

# **Safety, Health, and Environmental Standard**

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**Title:** SAFETY SHOWERS AND EYE FOUNTAINS  
(Includes Self-Contained Emergency Eyewash Units and Eyewash Bottles)

**Standard No.:** B8

**Effective Date:** 08/31/2021

**Releasability:** There are no releasability restrictions on this publication.

The provisions and requirements of this standard are mandatory for use by all base operating contractors 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.

# Safety, Health, and Environmental Standard

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## SAFETY SHOWERS AND EYE FOUNTAINS

### 1.0 INTRODUCTION/SCOPE/APPLICABILITY

1.1 Introduction – This standard provides guidance for the selection, location, installation, maintenance, testing and use of safety showers and eye fountains – including plumbed and self-contained portable units and bottles.

1.2 Scope – This standard includes performance specifications for both permanently-installed and self-contained units. If conflicts arise between this standard and a recognized consensus standard, the base operating contractor safety manager shall coordinate with AEDC/SE to reach resolution.

1.3 Applicability – This standard applies to all base operating contractors performing work on AEDC.

### 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, or 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

Base 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.

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

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.

Safety/Emergency Shower – A unit that cascades water over the entire body.

Self-Contained Emergency Shower and/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 device that supplies 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**

### **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. The required water-flushing equipment shall be located:
  - 4.1.1.1.1 As close to the hazard as possible without creating a hazard itself.
  - 4.1.1.1.2 In a conspicuously identified and accessible location that requires no more than 10 seconds to reach from the hazardous work location.
  - 4.1.1.1.3 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.
- 4.1.1.2 In addition to these minimum requirements, safety showers or eye fountains may be appropriate for use with certain other hazardous materials or situations. In these cases, consult with base operating contractor safety and health for specific recommendations.

#### **4.1.2 Potable Water Supply**

- 4.1.2.1 Permanently installed water-flushing equipment shall be connected to a potable water supply.
  - 4.1.2.1.1 Where feasible, hardware should be hard-line connected to existing potable water lines.
  - 4.1.2.1.2 Water pressure shall be capable of delivering a sufficient volume to produce the required columns and sprays shown in the manufacturer's instructions.
  - 4.1.2.1.3 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.
  - 4.1.2.1.4 Where an open-end soft water hose is used, the discharge pressure must be limited to 25 psi.
- 4.1.2.2 Delivered water temperature shall be between 60 and 100°F.
  - 4.1.2.2.1 Water-flushing equipment and the supply lines shall be protected from freezing and from sunlight or other heat sources that could cause extremes in water temperature.
  - 4.1.2.2.2 When located in areas subject to freezing, water supply tanks, lines, and fixtures must be protected against freezing by drains, insulation, heater coils, etc.
  - 4.1.2.2.3 When the potable water supply is disrupted, tasks exposing workers to corrosive hazards must cease until the safety showers and eye fountains are fully operational, or self-contained units are properly placed into service.

**4.1.3 Installation and Performance Requirements****4.1.3.1 Permanently Installed Emergency Showers and Eyewash Units**

- 4.1.3.1.1 Emergency showers and eyewash units shall be designed, installed and maintained to meet the requirements of OSHA, ANSI/ISEA Z358.1 and the unit manufacturer.
- 4.1.3.1.2 The shower head must be capable of flowing 20 gallons per minute (gpm) at 30 psi and producing a 20-inch diameter spray pattern at 60 inches above the surface where the user stands.
- 4.1.3.1.3 The center of the spray head pattern should be at least 16 inches from any wall, door, or obstruction.
- 4.1.3.1.4 It is recommended that the shower head be mounted between 82 and 96 inches off the floor, with the valve no higher than 69 inches.
- 4.1.3.1.5 ANSI Z358.1 recommends that eyewash stations have a flow of 0.4 gpm at 30 psi. The nozzles should be at least 6 inches from any obstruction and mounted between 33 and 45 inches above the floor.
- 4.1.3.1.6 Both safety showers and eyewash stations must be able to provide the recommended flow for at least 15 minutes.
- 4.1.3.1.7 Where combination shower/eyewash units are installed, separate control valves shall be provided for the operation of each device, and it shall not be necessary to operate more than one valve to start the emergency water flow for either device.
- 4.1.3.1.8 Where shower and eyewash units are separate, units shall be positioned so that the eyewash and shower can be used simultaneously.
- 4.1.3.1.9 Control valves 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.
- 4.1.3.1.10 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.
- 4.1.3.1.11 All activating devices shall be easy to locate and readily accessible to the user.
- 4.1.3.1.12 Emergency eyewash nozzles must be protected from contamination. If protective covers are used, their removal shall not require a separate motion by the operator when activating the unit.
- 4.1.3.1.13 Showerheads must be the deluge type.
- 4.1.3.1.14 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.

