



A Guide to the  
ANSI/ISEA Z358.1-2014 International Standard  
for Emergency Eyewash and  
Shower Equipment



# HUGHES



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Emergency safety showers and eye/face wash units provide the first line of defence in the event of a chemical splash or spillage. Any delay in treating a casualty can result in more serious injury with long-term consequences. Choosing the right emergency safety shower is essential and there are many fundamental points to consider.

The internationally recognised American National Standard, ANSI/ISEA Z358.1-2014 provides uniform minimum requirements for the performance, use, installation, testing, maintenance and training of emergency safety shower and eyewash equipment.

The following summary presents the main points for consideration to assist health and safety specifiers in understanding the ANSI/ISEA Z358.1-2014 standard.



### Water Temperature

- Water delivered by the emergency safety equipment should be tepid, between 16-38°C (60-100°F).

At temperatures above 38°C (100°F) there is the added danger of scalding and increased absorption of harmful chemicals into the skin. Prolonged exposure to water below 16°C (60°F) increases the risk of thermal shock or hypothermia and prevents the casualty using the shower to decontaminate effectively for the full 15 minutes.

### Location

- Emergency safety equipment should be installed within 10 seconds reach and on the same level as a potential hazard.
- They must be situated in a prominent position, clearly visible, well-lit and free from any obstructions.

### Water Flow

- Emergency safety showers should deliver a minimum of 76 litres (20 US gallons) per minute of potable water for up to 15 minutes in the required spray pattern.
- Eye/face wash units should deliver 11.4 litres (3 US gallons) per minute for up to 15 minutes to ensure a thorough decontamination.

### Operation

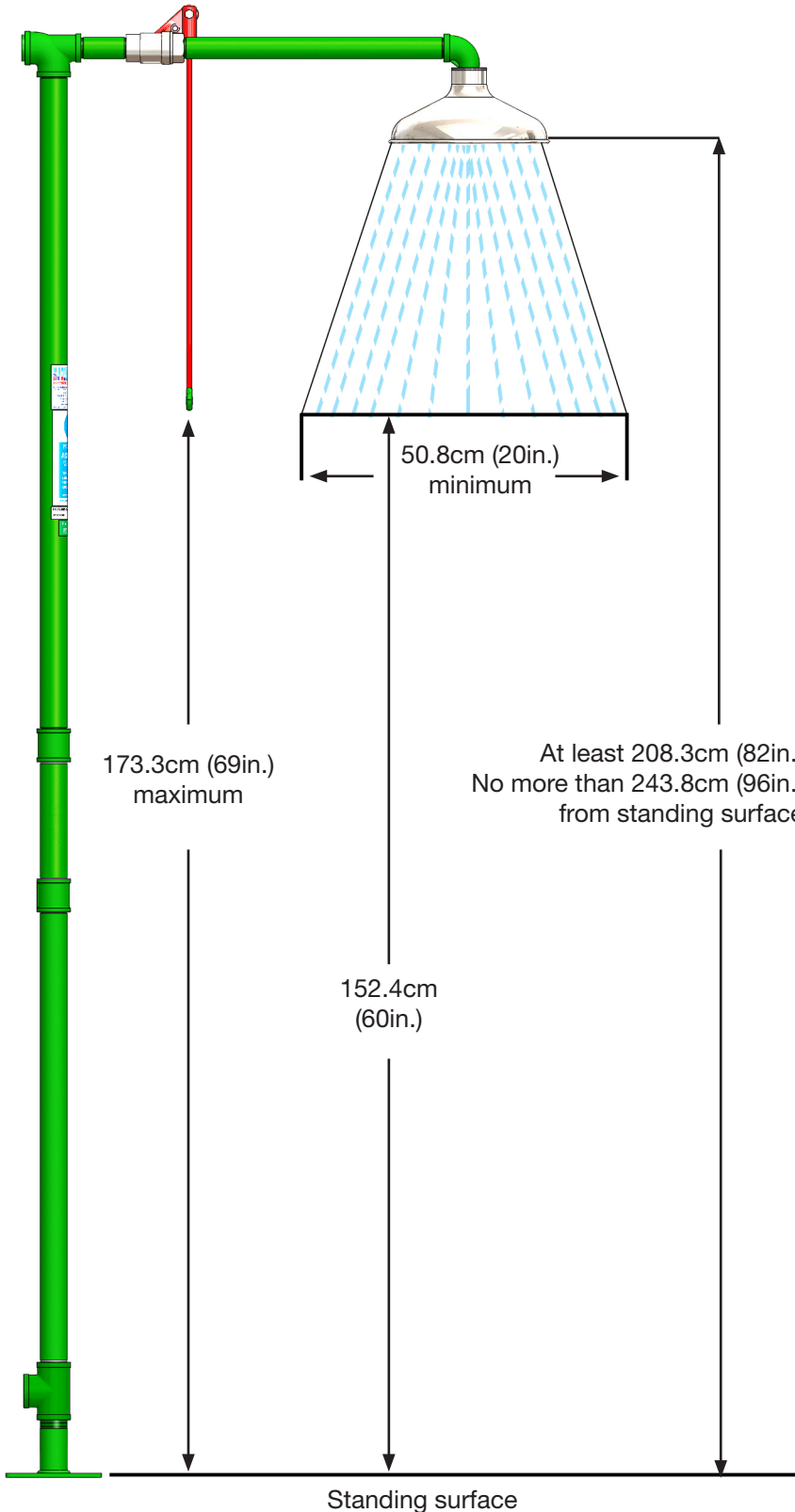
- Both emergency safety showers and eyewashes must be designed so that the valves remain open without the use of the operator's hands until intentionally closed.
- The control valve must be simple to operate and go from 'off' to 'on' in 1 second or less.

