

EMERGENCY EYEWASH STATIONS & SAFETY SHOWERS GUIDELINES

PURPOSE

The Guidelines for Emergency Eyewash Stations and Safety Showers were developed by the Occupational Health & Safety Office in support of the University's Policy on Health and Safety. These guidelines are for the protection of employees and students and ensure compliance with Worksafe BC Regulations and applicable legislation. The purpose of these Guidelines is to outline the requirements for the installation, inspection, use and repair of Emergency Eyewash Stations and Safety Showers.

APPLICATION

These guidelines apply throughout the University and for off-site activities performed by University faculty and staff where emergency eyewash stations and safety showers are required.

DEFINITIONS

COMBINATION UNIT

An interconnected assembly of drenching and flushing equipment that is supplied by a single flushing fluid source.

EMERGENCY (DELUGE) SHOWER

A device to deliver flushing fluid that utilizes a valve which remains open during use to enable the user to have water cascading over the entire body while the hands are free.

EYE/FACE WASH

A device used to provide fluid to irrigate and flush both the face and the eyes.

EYEWASH

A device used to provide tepid fluid to irrigate and flush both eyes simultaneously at a velocity low enough not to be injurious to the user.

HAND-HELD DRENCH HOSE

A flexible hose connected to a water supply that is used to provide fluid to irrigate eyes, face and body area.
Hazardous Material: any substance or compound that has the capability of producing adverse effects on the health and safety of humans.

PERSONAL EYEWASH

Supplementary eyewash that supports plumbed or self-contained eyewash equipment by delivering immediate flushing for less than 15 minutes.

PLUMBED EYEWASH

An eyewash unit permanently connected to a source of potable water.

TEPID

Moderately warm, lukewarm 16-38deg.C (60-100 deg. F)

ROLES AND RESPONSIBILITIES

DIRECTORS, DEPARTMENT HEADS & MANAGERS

- Ensure that lab/area supervisors, employees, and students are familiar of their responsibilities as outlined in these guidelines.
- Ensure that all employees and students (if applicable) have received instruction in the operation of emergency eyewash stations and showers.
- Ensure that procedures, equipment and materials appropriate for the specific work locations under his/her authority are provided to protect the health and safety of all employees and students.

LAB/AREA SUPERVISORS

- Ensure that the necessary emergency eyewash and safety shower equipment as required is provided.
- Ensure that all employees and students who may need to use the emergency eyewash and safety shower equipment are trained on its location and use.
- Ensure that emergency eyewash stations within the lab/area are activated weekly by a designated person in the lab/area and inspected annually by the Facilities Department. The inspection should be recorded.
- Request immediate repair for malfunctioning emergency eyewash and safety shower equipment.

USERS (EMPLOYEES/STUDENTS)

- Follow the requirements of these guidelines.
- Become familiar with the location and operation of the nearest emergency eyewash and safety shower equipment.
- Use emergency eyewash and safety shower equipment as trained.
- Report incidents that require the use of emergency eyewash and safety shower equipment and any malfunction of this equipment to the supervisor.

OCCUPATIONAL HEALTH & SAFETY OFFICE (OHSO)

- Ensure that relevant departments are aware of these guidelines.
- Review these guidelines periodically and amend as necessary.
- Provide assistance and clarification on the legislation and applicable standards regarding the installation, inspection and use of emergency eyewash stations and showers.
- Conduct periodic audits (incorporate the audit in the annual laboratory inspections) to ensure that emergency eyewash station and shower equipment are inspected as required on these guidelines.

FACILITIES DEPARTMENT:

- Install new eyewash and emergency showers following the requirements of the ANSI Standard
- Perform annual inspections of the eye wash and emergency showers as required by the Standard.
- Maintain records of inspection. Note the date and initial the inspection tags attached to the eye wash and emergency showers.
- Perform repair(s) when needed.

