RHODE ISLAND COLLEGE

EMERGENCY EYEWASH AND SAFETY SHOWER GUIDE

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Reviewed and Updated
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Contents

1.0 Purpose

This purpose of this guide is to ensure safe, properly functioning emergency eyewash and safety showers are accessible to employees at Rhode Island College 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, Rhode Island College 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).

See the list of Emergency Contacts in **Appendix A**.

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 B** 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 B** 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.

Rhode Island College completes semi-annual inspections to confirm all units are in compliance with all ANSI Z358.1-2014 standards. See **Appendix C** for complete inspection reference guides. These should be documented, and any issues should be addressed immediately. A master inspection list is provided in **Appendix D** and is completed for Pass/Fail based on the inspection references in **Appendix C**.

6.0 Other Considerations

Refer to Rhode Island College's **Emergency Action Plan**, **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 the RIC's **Hazard Communication Program**.

7.0 Training

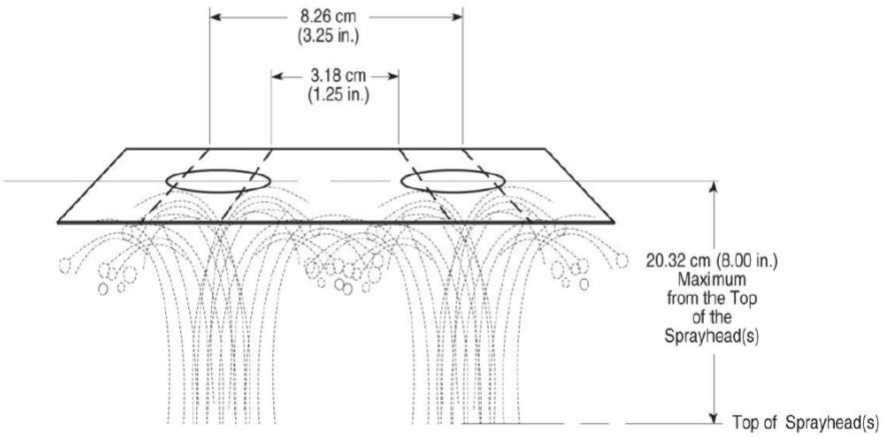
Employees who may potentially be exposed to hazardous materials should be trained on the location and proper use of emergency eyewash and shower units. Any employee who is inspecting, installing, or selecting eyewash and safety shower equipment should also be familiar and trained on the contents of this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

Appendix A: Emergency Contact List

Title	Name	Contact Info
Interim Director of Facilities and Operations	Greg Gammell	(401) 456-9788 ggammell@ric.edu
Associate Director of Facilities and Operations		(401) 456-8537
Campus Police Director of Security and Safety/Chief of Campus Police	Col. James Mendonca	(401) 456-8888 jmendonca@ric.edu
Health Services Director of Health Services	Dr. Marie Wilks	(401) 456-8055 mwilks@ric.edu
Facilities and Operations Administrative Officer	Julie Teixeira	(401) 456-8262 jteixeira@ric.edu

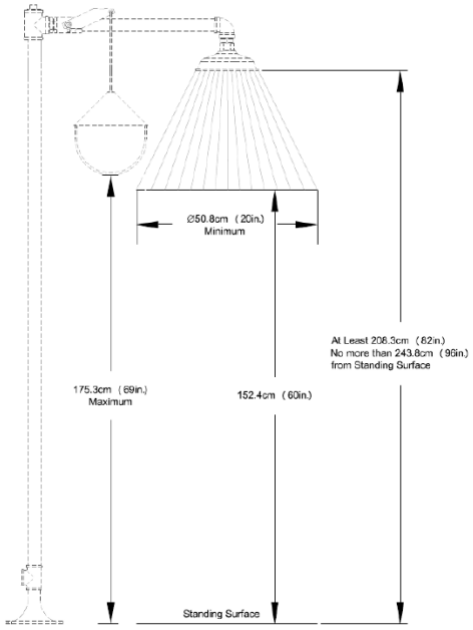
Appendix B: Spray Patterns

A: Eyewash Spray Pattern



ANSI/ISEA Z358.1-2014

B: Shower Spray Pattern



ANSI/ISEA Z358.1-2014

Appendix C: 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 minium 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