### Maintenance

- Emergency safety equipment must be visually inspected and activated weekly along with an annual service to guarantee reliable and effective operation and conformance with the standard.

### Training

- Personnel who may be exposed to hazardous materials should be instructed on the safe and proper use of the emergency safety equipment and be advised of its location.

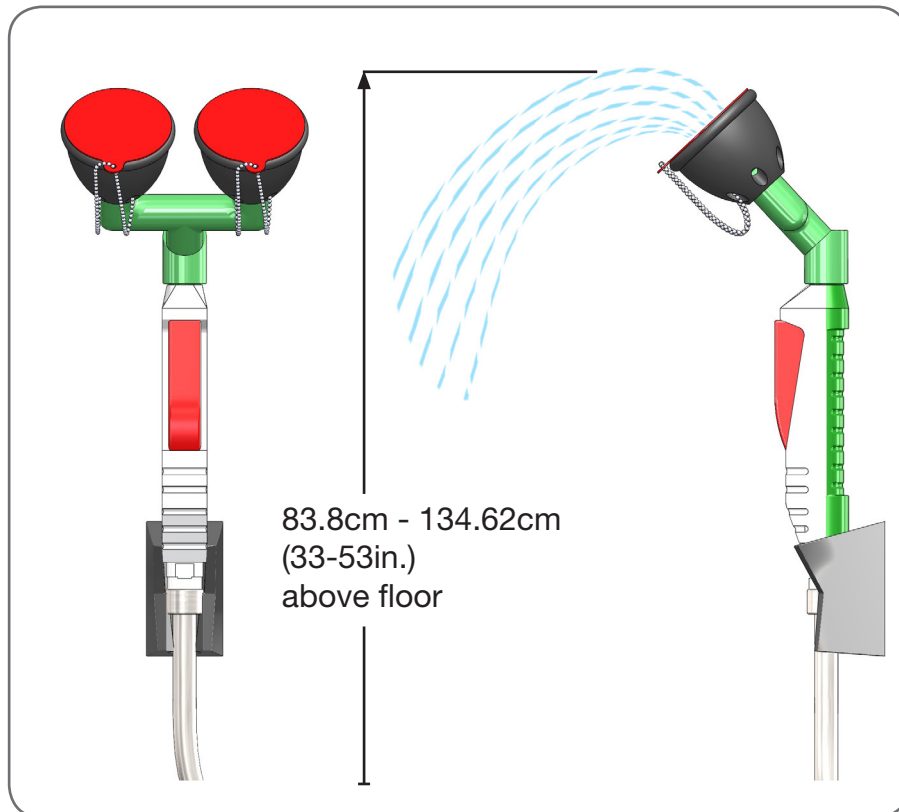
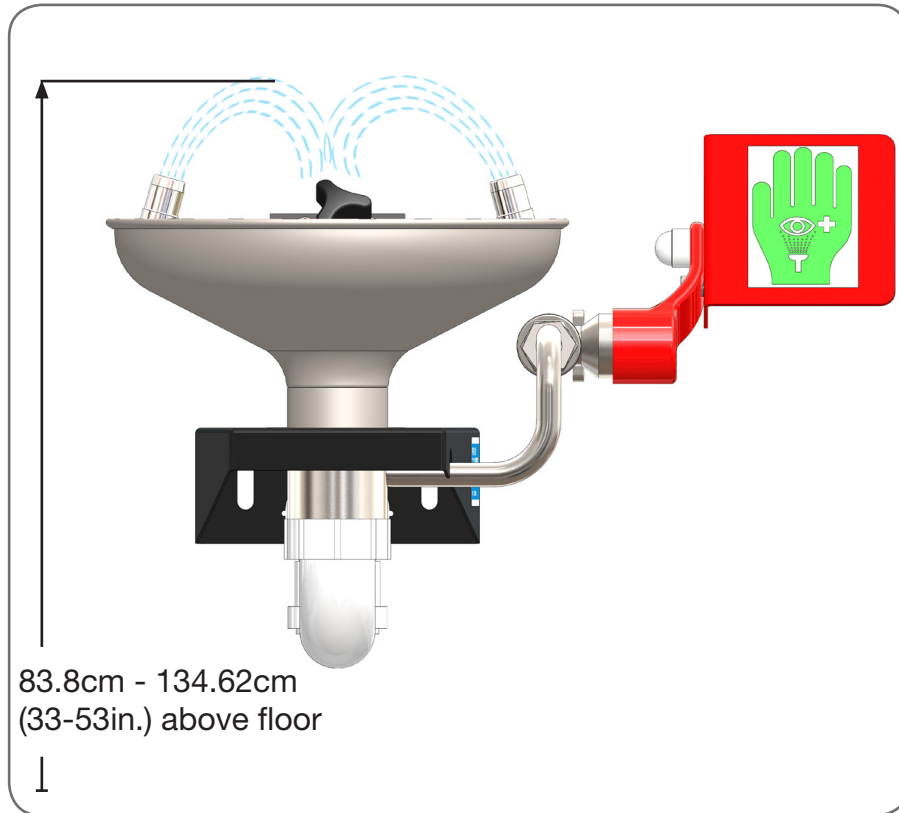


