

EMERGENCY EYEWASH STATION

ANSI Z358.1 2009 Standard

Emergency Shower and Eye Wash Station Requirements

Number 120

OSHA/ANSI Eye Wash Station Requirements

The Occupational Safety and Health Administration (OSHA) has two different types of regulations, general and specific, which apply to emergency shower and eye wash station equipment designed to promote eye safety under certain work conditions. The first is a general requirement for emergency showers and eye wash stations. The second is specific to certain industries.

OSHA's general regulation is applicable to all facilities that require the installation of an emergency shower or eye wash station equipment as a form of first aid. [29 CFR 1910.151 (c)]. It states that:

"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."

The second OSHA regulation in this area specifies certain industries that must include emergency eye wash equipment in every facility where Hazardous Chemicals or Materials are being used for maintenance or handled for processing.

Both OSHA regulations specify where and when emergency eye wash and shower equipment must be available. However, they do not specify minimum operating requirements or installation set-up requirements.

The American National Standards Institute (ANSI) developed the ANSI standard Z358.1-1990 to do just that. While it doesn't have the full force of an OSHA regulation, the ANSI standard covers situations when employees are exposed to hazardous materials. ANSI's definition of "hazardous material" would include caustics, as well as additional substances and compounds that have the capability of producing adverse effects on the health and safety of humans.

Note: The standard was revised in 2004 and 2009. Changes made for 2009 that affect this document are noted with an *. The 2009 standard was prepared by the International Safety Equipment Association (ISEA) and approved by ANSI. It is now known as ANSI/ISEA Z358.1-2009.

This "Emergency Eye Wash and Shower Equipment" standard helps the user select and install emergency equipment to meet OSHA requirements. The following eye wash station requirements are taken directly from the ANSI/ISEA Z358.1-2009 standard.

Emergency Shower Requirements

Plumbed Shower: An emergency shower permanently connected to a source of potable water

- **Heads**
 - Positioned 82"—96" from floor
 - Spray pattern will have a minimum diameter of 20" at 60" above the floor
 - Flow Rate=20 gallons per minute (GPM) at 30 pounds per square inch (PSI)
 - The center of the spray pattern shall be located at least 16 inches from any obstruction
- **Valves**
 - Activate in 1 second or less
 - Stay-open valve (no use of hands)
 - Valve remains on until the user shuts it off
- **Installation**
 - Emergency Shower shall be located in an area that requires no more than 10 seconds to reach. **Consult a medical professional to determine the appropriate distance for harsh acids and caustics (high hazard=closer distance)*
 - Shower location shall be in a well-lit area and identified with a sign
 - Shower shall be located on the same level as the hazard
 - Mixing valve- The ANSI/ISEA Z358.1-2009 Standard states the use of tepid water.* Appendix B6 defines tepid water as 60°F for the lower limit and 100°F as the upper limit
- **Maintenance and Training**
 - Plumbed emergency showers will be activated weekly/monthly depending upon activity (**classes in session or whether Hazardous Chemicals or Materials are being used**) to verify correct operation.
 - All employees who might be exposed to a chemical splash shall be trained in the use of the equipment
 - The ANSI/ISEA Z358.1-2009 Standard states the use of tepid water.* Appendix B6 defines tepid water as 60°F for the lower limit and 100°F as the upper limit
 - All showers shall be inspected annually to make sure they meet with ANSI Z358.1 requirements

Eye Wash Station Requirements

There are two types of [Eye Wash Stations](#):

- **Plumbed Eye Wash Station:** An eye wash unit permanently connected to a source of potable water
- **Heads**
 - Positioned 33"—45" from floor
 - Positioned 6" from wall or nearest obstruction
 - 0.4 gallons per minute (GPM) for 15 minutes for plumbed units shall provide flushing fluid at 30 PSI
 - 0.4 gallons per minute (GPM) for 15 minutes for gravity-feed units
- **Valves**
 - Activate in 1 second or less
 - Stay-open valve (leaving hands free)
- **Installation**
 - Eye wash station shall be located in an area that requires no more than 10 seconds to reach. **Consult a medical professional to determine the appropriate distance for harsh acids and caustics (high hazard=closer distance)*
 - The location of the eye wash station shall be in a well-lit area and identified with a sign
 - Eye wash stations shall be on the same level as the hazard
 - Mixing valve- The ANSI/ISEA Z358.1-2009 Standard states the use of tepid water.* Appendix B6 defines tepid water as 60°F for the lower limit and 100°F as the upper limit
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- **Maintenance and Training**
 - A plumbed eye wash station shall be activated weekly /monthly depending upon activity (classes in session) or whether Hazardous Chemicals or Materials are being used to verify correct operation.
 - Gravity-feed units shall be maintained according to the manufacturer's instructions. They shall be activated weekly /monthly depending upon activity (**classes in session or whether Hazardous Chemicals or Materials are being used**) to verify correct operation.
 - All employees who might be exposed to a chemical splash shall be trained in the use of the equipment

