



Department of the Air Force  
HQ AEDC (AFMC)  
Arnold AFB, TN 37389

## Safety, Health, and Environmental Standard

---

**Title:** SAFETY SHOWERS AND EYE FOUNTAINS

**Standard No.:** B8

**Effective Date:** 07/31/2011

The provisions and requirements of this standard are mandatory for use by all personnel engaged in work tasks necessary to fulfill the AEDC mission. Please contact your safety, industrial health and/or environmental representative for clarification or questions regarding this standard.

Approved:

Contractor/ATA Director  
Safety and Health Group

Air Force Functional Chief





# Safety, Health, and Environmental Standard

## SAFETY SHOWERS AND EYE FOUNTAINS

### 1.0 INTRODUCTION/SCOPE/APPLICABILITY

Where the potential exists for employees to have eyes or bodies exposed to injurious corrosive materials and contaminants, organizational units must provide emergency facilities within the work area for quick drenching or flushing. This standard provides requirements for installation and marking of showers and fountains.

### 2.0 BASIC HAZARDS/HUMAN FACTORS

Protection of the eyes and face is important in the industrial environment. The best means of protection is to engineer hazards out of the job so the worker is not exposed. If this is not possible, safety goggles and face shields should be worn as needed. Eyewash units, eye and face units, deluge showers and other similar devices are emergency equipment and not a substitute for protective devices. Eye, face, and body injuries may be caused by exposure to chemicals, by materials thrown from a machine, and when air pressure or the wind propels substances at sufficient velocity to be injurious. Other eye and face injuries may occur when harmful liquids are sprayed, squirted, splattered, dropped, or dripped.

### 3.0 DEFINITIONS

Actuating Mechanism — A pull rod, chain, ring, push flag, or foot treadle used to activate the control valve of an emergency shower or eye wash unit.

Combination Unit — A unit combining a shower with an eye and face wash, eyewash with a drench hose, or both.

Corrosive — Any substance that burns, injuriously irritates, or destructively attacks organic tissues.

Emergency Shower — A unit that cascades water over the entire body.

Eye and Face Wash Unit — A unit used to irrigate and flush both the face and the eyes.

Eyewash Bottle — A bottle filled with potable water or eyewash solution; it is specifically designed to deliver immediate flushing to the eyes.

Eyewash Unit — A unit used to irrigate and flush the eyes only.

Hazardous Material — A substance which, by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful, increases the probability of exposing the individual to an injury producing situation.

Operating Contractor — A long-term contractor directly accountable to the Air Force for the AEDC mission; term used to identify the AEDC Operation, Maintenance, Information Management and Support Contractor.

Self-Contained Emergency Shower or Eyewash Unit — A unit that provides a minimum of 15 minutes of continuous water flow and must be refilled or replaced after use and may be portable or fastened to a supporting structure.

Water-Flushing Equipment — A supply of water intended for flushing the body, totally or partially (eyes, for example), to dilute or remove a corrosive or other injurious contaminant.

### 4.0 REQUIREMENTS/RESPONSIBILITIES

Safety showers and eye stations shall be installed to meet the requirements of OSHA, ANSI Standard Z.358.1 and the unit manufacturer.

## 4.1 Requirements

### 4.1.1 Location

- 4.1.1.1 As a minimum, wherever 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.
- 4.1.1.2 Water-flushing equipment shall be located near the potential hazard.
- 4.1.1.2 The equipment shall be in conspicuously identified accessible locations that require no more than 10 seconds to reach.
- 4.1.1.3 Equipment shall be located on the same level as the hazard and the path of travel shall be free of obstructions that may inhibit the immediate use of the equipment.
- 4.1.1.4 Where combination shower/eyewash units are installed, separate control valves shall be provided for the operation of either unit, and it shall not be necessary to operate more than one valve to start the emergency water flow. Where shower and eyewash units are separate, units shall be positioned so that the eyewash and shower can be used simultaneously.
- 4.1.1.5 Units shall be connected to a potable water supply.
- 4.1.1.6 Water pressure shall be capable of delivering a sufficient volume to produce the required columns and sprays shown in the manufacturer's instructions.
- 4.1.1.7 Delivered water temperature shall not be at extremes that might be expected to discourage the unit's use, and should be in the range of 60 to 95°F.
- 4.1.1.8 Self-contained units and the supply lines of permanently installed units shall be protected from freezing and from sunlight or other heat sources that could cause extremes in water temperature.
- 4.1.1.9 If shutoff valves are installed in the water line for maintenance purposes, provisions shall be made to prevent accidental shutoff by providing either a sign or a tag at the valve indicating water supply is for emergency use.

