



Northern Illinois  
University

## Fume Hood Equipment Service and Maintenance Policy

### Objective:

The objective of this policy is to establish fume hood equipment inspection, testing, and maintenance procedures to:

- Ensure the safety of students, staff and faculty while engaging in teaching and research operations within the academic laboratory environment;
- Ensure compliance with applicable rules and regulations as promulgated by the Illinois Department of Labor and Office of the State Fire Marshal as well as applicable consensus standards as promulgated by the National Fire Protection Association, American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) and the American National Standards Institute (ANSI).

This policy outlines the scope/application, roles and responsibilities, test procedures, labeling, process for addressing noncompliant hoods and associated repair timelines, commissioning/decommissioning process, miscellaneous testing and repair conditions and the annual review of this policy.

### Scope and Application:

Fume hood equipment (i.e. hoods) is defined as chemical fume hoods, biological cabinets and clean benches. There are approximately 200 hoods located in campus buildings that are used to support safety in the academic teaching and research laboratory environments. Hoods are designed and constructed to provide adequate ventilation to prevent laboratory personnel from exposure to potentially toxic chemicals while working therein. Some hoods especially those in Faraday Hall and Montgomery Halls also serve as part of the building ventilation systems.

Biological cabinets and clean benches shall be tested in accordance with the National Science Foundation (NSF/ANSI 49) (most recent edition) Biosafety Cabinet Certification consensus standard on an annual basis.

Chemical fume hoods shall be tested in accordance with:

- ASHRAE Standard 110 (most recent edition), Method of Testing Performance of Laboratory Fume Hood consensus standard;
- NFPA 45, (most recent edition) Standard on Fire Protection in Laboratories Using Chemicals.

Testing and service shall be performed on an annual basis in accordance with applicable requirements as outlined in the Life Safety Code.

## **Roles and Responsibilities:**

### Facilities Management and Campus Services (FMCS) - Physical Plant

- Inspect, test, maintain, and service hoods that are functional and in operation. Hoods will be commissioned, decommissioned and/or repaired in accordance with applicable sections in this Policy. These services will be performed by certified testers from the Physical Plant Sheet Metal Shop with support from certified testing vendors as needed.
- Maintain and incorporate a hood database in the work management system. The database will be made available to the Laboratory Safety Manager and will include (at a minimum):
  - Hood identification system;
  - Make and model;
  - Type;
  - Test results;
  - Miscellaneous comments (i.e. status of lighting, etc.).
- Label hoods in accordance with the Hood Labeling section of this Policy to facilitate the work management system process.
- Manage purchase orders/billing process for certified testing vendors. Vendors will report directly to the certified tester in the Physical Plant Sheet Metal Shop.

### Office of Research Compliance, Integrity and Safety (ORCIS Laboratory Safety)

- Serve as a liaison between the certified testers and affected laboratory personnel;
- Collaborate with the certified testers to update testing procedures based upon changes to applicable rules and regulations.

## **Test Procedure:**

### **Notification:**

The certified tester will work with ORCIS Laboratory Safety to establish the testing schedule. ORCIS Laboratory Safety will notify the appropriate department at least two weeks in advance so that laboratory personnel can provide hood access which includes removing non-essential equipment and materials from the hood. Equipment and supplies contained within the hood that are integral to laboratory operations should remain intact to facilitate the testing process.

### **Site Conditions:**

The following conditions must be established before the testing sequence can commence:

- There shall be at least six inches of clearance between the sash opening and stored equipment and supplies;
- Hoods shall be tested under normal operating conditions to accurately reflect functionality and representative face velocities;
- There shall be no equipment and supplies stored directly in front of the hood that could adversely impede airflow and/or obstruct access thereto;
- The certified tester reserves the right to delay testing of a hood if the preceding conditions are not met. The certified tester will notify ORCIS Laboratory Safety for assistance with resolving this issue.

**Test Parameters:**

The performance of the hood must successfully conform to the following parameters in order to be “certified” and available for use by laboratory personnel:

- Smoke visualization test
- Large volume smoke test
- Average face velocity of at least 80 feet per minute (fpm) but not to exceed 120 fpm.

**Test Results:**

- Once the hood has passed, the certified tester will place an Inspection Label “B” on the hood.
- The certified tester will enter test results and corrective actions into the work order systems. The certified tester will also send test results and associated corrective actions to ORCIS Laboratory Safety.

