belt condition, etc.
3. Checking the electrical system for problems, i.e., blown fuse, circuit ground fault, etc.

**IN ALL SITUATIONS THAT INVOLVE WORKING ON THE CLEAN SIDE OF A LABORATORY VENTILATION EXHAUST SYSTEM; THE EXHAUST SYSTEM MUST BE LOCKED OUT AND NO AIRFLOW EXHAUSTED FROM THE SYSTEM.**

## PERSONAL PROTECTIVE EQUIPMENT

**At a minimum, Physical Plant maintenance personnel are required to:**

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

## Safe Work Procedures for Working on Radioisotope Hoods Submitted by Radiation Safety Office

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. If possible, check with researcher as to what radionuclides are being used presently in the hood and a history of hood.
2. A list of ETSU radioisotope hoods is attached. *See Attachment B.*
3. A determination with ETSU's Radiation Safety Officer (RSO) as to what course of action is needed.
4. 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.



5. If radioisotope contamination is above applicable standards, special procedures will be specified by the Radiation Safety Officer. Do not proceed with work; contact the Physical Plant main office for further directions.





# Health and Safety Notice

ETSU Physical Plant will be shutting down  
Laboratory Ventilation Systems on:

Date: \_\_\_\_\_

Building: \_\_\_\_\_

Floor: \_\_\_\_\_

Time: \_\_\_\_\_

**DO NOT USE Laboratory Chemical Hoods during this time!**

Please call the Physical Plant Office at  
439-6900 if you have any questions.

# Health and Safety Notice

This Chemical Hood is currently  
being serviced.

**DO NOT USE !!!**

If you have questions, Please call the  
Physical Plant Office at 439-6900



