

# Emergency Eyewash and Safety Shower Guide

## Bryant University

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## 1.0 Purpose

This purpose of this guide is to ensure safe, properly functioning emergency eyewash and safety showers are accessible to employees at Bryant University where there is risk of exposure to hazardous materials. This guide is designed to meet the requirements of emergency including standards for location, installation, and inspection in accordance with Occupational Safety and Health Administration (OSHA) 29 CFR 1910.151(c) and 1910.1030(e)(3)(i) and the American National Standards Institute (ANSI) Z358.1-2014.

## 2.0 Scope

Per OSHA, emergency eyewash and safety shower units are required in the immediate work area where there is risk that someone may be exposed to injurious corrosive materials. The uniform standards for these emergency units are set forth by ANSI to ensure the units are properly maintained, inspected, accessible, and safe to use. ANSI defines a hazardous material as any substance or compound that has the capability of producing adverse effects on the health and safety of humans. While OSHA only requires these emergency units for corrosive materials, Bryant University management may use their discretion in installing units in areas where other hazardous materials may be present.

Emergency eyewash and safety showers are not meant to replace other work practice controls including the use of personal protective equipment (PPE).

## 3.0 Installation and Location

Units should always be installed per the manufacturer instructions and located on the same level of the hazard. Eyewash units should be installed in any work area where there is potential risk of exposure to the eyes to hazardous materials including infectious materials. Shower units should be installed in any work area where this is potential risk of exposure to larger parts of the body to hazardous materials, particularly corrosive materials. Units must be in a well-lit area, accessible within 10 seconds (about 55 feet) of the affected worker, without obstruction. Doors are considered an obstruction in most cases. Additionally, visible signage should be posted at all units.



If there is a possibility of freezing conditions, such as being outside, measures must be taken to prevent or protect the unit.

## 4.0 Performance

All units should be capable of delivering the required spray pattern within one second of operation and remain open without use of the operator's hands. Units must also maintain the spray pattern for at least 15 minutes with tepid flushing fluid (60-100°F). This may require a mixing valve in some units.

Eyewash units should be positioned so water is dispersed between 33-53" from the standing surface or floor and have a 6" clearance surrounding the unit. Nozzles and fluids must be protected from airborne contaminants. Removal of these protections should not require additional motion from the user (ie. Flaps that open when the unit is operational). Flow for these units should be between 0.4-3 gallons per minute (gpm) or at least 1.5 liters per minute to both eyes simultaneously without causing injury. There must also be enough space for an operator to be able to hold their eyelids open while using the unit. See **Appendix A** for spray pattern requirements of eyewash units. Test gauges should be available to measure the spray pattern of eyewashes.

Eye/face wash units must be able to provide a flow of 3-12 gallons per minute (gpm) or at least 11.4 liters per minute. All other standards of eyewashes apply to these units.

Shower units should be positioned so water is dispersed between 82-96" from the standing surface or floor. Valve actuators should be located 69" or less from the standing surface or floor. Flow for these units should be at least 20 gallons per minute (gmp) or 75.7 liters per minute. The spray pattern should have a diameter of 20" at 60" from the standing surface or floor and have a 16" clearance from the center of the spray. See **Appendix A** for spray pattern requirements.

Drench hoses may also be used and can be considered an eyewash or safety shower so long as it meets the requirements for those respective units.



## 5.0 Flushing and Inspection

Plumbed units should be flushed weekly to verify operation and ensure fluid is available and free from sediment or other contamination. Self-contained units should be visually inspected to see if flushing fluid needs to be replaced or refilled. When flushing or visually inspecting these units, check for cleanliness and accessibility and remove any obstructions.

See **Appendix B** for complete inspection reference guides. These should be documented, and any issues should be addressed immediately. Bryant Universities Facilities department completed monthly testing of the eyewash units and an annual test of the safety showers.

## 6.0 Other Considerations

Refer to Bryant University's **Chemical Hygiene Plan**, **Personal Protective Equipment Program**, and any other department or work specific standard operating procedures (SOP) for exposure/injury response, reporting guidelines, and waste disposal for contaminated flushing fluid, personal protective equipment, etc. Refer to chemical Safety Data Sheets (SDS) prior to working with any hazardous materials, in alignment with Bryant's **Hazard Communication Program**.