- The ANSI/ISEA Z358.1-2009 Standard states the use of tepid water.* Appendix B6 defines tepid water as 60°F for the lower limit and 100°F as the upper limit.
- All eye/face wash stations shall be inspected annually to make sure they meet ANSI Z358.1 requirements

Personal Eye Wash and Eyesaline Requirements

A [Personal Eye Wash](#) is a supplementary eye wash that supports plumbed units, gravity-feed units, or both by delivering immediate flushing fluid.

NOTE: Personal eye wash units can provide immediate flushing when they are located near the workstations. Personal eye wash equipment does not meet the requirements of plumbed or gravity-feed eye wash equipment. Personal eye wash units can support plumbed or gravity-feed eye wash units, but cannot be a substitute.

Personal eye wash can be delivered through bottles of saline solution designed to simulate human tears. Individual bottles can be carried by workers and provide relief until in the crucial seconds until an approved eye wash station installation can be reached.

Personal Information for Training Staff or Students on the use of Eyewash and Shower Devices.

ANSI states that all employees who may be exposed to hazardous materials should be trained on the use of eyewash and shower devices.

- Identification and location of the units.
- Ensure eye wash/shower is clear of obstructions and easily visible from all directions (adequate signage).
- Correctly maintained devices.
 - Current Weekly /Monthly Inspection /Maintenance Tag with inspectors initials
 - Emergency Eyewash & Shower Testing. They shall be activated weekly /monthly depending upon activity (**classes in session or whether Hazardous Chemicals or Materials are being used**) to verify correct operation, and Tagged with inspectors initials.
 - Annual maintenances inspection
- Individuals should be instructed to hold the eyelids open and roll the eyeballs so fluid will flow on all surfaces of the eye and under the eyelid.
- 15 min of flush
- The wearing of contact lenses can be dangerous because chemicals can become trapped under a contact lens. Any delays caused by removing contact lenses in order to rinse eyes could result in injury. Training should include instruction in contact lens removal.
- Personal/individual eyewash bottles can be carried by workers and provide relief in the first crucial seconds until an approved eye wash station can be reached if working in the field.
- Contact instructor/supervisor
- Call 911 and security

Training Instructor

Date

Trained Staff/Student

Date

Emergency Eyewash & Shower Testing

The purpose of this program is to ensure that safety eyewashes and showers supply clean, potable water and are in proper working order. .

- Identification and location of the units. Is the identification and location correct according to Eyewash Spread Sheet?
- Ensure eye wash/shower is clear of obstructions and easily visible from all directions (adequate signage).
- Eyewash protective caps must be in place and in good condition.
- The ON.OFF valves must be operational, activated by a single motion.
- Water flow remains ON when the operator removes his/her hand.
- Properly activate the systems.
 - 8" height of flow- even from both sides.
 - While activating plumbed eyewashes, eye/face washes and showers, you should also verify that they are providing Luke warm tepid water (between 60°-100°F).
 - Run the eyewash/shower for five seconds. The running(or collected) water must be clear: If water is clear, turn off water and sign the inspection tag.
 - If water is cloudy, discolored, or contains sediment, start another five-second flush; stop; and then continue flushing at five- second intervals until the water flushed clear. Then initial the inspection tag.
 - Ensure the water used for flushing was captured in a suitable container (such as a plumbed drain, bucket, or large rolling waste can) If any water was spilled on the floor, dry the area before leaving to prevent a slipping hazard.
- Inspections preformed by Staff/Faculty/ or assigned student under faculty supervision.
- They shall be activated weekly/monthly depending upon activity to verify correct operation, and tagged with inspectors initials.
 - When class is in session or hazardous Chemicals or materials are being used, these are required to be activated/tested weekly and initialed.
 - If classes are not in session or if area is not being used or if hazardous chemicals or materials are not being used, then these are required to be activated/tested monthly and initialed.
 - Upon Classes starting out and before any activity that might potential create harm to staff or students, these are required to be tested and initialed and then scheduled for weekly inspections until activity is finished.

Note If a plumbed eyewash station does not run clear after repeated flushing's, contact your Supervisor/facilities department/EHS coordinator.

