Fume Hoods, Biological Containment Cabinets, and Special Ventilation Devices Policy

Applicable Legislation:

Ontario Environmental Protection Act, R.R.O. 1990, General - Air Pollution Regulation 346

Occupational Health and Safety Act (OHSA);
O.Reg.833, R.R.O. 1990, Control of Exposure to Biological or Chemical Agents
O.Reg.851, R.R.O. 1990, Industrial Establishments

Relevant Standards:

CSA Standard Z316.5 - 94, Fume Hoods and Associated Exhaust Systems.

NFPA 45, Fire Protection for Laboratories Using Chemicals.

CSA Standard Z316.3 - 95, Biological Containment Cabinets (Class I and II): Installation and Field Testing.

NSF International Standard 49, Class II (Laminar Flow) Biohazard Cabinetry, 1992.

Intent:

To summarize the University's requirements concerning the installation and testing of chemical fume hoods, biological safety cabinets, and special ventilation devices.

Definitions:

special ventilation devices

any device that supplies or exhausts air from the workplace, e.g. devices that remove hazardous substances, dust, or excess heat from instrumentation, processes or equipment.

Requirements of *O. Reg. 851 for Industrial Establishments, Section 128 (3)*

The discharge of air from any exhaust system shall be in such a manner so as to prevent the return of contaminants to any work place.

Policy:

1. Chemical fume hoods and biological safety cabinets shall not be acquired, installed, re-located, or decommissioned without notice being given to Physical Resources and to Environmental Health and Safety.
2. The Engineering Department in Physical Resources shall, on behalf of the University, apply to the Ontario Ministry of Environment for a *Certificate of Approval - Air* as prescribed for a fume hood or ventilation device that discharges emissions to the atmosphere.
3. A new fume hood shall be equipped with an air flow alarm for performance verification and operator health protection.
4. Persons who rely on fume hoods or special ventilation devices (exhaust canopies, dust collectors, etc.) shall take steps to verify that the exhaust ventilation is or will be operational at the required time. (Hand-

held velometers may be used; the Controls Centre, ext. 52038, in Physical Resources should be phoned about afterhours operation of certain fume hoods.)
5. Environmental Health and Safety shall coordinate a program for annual calibration and testing of fume hood air flow alarms.
6. Environmental Health and Safety shall coordinate a program for annual biological safety cabinet containment testing.

Guidelines:

Chemical fume hoods are designed to prevent hazardous material contaminants from entering the breathing zone and exposing personnel. To function effectively, fume hoods must be kept free of unnecessary apparatus and should be operated with the smallest practical sash opening. All fume hoods, including perchloric acid fume hoods, should provide a face velocity in the range of 0.4 to 0.5 m/s (80 to 100 fpm) with a sash opening of 30 cm or 12 inches. When not in use, the sash should be closed. Fume hood use must be restricted to purposes for which they were designed and restrictions should be posted. Fume hood users should contact Environmental Health and Safety (EHS) for information about air flow alarms, the alarm service program, fume hood performance verification, and the limitations of fume hoods.

Special ventilation devices such as heat exhaust canopies and dust collectors may be required for environmental control, fire safety, or health protection reasons. Air filtration systems and fire suppression systems may be necessary for certain applications. Approvals from the Ministry of Environment are mandatory for exhaust systems discharging gaseous or particulate emissions. Thus advice and assistance from Engineering Services in Physical Resources will be essential to properly situate exhaust appliances.

Biological safety cabinets are designed to protect people and the environment from contamination by microorganisms. The units have high efficiency particulate air (HEPA) filters to clean the supply and exhaust air. The cabinet and its filters must be decontaminated before the unit can be serviced or moved. Assistance from Environmental Health and Safety will be necessary. Information about the containment testing program and about the NSF International containment standard (NSF Standard-49, 1992) can also be requested from EHS.

Video training materials on the safe use of fume hoods and on biological safety cabinets may be borrowed from Environmental Health and Safety.

See Safety Policy 851.08.12 concerning Facilities for Hazardous Procedures.

Effective: September 2000

Page category: Policy [1]

Links
[1] https://www.uoguelph.ca/hr/page-category/policy