



A Comprehensive Guide to ANSI/ISEA Z358.1 and Emergency Shower/Eyewash Compliance

The session will begin promptly at _____



PPSA Antitrust Statement

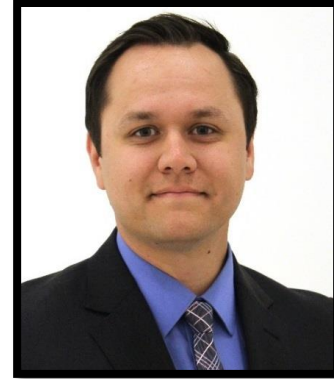
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YOUR HOSTS

Justin Dunn

Senior Field Marketing Specialist



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TODAY'S TOPICS & EXPECTED OUTCOMES

TOPICS

- Current State
- Why It Matters
- ANSI Z358.1 Key Requirements
- Common Issues In Your Facilities (Real World)
- What You Can Do About it

EXPECTED OUTCOMES FOR YOU...

- More familiar with Key ANSI Requirements
- Greater Awareness of Common Issues Putting You & Your People at Risk
- 4 Steps You Can Take to Mitigate Risk

QUESTIONS

Post questions at any time during the presentation using the **Questions** section on control panel.

Any questions that cannot be addressed during Q&A will be answered either via email or in the follow-up email.

This webinar will be recorded and available on-demand



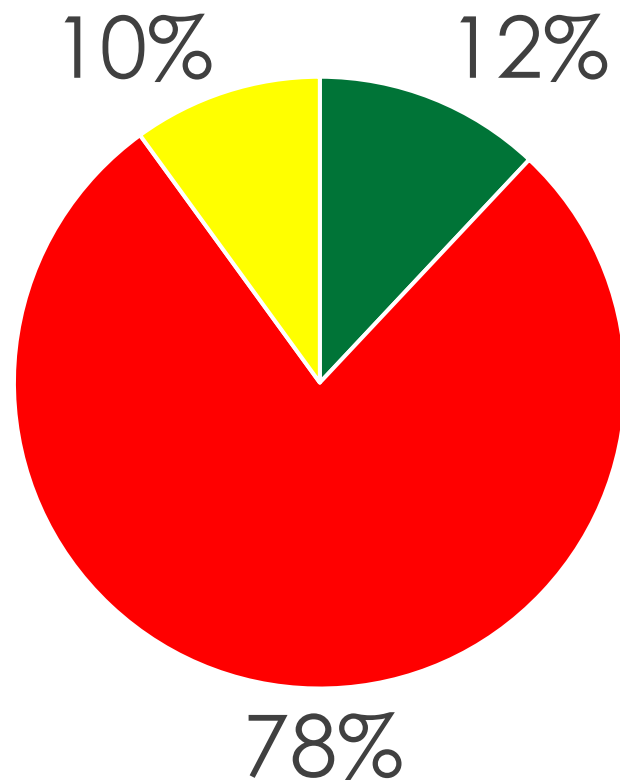
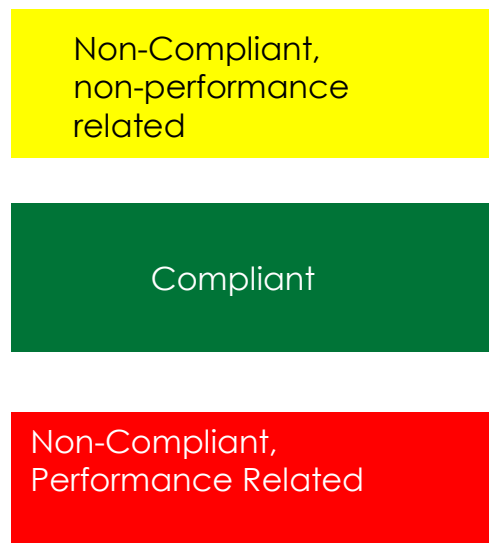
DAILY DOSE OF REALITY....



Is Today Your Lucky Day?

RESEARCH FINDINGS – ALL INDUSTRIES

LEVEL OF COMPLIANCE



Based on 1,500+ Sites, 20,000+ Assets

DAILY DOSE OF REALITY....

1

In

4

Chance

of accessing properly
functioning equipment



RESEARCH FINDINGS - PULP & PAPER INDUSTRY

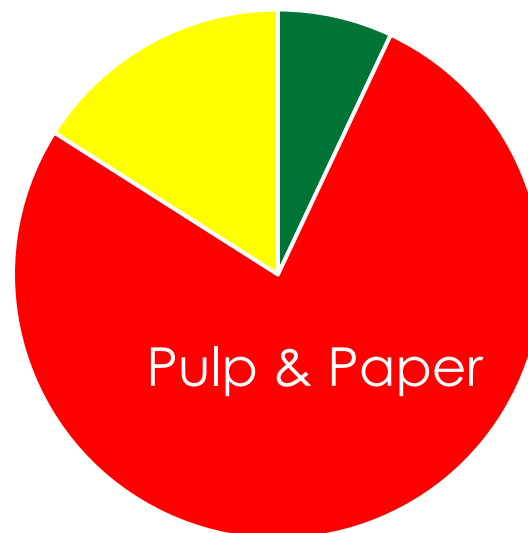
10% 12%



All Industries

78%

16% 6%



Pulp & Paper

77%

* 42 Sites, 1,177 Units

Non-Compliant –
NOT performance related

Compliant

Non-Compliant,
Performance Related

DAILY DOSE OF REALITY....



