



RADIANS®

EYEWASH
**FAST
FACTS**





North American ESEW Market is about

\$250 million per year

ESEW Segments

Portables	Plumbed	Freeze Protected	Tempered
30%	40%	15%	15%

Scope of ANSI Z358.1

This standard establishes minimum performance and use requirements for eyewash and shower equipment for the emergency treatment of the eyes or body of a person who has been exposed to hazardous materials. It covers the following types of equipment: emergency showers, eyewashes, eye/face washes and combination showers and eyewashes.

The ESEW market Standard is ANSI Z358.1-2014. Compliance with ANSI revolves around the following:

- **Proper Installation according to Manufacturer's Instructions**
- **Minimum Flushing Duration & Performance** – all units must be able to meet a minimum of 15 minutes' worth of flushing time for the eyes, body or both. Dependent upon the exposure type (hazardous material), the user should consult the MSDS, prior to contact, to determine what type of fixture is needed.
- **Non-Injurious Flow** – the flow from the fixture should be "soft spent". In other words, the flow of the water should not be able to cause additional damage to skin or eyes.
- **Fixture Location** – A shower, eyewash, or combination unit must be located 10 seconds from an identified hazard. Generally speaking, this would be around 55 feet in distance. The area around and in the pathway should also be free of debris, temporary, or fixed equipment or structures.
- **Signs & Lighting** – The area where the fixture is placed needs to be well lit and should have adequate signing which points the end user to the fixture in the event of an emergency exposure.
- **Employee Training on the usage of the Fixture** – All employees who are potentially exposed to a hazard, should be thoroughly trained on the location of each unit and the proper usage of the fixture itself on an on-going basis.
- **Regular Inspection** – All eyewash, eye/face, or shower fixtures should be flow tested and inspected for the aforementioned each week. However, the exception of this would be self-contained units such as pressurized portables or gravity fed eyewashes, showers, or combination fixtures.



Key Additions to the ANSI Z358.1-2014 Standard versus the 2009 Version:

- **Section 4.1.5** - “Emergency showers shall be designed, manufactured and installed in such a manner that, once activated, they can be used without requiring the use of the operator’s hands” (2009 standard did not specify hands-free operations for emergency showers)
- **Section 4.6.3** - “Self-contained units shall be visually checked weekly to determine if Flushing Fluid needs to be changed or supplemented. Such inspection shall be conducted in accordance with manufacturer’s instructions” (2009 standard did not specify checks were to occur weekly).
- **Section 5.4.4, 6.4.4** - Eyewashes and eye/face washes shall “be arranged such that the Flushing Fluid Flow pattern as described in Section 5.1.8 (and 6.1.8) is not less than 33 in. and no greater than 53 in. from the surface on which the user stands and 6 in. minimum from the wall or nearest obstruction” (2009 standard specified that the “height of the nozzles” be no greater than 45 in. The 2014 standard specifies that the “height of the Fluid Flow pattern” be no greater than 53 in. A greater importance has been placed on the height of the Flushing Fluid stream).
- **Section 5.5.3** - “Self-contained units shall be visually checked weekly to verify that adequate Flushing Fluid is available. Such inspection shall be conducted in accordance with manufacturer’s instructions” (2009 standard did not specify checks were to occur weekly).
- **Appendix B5** - “A single step up into an enclosure where the equipment can be accessed is not considered to be an obstruction. Additionally, installers should allow for adequate overhead clearance to accommodate the presence of cabinets over the counter, or faucet mounted emergency eyewashes so as not to create an additional hazard that could be encountered when using the device” (2009 standard did not contain this verbiage).

Major Provisions of ANSI Z358.1 which apply to Radians Equipment

EQUIPMENT LOCATION

The ANSI standard states that all Flushing equipment must be located in areas that are accessible within 10 seconds (roughly 55 feet). This is commonly referred to in the industry as the 10 second rule. Best practices are to use a stop watch from your hazardous areas and determine if you have the proper Flushing Fluid located within 10 seconds. Keep in mind that an injured worker may need additional time to reach the Flushing stations, as the severity of their injury will dictate. In the presence of highly corrosive chemicals, consideration should be given to install the Flushing equipment much closer to the hazard. Be cautious of electrical supply panels that may be within “splashing distance” such as charging stations for forklifts and other battery operated machinery.

