

Introduction

The Occupational Safety and Health Act of 1970 was enacted to make sure workers were provided with safe working conditions. The Occupational Safety and Health Administration (OSHA) has two different types of regulations—general and specific—which apply to emergency eye wash and shower equipment.

The first type of regulation is a general requirement for emergency eye wash and shower equipment. This general regulation is as follows:

“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.”

This general regulation is applicable to all facilities that require the installation of emergency eye wash and shower equipment as a form of first aid. [29 CFR 1910.151 (c)]

The second type of regulation is specific to certain industries. These industries include: Activities Utilizing an Open Surface Tank, Storage and Handling of Anhydrous Ammonia, Powered Industrial Trucks, Pulp, Paper and Paperboard Manufacturing, Telecommunications, and Hazardous Materials.

These two types of OSHA regulations specify where and when emergency eye wash and shower equipment must be available. These regulations do not specify minimum operating requirements or installation set-up requirements.

The American National Standards Institute (ANSI) developed the ANSI standard Z358.1-1990 and was revised in 1998. This “Emergency Eye Wash and Shower Equipment” standard helps the user in selecting and installing emergency equipment to meet OSHA requirements.

The following specifications are taken directly from the ANSI Z358.1-1998 standard.

SHOWERS



Showers

(Plumbed and Self-Contained)

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

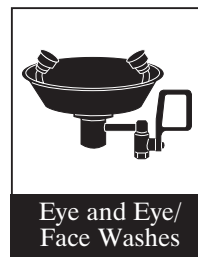
Self-Contained Shower: A shower that contains its own flushing fluid, and must be refilled or replaced after use. The specifications below are for plumbed showers only.

1. Heads

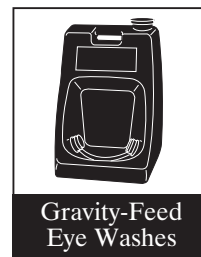
- A. Positioned 82"–96" from floor.

- B. Spray pattern will have a minimum diameter of 20" at 60" above the floor.
 - C. Flow Rate=20 gallons per minute (gpm) of flushing fluid at a velocity low enough to be non-injurious to the user.
 - D. The center of the spray pattern shall be located at least 16" from any obstruction.
2. Valves
- A. Activate in 1 second or less.
 - B. Stay-open valve (no use of hands).
 - C. Valve remains on until the user shuts it off.
3. Installation
- A. 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).*
- B. Shower location shall be in a well-lit area and identified with a sign.
 - C. Shower shall be located on the same level as the hazard.
4. Maintenance and Training
- A. Plumbed showers will be activated weekly to verify correct operation.
 - B. All employees who might be exposed to a chemical splash shall be trained in the use of the equipment.
 - C. All showers shall be inspected annually to make sure they meet with ANSI Z358.1 requirements.

EYE WASHES (Plumbed and Gravity-Feed)



Eye and Eye/
Face Washes



Gravity-Feed
Eye Washes

Plumbed Eye Wash: An eye wash unit permanently connected to a source of potable water.

Gravity-Feed Eye Wash: An eye wash device that contains its own flushing fluid and must be refilled or replaced after use.

1. Heads

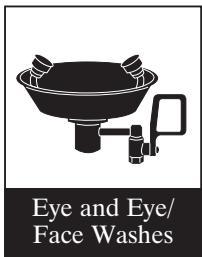
- A. Positioned 33–45" from floor.
- B. Positioned at least 6" from wall or nearest obstruction.

- C. 0.4 gpm for 15 minutes for plumbed units shall provide flushing fluid at 30 psi.
- D. 0.4 gpm for 15 minutes for gravity-feed units.
- 2. Valves
 - A. Activate in 1 second or less.
 - B. Stay-open valve (leaving hands free).
- 3. Installation
 - A. Eyewash equipment 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).*

 - B. The location of the eye wash unit shall be in a well-lit area and identified with a sign.
 - C. Eyewash equipment shall be on the same level as the hazard.
- 4. Maintenance and Training
 - A. Plumbed eye wash units shall be activated weekly to verify proper operation.
 - B. Gravity-feed units shall be maintained according to the manufacturer's instructions.
 - C. All employees who might be exposed to a chemical splash shall be trained in the use of the equipment.
 - D. All eyewash equipment shall be inspected annually to make sure they meet ANSI Z358.1 requirements.

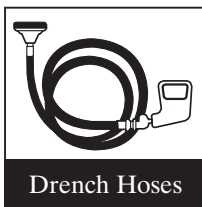
EYE/FACE WASH



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

- 1. Heads
 - A. Positioned 33"-45" from floor.
 - B. At least 6" from wall or nearest obstruction.
 - C. Large heads to cover both eyes and face or regular size eyewash heads plus a face spray ring.

- D. 3 gpm for 15 minutes.
- 2. Valve
 - A. Same as eye wash.
- 3. Installation
 - A. Same as eye wash.
- 4. Maintenance and training
 - A. Same as eye wash.



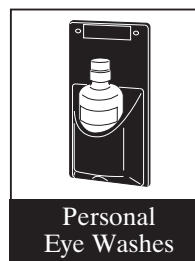
DRENCH HOSES

Hand-Held Drench Hose: A flexible hose connected to a water supply and used to irrigate and flush eyes, face and body areas.

- 1. Heads

- A. 3 gpm.
- 2. Valve
 - A. Activate in 1 second or less.
- 3. Installation
 - A. Assemble per the manufacturer's instructions.
 - B. The location of the drench hose shall be in a well-lit area and identified with a sign.
- 4. Maintenance and Training
 - A. Activate weekly to verify proper operation.
 - B. All employees who might be exposed to a chemical splash shall be trained in the use of the equipment.
 - C. All drench hose equipment shall be inspected annually to make sure they meet ANSI Z358.1 requirements.

NOTE: Hand-held drench hoses support shower and eyewash units but shall not replace them.



PERSONAL EYE WASH

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.

This is an interpretation of the ANSI Z358.1-1998 Standard and should not be used as fact.

Common Questions

- Q.** What water temperature is required?
 - A.** The ANSI Z38.1 Standard states the use of tepid water. No temperature degree range was stated.
- Q.** Are there advantages to using eyesaline flushing solution instead of water in gravity fed or personal eyewash stations?
 - A.** Eyesaline is a buffered, isotonic saline solution. Buffered to the same pH balance of the human eye. It also contains a preservative to help reduce the bacterial growth. Tap water can contain chlorine and other chemicals. This can cause further irritation to the eyes.

It also has the potential for bacteria growth. When tap water is used, weekly solution replacement is strongly recommended as bacteria can grow rapidly in standing water. Eyesaline only needs to be replaced every six months.

Sources for More Information

29 CFR 1910.151(c)

ANSI Z358.1-1998

American National Standards Institute

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New York, NY 10036

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Works Consulted

1. Code of Federal Regulations, 29 CFR 1910.1000 to end, 1997.
2. American National Standards Institute, Z358.1-1998.
3. Emergency Eye Wash Handbook, Fendall Company, Arlington Heights, IL., 1991.
4. Emergency Shower and Eye Wash Equipment, Encon Safety Products, Houston, TX.
5. Engineering Information, Guardian Equipment, Chicago, IL.

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