**Hood Labeling:**

Identification Label (Label A)

Hood identification number and service exhaust fan identification.

Hood Sash Label (Label B)

- Hood identification, and sash height. The sash height is 15 inches and is the height at which the hood will be tested.

Inspection Tag (Label C)

- Hood identification, Exhaust Fan #. Dates of inspection, inspector and results in FPM.

Out of Service Label (Label D)

- Lists date hood was removed from service due to noncompliance.

**Noncompliant Hoods:**

- If a hood does not meet the test parameters, the certified tester will tag the hood with an “Out-of-Service” label C and notify ORCIS Laboratory Safety. Conditions that may cause the hood to fail testing include, but are not limited to: excessive storage in the hood, improper usage, or disrepair to the hood system (i.e. hood and/or the associated exhaust system).
- If a hood is found to have a FPM greater than 120, the certified tester will notify ORCIS Laboratory Safety. No “Out-of-Service label is necessary.
- The certified tester will notify ORCIS Laboratory Safety of the findings and associated corrective action(s) needed to restore the hood to service.

**Repair Timeline:**

- Repair of hoods which are out of compliance need to be completed as soon as possible. Teaching and research will be affected by hoods that are taken out of service.
- The certified tester will provide a tentative repair timeline to ORCIS Laboratory Safety. The certified tester will make every effort to facilitate the repair process within a two -

week time line in order to minimize disruptions. The certified tester will advise ORCIS Laboratory Safety if scheduled repairs are anticipated to take longer than two weeks.

- ORCIS Laboratory Safety will notify the department chair and affected laboratory personnel in the event that the hood has been removed from service and cannot be used until the necessary repairs are completed. When hoods do not successfully meet the testing parameters, the department is responsible for ensuring the hoods are removed from service until such time the hood is repaired and successfully meets the test parameters.
- Once repairs have been made the certified tester will retest and label the hood appropriately. The certified tester will also remove the “Out of Service” label and notify ORCIS Laboratory Safety.

### **Hood Commissioning, Decommissioning and Repair:**

Please note that funding for these processes is outside the scope of this policy.

#### **Hood Commissioning**

Should a department require an existing hood be returned to service and/or modified or a new hood be installed, ORCIS Laboratory Safety will direct the requesting department to initiate a Request for Capital Improvement by following instructions as listed on the Facilities Management and Campus Services website.

Upon completion of the process, the certified tester will perform an acceptance test to ensure the hood is functioning properly before being commissioned into services. The acceptance test process is consistent with the test procedure as noted above.

#### **Hood Decommissioning**

Should the department require a hood be decommissioned from service (i.e. utility disconnect and/or removal), ORCIS Laboratory Safety will direct the requesting department to submit a work order to the Physical Plant so the certified tester can decommission the hood. Please note that some hoods may not be able to be decommissioned especially those in Faraday Hall and Montgomery Hall given that these hoods also serve to sustain the building ventilation system.

#### **Other Testing and Repair**

Should a department require a hood be serviced (i.e. tested and repaired) as a result of damage and/or malfunction of the hood due to improper use and/or operations therein, ORCIS Laboratory Safety will direct the requesting department to submit a work request to the Physical Plant so the certified tester can initiate the repair process.


**Annual Review:**

ORCIS Laboratory Safety and the Physical Plant will review and revise this policy on an annual basis to reflect operational and procedural changes internal to the University as well as changes to applicable rules, regulations and consensus standards.


Date	Reviewed by	Changes
7/2016	M. Crase, S. Mooberry, P. Hickey	New policy
12/6/2017	M. Crase, S. Mooberry, P. Hickey, T. Viel	Annual review, label page update.
5/23/2019	M. Crase, S. Mooberry, P. Hickey, T. Viel, J. Gable, S. Stoker	Annual review, label page update.

# Labels/ Signs


## Label A

<i>Hood ID</i> _____	
<i>Serviced by Exhaust #</i> _____	

## Label B

<i>Fume Hood</i>	
<i>ID</i> _____	
←—————→ <b>Sash Height</b>	

# Label C

<b>Chemical Fume Hood Certification</b>		
		
		Northern Illinois University
Fume Hood ID _____		
Exhaust Fan # _____		
Date	Inspector	Results/FMP

# Label D

<p><b><i>Out of Service</i></b> </p> <p><i>Please call ORCIS for Information</i></p> <p><i>Date:</i> _____</p>
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