TEXAS A&M UNIVERSITY
Emergency Eyewash & Shower Equipment
2023

TABLE OF CONTENTS

ENCLOSURES:

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I. INTRODUCTION

This guidance document will outline requirements for installation, inspection, use, and maintenance of emergency eyewash and emergency shower equipment in Texas A&M University facilities.

II. PURPOSE

Texas A&M University is committed to providing a safe environment for all students, faculty, staff, and visitors, and is committed to meeting compliance with all applicable federal, state and local rules, regulations, policies and procedures. Environmental Health and Safety (EHS) has the responsibility of supporting these compliance obligations through regulating and developing safety and environmental policies and procedures for all Texas A&M components.

This document for Emergency Eyewash and Shower Equipment was developed in accordance with the American National Standards Institute (ANSI) standard Z358.1-2014 (*Emergency Eyewash and Shower Equipment)* and inspection criteria and maintenance operations unique to the Texas A&M work environment.

III. SCOPE

This guidance document applies to any facility and/or personnel for which Texas A&M Environmental Health & Safety has responsibility for oversight or administration of safety programs. Equipment discussed herein should be utilized whenever a hazard assessment determines areas where corrosive materials or infectious agents are present or where there is a reasonable probability of injury to the eyes or skin occurring as a result of exposure to hazardous chemicals or materials.

IV. DEFINITIONS

Emergency Shower: A device specifically designed and intended to deliver flushing fluid in sufficient volume to cause that fluid to cascade over the entire body.

Emergency Eyewash: A device used to provide fluid to irrigate and flush the eyes.

Eye/Face Wash: A device used to provide fluid to irrigate and flush both the face and the eyes simultaneously.

Combination Unit: An interconnected assembly of emergency equipment supplied by a single source of flushing fluid.

Drench Hose: A supplemental device consisting of a flexible hose connected to a flushing fluid supply and used to provide fluid to irrigate and flush face and body areas.

Personal Eyewash: A supplementary device that supports plumbed and/or self-contained units, by delivering immediate flushing fluid to the eyes or body.

Plumbed: A term used to describe equipment that is connected to a continual source of potable water.

Potable water: Water that is suitable for drinking.

Flushing fluid: Potable water, preserved water, preserved buffered saline solution or other medically acceptable solution manufactured and labeled in accordance with applicable government regulations.

Flow Pressure: The pressure in the water supply pipe near the water outlet while the faucet or outlet is fully open and flowing.

Tepid: A flushing fluid temperature conducive to promoting a minimum 15-minute irrigation period. A suitable range is 16 -38° C (60 -100° F).

Hazardous Material: Any substance or compound that has the capability of producing adverse effects on human health and safety.

V. RESPONSIBILITIES

A. Environmental Health and Safety will
1. Ensure that supervisors, employees, and students are notified of their responsibilities as outlined in this guidance document.
2. Ensure that all employees and students have received instruction regarding operation and maintenance of emergency eyewash and shower equipment as needed.
3. Coordinate with facilities management for inspection, modification, repair, maintenance, and installation of emergency shower and eyewash equipment, as necessary.
4. Ensure that each department is aware of their responsibilities under this guidance document.
5. Maintain an updated inventory of emergency eyewash and safety shower equipment.
6. Assist with building plan review and selection from a list of recommended equipment during new construction or major renovation.
7. Provide assistance and inspection tags required to test emergency eyewash/shower equipment as required.
8. Conduct annual inspection to ensure that the emergency shower equipment is functioning properly.
9. Monitor that the emergency eyewash station weekly activation log is maintained by each laboratory.
10. Conduct hazard assessments.
11. Identify emergency eyewash and shower equipment that is no longer needed and submit a request to SSC for their removal.
12. Provide technical assistance to SSC and other personnel in the selection, installation, maintenance, and/or testing of emergency eyewash and shower equipment.
13. Conduct regular review of this emergency eyewash and shower equipment guidance document.