### 4.1.2 Supply Method

- 4.1.2.1 Where feasible, commercial shower/fountain valves and hardware should be hard-line connected to existing potable water lines.
- 4.1.2.2 Where an open-end soft water hose is used, the discharge pressure must be limited to 25 psi.
- 4.1.2.3 Portable, pressurized water containers may be used only as a last solution, and such units must have the approval of contractor safety.
- 4.1.2.4 Shower Head — The showerhead must be the deluge type.
- 4.1.2.5 Shower Valve and Fountain Valve — The control valve shall be designed to assure the water flow continues without requiring the use of the operator's hands. It shall remain on until intentionally shut off, shall be simple to operate (push-pull) and go from "off" to "on" in 1 second or less. Malfunctioning valves shall be replaced or repaired immediately. The valves must be quick opening and designed to remain open for a predetermined time or until manually closed.
- 4.1.2.6 Freeze Protection — When located in areas subject to freezing, water supply tanks, lines, and fixtures must be protected against freezing by drains, insulation, heater coils, etc.

### 4.1.3 Hardware Location

#### 4.1.3.1 Emergency Showers

- 4.1.3.1.1 Shower heads shall be no less than 82 inches nor more than 96 inches in height from the surface on which the user stands, with a spray pattern of a minimum of 20 inches at 60 inches above the surface on which the user stands, and the center of the spray pattern shall be located at least 16 inches from any obstruction..

- 4.1.3.1.2 Enclosures, if used, shall provide for a minimum unobstructed area 34 inches in diameter in order to accommodate the movement necessary in an emergency situation.
- 4.1.3.1.3 Shower activating devices shall be easy to locate and readily accessible to the user.
- 4.1.3.1.4 Hand pull devices should be located not more than 69 inches or less than 55 inches above the surface on which the user stands.
- 4.1.3.1.5 Push handles and/or paddles should be approximately 40 inches above the surface on which the user stands.
- 4.1.3.1.6 Foot treadles should not be more than 6 inches above the walking surface.

#### 4.1.3.2 Eyewash Equipment

4.1.3.2.1 Eyewash bottles are not a replacement for other type units.

- 4.1.3.2.2 A means shall be provided to ensure a controlled flow of potable water is provided to both eyes simultaneously at a pressure low enough not to be injurious to the user. Normally this can be accomplished by providing a water stream that rises between 6 and 12 inches from the nozzle.
- 4.1.3.2.3 Nozzles should be protected from contamination. If protective covers are used, their removal shall not require a separate motion by the operator when activating the unit.
- 4.1.3.2.4 Units shall be positioned with the water nozzles 33 to 45 inches from the surface on which the user stands. Eyewash-actuating devices shall be easy to locate and easily accessible.

#### 4.1.4 Sign Posting

- 4.1.4.1 Permanently installed units and self-contained units installed in fixed locations shall be identified with a highly visible sign. The area around or behind the unit, or an attached plaque, must be painted with green and white diagonal stripes to increase visibility. If highlighted, the painted area will be large enough to be easily identified by the user. Emergency units shall be well lighted. If possible, at least 50 foot-candles of illumination should be provided. The unit must be marked with green-and-white striping on the wall, stall, piping, or sign.
- 4.1.4.2 The unit shall be prominently identified as an EMERGENCY SHOWER, EYEWASH FOUNTAIN, or both.
- 4.1.4.3 Appropriate and simple operating instructions must be posted at each operating point, such as PULL CHAIN TO OPERATE—PULL TWICE TO STOP, PULL BAR TO OPERATE, or TURN LEVER TO OPERATE.

