

Eyewashes and Safety Showers in Schools

Eyewash stations and safety showers may be found in various places throughout school districts including:

- Chemistry labs and chemical storage areas
- Custodial storage areas
- Buildings and grounds chemical and pesticide storage areas
- Swimming pool chlorine storage areas
- Industrial arts
- Darkrooms
- Print shops
- Nurse's office
- Boiler rooms

Safety showers and eyewashes are on duty 24-hours a day to help protect the nighttime custodian who might knock over a bottle or the science teacher who came in early to set up a lesson.

Despite safety precautions, chemical exposures and fires may still occur in a school. Dermal exposure to various substances can cause irritation and damage to the skin and/or eyes ranging from mild temporary discomfort to permanent damage¹. Injuries involving hazardous chemicals may be mitigated with quick access to an eyewash and safety shower.

In recognition of the potential hazards in school laboratories, the New York State Department of Labor, Bureau of Public Employees Safety and Health (PESH) mandates compliance with the Occupational Exposure to Hazardous Chemicals in Laboratories Standard (29 CFR 1910.1450). This standard includes requirements that appropriate procedures are followed in the event that an employee experiences a chemical exposure incident.

The Occupational Safety and Health Administration standard 29 CFR 1910.151(c) states that suitable facilities for quick drenching and flushing should be provided "where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use."

Ongoing inspection, testing and maintenance are needed to help assure these passive devices remain in operational condition to provide:

- Dilution and irrigation of chemicals that are on the skin or in the eyes
- Extinguishment of fires on clothing or the body
- Cooling of the skin following exposure to fire

Consider the following when installing and maintaining an eyewash and safety shower in a school setting:

Can you get to them?

The American National Standards Institute (ANSI Standard Z358.1-2009) states that "emergency eyewash and shower equipment shall be located on the same level as the hazard, have un-obstructed access (a door is considered an obstruction) and require not more than 10 seconds to reach."²

Desks, chairs and other obstacles need to be clear of the path to access this safety equipment. These areas sometimes become used for extra storage in the classroom, and care should be taken so that access to the eyewash, safety shower and their controls is not blocked.

Locate the eyewash and safety shower within the same general vicinity where the hazardous chemicals are being used and stored. Install highly visible signage to indicate the proper path and location of this safety equipment.

Eyewashes and Safety Showers in Schools

Is it easy to operate?

Equip free-flow eyewashes and safety showers with an easy on-off switch so that the exposed person can easily turn on the water flow with just one push or pull and the water will remain on until effort is made to turn it off. Eyewashes and safety showers are designed to function while allowing the user's hands to remain free in order to hold open their eye and remove clothing splashed by chemicals while in the safety shower.

Is enough water provided?

Safety showers and eyewashes are designed to provide a steady and full stream of water for at least 15 minutes². Bottles of eyewash do not meet this time frame and are not recommended. Regular testing and flushing helps to verify operability. Items to look for include even and adequate water flow on both nozzles of an eyewash.

Does the water aim towards the user?

A properly equipped eyewash station is able to deliver a stream of water from a faucet that faces upward. This allows the individual to put their eyes directly above the stream of water where it can gently hit their eyes and drain back into the washing unit. If the faucet is pointing downwards, the person has to tip their head under the nozzle requiring awkward positioning and allowing contaminated water to run down the side of the face and forehead, potentially causing further chemical damage to the surrounding skin. Safety showers point downward on the user, thus allowing the chemicals to be swept away and off of the user.

Is it inspected?

Proper maintenance and weekly testing can provide verification that emergency showers and eyewash stations are in good working order. Weekly testing helps clear the supply lines of sediment. ANSI Z358.1-2009 outlines specific testing and maintenance of eyewashes and safety showers. The ANSI standard states that plumbed flushing equipment "shall be activated weekly for a period long enough to verify operation and ensure that flushing fluid is available." For portable or self-contained equipment that is not tied into the plumbing system, the standard also requires that they "be visually checked to determine if flushing fluid needs to be changed or supplemented."²

Emergency eyewashes and showers are not required to have drains, though drainage is often desired to make use and testing easier without flooding the immediate area. A drain is preferred for hard-piped emergency showers and eyewash stations to reduce floor slip/fall hazard during testing and/or emergency use.

The school can define what is to be tested and whose responsibility it is to inspect and test the eyewash and safety showers. Typically the custodial or science staff member will be assigned to inspect the equipment, flush it weekly and report any observations and needed repairs immediately. Water should flow with a single touch of the on-off switch without the need to open any other valves to start the water flow. The eyewash stations should be checked to ensure they are operating equally from both sides. Eyewash caps may need to be replaced as they serve as dust covers and help prevent contamination and obstruction to the water flow. Any obstructions to the equipment or in the pathway to reach the station should also be cleared and reported to school management. Use an inspection tag for tracking.

Training to use eyewash and safety shower facilities

ANSI Z358.1-2009 recommends training in the proper use of eyewashes and safety showers². Both employees and students benefit from being properly instructed and. The directions for use of safety equipment can be developed in writing, made available and frequently reviewed with staff and students so they know the location and importance of this safety equipment.

Eyewashes and Safety Showers in Schools

Training should emphasize that an injured person may need assistance in reaching the shower or eyewash and in getting medical attention. Students and staff can be trained in how to assist and to contact medical help. If someone becomes contaminated while assisting the injured, they may use the shower with the victim to flush the affected area.

The following additional information can be used for training employees in the proper use of eyewash and safety shower facilities:

- In case of chemical exposure, flush skin or eyes with cool water for at least 15 minutes.
- DO NOT RUB!
- Contact medical assistance immediately after initiating flushing.
- Hold your eyes open with your hands while using an eyewash station to be sure water reaches the eyes.
- Remove contaminated clothing after the shower has been activated.
- Immediately wash off even small amounts of chemicals.
- If possible, continue flushing while on way to medical help.
- Know the effects of chemicals you are handling. Read, ask questions, and understand material safety data sheets for each chemical you are handling.
- Wear personal protective equipment recommended by the chemical manufacturer.
- Learn the location and use of emergency equipment.
- Know how to help others reach showers or eyewashes, how to operate them and how to help get medical assistance.

Conclusion

Eyewashes and safety showers in schools are an important piece of safety equipment that can be located near areas where chemical hazards are prevalent. When selecting the equipment, verify that it meets the current design standards. Once the equipment is in place, provide training to the staff and students. Ongoing inspection and testing can verify the equipment is clear of obstructions, operable and maintained, so that if an accident occurs the potential for injuries involving exposure to chemicals and fire can be reduced.

References:

1. *The National Institute for Occupational Safety and Health (NIOSH) School Chemistry Laboratory Safety Guide, page 48, October, 2006. DHHS (NIOSH) Publication no.2007-107*
2. *American National Standards Institute Z358. January 2009. Standard for Emergency Eyewashes and Shower Equipment*

Other References:

- New York City Dept of Education Chemical Hygiene Plan.*
- Occupational Safety and Health Administration, Exposure to Hazardous Chemicals in Laboratories Standard (29 CFR 1910.1450).*
- Occupational Safety and Health Administration, Medical Services and First Aid Standard 29 CFR 1910.151(c).*