Is Today Your Lucky Day?

DAILY DOSE OF REALITY....



1



2



3

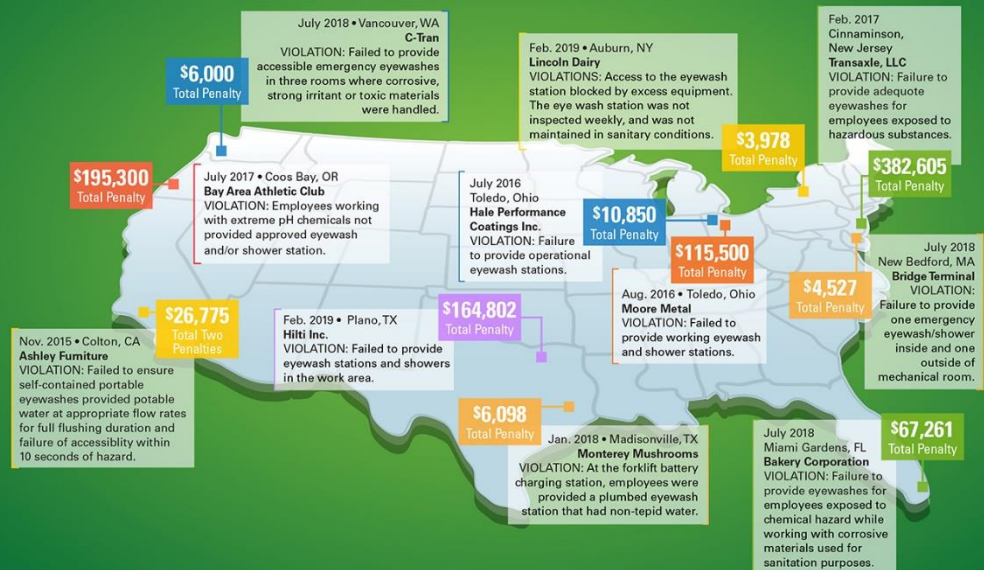


4

WHY IT MATTERS

In 2016, OSHA increased its penalties for the first time in 25 years.

OSHA FINES [For Emergency Response Equipment]



WHY IT MATTERS

Acid Burns



Proper first aid vs. not;
Deep Tissue Burns

University of Wisconsin, School of Engineering Study



Proper first aid vs. not;
Days in Hospital

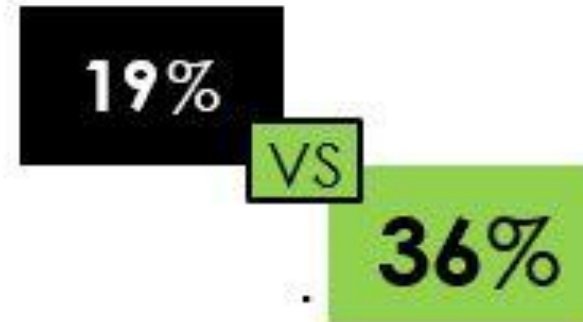
WHY IT MATTERS....

Alkali Burns



Proper first aid vs. not;
Mortality Rates

University of Wisconsin, School of Engineering Study



Proper first aid vs. not;
Skin Grafts

WHY IT MATTERS

*Ensuring the state of “readiness”
of emergency equipment can
make a major difference in
outcomes!*

Emergency
Equipment is all
about

Reliability!



WHY IT MATTERS...

20,000 workplace eye injuries happen each year.



Alkali injury: these potentially devastating injuries need urgent irrigation and referral



7-10%
of eye injuries
are caused by
chemicals**

*U.S. Bureau of Labor Statistics - 2017

*Occupational Safety and Health Research Institute, South Korea, 2017

WHY IT MATTERS....

STAKEHOLDER
INTER-DEPENDENCE



POLL QUESTION

1

OVERVIEW & SIGNIFICANT REQUIREMENTS



OSHA & ANSI

- **OSHA & Emergency Shower & Eyewash Requirements**

The Occupational Safety and Health Administration (OSHA) is the agency responsible for regulating emergency shower and eyewash facilities

- **OSHA's Standard**

29 CFR 1910.151(c) Medical Services and First Aid.

"Where 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"

WHAT IS THE ANSI/ISEA Z358.1 - 2014 STANDARD?

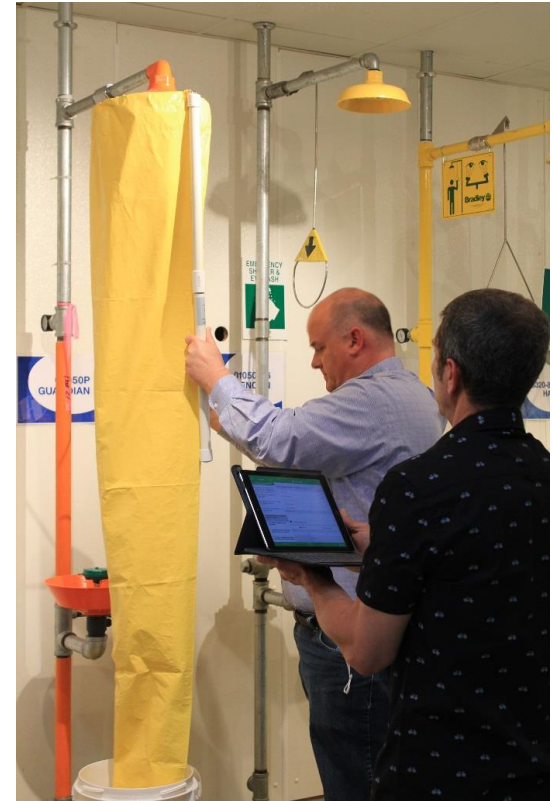
- Written by the International Safety Equipment Association (ISEA), ANSI defines emergency eyewash and shower design, location and temperature requirements for proper functionality and usage
- **OSHA references the ANSI Standard** during site inspections and violation reporting and is the recognized source of guidance to comply with OSHA 1910.151(c)