## Emergency Showers\* shall:

- Deliver tepid water at a minimum of 76 litres per minute (20 gpm) for a minimum of 15 minutes in the required pattern. (Section 4.1.2, 4.5.5)
- Provide a spray pattern with a minimum diameter of 50.8cm (20 in) at 152.4cm (60 in) from the floor. (Section 4.4.1, 4.4.2)
- Ensure the centre of the spray pattern is located at least 40.6cm (16 in) from any obstruction. (Section 4.1.4, 4.5.4, 4.5.7)
- Provide a flushing column of at least 208.3cm (82 in) and no more than 243.8cm (96 in) from the standing surface. (Section 4.1.3, 4.4.1, 4.5.4)
- Offer hands-free valve activation which should go from 'off' to 'on' in 1 second or less. (Section 4.1.5, 4.2)
- Incorporate easily located and simple to operate manual or automatic actuators, which should be positioned no more than 173.3cm (69 in) above the floor. (Section 4.1.4, 4.2)

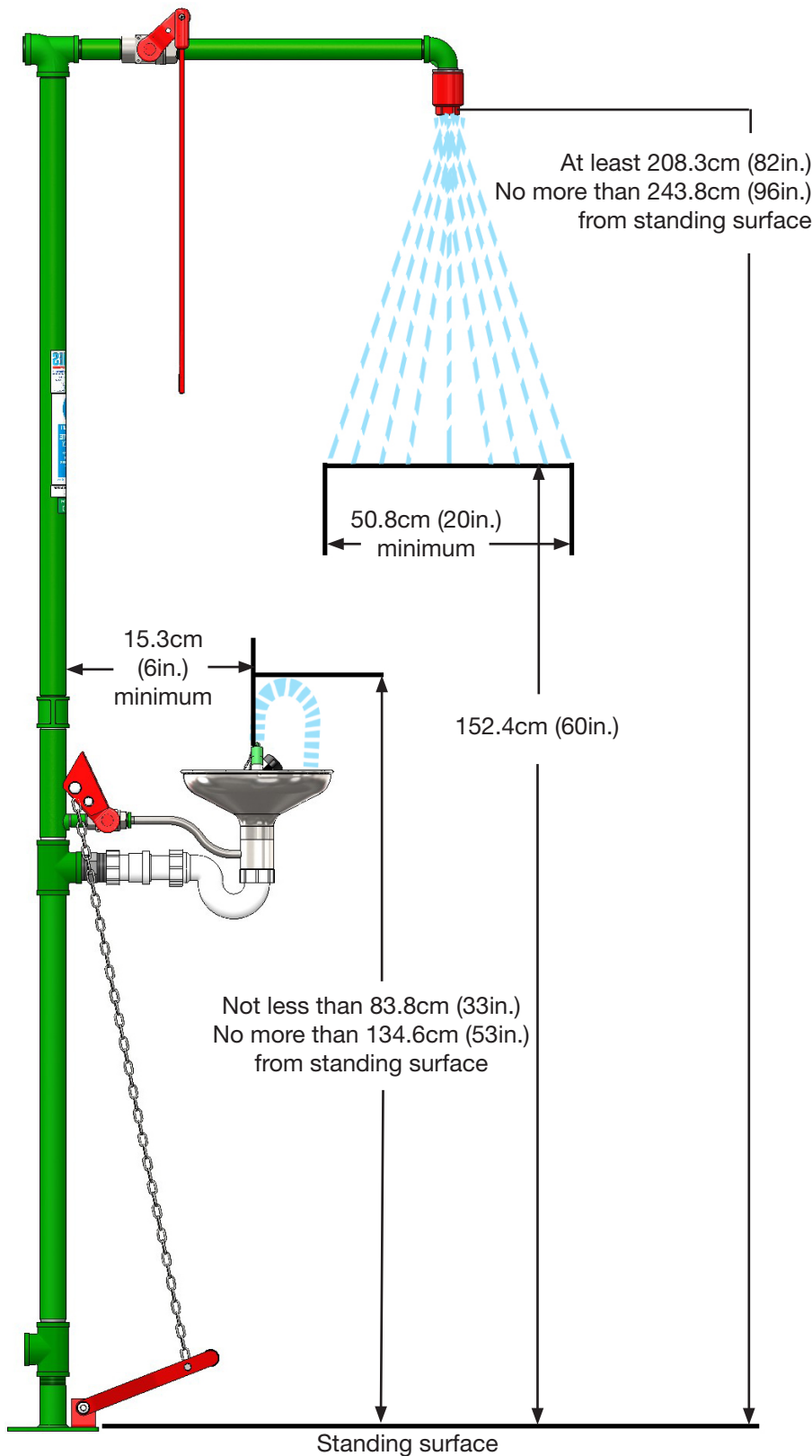
\* applicable to Emergency Tank Showers

## Eye Washes, Eye/Face Washes and Drench Hose Units shall:



- Deliver a controlled flow of tepid water to both eyes simultaneously at a velocity that is non-injurious to the eyes. (Section 5.1.1, 6.1.1, 8.2.1)
- Eye washes shall deliver at least 1.5 litres of flushing fluid per minute (0.4 gpm) for 15 minutes. Eye/face washes should deliver at least 11.4 litres per minute (3 gpm) of flushing fluid for 15 minutes. (Section 5.1.6, 5.4.5, 6.1.6, 6.4.5)
- Provide an eyewash pattern positioned between 83.8cm (33 in) and 134.6cm (53 in) from the floor and at least 15.3cm (6 in) from the wall or nearest obstruction. (Section 5.4.4, 6.4.4)
- Be designed to ensure the nozzles and eye wash equipment are protected from airborne contaminants. (Section 5.1.3, 6.1.3)
- Provide enough space to allow the eye-lids to be held open with the hands while the eyes are being rinsed. (Section 5.1.4, 5.1.7, 6.1.4, 6.1.7)
- Offer hands-free valve activation, which should go from 'off' to 'on' in 1 second or less, and simple to operate manual or automatic actuators. (Section 5.1.4, 5.2, 6.1.4, 6.2, 8.2.2)

