ANSI Requirements for Emergency Eye Washes and Shower Equipment

Emergency Shower Requirements

1. Shower heads should be not less than 82 in. nor more than 96 in. in height from the surface on which the user stands.
2. The spray pattern should have a minimum diameter of 20 in. at 60 in. above the surface on which the user stands. The center of the spray pattern should be located at least 16 in. from any obstruction.
3. Emergency shower heads should be capable of delivering a minimum of 20 GPM of flushing fluid at 30 PSI for a minimum 15 minute period.
4. The valve should be designed so that the flushing fluid flow remains on without requiring the use of the operator's hands, and it should remain on until intentionally shut off. The valve should go from "off" to "on" in 1 second or less.
5. The pull rod should be located not more than 69 in. above the level on which the user stands.
6. Emergency showers should be in accessible locations that require no more than 10 seconds to reach.
7. Delivered flushing fluid temperature should be tepid.
8. Plumbed emergency showers should be activated weekly to verify proper operation.

Plumbed and Self-Contained Eyewash Unit Requirements

1. Eyewash heads should be not less than 33 in. nor more than 45 in. from the surface on which the user stands and 6 in. minimum from the wall or nearest obstruction.
2. The eyewash unit should provide flushing fluid to both eyes simultaneously, and both nozzles should be protected from airborne contaminants.
3. Plumbed and self-contained eyewash equipment should be capable of delivering flushing fluid to the eyes not less than 0.4 GPM at 30 PSI for 15 minutes.
4. The valve should be designed so that the flow remains on without requiring the use of the operator's hands, and it should remain on until intentionally shut off. The valve should go from "off" to "on" in 1 second or less.
5. Eyewash units should be in accessible locations that require no more than 10 seconds to reach.
6. Delivered flushing fluid temperature should be tepid.
7. Plumbed eyewashes should be activated weekly to verify proper operation.

Personal Eyewash Equipment Requirements

1. Personal eyewash units should have the capacity to deliver immediate flushing to the eyes without being injurious to the user.
2. When addressing washing of the eyes, training should address holding the eyelids open and rolling the eyeballs so flushing fluid will flow on all surfaces of the eye and under the eyelid.
3. Delivered flushing fluid temperature should be tepid.
4. Personal eyewash units should be inspected annually to assure conformance with ANSI Z358.1-1998.

Eye/Face Wash Equipment Requirements

1. Eye/face wash heads should be no less than 33 in. and no more than 45 in. from the level on which the user stands and 6 in. minimum from the wall or nearest obstruction.
2. The eye/face unit should provide flushing fluid to both eyes simultaneously, and both nozzles should be protected from airborne contaminants.
3. Plumbed eye/face wash equipment should be capable of delivering flushing fluid to the eyes not less than 3.0 GPM at 30 PSI for 15 minutes.
4. The valve should be designed so that the flow remains on without requiring the use of the operator's hands, and it should remain on until intentionally shut off. The valve should go from "off" to "on" in 1 second or less.
5. Eye/face wash units should be in accessible locations that require no more than 10 seconds to reach.
6. Delivered flushing fluid temperature should be tepid.
7. Plumbed eye/face washes should be activated weekly to verify proper operation.

Hand-Held Drench Hose Requirements

1. Drench hoses should be capable of delivering a minimum of 3 GPM of flushing fluid at 30 PSI for a minimum 15 minute period.
2. The valve should go from "off" to "on" in 1 second or less.
3. Delivered flushing fluid temperature should be tepid.
4. Plumbed drench hoses should be activated weekly to verify proper operation.

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ANSI Requirements for Emergency Eye Washes and Shower Equipment

Combination Unit Requirements

1. Shower heads should be not less than 82 in. nor more than 96 in. in height from the surface on which the user stands. Eye or eye/face wash heads should be not less than 33 in. nor more than 45 in. from the surface on which the user stands and 6 in. minimum from the wall or nearest obstruction.
2. The spray pattern of the shower head should have a minimum diameter of 20 in. at 60 in. above the surface on which the user stands. The center of the spray pattern should be located at least 16 in. from any obstruction.
3. Emergency shower heads should be capable of delivering a minimum of 20 GPM of flushing fluid at 30 PSI for a minimum 15 minute period. Eyewash equipment should be capable of delivering a minimum of 0.4 GPM at 30 PSI for a minimum 15 minute period, and eye/face wash equipment should be capable of delivering a minimum of 3 GPM at 30 PSI for a minimum 15 minute period.
4. The pull rod should be located not more than 69 in. above the level on which the user stands.
5. Eye and eye/face wash heads should provide flushing fluid to both eyes simultaneously, and both nozzles should be protected from airborne contaminants.
6. The valves should be designed so that the flow remains on without requiring the use of the operator's hands, and it should remain on until intentionally shut off. The valve should go from "off" to "on" in 1 second or less.
7. Combination units should be capable of operating simultaneously and should be positioned so that components may be used simultaneously by the same user.
8. Combination units should be in accessible locations that require no more than 10 seconds to reach.
9. Delivered flushing fluid temperature should be tepid.
10. Plumbed combination units should be activated weekly to verify proper operation.

