WHITMAN COLLEGE

LOCAL EXHAUST SYSTEM MAINTENANCE AND REPAIR

Background

Many types of local exhaust ventilation equipment may be present in research and teaching laboratories, including chemical fume hoods, canopy hoods, slot hoods, snorkels, tabletop fume extractors, biological safety cabinets, and general exhaust systems for isolation rooms. Work on these systems may include repairs to duct work, changing exhaust fans, or changing exhaust filters. Routine service work includes repairs and demolition activities.

Although most hazardous material used in laboratories will not readily collect in exhaust systems, If inside surfaces show evidence of potentially hazardous materials workers must take appropriate protective measures to reduce personal exposure risks. Contact EHS for assistance if potential hazards such as excessive or unexplained corrosion, pooled liquids, brightly colored solids, crystalline growths or other deposits not consistent in appearance with normal dust build-up are present.

Preparation for Work

Hazard Determination

Lab occupants and facilities must provide any available information regarding historic chemical usage in areas served by local exhaust ventilation, particularly regarding the following:

- Ensure hazardous materials (biological and chemical) are removed from the impacted work area (e.g. fume hood).
- Observe the equipment being serviced for signs of contamination such as uncontained chemicals and heavy staining.
    - Contact lab staff or Environmental Health and Safety for assistance if such conditions are present.
- If records indicate the use perchloric acid or elemental mercury in a fume hood or area served by another type of local exhaust ventilation, contact EHS for a more detailed evaluation.
- The general procedures described in this document should adequately control any risk associated with working on exhaust systems used for control of common laboratory chemicals. Contact EHS if you discover unanticipated conditions or need other assistance.
- Laboratory personnel using hazardous organisms routinely disinfect work areas as part of their procedures. However, cleaning and disinfection of exposed surfaces must be performed immediately prior to maintenance work. If biological contamination is suspected on the interior of the ductwork, work practices must be used to seal each section of ductwork before and as it is removed to prevent release of aerosols.
- College employees may not disturb asbestos components of exhaust systems. Older systems may contain components with asbestos-containing-materials, such fume hoods with interior panels and working surfaces made of transite, outer Galbestos duct covering (used to minimize heat exchange and to dampen sound), or some types of vibration dampers. If any suspect materials are discovered leave them undisturbed and contact your supervisor.

Notifications

- Post a shutdown notice at all locations serviced by an impacted exhaust system.

Preparation of work site

- Ensure that laboratory personnel have followed all safety precautions and preparatory measures

• If the work activities may result in the release of dust or metal fragments, cover the work area with a tarp/drop cloth to minimize any required clean up.
• Obtain Hot Work Permits, as required, from the Maintenance Supervisor and be sure the appropriate "Hot Work" safety requirements are followed.
• Follow Lockout-Tagout requirements as appropriate.

Doing the Work

Personal Protective Equipment

• Gloves: Tear-resistant gloves should be used when working with sheet metal. Vinyl, neoprene, leather or rubber gloves may be needed for some activities.
• Eye protection: Side shield safety glasses are to be worn while using any hand tool or power tool. Safety goggles may be necessary if aerosols or vapors are generated.
• Respirator: College employees must be enrolled in the College's Respiratory Protection Program to perform work where respiratory protection is required. Otherwise, work requiring respiratory protection must be performed by an appropriate contractor.
• Other: Disposable coveralls, hardhats, hearing protection, and other personal protective equipment may be required.

Work Practices

• Avoid the generation of airborne particulates/vapors whenever possible. A light spray of water can help prevent the generation of aerosols.
• Bag filters as they're removed from the frame.
• When duct interiors contain significant amounts of dust and debris, seal ends with plastic and tape before and as each section is removed.
• Inform your supervisor if unforeseen problems are encountered during the work.

Clean up

• Wash down the area if appropriate. In general, wet cleaning methods should be used.
• Gather up tarps or drop cloths and clean up area. Don't leave waste in the work area.

Waste Disposal

• Special disposal requirements are usually not necessary for hood components and ductwork, unless special conditions indicate potential hazardous waste sources. If EHS determines the material in a duct to be Dangerous Waste, directions will be provided concerning waste management on a case-by-case basis prior to the commencement of the work. If you have any questions regarding waste management contact EHS.
• Reusable gloves, drop cloths, and/or coveralls may be rinsed or laundered and reused. Disposable or damaged personal protective equipment can be disposed of as regular trash.
• Wash and rinse waters may be disposed to the sewer unless otherwise directed by EHS.

Personal Hygiene

• Wash hands before eating, drinking or smoking, and upon leaving the work area.
• No eating, drinking or smoking in the work area.

* These Guidelines are based upon materials developed by the Health & Safety Department at Cornell University.