# COMBINATION EMERGENCY SAFETY SHOWERS



## Combination Emergency Showers shall:

- Be designed to allow all components to be used simultaneously by the same user. (Section 7.4.4)
- Ensure the nozzles and eye wash equipment are protected from airborne contaminants. (Section 5.1.3, 6.1.3)
- Deliver tepid water from the shower at a minimum of 76 litres per minute (20 gpm) for a minimum of 15 minutes in the required pattern. (Section 4.1.2, 4.5.5)
- Deliver flushing fluid to the eyes for not less than 1.5 litres per minute (0.4 gpm) for 15 minutes. Eye/face washes should deliver at least 11.4 litres per minute (3 gpm) of flushing fluid for 15 minutes. (Section 5.1.6, 5.4.5, 6.1.6, 6.4.5)
- Provide a spray pattern with a minimum diameter of 50.8cm (20 in) at 152.4cm (60 in) from the standing surface. (Section 4.4.1, 4.4.2)
- Ensure the centre of the spray pattern is located at least 40.6cm (16 in) from any obstruction. (Section 4.1.4, 4.5.4, 4.5.7)
- Provide a flushing column of at least 208.3cm (82 in) and no more than 243.8cm (96 in) from the standing surface. (Section 4.1.3, 4.4.1, 4.5.4)
- Offer hands-free valve activation which should go from 'off' to 'on' in 1 second or less. (Section 4.1.5, 4.2)
- Incorporate easily located and simple to operate manual or automatic actuators, positioned no more than 173.3cm (69 in) above the standing surface. (Section 4.1.4, 4.2)

It is important to meet the minimum requirements, which may be mandatory on some sites, of International and European standards although it is worth noting that this is not a legal requirement.

This summary should act as an overview to assist specifiers in understanding the guidelines, please consult the complete ANSI/ISEA Z358.1-2014 standard before purchasing or installing emergency safety equipment.

If you need any help or advice on meeting world standards, please contact us:

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