B. SSC will
1. Perform immediate modifications, repair, maintenance, and installation of emergency eyewash and shower equipment as required to ensure that all safety shower/eyewash equipment is assembled and installed in compliance with ANSI Z358.1-2014.
2. Inform EHS after installation, repair, and modification of shower equipment so that EHS can inspect/test the equipment.
3. Executes all work orders for the installation or repair of emergency eyewash and shower equipment on a high priority basis.
4. Equipment that fails testing must be repaired immediately. If deficiencies cannot be immediately corrected, the work order requestor/facility contact must be notified and the equipment tagged “Out of Service.” The facility contact must notify all affected employees and EHS when emergency equipment is out of service.

C. Departments/Supervisors will
1. Ensure that the necessary emergency eyewash and shower equipment are located on the same level as the hazards.
2. Ensure unobstructed access to the safety shower/eyewash equipment so that it requires no more than 10 seconds to reach.
3. Ensure that all employees and students who may need the emergency eyewash and

shower equipment are trained on their location and proper use.

4. Ensure that emergency eyewash equipment within the laboratory are activated weekly and a weekly activation log is maintained.
5. Request maintenance for immediate repair, modification or installation of emergency eyewash/shower equipment. Complete a work order in Aggie Works for any eyewash station issues. When placing a request, type 'EHS' in the internal reference number field. Add "Emergency Safety Equipment" in the comments field.
6. When emergency eyewash stations are not functioning properly, post a sign stating "Out of Service."
7. Inform Environmental Health & Safety (EHS) before removing any emergency eyewash/shower equipment from the laboratory.
8. Notifying laboratory/facility staff of changes in work areas or work processes and practices that require a Hazard Assessment to evaluate the need for new installations, or for the removal of existing emergency eyewash or shower equipment.

VI. SELECTION, INSTALLATION, PERFORMANCE CRITERIA

A. Hazard Assessment

A hazard assessment is a useful tool to use in determining where an emergency eyewash and/or shower should be installed. When a hazard assessment is performed and results conclude that an emergency shower and/or eyewash is necessary, an ANSI-approved emergency eyewash and/or shower must be installed to comply with American National Standard Institute (ANSI), Z358.1-2014. All unapproved emergency shower and/or eyewash equipment must be replaced with ANSI-approved equipment during renovation.

Keep the pathway to the emergency shower and eyewash clear of obstructions. The area should be kept neat and easily accessible with at least 32 inches of clear space around a safety shower and 6 inches clearance around an eyewash.

B. Emergency Showers

1. Installation

Emergency showers shall be in accessible locations that require no more than 10 seconds to reach. The emergency shower shall be located on the same level as the hazard and the path of travel shall be free of obstructions that may inhibit its immediate use.

A single step up into an enclosure where the equipment can be accessed is not considered to be an obstruction.

A door is considered to be an obstruction if it does not swing in the direction of travel. One intervening door can be present so long as it opens in the same direction of travel as the person attempting to reach the emergency shower equipment, and the door is equipped with a closing mechanism that cannot be locked to impede access to the equipment.

In situations that might warrant the placement of emergency eyewash and shower equipment close to the hazard, such as exposure to highly corrosive chemicals, the appropriate professional should be contacted for advice on the proper distances. Equipment should be located adjacent to the hazard, but situated in such a manner such that exposure to the

splash hazard or other hazards (e.g., exposed electrical conductors) does not occur while using the eyewash.

Emergency showers shall be located in an area identified with a highly visible sign positioned so the sign shall be visible within the area served by the emergency shower. The area around the emergency shower shall be well-lit.

2. Performance

ANSI requires that a means shall be provided to ensure that a controlled flow of tepid flushing fluid is provided at a velocity low enough to be non-injurious to the user. The ANSI Z358.1-2014 recommends that the flushing fluid shall be "tepid".

Emergency showers shall be capable of delivering flushing fluid at a minimum of 75.7 liters per minute (20 gallons per minute) at 30 pounds per square inch (PSI) for a minimum of 15 minutes. If shut off valves are installed in the supply line for maintenance purposes, provisions shall be made to prevent unauthorized shut off.

