



Design Considerations for Emergency Eyewashes and Showers

General: Every laboratory newly constructed or renovated, or any room used for similar purposes wherein corrosives or flammable liquids are handled or where open flame devices are used, shall be equipped with one or more Emergency Eyewashes and Showers. *Commonwealth of Massachusetts - 527 CMR 10.00 - Fire Prevention, Section 10.02 Fire Extinguisher Section (2)*

The Occupational Safety and Health Administration - 29 CFR 1910.151(c) requires “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.”

Other work areas and operations that may require these devices include: mechanical rooms, bio hazardous waste, radiological materials, pH neutralization systems, battery charging areas, spraying operations, high dust areas, etc.

Location: All emergency eyewashes and showers must be installed in accordance to **The American National Standards Institute (ANSI), Z358.1-2004**. ANSI states that “emergency eyewash and shower equipment shall be located on the same level as the hazard, have un-obstructed access, and require not more than 10 seconds to reach.”

The "10 second" rule may be modified depending on the potential effect of the chemical. Where a highly corrosive chemical is used, an emergency shower and eyewash station may be required within 3 - 6 meters (10 - 20 ft) from the hazard. These units should be installed in such a way that they do not become contaminated from corrosive chemicals used nearby.

Selection of Emergency Eyewashes and Showers: All Emergency Eyewashes and Showers must comply with *American National Standards Institute (ANSI), Z358.1-2004*.

Emergency showers minimum volume of spray should be 75.7 liters/minute (20 gallons/minute) for a minimum time of 15 minutes. The shower should also be designed so that it can be activated in less than 1 second, and it remains operational without the operator's hand on the valve (or lever, handle, etc.).

Eyewash stations must deliver fluid to both eyes simultaneously at a volume of not less than 1.5 liters/minute (0.4 gallons/minute) for 15 minutes. However, the volume should not be at a velocity that may injure the eyes.

Drench Hoses are considered to be **secondary** to proper emergency showers and eyewash stations (e.g., having a drench hose does not replace the need for showers/stations). **Monocular eyewashes - drench hoses do not meet ANSI or OSHA standards for emergency eyewashes and showers**. Drench hoses may be used to "spot" rinse an area when a full shower is not required, to assist a victim when the victim is unable to stand or is unconscious, or to wash under a piece of clothing before the clothing is removed.

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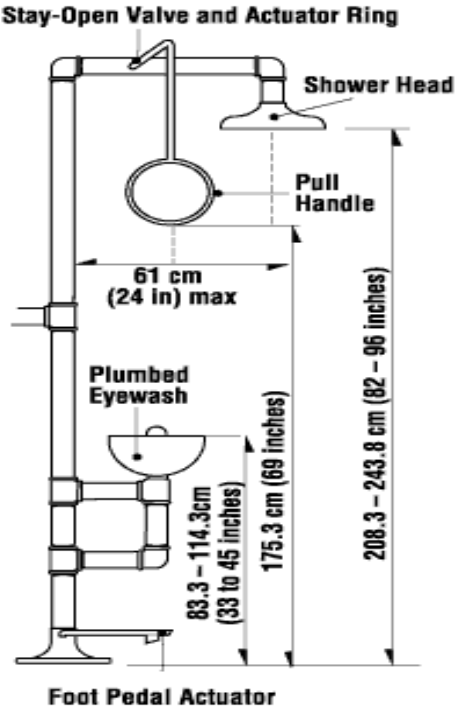
Water temperature ANSI standard recommends that the water be "tepid". In general, water temperatures in the range 27°-35°C (about 80°-95°F) are considered suitable with temperatures in the higher part of the range if extended periods of eye irrigation or showering are required.

Floor drains must be provided on all fixed eyewash stations and showers. Traps to the floor drains should consider "U" type or primed P - traps.

Emergency Eyewashes and Showers Regulations:

- Occupational Safety and Health Administration - 29 CFR 1910.151(c)
- Commonwealth of Massachusetts - 527 CMR 10.00 - Fire Prevention, Section 10.02 Fire Extinguisher Section (2)
- American National Standards Institute (ANSI) - ANSI Standard, Z358.1-2004

Images:

| Drench hose – NOT permitted as primary emergency eyewash/shower | Preferred Combination Eyewash/Shower |
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|  |  <p style="text-align: center;">Stay-Open Valve and Actuator Ring</p> <p style="text-align: center;">Shower Head</p> <p style="text-align: center;">Pull Handle</p> <p style="text-align: center;">61 cm (24 in) max</p> <p style="text-align: center;">Plumbed Eyewash</p> <p style="text-align: center;">89.3 - 114.3cm (33 to 45 inches)</p> <p style="text-align: center;">175.3 cm (69 inches)</p> <p style="text-align: center;">208.3 - 243.8 cm (82 - 96 inches)</p> <p style="text-align: center;">Foot Pedal Actuator</p> |



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Acceptable Eyewash Station



Replacement for drench hoses

