

Eyewash and Emergency Shower 5 Steps for Compliance

In an ideal workplace, employers would always be aware of potential dangers to employees' eyes, and employees would always wear Personal Protective Equipment (PPE).

- But some workplaces aren't ideal, and accidents do happen. Therefore, in workplaces where corrosive chemicals are handled, the Occupational Safety and Health Administration requires that facilities provide devices for drenching or flushing the eyes for immediate emergency use.

Eyewashes and showers should be in compliance with Z358.1-2014. Construction, installation and location of the eyewash or eyewash and shower should meet the ANSI requirements.

The five basic guidelines are as follows:

1. Most faucet mounted (gooseneck) "eyewashes" do not meet the requirements, principally because they lack quick opening valves and have the potential for high water temperatures. Faucet mounted eyewashes are not addressed specifically by ANSI.
2. Eyewashes and showers should be located as close as possible to the hazard, and on the same level. The more hazardous the material, the closer in time and distance the unit should be. ANSI requires that an eyewash and shower be no farther than a 10 second travel time from the hazard. ANSI Z358.1 states that an average person covers a distance of approximately 55 feet in 10 seconds when walking at a normal pace. ANSI also recommends that, for highly corrosive chemicals, such as strong acids ($\text{pH} \leq 1$) or bases ($\text{pH} \geq 12$), the eyewash unit be immediately adjacent to the hazard.
3. Flushing fluid temperature for eyewashes and showers should be tepid or lukewarm (i.e., between 15° and 38°C or 60° and 100°F). Temperatures outside this range are likely to discourage use of the equipment. For showers, there is the additional concern that shock may occur. Temperatures greater than 38°C (100°F) have been shown to be harmful to the eyes and can enhance chemical interaction. Where chemical reactions present special hazards (i.e., material reacts with water, or water temperature accelerates reaction), a medical advisor should be consulted.
4. Plumbed eyewashes and showers should be flushed weekly to ensure proper operation. Eyewash flushing for at least three minutes has been suggested to reduce bacterial and amoebic contamination. Acanthamoebae are commonly found in eyewashes and can cause severe eye infections when introduced into traumatized eyes. Units must also be inspected on an annual basis to assure conformance with ANSI Z358.1.
5. There should be regular maintenance of self-contained eyewash units to ensure the units are full and operational, the flushing solution is changed according to manufacturer's instructions, and access to the units is not blocked. Only commercially available solutions intended for eye flushing should be used.

Eyewash/Shower Requirements - ANSI Z358.1

Requirements that apply to both eyewash units and shower units:

- Sole purpose must be as an eyewash or emergency shower unit.
- If shower is needed, a separate eyewash is required (combination unit is acceptable).
- Quick opening valve that remains open (simple to operate in ≤ 1 second). Operational with both hands free.
- Water temperature must be tepid or lukewarm (between 15° and 38°C or 60° and 100°F).
- Travel time ≤ 10 seconds. ANSI recommends eyewashes are located immediately adjacent to the hazard for $\text{pH} \leq 1$ or ≥ 12 . The unit shall be on the same level as the hazardous substance.

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- Location well lit, highly visible, marked with highly visible sign.
- Unobstructed passages and access to units.
- Operable at all times with provisions to prevent unauthorized shutoff.
- Sewer connection or drain not required unless special hazards noted.
- Plumbed units activated weekly for a period long enough to verify operation and ensure fluid is available.
- Units shall be installed in accordance with manufacturer's instructions.

Requirements for eyewashes only

- Installed so nozzles are 83.8-114.3 cm (33-45 inches) from floor.
- Pressure-reduced divergent flow of flushing fluid.
- Minimum of 1.5 liters a minute (0.4 gallons a minute) of a potable water or commercial flush for 15 minutes.
- Where contamination can occur, nozzles must be protected from contaminants by covers.
- Removal of covers shall not require extra step beyond activation of unit.
- Self-contained and portable units must provide 1.5 liters a minute (0.4 gallons a minute) for 15 minutes (equals 6-gallon capacity).
- Portable units to be used only where fixed installation is not feasible.
- Squeeze bottles used only in conjunction with eyewashes.
- Drench hoses used only in conjunction with eyewashes unless at open surface tanks.
- Faucet mounted eyewashes not acceptable unless all requirements for plumbed units are met.

Requirements for showers only

- Overhead mounted with head height 208.3 to 243.8 cm (82 to 96 inches) from floor or platform.
- Minimum of 75.71 liters a minute (20 gallons a minute) flow of flushing fluid dispersed throughout pattern.
- Valve actuator location \leq 173.3 cm (69 inches) above the floor or platform.

Training

- Employees are to be trained about the location and proper use of eyewashes and emergency showers.
- If squeeze bottles are also provided, training must address proper use in conjunction with eyewashes.
- Training must address holding eyelids open and rolling eyeballs to flush the entire eye.

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