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Changes to ANSI Z358.1-1990 Standard – Emergency Eye Wash & Shower Equipment

ANSI Z358.1-1998 Standard

On April 16, 1998, the American National Standards Institute (ANSI) approved a series of proposed changes to the current Z358.1 Standard. These changes are intended to enhance minimum performance and use requirements for eye wash and shower equipment in order to maximize worker protection in the workplace. The updated standard that is now in effect is **ANSI Z358.1-1998**.

The following changes are now part of the **Z358.1-1998** Standard.

Water Flow

Sections 4.1, 4.5.1, 4.5.2

Old:

Emergency Shower Heads should be capable of delivering a minimum of 113.6 liters per minute (30 gallons per minute) of water.....

New:

Emergency Shower Heads shall be capable of delivering a minimum of 75.7 liters per minute (20 gallons per minute) of flushing fluid.....

Comments:

Bradley Emergency Showers will continue to meet and exceed ANSI minimum requirements at 20 gallons per minute. Bradley showers when installed and activated will provide approximately 40-60 gallons per minute at 30 - 70 PSI. If water conservation is a concern, Bradley has a flow control for showers that will reduce the amount of water flow from the shower head while still meeting ANSI minimum water flow requirements. The 20 GPM valve can be added to any Bradley Drench Shower or Combination Drench Shower Product. This valve is sold separately and comes complete with installation instructions sheet. To order, refer to part numbers listed below:

S19-866:.....20 GPM Flow Control Valve (Brass-Nickel Plated)

S19-866SS:..20 GPM Flow Control Valve (316 Stainless Steel)

Plumbed and Self Contained Emergency Showers

Section 4.1

Old:

Not applicable

New:

The eye wash section of a combination shower/eyewash station is not considered an "obstruction" in this context to allow for simultaneous use of shower and eye wash equipment.

Comments:

This verbiage was added for clarification purposes under plumbed and self-contained emergency showers to include combination showers. The original statement in the old standard indicates that the center of the spray pattern for a drench shower shall be located at least 40.6 cm (16 in.) from any obstruction. The new language in the revised standard simply verifies that the addition of an eye wash in this case is not considered an obstruction when the shower is in use.

Distance of Emergency Eye Wash and Shower Equipment From Potential Hazard

Sections 4.6.1, 5.4.4, 7.4.4, 9.4.1

Old:

Emergency drench showers and combination drench showers, eye and eye/face washes, shall be in accessible locations that require no more than 10 seconds to reach and should be within a travel distance no greater than 30.5 meters (100 feet) from the hazard.

New:

Emergency drench showers and combination drench showers, eye and eye/face washes, shall be in accessible locations that require no more than 10 seconds to reach. The showers and eye/face washes shall be located on the same level as the hazard and the path of travel shall be free of obstructions that may inhibit the immediate use of the equipment. (4.6.1) Where the possibility of freezing conditions exists, equipment shall be protected from freezing or freeze protected equipment shall be installed. (5.4.4) For a strong acid or strong caustic, the eye wash should be immediately adjacent to the hazard. It is recommended that the consulting physician or appropriate professional be contacted for advice on the proper distance.

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Changes to ANSI Z358.1-1990 Standard – Emergency Eye Wash & Shower Equipment

Comments:
The travel distance (30.5 meters or 100 feet) from the hazard has been removed from the revised standard and replaced with the statement noted in Bold Type. Travel distance has been added to Appendix B in the revised standard which provides additional recommendations to consider in terms of travel distance of equipment to hazard. The appendix in the standard serves the purpose of providing additional information for consideration only and is not part of the Standard.

Note: Bradley has a series of frost-proof eye wash and shower products available in addition to a NEW Heat Trace Combination Shower (S19-300). The Heat Trace Shower prevents the equipment from freezing to -50 degrees F. Please contact Bradley for additional information on Freeze Protected Emergency Equipment.

Signs/Lighting

Sections 4.6.2, 5.4.5, 7.4.5, 8.4.3, 9.4.2

Old:
Each Emergency Fixture location shall be identified with a highly visible sign. The area around the emergency shower shall be well lighted and highly visible.

New:
Each Emergency Fixture location shall be identified with a highly visible sign positioned so the sign shall be visible within the area served by the equipment. The area around the equipment shall be well lighted.

Comments:
Bradley includes a highly visible sign with all our emergency fixture equipment. It will be the responsibility of the installer of the equipment to ensure the sign is positioned so it is visible within the area served by the equipment and that the area is well lighted.

Shut-Off Valve

Addition to the revised standard, sections 4.6.4, 5.1.5, 7.1.4

Old:
Not applicable

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

Comments:
Bradley does not provide shut-off valves as standard or optional components to our equipment. All valves manufactured on Bradley equipment are stay-open ball valve and cannot be closed until manually operated by the user. Therefore, Bradley ball valves continue to comply with old and revised ANSI Standards. It will be the responsibility of the installer of the equipment however to ensure that any shut off valves on their plumbing supply lines to emergency equipment is properly locked to prevent unauthorized shut off.