WEEKLY TESTING VS. ANNUAL INSPECTION

ANSI WEEKLY MINIMUM PERFORMANCE REQUIREMENTS

1. Emergency equipment shall be activated weekly
2. Activation shall ensure flow of water to the head(s) of the device
3. Duration of the activation shall be sufficient to ensure all stagnant water is flushed from the unit itself and all sections of piping that do not form part of a constant circulation system (*also known as “dead leg” portions*)



WEEKLY TESTING VS. ANNUAL INSPECTION

ANSI ANNUAL INSPECTION REQUIREMENTS

All emergency eyewashes, eye/face washes, showers and combination units are required to be fully inspected annually to ensure conformance with the installation section of the Z358.1 standard for that type of equipment

ANSI Z358.1- 2014 SAFETY EQUIPMENT TESTING REQUIREMENTS • ANNUAL MINIMUM PERFORMANCE CHECKLIST

2014 REVISIONS INDICATED IN ORANGE. Requirements for Weekly Testing are indicated with (w).

- ☐ All shower units shall be inspected **ANNUALLY** to assure conformance with ANSI Z358.1. Recommended Testing Flow Pressure is 30 psi (+.5 psi – .0 psi).

LOCATION

- ☐ Emergency equipment shall be activated **weekly**.
- ☐ Safety station shall be accessible within 10 seconds of hazard, approximately 55 ft (16.8 m). (Sec. 4.5.2, 5.4.2, 6.4.2, 7.4.2) (w)
- ☐ Safety station shall be located on the same level as the hazard and the path of travel shall be free of obstructions. (Sec. 4.5.2, 5.4.2, 6.4.2, 7.4.2) (w)
- ☐ Emergency equipment location shall be well lit and identified with a highly visible sign. (Sec. 4.5.3, 5.4.3, 6.4.3, 7.4.3) (w)
- ☐ All employees subject to exposure to hazardous material should be instructed in the location and proper use of emergency equipment. (Sec. 4.6.4, 5.5.4, 6.5.4, 7.5.4)

COMBINATION UNIT

- ☐ Combination unit components shall be capable of operating simultaneously and shall be positioned so that components may be used simultaneously by the same user. (Sec. 7.3, 7.4.4) (w)

DRENCH HOSE

- ☐ Drench hose must deliver a controlled flow of flushing fluid at a velocity low enough to be non-injurious. (Sec. 8.2.1)
- ☐ A drench hose can only be considered an eyewash – eye/face wash if it meets performance requirements in Sec. 5 and/or 6.

TEMPERATURE

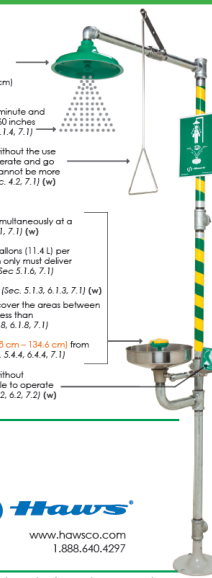
- ☐ Deliver tepid flushing fluid.* (Sec. 4.5.6, 5.4.6, 6.4.6, 7.4.6)
*Suggested temperature range – above 60°F (16°C) and below 100°F (38°C).

SHOWER

- ☐ Showerhead must be 82 to 96 inches (208.3 cm – 243.8 cm) above surface floor of user. (Sec. 4.1.3, 7.1)
- ☐ Shower must deliver minimum of 20 gallons (75.7 L) per minute and provide a column of water 20 inches (50.8 cm) wide at 60 inches (152.4 cm) above the surface floor of user. (Sec. 4.1.2, 4.1.4, 7.1)
- ☐ Shall be designed so that the flushing flow remains on without the use of the operator's hands. The valve shall be simple to operate and go from "off" to "on" in one second or less and actuator cannot be more than 69 inches (173.3 cm) from surface floor of user. (Sec. 4.2, 7.1) (w)

EYEWASH / EYE/FACE WASH

- ☐ Must provide a means of controlled flow to both eyes simultaneously at a velocity low enough to be non-injurious. (Sec. 5.1.1, 6.1.1, 7.1) (w)
- ☐ Eye/face wash equipment must deliver minimum of 3 gallons (11.4 L) per minute of water for 15 minutes. (Sec. 6.1.6, 7.1) Eyewash only must deliver minimum of 4 gallon (15.3 L) per minute for 15 minutes. (Sec. 5.1.6, 7.1)
- ☐ Outlets shall be protected from airborne contaminants. (Sec. 5.1.3, 6.1.3, 7.1) (w)
- ☐ The flushing fluid of an eyewash – eye/face wash shall cover the areas between the interior and exterior lines of a gauge of same point less than 8 inches (20.3 cm) above the eyewash nozzle. (Sec. 5.1.8, 6.1.8, 7.1)
- ☐ Flushing fluid flow pattern should be 33 to 53 inches (83.8 cm – 134.6 cm) from floor and minimum of 6 inches (15.3 cm) from wall. (Sec. 5.4.4, 6.4.4, 7.1)
- ☐ Shall be designed so that the flushing flow remains on without the use of the operator's hands. The valve shall be simple to operate and go from "off" to "on" in one second or less. (Sec. 5.2, 6.2, 7.2) (w)



