

DECEMBER 19, 2007

FUME HOOD REPAIR AND SERVICING BY PHYSICAL PLANT

Section 1) PURPOSE: To describe the SAFE procedures for servicing a fume hood including: mechanical work on the roof-top fans, fume hood services, painting, carpentry/sash work and electrical work.

All other work on any part of a fume hood requires consult with EHSO and a full decommissioning form. This includes work involving ducts, sinks, plumbing and/ or removal and disposal.

http://www.umanitoba.ca/admin/vp_admin/risk_management/ehso/bio_safety/Decomm.html

- Section 2) POLICY:**
1. To protect service and laboratory personnel during routine servicing and repair from potential exposure to hazardous substances which are or have been used or stored in the hood.
 2. To inform EHSO of the completion of safety related work orders.

Section 3) RESPONSIBILITY:

Trades person assigned to the work	Laboratory Supervisor (or designate)
1. Notify the appropriate persons (as outlined in the procedures) before the work begins. 2. Ensure that if there are some innate hazards that can not be completely avoided, that they have been supplied with and are wearing the appropriate personal protective equipment. 3. That Environmental Health and Safety be contacted (phone-474-6633) if a trades person has any questions or would like assistance in reviewing a workplace. 4. Follow the procedures and wear personal protective equipment as outlined below.	1. Ensure that the fume hood clean-up and Form #1 (at the end of the SOP have been carried out and "OUT OF SERVICE" notice (Form #2) posted and signed before trades work begins. 2. Ensure that the pre-service cleanup or decontamination is <u>never</u> done by the trades person or caretakers. 3. That the appropriate personal protective equipment is worn if there are some innate hazards that can not be completely avoided. 4. Notify the laboratory workers/users, as outlined below, if the fume hood needs to be turned off.

Section 4) PPE (PERSONAL PROTECTIVE EQUIPMENT) REQUIREMENTS:

Procedure	PPE requirements - Trades person	PPE requirements - Laboratory person
Type A All roof top maintenance	- disposable nitrile gloves - a properly fitted respirator with appropriate cartridges (multi-contaminant plus P-100 (HEPA) combination filters; the wearer must have been fit tested for respirator (contact EHSO at 474-6633 for questions or answers) - safety glasses / face shield.	- Not applicable
Type B Work in the fume hood cavity e.g. fixing sash, electrical or services	- disposable nitrile gloves, - safety glasses/splash goggles, - arm guards or lab coat	- disposable nitrile gloves, - safety glasses/splash goggles, - lab coat
Type C Work that requires climbing inside the fume hood cavity, e.g. switching lights bulbs, or sash pulleys	- disposable nitrile gloves, - safety glasses/splash goggles, - chemical-resistant (Tyvek™) coverall (should be worn for all necessary work if contact with internal components is required). - Lab coat or coverall may be appropriate in limited situations	- disposable nitrile gloves, - safety glasses/splash goggles, - lab coat

5) PROCEDURE:

A. Trades person assigned to the work:

Note 1 *It is important to ascertain the type of fume hood system in the building concerned. Majority of buildings have fume hoods that have individual exhaust ducts that are independently vented. Parker, Buller, Animal Science and Agriculture buildings have manifolded fume hoods where shutting off the fan system may lead to back drafts which in turn could potentially (a) spill the vapours from inside the hood over to the lab space or (b) lead to freezing of water pipes inside the building if the shut off occurred on severely cold days in the winter.*

Note 2 *For all work in hoods marked as being used for **Perchloric Acid** contact the Environmental Health and Safety Office (EHSO 474-6633) for further clearance before beginning any work.*

Note 3 *Some fume hoods at the U of M have interiors constructed from **cementitious-bound asbestos**. Some exhaust duct insulation may contain asbestos. Any work to this type of interiors that breaks the integrity of the surfaces requires assessment under U of M Asbestos Management Protocol (Refer Physical Plant /EHSO) and adherence to appropriate procedures and use of Personal Protective Equipment. Contact your supervisor for instructions.*

Work Type A. If the work requires that the fan or motor be shut off.

Physical Plant will notify the affected Departmental Office indicating the unit and possible duration of the shut down including communicating to the department the requirement for cleaning the fume hood as per form #1.