Emergency showers shall provide a flushing fluid column of at least 208.3 cm (82 in.) and not more than 243.8 cm (96 in.) in height from the surface on which the user stands. The spray pattern of the shower shall have a minimum diameter of 50.8 cm (20 in.) at 152.4 cm (60 in.) above the surface on which the user stands, and the center of the spray pattern shall be located at least 40.6 cm (16 in.) from any obstruction.

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.

Emergency showers shall be constructed of materials that will not corrode in the presence of the flushing fluid. Stored flushing fluid shall be protected against airborne contaminants.

3. Control Valve

The control valve shall remain open without the use of the operator's hands until intentionally closed.

The valve shall be simple to operate and shall go from "off' to "on" in 1 second or less. The valve shall be resistant to corrosion. Manual or automatic actuators shall be easy to locate and readily accessible to the user. Valve actuators shall be located not more than 173.3 cm (69 in.) above the level on which the user stands.

4. Privacy Consideration

Showers intended for personal use (for example, in employee restrooms or changing areas) should not be used in-lieu of a required ANSI-approved emergency shower for drenching and removing chemicals. Should the shower be used or activated in an emergency, privacy considerations may be given. Shower enclosure, if used, shall provide for a minimum unobstructed area of 86.4 cm (34 in.) in diameter. Alternatives for privacy may include cordoning off the area to provide privacy when removing contaminated clothing or utilizing the assistance of other individuals in the area to hold shower curtains, clean lab coats, etc. as a visual screen. Anyone not actively assisting should immediately evacuate the area.

5. Floor Drains

   Floor drains are not required by ANSI Z358.1-2014 to be installed for emergency showers. Based on the required criteria for emergency showers to deliver flushing fluid at a minimum of 20 gallons per minute at 30 PSI for a minimum of 15 minutes, i.e., approximately 400 gallons total, and at a spray pattern with a minimum diameter of 50.8 cm (20 in.) at 152.4 cm (60 in.) above the surface on which the user stands, a majority of the water will not be captured by the floor drain, i.e., a flood should be expected.

   If an emergency shower is activated, the area should be cordoned off as soon as possible to eliminate traffic flow and the potential for injuries due to slips or falls. Following the 15-minute time-frame, custodial services should be contacted to address the accumulated water and wet floor.

   EHS discourages floor drains due to the potential for backup of sewer gases during periods of non-use.

C. Emergency Eyewashes

1. Installation

   Emergency eyewashes shall be in accessible locations that require no more than 10 seconds to reach.

   The eyewash shall be located on the same level as the hazard and the path of travel shall be free of obstructions that may inhibit its immediate use.

   Be located in an area identified with a highly visible sign positioned so the sign shall be visible within the area served by the eyewash. The area around the eyewash shall be well-lit.

   Be arranged such that the flushing fluid flow pattern is not less than 83.8 cm (33 in.) and no greater than 134.6 cm (53 in.) from the surface on which the user stands and 15.3 cm (6 in.) minimum from the wall or the nearest obstruction.

   Emergency eyewashes shall be located in an area identified with a highly visible sign positioned so the sign shall be visible within the area served by the emergency eyewash. The area around the emergency eyewash shall be well-lit.

2. Performance

   ANSI requires that a means shall be provided to ensure that a controlled flow of flushing fluid is provided to both eyes simultaneously at a velocity low enough to be non-injurious to the user.

   The emergency eyewash shall be designed so that it can be activated in 1 second or less, and once activated; it remains operational without requiring the use of operator’s hand until intentionally closed.

   The eyewash equipment shall be capable of delivering fluid to both eyes simultaneously at a volume of not less than 1.5 liters per minute (0.4 gallons per minute) for minimum 15 minutes.

Eyewashes shall be designed to provide enough room to allow the eyelids to be held open with the hands while the eyes are in the flushing fluid stream and shall provide flushing fluid to both eyes simultaneously.

Nozzles and flushing fluid equipment shall be protected from airborne contaminants. Whatever means is used to afford such protection, its removal shall not require a separate motion by the operator when activating the equipment.

3. Control Valve

The control valve shall remain open without the use of the operator's hands until intentionally closed.

The valve shall be simple to operate and shall go from "off' to "on" in 1 second or less. The valve shall be resistant to corrosion. Manual or automatic actuators shall be easy to locate and readily accessible to the user.