#### 4.2 Responsibilities

##### 4.2.1 Organizational Units Shall:

- 4.2.1.1 Select or design and install suitable water-flushing facilities where needed, according to the requirements in this standard.
- 4.2.1.2 Obtain **Operating** Contractor Safety review of the proposed installation, modification, or removal of emergency showers and eyewash fountains.
- 4.2.1.3 Conduct area and operational surveys to determine the need for emergency eyewash fountains and safety showers.  
*NOTE: If in doubt about the injurious nature of specific materials, contact **Operating** Contractor Safety.*
- 4.2.1.4 Identify the finished installation with appropriate legends, markings, and operating instructions according to the requirements in this standard.
- 4.2.1.5 Remove unneeded water-flushing facilities from service or identify out-of-service units by appropriate signs.
- 4.2.1.6 Identify contaminants that warrant the installation of water-flushing equipment.

##### 4.2.2 Supervisors Shall:

4.2.2.1 Ensure all emergency eyewash and/or emergency shower units are inspected per Section 6.0.

- 4.2.2.2 Ensure that employees are familiar with the location and trained in the operation of safety showers and eye fountains in their areas. (See Section 5.0.)
  - 4.2.2.3 Establish inspection procedures and ensure units are operationally checked **weekly** to ensure that the water supply is adequate, that units are operable, and that facilities are marked and accessible. An inspection tag must be attached showing inspection record.
  - 4.2.2.4 Conduct and document a formal inspection on an annual basis to ensure conformance with this standard and ANSI Z358.1 requirements.
  - 4.2.2.5 If shower and/or eye fountain is not operating properly, tag unit with Form GC-82, Safety Information Tag warning of deficiency(s) and inform affected employees.
  - 4.2.2.6 Ensure deficiencies are reported and corrected in a timely manner.
- 4.3.1 Operating Contractor Safety Shall**
- 4.3.3.1 Review and approve the design, selection, location, and installation of water-flushing equipment and apparatus for compliance with OSHA requirements, AFOSH Standard 91-501, and accepted industry standards.
  - 4.3.3.2 Inspect safety showers and eye fountains during no-notice and formal SER inspections.

## 5.0 TRAINING

All employees whose duties expose them to conditions that may warrant the use of the emergency equipment discussed in this standard shall be instructed in its location and proper use as a part of their job safety training.

## 6.0 INSPECTIONS/AUDITS

### 6.1 Plumbed Units

- 6.1.1 Shall be tested and inspected according to the manufacturers' instructions.
- 6.1.2 Shall be activated weekly and for a sufficient length of time to ensure proper operation and to clear line(s) of sediment. This weekly check shall be documented.
- 6.1.3 Shall be inspected annually to ensure conformance with this standard and ANSI Z358.1 requirements. Inspections shall be documented.

### 6.2 Self-contained units

- 6.2.1 Shall be tested and inspected according to the manufacturers' instructions.
- 6.2.2 Where tap water is used, fluid should be replaced at least monthly. Less frequent intervals of fluid change, as recommended by the manufacturer, are acceptable where a solution or water additive is used.
- 6.2.3 Fluid level will be checked and documented monthly.
- 6.2.4 Shall be inspected annually to ensure conformance with this standard and ANSI Z358.1 requirements. Inspections shall be documented.

### 6.3 Eyewash bottles

- 6.3.1 Shall have instructions and expiration dates if applicable, permanently affixed to the unit. They shall be tested, refilled, maintained, and disposed of according to the manufacturers' instructions.

## 7.0 REFERENCES

AFOSHSTD 91-501, Air Force Consolidated Occupational Safety Standard  
ANSI Z358.1-2004, American National Standard for Emergency Eyewash and Shower Equipment  
CFR 1910.151, OSHA Standard for Medical Services and First Aid

## 8.0 ANNEXES – None.