



YORK REGION DISTRICT SCHOOL BOARD

Procedure #NP433.0, General Chemical Use Fume Hoods

Application

Board *Procedure #433.0, General Chemical Use Fume Hoods* outlines the expectations of York Region District School Board staff, students and other individuals who use fume hoods found in secondary science laboratories/classrooms. It is imperative that all general chemical use fume hoods function properly and be used appropriately to ensure good air quality is maintained in laboratories and within the facility. This procedure does not apply to other local exhaust ventilation systems such as those found in food preparation areas and classroom technology programs.

Stakeholder Groups with Responsibilities under this Procedure

- The Director of Education
- Plant Services
- Human Resource Services
- Principals
- Secondary School Science Department Heads
- Teachers
- Fume Hood Users

Relationship to the 2011-2012 Board priorities

Board *Procedure #NP433.0, General Chemical Use Fume Hoods* relates to the Environment and Well-being goals that support both effective and sustainable education programs and student and staff well-being.

Implementation Timelines

Immediately. Plant Services has retained a contractor to inspect fume hoods annually. Secondary science teachers received training on expectations at the September 28, 2012 compliance training day.

Document History and Previous Versions

Approved September 2012

It is the expectation of the York Region District School Board that all employees, students and persons invited to or visiting Board property; or partaking/volunteering in Board or school-sponsored events and activities will respect the policies and procedures of the Board. The term "parents" refers to both biological/adoptive parents and guardians in all Board policies and procedures.



Board Procedure #NP433.0 General Chemical Use Fume Hoods

Document Integration Project Format

This procedure outlines the expectations of York Region District School Board staff, students and other individuals who use fume hoods regarding the use of general chemical use fume hoods found in secondary science laboratories/classrooms. It is imperative that all general chemical use fume hoods function properly and be used appropriately to ensure good air quality is maintained in laboratories and within the facility.

This procedure does not apply to other local exhaust ventilation systems such as those found in food preparation areas and classroom technology programs.

Definitions

Fume Hood

An enclosed working chamber fitted with an exhaust ventilation system which is designed to contain, dilute and disperse gases, vapours and aerosols to the external environment, which is also an integral part of the building air handling system.

General Chemical Use Fume Hoods

General chemical use fume hoods are the primary control devices in secondary school science laboratories for protecting staff and students from the inhalation of and exposure to odourous and/or hazardous chemicals.

Scheduled Inspections

Scheduled inspections are a type of preventative maintenance work that is scheduled by Plant Services in advance of the work date and not in response to a breakdown repair request.

Breakdown Maintenance

Breakdown maintenance is performed in response to a report of equipment malfunction by the school and coordinated, without risk to health and safety to building occupants, upon notification that a fume hood is not functioning properly.

Responsibilities

The Director of Education shall:

- allocate staff and resources to support the *General Chemical Use Fume Hoods* procedure.

Plant Services shall:

- ensure new installations of general use chemical fume hoods conform with Canadian Standards Association (CSA) requirements;
- coordinate annual inspections of all general chemical use fume hoods in York Region District School Board locations;
- coordinate appropriate repairs or service for malfunctioning fume hoods and related equipment when notified by fume hood users or through inspection results;

- maintain documentation of inspection results;
- establish criteria of acceptable performance;
- ensure the contractor hired to perform annual inspections of fume hoods provides a report with the following information;
 - fume hood identification number,
 - average face velocity reading,
 - sash opening height requirements to maintain 100 fpm face velocity,
 - a date the annual field test was performed, and
 - a date the fume hood was inspected and by whom;
- request the inspecting contractor post an inspection decal on the respective equipment at the school; and
- post the inspection certificate on the Board's internal website for site access.

Human Resource Services shall:

- communicate the requirements of this program to principals; and
- support the use of general chemical fume hoods in secondary science programs, as required.