4. Drench Hoses

Drench hoses with dual heads can be used as primary eyewash equipment given that it has hands-free stay open valve that activates in one second or less and stays open without the use of operator’s hands until intentionally closed. The dual heads should deliver water flow to both eyes simultaneously. Monocular drench hoses DO NOT meet ANSI standards for emergency eyewash because they are not hands-free.

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.

VII. INSPECTION PROCEDURES

A. Emergency Shower Equipment

All emergency showers shall be inspected annually by EHS to assure conformance with the requirements of the ANSI Z358.1-2014 standard.

B. Emergency Eyewash Equipment

Weekly flushing of emergency eyewash equipment in compliance with the ANSI Z358.1-2014 shall be conducted by the laboratories. Weekly eyewash activation log cards can be provided to the laboratories (one card per eyewash). Verification of weekly flushing and distribution of a new annual check card will be conducted by EHS laboratory inspection staff during regularly scheduled laboratory inspections. If equipment is not being checked weekly by laboratory staff, EHS inspectors will record this as a Deficiency on the Laboratory Inspection Report.

Respective laboratory or facility personnel shall follow the method outlined in this guidance document for weekly activation of emergency eyewash equipment situated in their assigned space:

1. Before activating the eyewash, check if the equipment is connected to any types of drainage system. Apply appropriate water collection method as necessary.

2. Make sure there are no obstructions to the eyewash station.

3. Inspect eyewash to make sure it is in good condition with no missing/broken parts and minimum build-up on it.

4. Ensure covers for eyewash nozzles are in place to protect from dust and debris.

5. Turn the valve on to the fully open position (activation of the equipment). The eyewash nozzles shall have a dust protecting cover, which shall be automatically removed upon activation of the unit.

6. Verify that the eyewash opens within one second of opening the valve and it remains open without operator's further assistance (stay- open valve) until intentionally closed.

7. The emergency eyewash shall provide flushing fluid to both eyes simultaneously. The flushing streams shall have adequate water pressure to rise to approximately equal heights on both sides. The water should be clear.

8. The emergency eyewash shall be activated weekly for a period long enough to verify operation and ensure that flushing fluid is available.

9. When done testing the emergency eyewash, make sure the caps are put back on.

10. Record the date (month/day/year) and initial the inspection tag.

11. Ensure all lab personnel are trained in the proper use of each of the emergency eyewash stations in your laboratory/laboratories.

VIII. MAINTENANCE, REPAIR, TRAINING

Emergency eyewash equipment shall be activated weekly for a period long enough to verify operation and ensure that flushing fluid is available and clear. Weekly activation prevents sediment build-up within the eyewash equipment and minimizes microbial contamination in the stagnant water.

It is the department's responsibility to ensure that emergency eyewash and safety shower equipment that does not pass inspection is repaired immediately by submitting a work order to SSC.

Whenever an emergency eyewash or safety shower is non-functional, immediately contact SSC to fix it. Do not handle hazardous materials in that work-area until the equipment is returned to proper service.