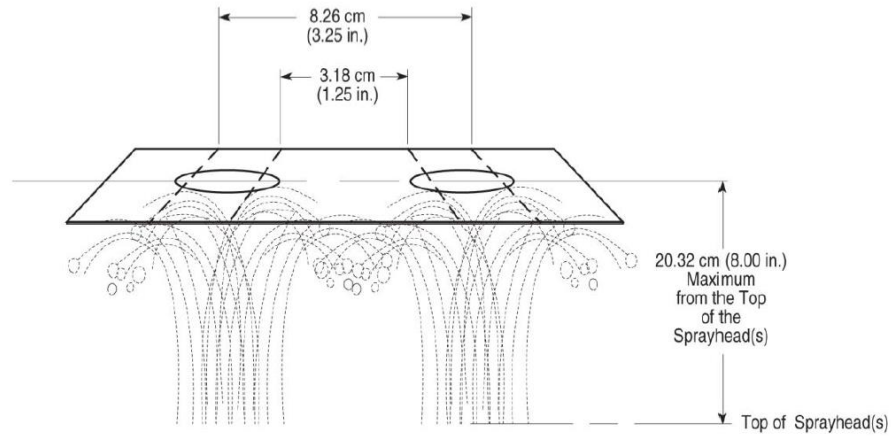
## 7.0 Training

Employees and students who may potentially be exposed to hazardous materials should be trained on the location and proper use of emergency eyewash and shower units. Any employee who is inspecting, installing, or selecting eyewash and safety shower equipment should also be familiar and trained on the contents of this guide.



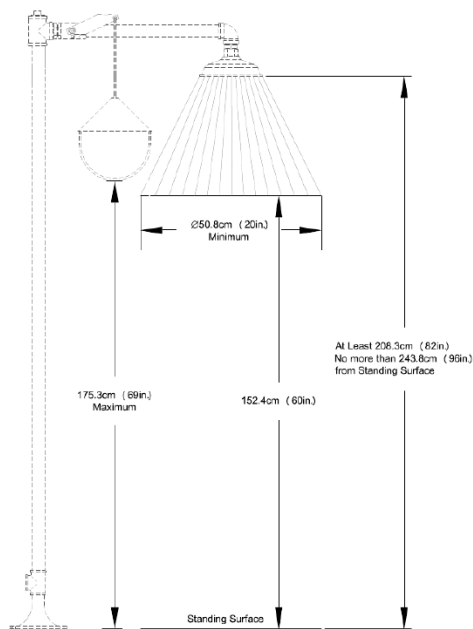
## Appendix A: Spray Patterns

### Eyewash Spray Pattern



ANSI/ISEA Z358.1-2014

### Shower Spray Pattern





## Appendix B: Inspection References

### Eyewash Inspection

Valve Operation z358.1-2014 (5.2)	Nozzle Protection z358.1-2014 (5.1.3)	Flow Activation z358.1-2014 (5.2)	Flow Rate z358.1-2014 (5.1.6)	Temperature z358.1-2014 (5.4.6)	Clarity z358.1-2014 (5.1.2)&(5.5.2)	Water Spray z358.1-2014 (5.1.8)	Height z358.1-2014 (5.4.4)	Clearance z358.1-2014 (5.4.4)	Signage z358.1-2014 (5.4.3)
Does valve open in one second and stay open without assistance	Are nozzles protected from airborne contamination	Means of Nozzle protection does not require separate motion for removal	(0.4-gpm minimum for 15 minutes)	(60-100°F)	Water must be transparent with no particulates	Water must completely cover eyewash inspection gauge at no more than 1.5" below fluid peak	Floor to eyewash eyelets (33" to 53")	Must be unobstructed (6" min. from nozzles to nearest obstruction)	Signage must be visible from all work stations

### Safety Shower Inspection

Valve Operation z358.1-2014 (4.2)	Flow Rate z358.1-2014 (4.1.2)	Temperature z358.1-2014 (4.5.6)	Clarity z358.1-2014 (4.6.2)	Water Spray z358.1-2014 (4.1.4)	Height z358.1-2014 (4.1.3)	Activator Height z358.1-2014 (4.2)	Clearance z358.1-2014 (4.1.4)	Signage z358.1-2014 (4.5.3)
Does valve open in one second and stay open without assistance	(20-gpm minimum for a minimum of 15 minutes)	(60-100°F)	Water must be transparent with no particulates	Water must hit all sides of chute at 60" high (20"w@ 60"h)	Floor to shower head base (82" - 96")	69" max	Must have 16" of clearance from center of spray on all sides	Signage must be visible from all work stations