Appendix D: Eyewash and Safety Shower Inspection List

Clarke Science

Room Number	Access	Eyewash	Location	Pass/Fail	Safety Shower	Location	Pass/Fail
B6 (Mechanical)		Yes			No		
MAA	Key	Bottle	In Tote		No		
106	Secretary	Yes (2)	Door; Sink		Yes	Door	
106P (Prep Room)	Thru 106	Yes	Sink		No		
115	Key	Yes			No		
118	Key	Yes	Sink		Yes	Door	
119	Key	Yes	Bottle		No		
122	Key (DPS?)	Yes			No		
211	Badge	Yes (4)	Sinks; Door		Yes (2)	Doors	
211A (Stockroom)	Thru 211	Yes	Sink		No		
212	Key	Yes	Sink		Yes	Door	
213	Badge	Yes (2)	Sink; Door		Yes	Door	
213A	Badge	Yes	Sink; Door		Yes	Door	
214	Key	Yes	Sink		Yes	Door	
216	Key	Yes (Bottle)	Sink		Yes	Door	
217	Key	Yes	Sink		Yes	Door	
218	Key	Yes	Sink		Yes	Door	
220	Key	Yes	Sink		No		

Fogarty Life Science

Room Number	Access	Eyewash	Location	Pass/Fail	Safety Shower	Location	Pass/Fail
57	Key (Ken)	Yes	Sink		No		
59	Key (Ken)	Yes	Between A & B		Yes	Between A & B	
59A	Key (Ken)	Yes	Sink		No		
59B	Key (Ken)	Yes	Sink		No		
60	Key (Ken)	Yes	By Hood		Yes	By Hood	
103	Key (Ken)	Yes	By Fridge		Yes	By Fridge	
105	Key (Ken)	Yes	Sink		No		
107	Key (Ken)	Yes	By Door		Yes	By Door	
109	Key (Ken)	Yes	Sink		No		
123	Key (Ken)	Yes	Sink		No		
127	Badge	Yes	Sink		No		
201	Key (Ken)	Yes	Sink		No		
207	Key (Ken)	Yes	Sink		No		
214	Key (Ken)	Yes	Sink		No		
223	Key (Ken)	Yes			No		
224	Key (Ken)	Yes			No		
225	Key (Ken)	Yes			No		
227	Key (Ken)	Yes	By Door		Yes	By Door	
228	Key (Ken)	Yes			No		
230	Key (Ken)	Yes			No		
231	Key (Ken)	Yes	Sink		No		
240	Key (Ken)	Yes			No		
242	Key (Ken)	Yes	By Door		Yes	By Door	
254 (Stockroom)	Key (Ken)	Yes			No		

Alex & Ani

Room Number	Access	Eyewash	Location	Pass/Fail	Safety Shower	Location	Pass/Fail
103	Key (Crandon)	Yes	Sink				
103A	Key (Crandon)	Yes	By Door		Yes	By Door	
104	Key (Crandon)	No					
105	Key (Crandon)	Yes	Sink				
105D	Key (Crandon)	Yes	Sink				
105E	Key (Crandon)	Yes	Sink				
105F	Key (Crandon)	Yes	Sink				
105G	Key (Crandon)	Yes	By Spray Booth		Yes	By Spray Booth	
105H	Key (Crandon)	Yes	Sink				
105J	Key (Crandon)	Yes	Sink				
106	Key (Crandon)	Yes	Sink				
106D	Key (Crandon)	Yes	By Sandblaster		Yes	By Sandblaster	
107	Key (Crandon)	Yes					
110	Key (Crandon)				Yes		
117	Key (Crandon)	Yes	Sink				
121	Key (Crandon)	Yes	Sink				
134E	Key (Crandon)	Yes	Sink/Photo		Yes	Sink/Photo	
134G	Key (Crandon)	Yes	Left of Doorway		Yes	Left of Doorway	
201	Key (Crandon)	Yes	Sink				
203 / 205	Key (Crandon)	Yes	By 203 Door				
Basement		Yes			Yes		

Other Locations

Room Number	Access	Eyewash	Location	Pass/Fail	Safety Shower	Location	Pass/Fail
Physical Plant Basement	?	Yes			No		
Boiler Basement		Yes	Lower level; by chemical		No		
Rec Center		Yes	By chlorine/pool		No		
Browne Hall Exam Room	?	Yes	Sink		No?		