

# Standards of Practice

## Emergency Shower/Eyewash Installation, Use, Testing & Maintenance

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### I. PURPOSE

To provide uniform requirement for the emergency shower and eyewashes performance, use, testing and maintenance procedures.

### II. SCOPE

K-state university laboratories, non-laboratory areas, such as art and science studios, maintenance facility and other shops.

### III. CONSEQUENCES OF DEVIATION

This procedure serves as an essential aspect of having an operational ready emergency shower or eyewash station for faculty, staff and students. Ignoring this procedure could result in serious injuries or fatalities.

### IV. RESPONSIBILITY

1. Environmental Health & Safety
  - Work with departments to identify the area(s) requiring emergency showers and eyewash stations
  - Provide standards for installing the type of emergency showers and eyewash stations, and testing and maintenance instructions
2. Facility maintenance
  - Make any necessary repairs for the emergency showers and eyewash stations regarding the inspection results.
3. Departments
  - Departments should verify the staff instructed the location, use the emergency showers and eyewash stations when need
  - Departments or other designated parties should inspect their emergency showers and eyewash units once a week.
  - Departments should contact facility maintenance for repair service when the emergency shower and eyewash station are not working properly as expected.
  - Department laboratories are responsible for purchase and get appropriate installation for the emergency showers and eyewash station based on the work requirements.

## **V. REQUIRED LOCATION(S)**

Any area in laboratories involving corrosive materials, including but not limited to battery charging areas, and any laboratory using hazardous chemicals must have an emergency shower and eyewash plumbed to the building water supply line.

## **VI. EQUIPMENT INSTALLATION REQUIREMENTS**

1. All emergency showers and eyewash station must be purchased and installed to comply with the latest ANSI Z358.1 American National Standard for Emergency Eyewash and Shower Equipment.
2. All new installations must deliver tepid flushing fluid. Personal wash units shall be protected from freezing and shall not be exposed to ambient temperatures exceeding 38°C (100°F).
3. All emergency showers should be assembled and installed by the manufacturer's instructions and the flushing fluid delivery requirements, the location should be no more than 10 seconds for the users to reach.
  - The pattern of the shower should be at least 208.3 cm (82 in.) for the top of the flushing fluid column, and not more than 243.8cm (96 in.) from the surface on which the user stands. The center of the spray shall be at least 40.6 cm (16 in.) from any obstruction.
  - Be connected to a supply of flushing fluid per the manufacturer's installation instructions to produce the required spray pattern for a minimum period of 15 minutes.
  - Deliver tepid flushing fluid
  - When the plumbed eye/face wash is installed, its performance shall be verified in accordance with the following procedures
  - When the self-contained eye/face wash is installed, its installation shall be verified in accordance with manufacturer's instructions.

## **VII. TESTING**

- Each part of the combination unit shall be certified individually and when activated procedures.
- Plumbed eye/face washes and self-contained Eye/Face Washes should be certified by rules from the Testing Procedures for Certification.
- Determine that flushing fluid is substantially dispersed throughout the pattern. The flushing fluid column pattern shall be at least 208 cm (82 in.) and not more than 243.8cm (96 in.) from the surface on which the user stands. Measure the diameter of the flushing fluid pattern 152.4 cm (60 in.) above the surface on which the user stands. The diameter shall be a minimum of 50.8 cm (20 in.). Throughout the 15-minute test, verify that the flow rate is a minimum of 75.7 liters per minute (20 gpm).

## **VIII. MAINTENANCE AND TESTING**

1. Manufacturers shall provide operation, inspection and maintenance instructions with emergency shower equipment. Instructions shall be readily accessible to maintenance and training personnel.

2. Plumbed emergency showers shall be activated weekly for a period long enough to verify operation and ensure that flushing fluid is available.
3. Self-contained emergency showers 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
4. Employees who may be exposed to hazardous materials shall be instructed in the location and proper use of emergency showers.
5. All emergency showers shall be inspected weekly to assure conformance with installation requirements of this standard.

**IX. RELATED FORMS:** Inspection form (Appendix 1)

RELATED DOCUMENTS: ANSI Z358.1-2014 American National Standard for Emergency Eyewash and Shower Equipment

Appendix 1

### Weekly/Monthly Inspection Log

Date	Function properly Y/N	Inspector Initial	Additional Comments

## **X. SAFETY CONSIDERATIONS**

### **A1. Personal Wash Unit**

In order to keep the eye from serious injury is to follow the instruction for workers to get the minimum injury the possible.

### **A2. Signage**

Visible signage should be placed on or immediately adjacent to the shower/eyewash station.

### **A3. First Aid Practices**

The work place should provide professional training and develop the common sense in employees to get safety equipment while working with hazardous, and the usage of emergency showers and eyewash stations.

### **A4. Waste Disposal**

The department should give appropriate disposal of waste from operating the emergency eyewash and shower equipment.

### **A5. Personal Protective Equipment**

Emergency eyewash and shower equipment is not a replacement for primary protection devices. The personal protective equipment should be provided in the working area. Workers should be able to use when they need.

## **XI. INSTALLATION CONSIDERATION**

### **B1. Supply Lines**

Installation should be in accordance with proper practices and procedures.

### **B2. Water Capacity**

ANSI has reference standard to ensure that the testing for certification purposes is consistent and reproducible. It is the responsibility of the designer and owner to ensure proper flushing fluid delivery. The testing of emergency eyewash and shower equipment is to be conducted at normal facility operating pressures. Excess flow pressure can injure the user or damage the equipment.

### **B3. Valve Operation**

To ensure safety, the control valve should remain open to allow the user to use both hands for keeping the eyes open.

### **B4. Alarm Devices**

In order for users to understand the terms of applying the safety equipment, the alarm system with warning lights would be able to indicate whether the device is in operation.

**B5. Placement of Emergency Eyewash and Shower Equipment**

The emergency shower and eyewash equipment should be immediately functionally working after installation.

**B6. Delivered Flushing Fluid Temperature**

Temperatures in excess of 38°C (100°F) have proven to be harmful to the eyes and can enhance chemical interaction with the skin and eye tissue. For cold flushing fluid temperatures, a temperature of 16°C (60°F) is suitable for the lower parameter for tepid flushing fluid without causing hypothermia to the equipment user.

**B7. Weekly or Monthly Activation for Plumbed Emergency Eyewash and Shower Equipment**

Departments are responsible for performing inspection for the emergency showers and eyewash station for each lab. Also, each lab should report any repair issue for emergency eyewash and shower to ensure work place safety.

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