Trades person to:

1. Locate on the roof, the fan or motor corresponding to the fume hood/room in question AND Check to see if more than one hood is connected to the same exhaust fan. Steps 2 and 3 will also apply to all the hoods connected to that fan.
2. Consult with lab supervisor or designate to
 - a. Determine /confirm a time frame for completing the work and shutting down the identified hood(s) with the lab supervisor(s) (or designate)
 - b. Ensure the fume hood has been decommissioned and obtain FORM #1. (Form should have been posted or made available by lab personnel).
 - c. If a fume hood still has radioactive stickers showing, refer the laboratory staff to The University of Manitoba, Radiation Safety Manual RSP-240. There should be no radioactive stickers inside or on the face of a fume hood being serviced. This would ascertain that areas are below 0.5Bq/cm² levels and appropriate wipe tests have been done and recorded. If there is a possibility that the trades person may handle parts of the fume hood that are not accessible to the lab staff, then the trades person should refer to the RSP-810 and the Full/maximum Protective Equipment outlined in section 6.0 should be followed.
3. Locate on the roof, the fan or motor corresponding to the fume hood/room in question.
4. Check to see if more than one hood is connected to the same exhaust fan. Steps 2, 3 and 6 will also apply to all the hoods connected to that fan.
5. Tape the fan switch and sash closed. Affix the "OUT OF SERVICE" notice (Form # 2) at end of this SOP on the unit(s) for the complete duration of the work. *It must be **printed on brightly coloured paper** and **posted in the central lower position of the sash** so that if someone raises the sash it would still be visible.*
6. Wear Personal Protective Equipment as per **Section 4) PPE** of this SOP. Personal hygiene is important. After removing, turn gloves inside out then dispose. Wash hands after completing task.
7. **After work is completed:**
 - a) **Restart the fan**
 - b) **Remove the notice from the fume hood(s)**

- c) Take a flow measurement @ 11" and report completion of work and new face velocity EHSO (474-6633), if the work order originated from
- i) the safety office (EHSO) **OR**
 - ii) originated from the user, but the work done has potentially changed the face velocity.

Work Type B. If the work is in the fume hood cavity, but does not require the fan to be shut off or for the trades person to physically climb inside the fume hood cavity (e.g. fixing the sash, work on the utilities other than the plumbing.)

Work Type C. If the repair work requires trades person to: physically climb inside the cavity of the hood, e.g. changing a light bulb or fixing the baffle or sash pulleys

Physical Plant will notify the affected Departmental Office indicating the unit and possible duration of the shut down including communicating to the department the requirement for cleaning the fume hood as per form #1.

Trades person to:

- 1) Consult with lab supervisor or designate to
 - a) Determine /confirm a time frame for completing the work.
 - b) Ensure the fume hood has been cleaned as per Fume hood Cleaning procedure for Laboratory Supervisor and obtain FORM #1. (Form should have been posted or made available by lab personnel).
- 2) If a fume hood still has radioactive stickers showing, refer the laboratory staff to The University of Manitoba, Radiation Safety Manual RSP-240. There should be no radioactive stickers inside or on the face of a fume hood being serviced. This would ascertain that areas are below 0.5Bq/cm² levels and appropriate wipe tests have been done and recorded.
- 3) Affix the "OUT OF SERVICE" notice (Form # 2) at end of this SOP on the unit(s) for the complete duration of the work. *It must be **printed on brightly coloured paper** and **posted in the central lower position of the sash** so that if someone raises the sash it would still be visible.*
- 4) Wear Personal Protective Equipment as per **Section 4) PPE** of this SOP. Personal hygiene is important. After removing, turn gloves inside out then dispose. Wash hands after completing task and before leaving lab.
- 5) After the work is complete, remove the "OUT OF SERVICE" notice and report completion of work to the Laboratory Supervisor or Designate.