DATE _____ PREPARED BY _____

COMPANY _____

LOCATION _____ MODEL _____

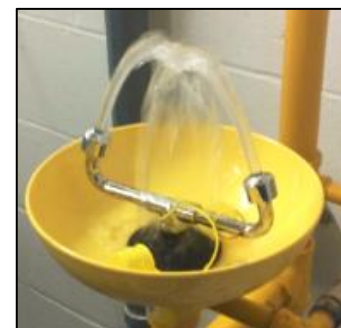
COMMENTS _____


www.hawsco.com
1.888.640.4297

Please note that Haws Corporation® manufactures and sells emergency equipment and is not licensed or accredited as a health and/or safety specialist. Accordingly, you may wish to enlist the services of an accredited expert concerning compliance to the ANSI Z358.1 emergency equipment standards. Surveys conducted by a representative of the Haws Corporation are not intended as accredited safety review and are not to be relied upon for that purpose.

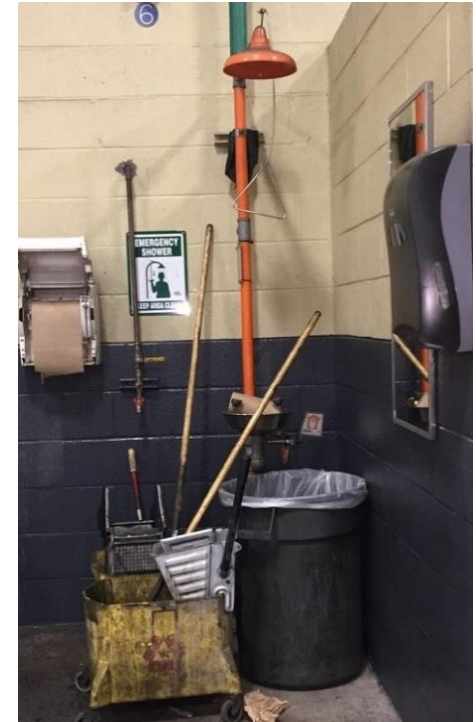
CORRECT EQUIPMENT FOR THE HAZARD

- **Eyewash:** Wood shavings, dust, airborne particulates
- **Eye/Face Wash:** Minor incidents affecting only the eyes & face
- **Drench Shower:** PPE decontamination
- **Combination Unit:** Chemical exposure of eyes, face, and body



SIGNIFICANT REQUIREMENTS - ACCESS

- **REQUIREMENT:**
Be accessible within 10 seconds / 55 ft
Proximity to hazard
- **REQUIREMENT:**
Be located on the same level as the hazard
Same level as hazard (no stairs or different floor)
- **REQUIREMENT:**
Be free of obstructions
No obstructions in the path of travel (hoses, piping)



SIGNIFICANT REQUIREMENTS – VISIBILITY

- **REQUIREMENT:**
Be well lit and easily identifiable with highly visible signage
- Proper signage and adequate lighting for the area
- **REQUIREMENT:**
Deliver flushing fluid for a full 15 minutes
- Run each piece of equipment for a full 15 minutes



SIGNIFICANT REQUIREMENTS – DUST COVERS

- **REQUIREMENT:**
Outlets shall be protected from airborne contaminants

Ensure all heads of the device and stored flushing fluid is covered



- **REQUIREMENT:**
Dust covers must be self-removing

Activate the unit and ensure dust covers come off without assistance

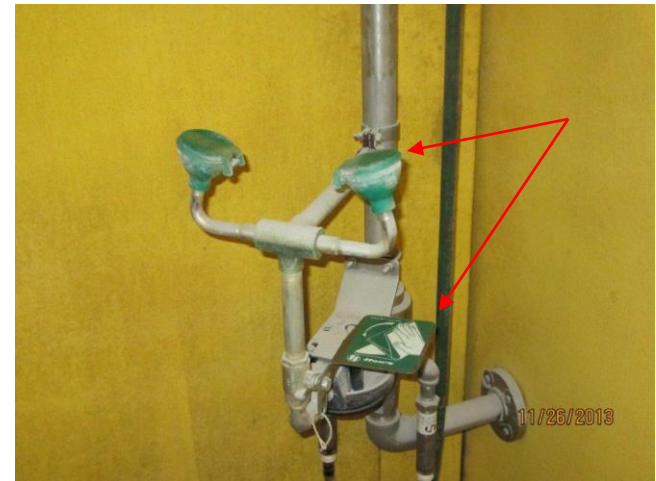


SIGNIFICANT REQUIREMENTS – ACTIVATION

- REQUIREMENT:**

Go from “off” to “on” in one second or less and remain on without the use of the operator’s hands (*misconception – one motion)

Ensure water flows in 1 second or less when you activate the unit.