**4.1.3.2 Self-Contained Emergency Eyewash Units**

- 4.1.3.2.1 Self-contained emergency eyewash units shall be used and maintained according to manufacturer's guidance.
- 4.1.3.2.2 Self-contained emergency eyewash units shall provide a minimum of 15 minutes continuous flow.
- 4.1.3.2.3 Pressurized self-contained eyewash units may only be used as a last resort, and must be approved for use by base operating contractor safety and health before being procured or placed in service.

**4.1.3.3 Eyewash Bottles**

Eyewash bottles are not a replacement for other type units. An eyewash bottle may be kept in the immediate vicinity where employees are working on extremely hazardous operations. Eyewash bottles supply

immediate flushing after which the individual may then proceed or be helped to a permanently-installed or self-contained unit to flush the eyes more thoroughly.

#### **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 must be large enough to be easily identified by the user. Emergency units shall be well lit. 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, or both.
- 4.1.4.3 Appropriate and simple operating instructions must be posted at each water-flushing equipment point of operation, 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 All Organizations Shall:**

- 4.2.1.1 Select or design and install suitable water-flushing facilities where needed, according to the requirements in this standard and the most current version of ANSI/ISEA Z358.1.
- 4.2.1.2 Obtain Base Operating Contractor Safety and Health coordination on all proposed installation, modification, or removal of emergency showers and eyewash units.
- 4.2.1.3 Conduct area and operational surveys to determine need for emergency showers and eyewash units.  
**NOTE:** If in doubt about the injurious nature of specific materials, contact Base Operating Contractor Safety and Health for guidance.
- 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 chemicals and processes that warrant the installation of water-flushing equipment.

##### **4.2.2 Supervisors Shall:**

- 4.2.2.1 Ensure all emergency shower and eyewash 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 If safety shower or eyewash unit is not operating properly, tag unit with Safety Information Tag warning of deficiency(s) and inform affected employees. Tasks exposing workers to corrosive hazards must cease until the safety showers or eyewash units are fully operational, or self-contained units are properly placed into service.
- 4.2.2.5 Ensure deficiencies are corrected in a timely manner.

##### **4.2.3 Base Operating Contractor Safety and Health Shall**

- 4.2.3.1 Review and approve design, selection, location, and installation of water-flushing equipment and apparatus for compliance with the most recent version of ANSI Z358.1 and accepted industry standards.
- 4.2.3.2 Inspect safety showers and eye fountains – including portable eyewash units and bottles during no-notice and formal Safety Evaluation Review (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 Permanently Installed 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/ISEA 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/ISEA Z358.1 requirements. Inspections shall be documented.

### 6.3 Eyewash bottles

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

## 7.0 REFERENCES

ANSI/ISEA Z358.1-2014, American National Standard for Emergency Eyewash and Shower Equipment  
29 CFR 1910.151(c), OSHA Standard for Medical Services and First Aid

## 8.0 ANNEXES

None

## 9.0 SUPPLEMENT

NFAC A321-0801-XSP B8 Safety Showers and Eye Fountains

# A321-0801-XSP B8 Safety Showers and Eye Fountains

This supplement has been approved for the NFAC Site.

**Review:** This supplement will be reviewed and updated using the same cycle as AEDC Safety, Health, and Environmental (SHE) Standard B8 Safety Showers and Eye Fountains.

**References:** AEDC SHE Standard B8 Safety Showers and Eye Fountains  
NASA Ames Procedural Requirements APR 1700.1 Chapter 18 "Emergency Eyewash & Shower Equipment"

**Scope:**

This supplement applies to all areas 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 at NFAC.

This supplement applies to all NFAC personnel, customers and vendors.

**NFAC Worksite Application:**

NFAC will follow the local NASA Ames Procedural Requirements APR 1700.1 Chapter 18 "Emergency Eyewash & Shower Equipment".

**Requirements/Responsibilities:**

- I. NFAC Site Management shall ensure this supplement is followed.
- II. NFAC Supervisors and Test Directors shall
  1. Ensure this supplement is followed.
  2. Ensure that the customer and staff are aware of the equipment location and it uses.
  3. Supervisors are to maintain all portable eyewash station on weekly bases.
  4. Supervisors are to ensure that all permanent eyewash and shower units are maintained by the NASA Facilities Support Group on a weekly basis.
- III. NFAC Safety Engineer/Management Designee shall
  1. Assess all areas and activities to ensure that the proper eyewash and shower units are available.
  2. Ensure all eyewash and showers are accessible.
- IV. NFAC Staff shall ensure that all eyewash and shower units are accessible.