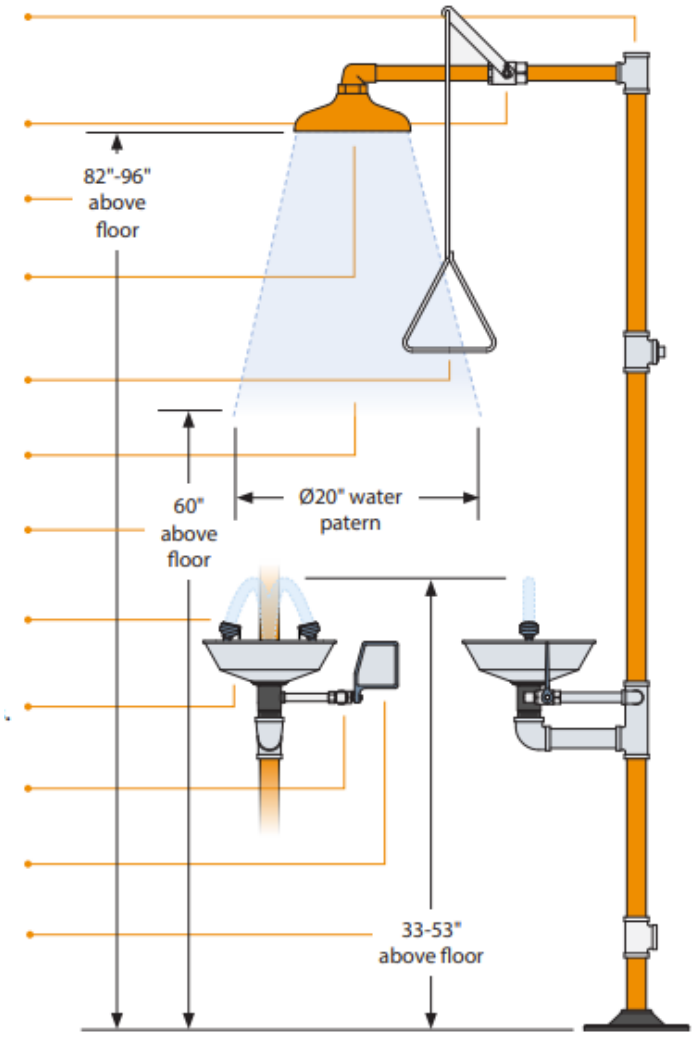
Any party removing emergency eyewash or safety shower equipment from service, must notify EHS and the affected department beforehand.

Individuals who may be exposed to hazardous materials shall be instructed in the location and proper use of emergency eyewash and safety shower equipment.

IX. REFERENCES

- American National Standard Institute, ANSI Z358.1-2014, American National Standard for Emergency Eyewash and Shower Equipment, September 14, 2014.
- Occupational Safety & Health Administration [OSHA] 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories.

ATTACHMENT A
Reference Images

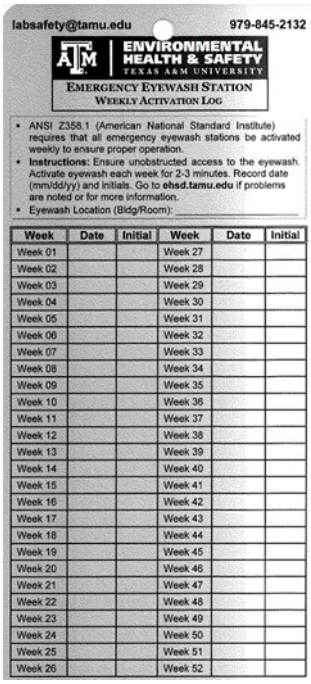


Shower and Eyewash Standards

Dual Head Hose Deck-Mounted Eyewash

Wall-Mounted Eyewash

Sample Signage



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ENVIRONMENTAL HEALTH & SAFETY
TEXAS A&M UNIVERSITY

EMERGENCY EYEWASH STATION
WEEKLY ACTIVATION LOG

- ANSI Z358.1 (American National Standard Institute) requires that all emergency eyewash stations be activated weekly to ensure proper operation.
- **Instructions:** Ensure unobstructed access to the eyewash. Activate eyewash each week for 2-3 minutes. Record date (mm/dd/yy) and initials. Go to **ehsd.tamu.edu** if problems are noted or for more information.
- Eyewash Location (Bldg/Room): _____

Week	Date	Initial	Week	Date	Initial
Week 01			Week 27		
Week 02			Week 28		
Week 03			Week 29		
Week 04			Week 30		
Week 05			Week 31		
Week 06			Week 32		
Week 07			Week 33		
Week 08			Week 34		
Week 09			Week 35		
Week 10			Week 36		
Week 11			Week 37		
Week 12			Week 38		
Week 13			Week 39		
Week 14			Week 40		
Week 15			Week 41		
Week 16			Week 42		
Week 17			Week 43		
Week 18			Week 44		
Week 19			Week 45		
Week 20			Week 46		
Week 21			Week 47		
Week 22			Week 48		
Week 23			Week 49		
Week 24			Week 50		
Week 25			Week 51		
Week 26			Week 52		

Activation Log