SIGNIFICANT REQUIREMENTS – FLOW RATES



Eyewashes

Flow must deliver a minimum of .4 gallons per minute (1.5 liters)



Eye/Face Washes

Flow must deliver a minimum of 3 gallons per minute (11.4 liters)



Drench Showers

Flow must deliver a minimum of 20 gallons per minute (75.7 liters)

SIGNIFICANT REQUIREMENTS – FLOW RATES



Eyewashes

Flow must deliver a minimum of .4 gallons per minute (1.5 liters)



TOO LITTLE
FLOW

Eye/Face Washes

Flow must deliver a minimum of 3 gallons per minute (11.4 liters)



Drench Showers

Flow must deliver a minimum of 20 gallons per minute (75.7 liters)

SIGNIFICANT REQUIREMENTS – FLOW RATES

- **REQUIREMENT:**
Must provide a controlled flow of flushing fluid at a velocity low enough to be non-injurious to the user
- Flow rate from the shower



SIGNIFICANT REQUIREMENTS – FLOW RATES

- **REQUIREMENT:**
Must provide a controlled flow of flushing fluid at a velocity low enough to be non-injurious to the user
- Flow rates from the eye or eye/face wash

TOO MUCH FLOW
(INJURIOUS)



SIGNIFICANT REQUIREMENTS – FLOW PATTERN

- REQUIREMENT:**

Flushing Flow Pattern: Eye/face wash flushes both eyes simultaneously within the gauge guidelines. Flushing shall cover the areas between the interior and exterior of a gauge at some point less than 8 inches (20.3) above the eyewash nozzle



UNEQUAL FLOW PATTERN

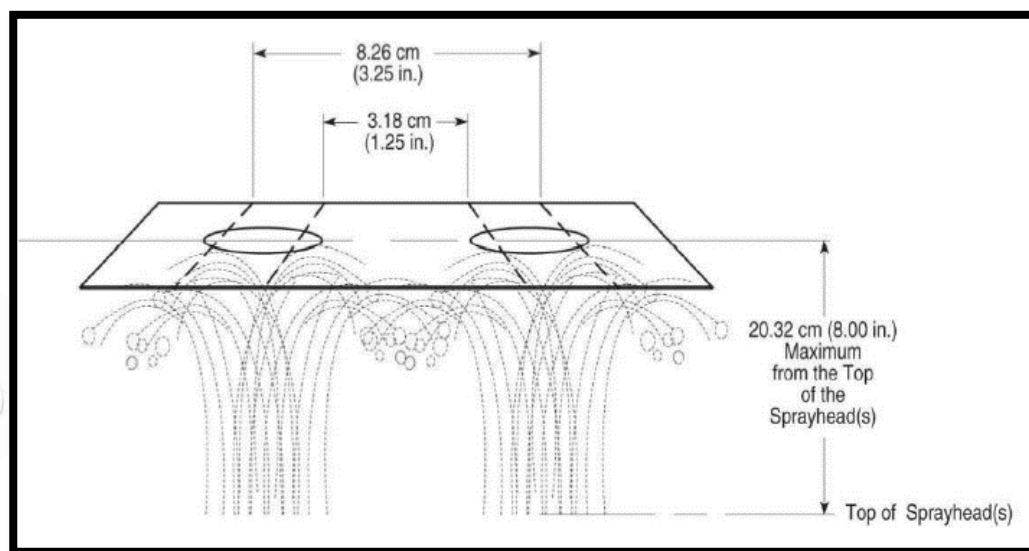
SIGNIFICANT REQUIREMENTS – FLOW PATTERN

- REQUIREMENT:**

Flushing shall cover the areas between the interior and exterior of a gauge at some point less than 8 inches (20.3) above the eyewash nozzle



Haws model
9015 Eyewash
Gauge



SIGNIFICANT REQUIREMENTS – FLOW PATTERN

- **REQUIREMENT:**
Flow

TEST: This can be tested at the same time as the 8 inches or less confirmation. Place eyewash gauge while unit is activated and ensure the water hits the eye circles on the gauge at some point less than 8 inches



SIGNIFICANT REQUIREMENTS – FLOW PATTERN

- **REQUIREMENT:**
Shower flow pattern
- Shower must provide a column of water 20 inches (50.8 cm) wide at 60 inches (152.4 cm) above the floor surface of the user and be 16 inches from any obstruction (from the center of the column)



Compliant



Non-Compliant

SIGNIFICANT REQUIREMENTS – SIMULTANEOUS USE

- **REQUIREMENT:**
Combination unit components shall be capable of operating simultaneously so that components may be used simultaneously by the same user
- Activate both eyewash and showerhead together and ensure minimum (23 GPM) requirements are achieved and both maintain flow rates.



**LOSS OF FLOW WHEN
SHOWER ACTIVATED
AT SAME TIME**



SIGNIFICANT REQUIREMENTS – SIMULTANEOUS USE

- **REQUIREMENT:**

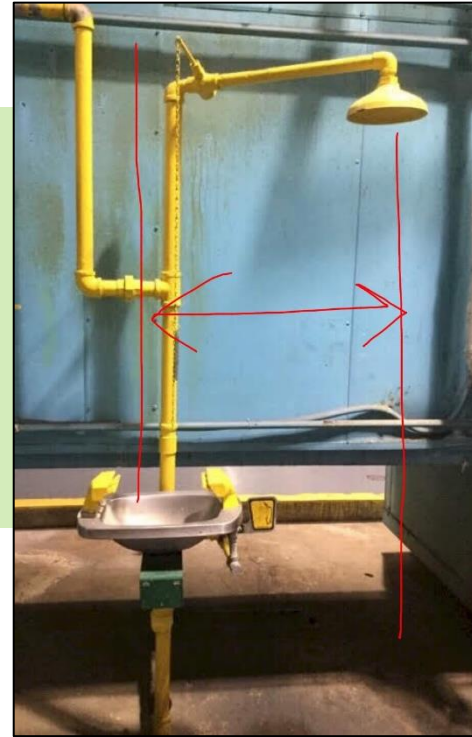
Combination unit components *shall be positioned so that components may be used simultaneously by the same user*

- Shower must be located directly above the eye/face wash for simultaneous use

THIS...