Water Temperature

Addition to the revised standard, sections 4.6.6, 5.4.6, 6.2.5, 7.4.6, 8.4.4, 9.4.5

Old:
Water temperature was addressed only in the appendix of the standard which is not considered part of the standard itself, but for information only.

New:
Delivered flushing fluid temperature shall be tepid. In circumstances where chemical reaction is accelerated by flushing fluid temperature, a medical advisor should be consulted for the optimum temperature for each application. Tepid is defined in the revised standard as "Moderately Warm, Lukewarm". Additional information regarding delivered flushing fluid temperature is also included in Appendix B of the revised standard.

Comments:
Bradley has a series of water tempering valves available to meet the water tempering guidelines added to the 1998 standard. To order, refer to part numbers below:

S19-2000: ..... 8 GPM Thermostatic Mixing Valve
S19-2100: ..... 25 GPM Thermostatic Mixing Valve
S19-2200: ..... 60 GPM Thermostatic Mixing Valve

Maintenance & Training

Addition to the revised standard, sections 4.7.1, 5.5.1, 6.2.1, 7.5.1, 8.5.1, 9.5.1

Old:
Not applicable

New:
Manufacturers shall provide operation, inspection and maintenance instructions with shower and eye wash equipment. Instructions for all emergency equipment shall be readily accessible to maintenance and training personnel.

Comments:
Bradley includes a complete installation instructions manual with all emergency fixture equipment. The manual comes complete with installation, operation, inspection and maintenance guidelines. The manual also includes equipment diagrams with a complete replacement parts breakdown chart.

Annual Equipment Inspections

Sections 4.7.4, 5.5.4, 7.5.4, 8.5.4, 9.5.4

Old:
not applicable

New:
All emergency equipment shall be inspected annually to assure conformance with ANSI Z358.1 section requirements.

Comments:
This verbiage was added with the intention of ensuring equipment is tested at least once a year by equipment owners per ANSI specifications. This requirement guarantees proper equipment performance and further promotes safety and conformance in the workplace.

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Changes to ANSI Z358.1-1990 Standard – Emergency Eye Wash & Shower Equipment

Eye Wash Testing

New addition to the proposed standard, section 5.1.7

Old:

Not applicable

New:

The eye wash unit shall provide flushing fluid to both eyes simultaneously. A test gauge for making determination of a suitable eye wash pattern shall be a minimum 10.16 cm (4 in.) in length with two sets of parallel lines equidistant from the center. The interior set of lines shall be 3.18 cm (1.25 in.) apart and the exterior lines shall be 8.26 cm (3.25 in.) apart. Place the gauge on top of the stream of the eye wash. The flushing fluid should cover the areas between the interior and exterior lines when the gauge is lowered not more than 3.81 cm (1.5 in.) below the fluids peak. For reference, see Illustration 3c Typical Eye Wash Gauge, page 21 Z358.1-1998 Standard.

Comments:

Bradley eye wash equipment is manufactured to meet these ANSI specifications. A Eye Wash Test Gauge for testing emergency eye wash equipment as specified above in proposed section 5.1.7 is available for purchase by Bradley so users can also test their eye wash products to ensure ANSI compliance. To order, refer to the part number below:

269-1444.....Eye Wash Test Gauge

Manufacturer Performance Testing

Sections 5.3.1, 5.3.2, 7.3, 9.3

Old:

The manufacturer shall test emergency equipment.....

New:

The manufacturer shall certify emergency equipment.....

Comments:

Certify is defined in the revised standard as "to test by a third-party to verify performance requirements as specified in this standard".

In addition to Bradley's own in-house conformance testing procedures, Bradley is also a member of SEI (Safety Equipment Institute). SEI is a third party organization that also tests and approves safety equipment of all kinds to ensure that the equipment meets their respective ANSI standards. Bradley is in the process of getting all our emergency equipment SEI Certified.

Combination Showers with Eye and Eye/Face Washes

Section 9.4.4

Old:

The unit shall be connected to a system capable of supplying adequate flushing fluid to meet the requirements of each component as outlined in section 4,5,7 and 8. It is not necessary for all components to operate simultaneously (individual conditions will dictate this requirement).

New:

The unit shall be connected to a system capable of supplying adequate flushing fluid to meet the requirements of each component as outlined in sections 4,5,7 and 8 when all components are operated simultaneously. Combination unit components shall be capable of operating simultaneously and shall be positioned so that components may be used simultaneously by the same user.

Comments:

All Bradley Combination Drench Shower with Eye Wash Products have been designed to allow simultaneous operation of both shower and eye wash. Both shower and eye wash are positioned so that the components may be used simultaneously by the same user. This feature has been a standard design even prior to the revised ANSI Standard.

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