OBSTRUCTIONS

The safety showers and/or eyewash stations must be located on the same level as the hazard and the path of travel shall be free from obstructions. If your facility contains a hazardous area that is located on a different level, floor, or platform than your current Flushing stations, you must install equipment on every level that contains a hazard. Items such as trash cans, pallet jacks, boxes, raw materials, or any other stored items must not block access to the Flushing stations. Also, a door is also considered an obstruction. If the hazard is non-corrosive, 1 door can be present as long as it opens in the same direction of travel as the person requiring the use of the Flushing station.

IDENTIFICATION

Eyewash and drench shower stations must be installed in a well-lit area and identified with a highly visible safety sign.

WASTE DISPOSAL

Proper disposal of contaminated flushing fluid must be considered when installing new equipment. Drainage, freezing temperatures, pollutants, and elevated showers are some factors to consider. Consult with your local, state, and federal authorities for additional guidance on the proper wastewater disposal.

WATER TEMPERATURE & TEPID WATER

ANSI calls “tepid water” as a “flushing fluid temperature conducive to promoting a minimum 15 minute irrigation period. A suitable range is 16-38°C (60-100°F).” Recent data compiled from end user customers and regulatory authorities has indicated that tepid water is becoming an increased focus during eyewash/shower facility inspections, especially at healthcare facilities.

Medical professionals recommend that tepid flushing fluids be used to treat chemically injured eyes and body tissue. Temperatures that exceed 100°F can enhance chemical interaction with the eyes and skin. Additionally, flushing fluid temperatures below 60°F can cause hypothermic shock. The ANSI Z358.1 standard states that while cooler flushing fluids may provide immediate relief after chemical contact, “prolonged exposure to cold fluids affect the ability to maintain adequate body temperature and can result in the premature cessation of first aid treatment”.

During the winter months, most facilities located in the U.S. have outside temperatures that are below 32°F. Eyewash stations that are exposed to freezing temperatures must be protected. ANSI states that “Where the possibility of freezing conditions exists, equipment shall be protected from freezing or freeze-protected equipment shall be installed.”

For locations where the ambient water temperature may exceed 100°F, the ability to cool the eyewash fixture is critical. Outdoor locations that are exposed to direct sunlight, or indoor locations that may be exposed to extreme temperatures from machinery or manufacturing processes can cause an unintentional hazard to the user in an emergency and can actually exacerbate the injury.

TRAINING

All employees who may be exposed to hazardous, particulate, or corrosive materials shall be instructed on the proper operation of eyewash & drench shower equipment. In addition, all employees must be made aware of the locations of flushing stations.

MAINTENANCE & TESTING

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.” However, the ANSI Z358.1 standard also requires portable and self-contained equipment “be visually checked to determine if flushing fluid needs to be changed or supplemented.” When maintaining a self-contained unit, it is strongly suggested that a unit’s water be changed each week and refilled. If using an eyewash station preservative, an 8 oz. concentrate can prevent bacterial growth for up to 90 days which will mitigate the need to refill each week.

PERSONAL WASH UNITS/BOTTLED EYEWASH

Bottled eyewash or other personal wash units are considered to be supplemental equipment only. These types of flushing units do not meet ANSI’s requirements for eyewash stations and should not be used as an alternative to a 15 minute flushing station. The ANSI Z358.1 standard states, “A personal wash unit may be kept in the immediate vicinity of employees working in a potentially hazardous area. The main purpose of these units is to supply immediate flushing. With this accomplished, the injured individual should then proceed to a plumbed or self-contained eyewash and flush the eyes for the required 15-minute period.” If the exposure is not from an identified MSDS related hazardous chemical (such as dust or debris), the use of personal wash units are an excellent source for relief. As always, in any event, the effected personal should seek additional medical evaluation.