NOT THIS



SIGNIFICANT REQUIREMENTS – TEPID WATER

- **REQUIREMENT:**
Deliver tepid flushing fluid between 60°F - 100°F (16°C - 38°C)

75% of ophthalmologists say that having tempered water is very important, citing it increases the chances that a victim can tolerate the 15-minute flush required.*



WHAT ARE THE SIGNIFICANT REQUIREMENTS?

Check For the Need For Freeze Protection

REQUIREMENT:

Where the possibility of freezing conditions exist, the unit shall be protected from freezing or freeze protected equipment shall be installed

- Address sub-freezing temperatures and any process that may create a freezing environment



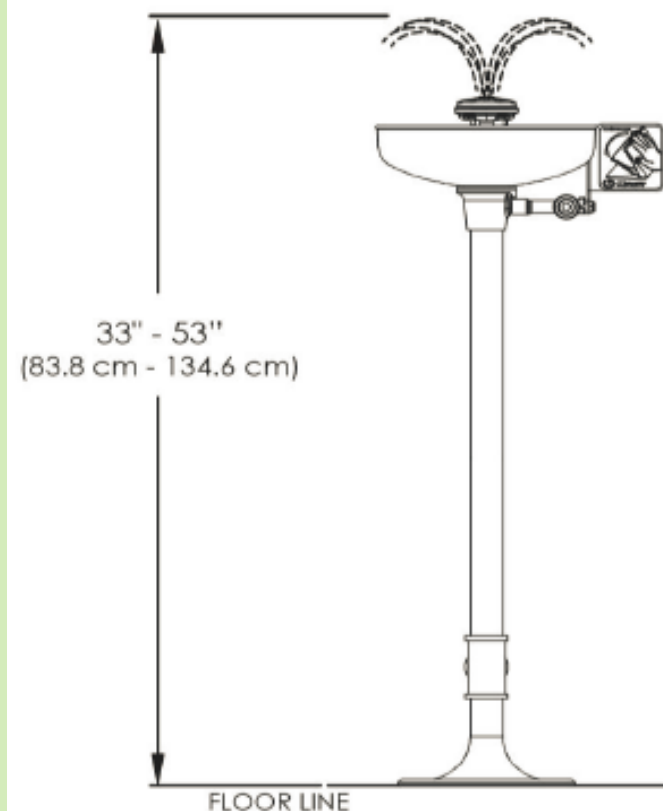
*8315CTFP

SIGNIFICANT REQUIREMENTS – EYE WASH INSTALLATION

- **REQUIREMENT:**
Be arranged such that the flushing fluid flow pattern is not less than **33 inches (83.8 cm)** and no greater than **53 inches (134.6 cm)** from the surface floor of the user

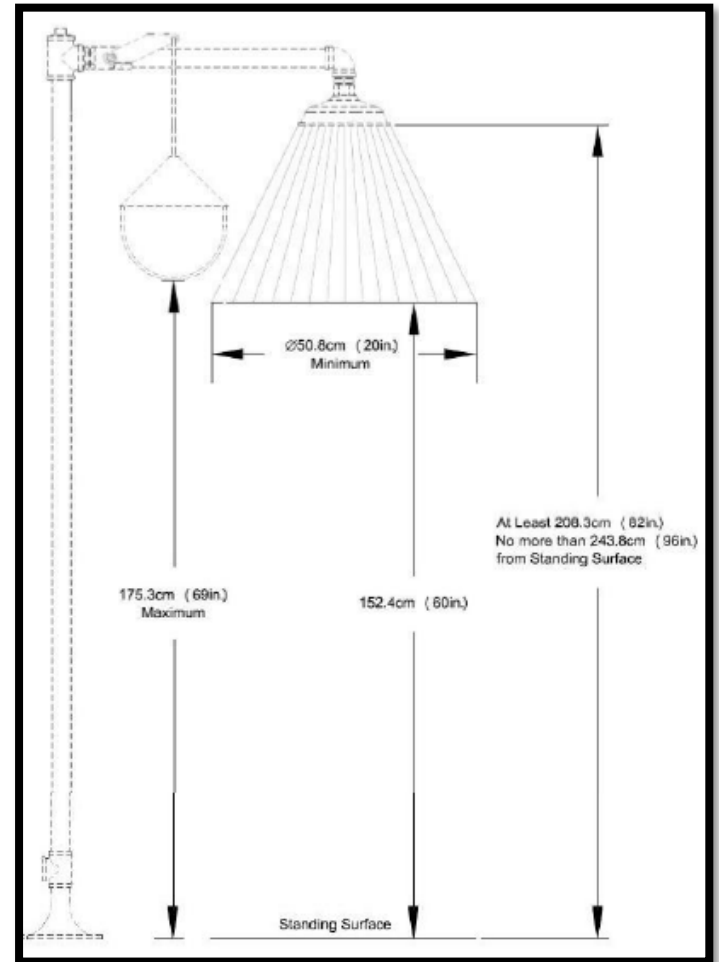
(2009 STANDARD: 45 IN. MAX MEASURED TO THE HEADS OF THE DEVICE.)