Principals shall:

- ensure that all appropriate documentation, equipment and materials required for the proper operation of fume hoods under his/her authority are provided to staff to protect the health and safety of all staff and students;
- ensure all fume hood users receive safety training regarding best laboratory work practices prior to commencing work with fume hoods;
- assist Plant Services staff with the annual inspections and repairs to fume hoods; and
- report any damage or malfunctions to equipment to Plant Services by submitting a request for Repair and Replacement (R&R) to the Maintenance Centre, and [lock-out/tag-out](#) fume hoods until the equipment is returned to safe operating condition.

Secondary School Science Department Heads shall:

- notify pertinent teaching staff, other employees, and students of their responsibilities for working with fume hoods and in using hazardous chemicals;
- cooperate with the annual inspections and repairs to fume hoods coordinated through Plant Services; and
- report any damage or malfunctions to equipment to the principal and arrange for lock-out/tag-out fume hoods until the equipment is returned to safe operating condition.

Teachers shall:

- be knowledgeable about the hazards and standard operating procedures associated with work involving hazardous chemicals and general chemical fume hoods under his/her authority and understand;
 - typical tasks carried out in a fume hood include chemical dispensing, mixing solutions and collecting chemical waste, and
 - ignition sources such as, but not limited to, bunsen burners and other open flames are not permitted when using fume hoods;
- understand the education and training requirements, as well as other health and safety requirements for general chemical use fume hoods;
- use fume hoods located in the classroom only for;
 - demonstration purposes, and
 - work involving hazardous and flammable chemicals;

- verify that the fume hood is operational and a visual inspection has been completed before each use, which includes checking that;
 - work surfaces, baffles and sash(es) are clean and operational,
 - controls for services, such as, but not limited to, water, gas and vacuum are labelled and functional,
 - interior lights are functioning,
 - the physical condition of the hood interior and the mechanical services inside the hood are operational,
 - the air flow monitoring device switch, if present, is operational to assure functional status,
 - the fume hood is drawing air at the correct operational height of sash, and as per air flow test requirements (e.g. turn on airflow; close sash to operational height; apply tissue or ribbon airflow test or verify sensor readings), and
 - the alarm (if present) is functional;
- immediately report any inspection concerns or malfunctions to the principal;
- lock-out/tag-out the malfunctioned equipment as outlined in [Procedure #NP442.0, Lock-out/Tag-out Devices](#);
- ensure that any chemical spills and leaks are cleaned up or addressed immediately in order to prevent degradation to the work surface;
- ensure that no work or experiments are conducted in a malfunctioning fume hood;
- complete the [User Log](#) each time the fume hood is used indicating the chemicals used and experiment completed;
- not store chemicals, hazardous waste or other science materials in the working area of the fume hoods so that air flow is not disturbed or restricted;
- store chemicals and hazardous waste in appropriately marked containers and in suitable cabinets or locations;
- dispose of any chemicals/hazardous waste in a safe manner as outlined in the [Waste Disposal Guide](#); and
- whenever possible, substitute hazardous chemicals with those that are less hazardous.

Fume Hood Users (Staff and Students) shall:

- follow prudent laboratory work practices, as outlined in the *User Guide to General Use Chemical Fume Hoods* when operating fume hoods;
- only use fume hoods in accordance with recommended guidelines for safe use and while wearing the appropriate personal protective equipment, such as, but not limited to, splash goggles, full face shield and gloves;
- place all equipment and chemicals at least fifteen (15) centimetres inside the hood;
- never place one's head inside the fume hood;
- raise the sash at a moderate speed to allow the air flow to adjust;
- work with the sash at the lowest possible height; and
- notify their teacher or supervisor immediately in the event of a malfunction.

Related Standards and Regulations

Occupational Health and Safety Act

Canadian Standards Association (CSA) - Z316.5-94 (Fume Hoods and Associated Exhaust Systems)

American National Standards Institute (ANSI) – Z9.5-2003: Laboratory Ventilation

ASHRAE - Standard 110-1995, Method of Testing Performance of Laboratory Fume Hoods

Ontario Fire Code - Part 4-12 (Reg. 213/07)

Department

Plant Services

Human Resource Services

Procedure History

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