B. Fume hood Cleaning Procedure for Laboratory Supervisor or Designate (for Declaration of Fume Hood Fitness Form #1)

For Work Type A

1. **Chemicals** - All work with chemicals should be discontinued and all chemicals should be properly stored. If chemicals normally stored in a fume hood remain in the hood, it is important that caps and lids of the containers are sealed carefully with Para film or Teflon Tape. Very odoriferous chemicals may be placed in Ziploc plastic bags or other secondary containment.
2. **Radioactive Materials** – No work with radioactive material should be in progress and all radioactive material should be properly stored.
3. Wear Personal Protective Equipment as per **Section 4) PPE** of this SOP. Personal hygiene is important. After removing, turn gloves inside out then dispose. Wash hands after completing task and before leaving lab.
4. Complete FORM #1 : Declaration of Fume hood Fitness and make it available for tradesperson
5. IF possible provide clean cardboard or bench paper for trades person to lean on.
6. Notify all affected laboratory workers/users and verify that an "OUT OF SERVICE" notice has been posted by tradesperson.

For Work Type B and C

1. Remove everything from the fume hood cavity. (For plumbing work, all chemicals and equipment that impede access to plumbing must be removed so that plumbers can work without hindrance and other hazards (e.g. fire).
2. Chemicals - All chemicals should be properly stored. If chemicals normally stored in a fume hood remain in the hood, it is important that caps and lids of the containers are sealed carefully with Parafilm or Teflon Tape. Very odoriferous chemicals may be placed in Ziploc plastic bags or other secondary containment.
3. Radioactives - Refer to The University of Manitoba, Radiation Safety Manual RSP-240. There should be no radioactive stickers inside or on the face of a fume hood being serviced. I.e. This would ascertain that areas are below 0.5Bq/cm² levels and appropriate wipe tests have been done and recorded
4. Wipe down the following fume hood surfaces with mild detergent and water (and decontaminate if used with biological agents):
 - a. Inside and outside of the sash and handles
 - b. Additionally for **Work Type B** - horizontal and reachable surfaces
 - c. **Additionally for Work Type C** - **ALL** interior surfaces including baffles on the inside of the fume hood.
5. If all the internal surfaces cannot be easily reached for Work type C, a long handled mop with a disposable mop-head can be use. DO NOT USE caretaker equipment.
6. Wear Personal Protective Equipment as per Section 4) PPE of this SOP. Personal hygiene is important. After removing, turn gloves inside out then dispose. Wash hands after completing task and before leaving lab.
7. Complete FORM #1 : Declaration of Fume hood Fitness and make available for tradesperson
8. IF possible provide clean cardboard or bench paper for the trades person to lean, stand, or sit on.
9. Notify all affected laboratory workers/users if an "OUT OF SERVICE" notice has been posted by tradesperson.
10. EHSO (474-6633) can be contacted for further consultation by lab personnel or trades person at any time.

FORM # 1 Lab Supervisor Declaration of Fume Hood Fitness

Radioactive materials have never been used in this fume hood

Biological materials have never been used in this fume hood

All chemicals, radioactive and/ or biological material have been removed or sealed with teflon tape or parafilm and odoriferous chemicals have been placed in a plastic bag or secondary containment. (Work Type A only)

All chemicals have been removed.

All biological materials have been removed.

Radioactive materials have been removed and the area has been decontaminated. *Refer to the University of Manitoba, Radiation Safety Manual RSP-240. There should be no radioactive stickers inside or on the face of a fume hood being serviced (i.e., this would ascertain that accessible areas are below 0.5Bq/cm² levels and appropriate wipe tests have been done and recorded).*

This signature indicates that this fume hood has been cleaned as per the requirements for:

Work Type A - fan on roof work

Work Type B - work in cavity e.g. sash, services

Work Type C - work requiring service person to climb into cavity of fume hood

AND is acceptable for service work to continue as per EHSO Fume hood servicing SOP

DATE:

Signature of Laboratory Supervisor:

Form # 2

Building/Room # _____

Fume Hood # _____ Fan # _____

Department _____

Any other available ID info _____

FUME HOOD NOT IN SERVICE

DO NOT USE

DATE OF SHUTDOWN: _____

DURATION OF SHUTDOWN: _____

REASON FOR SHUTDOWN: _____

FOR FURTHER INFORMATION PLEASE CALL:

PHYSICAL PLANT: _____

TRADES PERSON

NAME

PHONE NUMBER

LAB CONTACT: _____

NAME

PHONE NUMBER