- **REQUIREMENT:**
Minimum distance the eye/face wash heads from the wall is 6 in. (15.2 cm)



SIGNIFICANT REQUIREMENTS – SHOWER INSTALLATION

- **REQUIREMENT:**
Showerhead must be 82 to 96 inches (208.3 cm – 243.8 cm) above the surface floor of the user
- The distance from the surface floor of the user to the bottom of the shower head
- **REQUIREMENT:**
Pull rod must not exceed a maximum height of 69" from the surface floor of the user
- The distance from the surface floor of the user to the bottom of the pull rod



SIGNIFICANT REQUIREMENTS – OTHER CONSIDERATIONS

Appendix B5

Installation Considerations

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

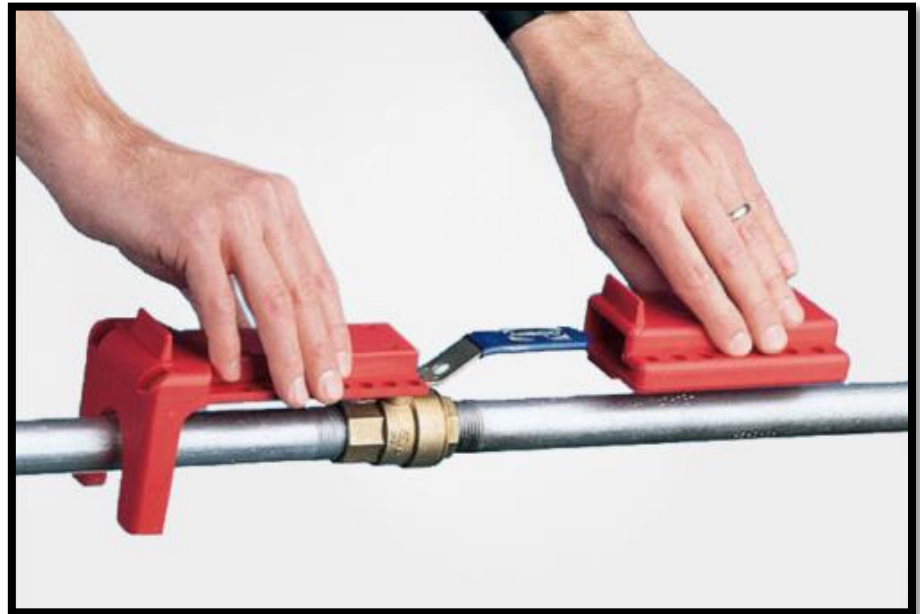


SIGNIFICANT REQUIREMENTS – OTHER CONSIDERATIONS

- **REQUIREMENT:**

If shut off valves are installed in the supply line for maintenance purposes, provisions shall be made to prevent unauthorized shut off

- Shut off valves must be locked out or a locking valve is in place and locked



NEW ADDITIONS / REVISIONS

Appendix B5

Installation Considerations

A door does not constitute an obstruction if it meets the following requirements.

- It is non-locking
- The doors open in the direction of the emergency equipment
- The hazard is non-corrosive
- They are push bar / panic bar activated



POLL QUESTION

2

STEPS YOU CAN TAKE

Four Simple Steps To ANSI Compliance/Reliability

Step 1:

Know your current state - understand the issues and "know what you don't know"

Step 2:

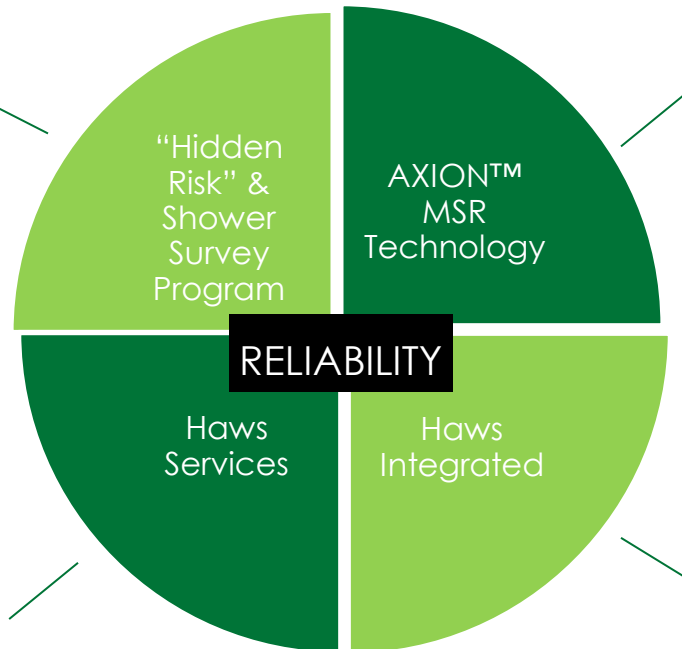
Retrofit/replace what needs fixing – get working right.

Step 3:

Once units are working, focus on tempered water - no point tempering non-compliant EE

Step 4:

Ensure proper weekly & annual inspections thru training and/or outsourcing.