INSTALLATION/LOCATION REQUIREMENTS

- Where a worker is exposed to a potential hazard of injury to the eye and the skin due to a contact with a biological or chemical substance, an eye wash and a quick-acting deluge shower shall be provided. A job hazard analysis shall be conducted, if required, to determine if potential for an injury exists.
- Installation of such equipment must be as specified in ANSI Z358.1-2009. Only equipment that is certified by the manufacturer as meeting the performance specifications contained in ANSI Z358.1-2009 should be placed in new facilities.
- Existing university facilities must be equipped as necessary to include emergency drenching and/or flushing equipment that is readily accessible and can be reached within 10 seconds from the area(s) (approximate distance of 16-17meters or 55ft) where there is a reasonable potential for injury due to contact with a hazardous material. Equipment performance specifications, height, and clearance distances should be as stated in ANSI Z358.1-2009.
- Off-site/remote locations must have drenching/flushing equipment available whenever work involves the use of hazardous materials and where there is a reasonable potential for injury due to contact. Plumbed units that are maintained by the owner/controller of an off-site facility may be used or self-contained units can be purchased. A water hose supplying potable water and equipped with a proper face and body wash nozzle can be used at off-site locations where the possibility of exposure to injurious hazardous materials is very low and when proper personal protective equipment is used.
- The temperature of the flushing fluid for emergency drenching and flushing equipment should be tepid (lukewarm). A means of controlling the temperature to more than 16C (60 F) and less than 38C (100 F) must be included in tempered flushing fluid systems.
- Flushing fluid shut off valves located within branch lines serving emergency eyewash and safety shower equipment should be tagged to indicate that turning off the valve would turn off the supply to the emergency equipment.
- Emergency drenching and flushing equipment must be identified by highly visible signage.

TYPES OF EQUIPMENT

PLUMBED AND SELF-CONTAINED EMERGENCY SHOWERS

- Plumbed and self-contained emergency showers must supply at least 75.7 litres per minute (20 gallon per minute) of flushing fluid at a velocity low enough to be non-injurious to the user.
- At least a fifteen minute supply of flushing fluid must be available.
- The flushing fluid supply valve must stay open without the use of the operator's hands.
- The operation valve (or lever, handle) should not be more than 173.3cm (69 inches) in height.
- Shower head height must be between 208.3-243.8cm (82-96 in) from the floor.
- Protection from freezing or freeze protected equipment is required where the possibility of freezing exists.
- Shower enclosures (if used) require at least a 86.4 cm (34 in) diameter unobstructed area to provide adequate space for the user.

TYPES OF EQUIPMENT (CONT...)

PLUMBED AND SELF-CONTAINED EYEWASH

- Plumbed and self-contained eyewash units must supply at least 1.5 litres/minute (0.4 gpm) of flushing fluid and at a velocity low enough to be non-injurious to the user.
- At least a fifteen minute supply of flushing fluid must be available.
- Eyewash units must supply flushing fluid to both eyes simultaneously.
- The flushing fluid supply valve must stay open without the use of the operator's hands.
- Nozzles must be protected from airborne contaminants. Nozzle protective device removal must be automatic (not require a separate motion by the user) when the unit is turned on.
- Eyewash units must be placed between 83.8-114.5 cm (33-45 in) from the user's standing surface and at least 15.3 cm (6 in) from the nearest wall or other obstruction.

EYE/FACE WASH EQUIPMENT

- Plumbed and self-contained eye/face wash units must supply at least 11.4 litres (3.0 gpm) of flushing fluid and at a velocity low enough to be non-injurious to the user.
- At least a fifteen minute supply of flushing fluid must be available.
- Eye/Face wash units must supply flushing fluid to both eyes simultaneously.
- The flushing fluid supply valve must stay open without the use of the operator's hands.
- Nozzles must be protected from airborne contaminants. Nozzle protective device removal must be automatic (not require a separate motion by the user) when the unit is turned on.
- Eyewash units must be placed between 83.8 cm (33 in) and 114.3 cm (45 in) from the user's standing surface and at least 15.3 cm (6 in) from the nearest wall or other obstruction.

HAND-HELD DRENCH HOSES

- Hand-held drench hoses provide support for emergency shower and eyewash units but they are not intended to replace them.
- A drench hose may be considered an eyewash or eye/face wash if the device meets the performance requirements as listed in the ANSI Standard.

COMBINATION UNITS

Combination units such as an eyewash and shower combination are ideal in many situations. Installation and performance requirements for combination units are as presented for the individual components.