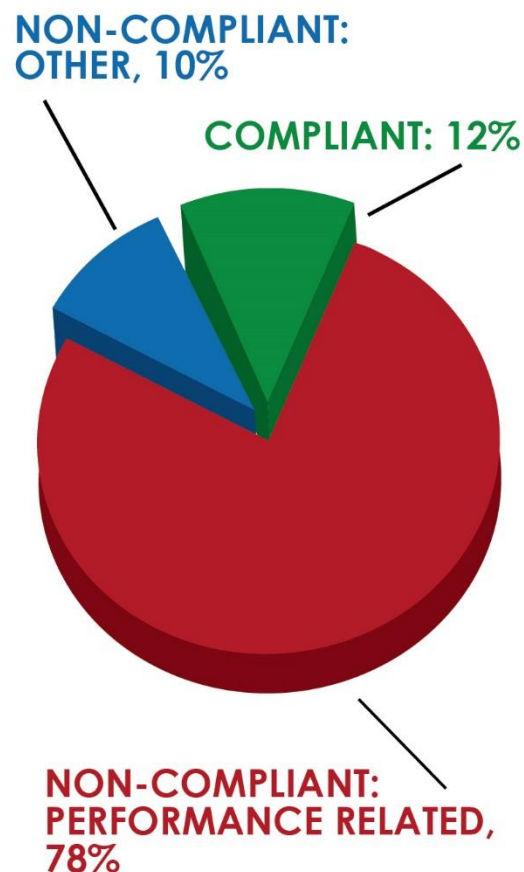
ANSI EMERGENCY SHOWER & EYEWASH SURVEY PROGRAM

COMPLIMENTARY EMERGENCY SHOWER AND EYE/FACE WASH SURVEY

Offering includes:

- One full day of inspections
- Inspection report
- Executive summary chart
- Recommendations
- Debriefing meeting/web conference
- Restrictions apply

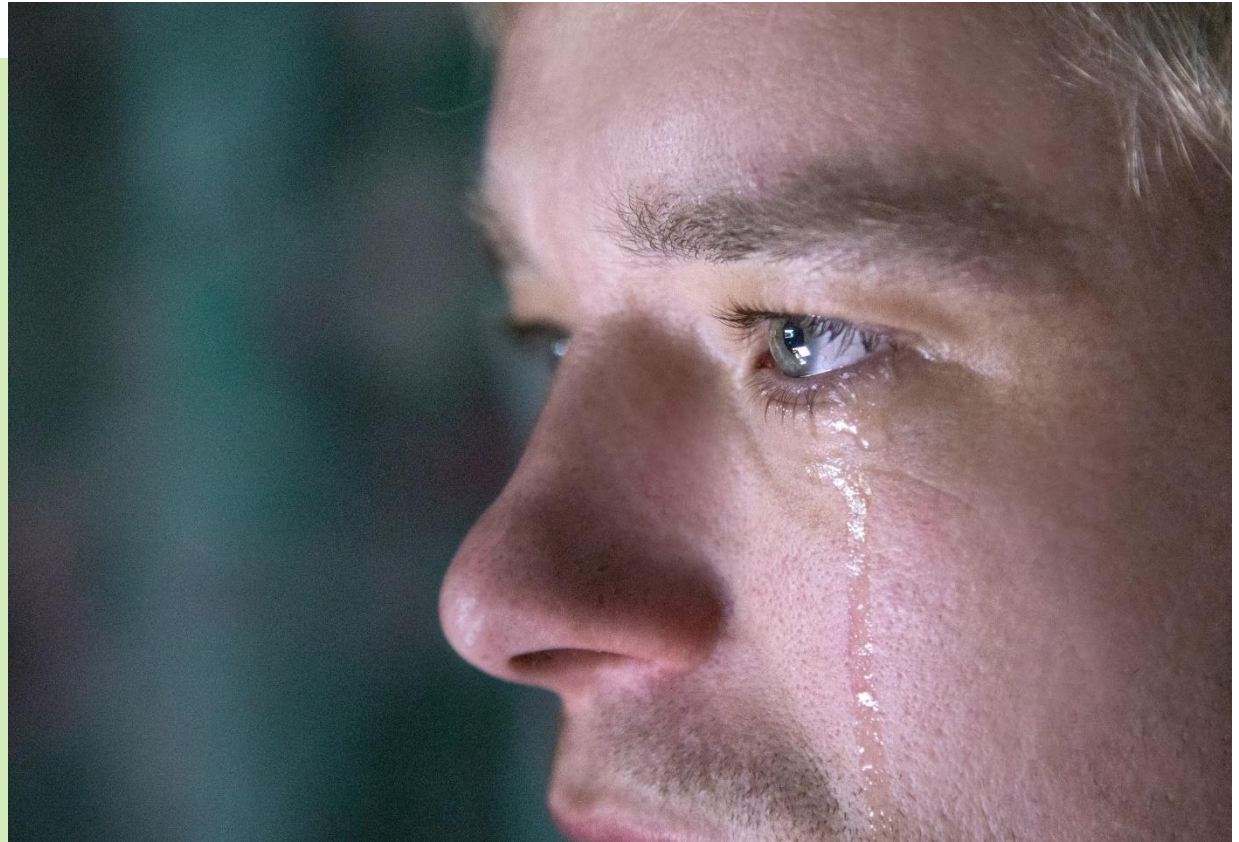
Visit www.hawesco.com/survey
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Based on independent evaluation of 1000+ emergency units

WHY IT MATTERS....

How
Would
you
feel?





QUESTIONS & ANSWERS

Post questions at any time using the **Questions** section on control panel. Not all questions will be answered at this time

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