PERSONAL EYEWASH EQUIPMENT

- Personal eyewash equipment, such as bottles and small portable units, are only to be used in addition to plumbed or self-contained eyewash stations. Note: The personal eyewash equipment do not meet the ANSI criteria of plumbed or self-contained eyewash equipment.
- Operator instructions must be maintained on personal eyewash equipment.
- Flushing solutions must be changed out once per week when it is used without a preservative. An expiration date must be maintained according to the manufacturer's specifications on equipment containing flushing solutions or preservatives.

USE OF EQUIPMENT

Immediate and proper use of emergency eyewash and safety showers is essential to minimizing injury upon injurious hazardous material contact. The following guidelines should aid in minimizing injury due to contact with hazardous materials:

- Flush eyes and/or skin for at least 15 minutes. Never use home-made neutralizing solutions to flush chemicals from the body.
- Immediately remove contaminated clothing. Do this while under the shower when cross contamination has occurred. Have someone assist with clothing removal when possible.
- Hold eyelids open with fingers so flushing fluid can fully irrigate the eyes. Note: People may not always be able to flush their eyes on their own because of intense pain. Nearby helpers should be prepared to assist with holding the eyelids open. Other helpers may need to assist with keeping the person under the flushing fluid for at least 15 minutes.
- Seek medical attention after flushing the areas of contact for at least 15 minutes.
- Notify supervisor as soon as the emergency has subsided.
- An assistant may use a fire blanket or uncontaminated article of clothing as a shield to provide privacy for someone who needs to remove their clothes while under an emergency shower, and for body coverage while seeking medical attention.

FLUSHING AND INSPECTION OF EQUIPMENT

- Emergency eyewash station, emergency shower, combination units in laboratories should be activated weekly to ensure flushing fluid is available as well as clear the supply line of sediments and minimize microbial contamination caused by “still” or sitting water. Flush for at least five minutes. Inspect eyewash and eye/face wash stations while flushing to make sure that water rises to approximately equal heights, and that fluid flow is sufficient to flush both eyes simultaneously while at a velocity low enough to be non-injurious to the user.
- Water in self-contained eyewash and eye/face wash stations must be replaced with fresh potable water regularly. Follow the manufacturer's recommendations for functionality tests and solution replacement when a preserved solution is used in these units.
- Each personal eyewash station/unit must be reviewed regularly to make sure components are in place, the station/unit is readily accessible, and that flushing solution has not passed its expiration date. Also verify that bottles with seals/tamper indicators are sealed, replacing those that are not.
- The designated person (person responsible for conducting the inspection) should keep a signed, dated record of the flushing/inspection. The record (tag) could be attached to the eye wash/shower unit or post it by the unit. Sample of inspection tags are found in the Appendix.
- Annual flushing/inspections should be conducted on emergency eyewash stations and safety showers on campus to ensure that they are in proper working condition, are in compliance with current ANSI standards and to identify areas for improvement. The annual inspection includes but is not limited to measuring the fluid (water) flow rate, checking the operation of the valve. Refer to ANSI Standard for details on this inspection.
- Because of the technical aspect, the annual flushing and inspections are conducted by the Facilities Department

REPAIRS OF EQUIPMENT

- Whenever an eyewash station is non-functional, a portable eyewash station or equivalent must be available if work with injurious hazardous materials cannot be delayed.
- The area/lab supervisor is responsible for ensuring that eyewash and safety shower equipment not passing inspection is repaired in a priority manner. When emergency eyewash and safety shower equipment is non-functional, it must be clearly tagged/signed as being out-of-service. Anyone removing emergency eyewash and safety shower equipment from service must notify the Occupational Health & Safety Office and the affected department beforehand.

RESOURCES

- Canadian Centre for Occupational Health & Safety (CCOHS): Emergency showers and Eye Wash Stations http://www.ccohs.ca/oshanswers/safety_haz/emergency_showers.html
- American National Standards Institute (ANSI) Standard Z358.1-2009 “Emergency Eyewash and Shower Equipment”

LEGISLATION & STANDARDS

- Worksafe BC Regulations, Part 5, Section 5.85-5.96
- American National Standards Institute (ANSI) Standard Z358.1-2009 “Emergency Eyewash and Shower Equipment”

APPENDIX

Sample of Weekly Inspection Tags