

Australian Standard[®]

Emergency eyewash and shower equipment



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- AUSTAP
 - Australian Chamber of Commerce and Industry
 - Australian Council of Trade Unions
 - Australian Industry Group
 - Australian Institute of Occupational Hygienists
 - CSIRO
 - Institute of Plumbing Australia
 - University of Western Australia
 - WorkCover New South Wales
-

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PREFACE

This Standard was prepared by Standards Australia Committee SF-048, Emergency Eyewash and Shower Equipment. The Standard was prepared in response to requests from manufacturers and suppliers of these products, as well as industry in general.

This Standard is based on but not equivalent to ANSI Z358.1—2004, *Emergency eyewash and shower equipment*. Apart from terminology and layout differences, changes were made to address the specific needs of Australian applications, and integrate with other Australian Standards. The main differences are as follows:

- (a) Inclusion of guidance on dimensional constraints for disabled access.
- (b) Inclusion of guidance on local materials for plumbing components.
- (c) Inclusion of guidance on good design and manufacture.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard. An ‘informative’ appendix is only for information and guidance.

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STANDARDS AUSTRALIA

Australian Standard**Emergency eyewash and shower equipment****1 SCOPE**

This Standard specifies minimum performance and use requirements for eyewash and shower equipment for the emergency treatment of the eyes or body of a person who has been exposed to materials which may cause injuries. It covers the following types of equipment:

- (a) Emergency shower equipment.
- (b) Eyewash equipment.
- (c) Eye/face wash equipment.
- (d) Combination shower and eyewash or eye/face wash equipment.
- (e) Facilities for disabled persons.

It also includes performance and use requirements for the following supplemental equipment:

- (i) Drench hoses.
- (ii) Self-contained (portable) equipment.

Large-scale multispray shower equipment, of the type used in major emergency response or military applications, are outside the scope of this Standard.

Where eyewash units are included in combination with such equipment, these eyewash units are within the scope of this Standard.

2 OBJECTIVE

The objective of this Standard is to provide uniform minimum requirements for equipment performance, installation, use, maintenance and training of users, along with relevant test procedures.

3 REFERENCED DOCUMENTS

The documents referred to in this Standard are listed in Appendix A.

4 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

4.1 Combination unit

An interconnected assembly of emergency equipment supplied by a single source of flushing fluid.

4.2 Corrosion-resistant

Resisting corrosion under normal installation conditions, and in the presence of the flushing fluid, over a prolonged period of service.

4.3 Drench hose

A supplemental device consisting of a flexible hose connected to a flushing fluid supply and used to provide fluid to irrigate and flush face and body areas.

4.4 Drinking water

Water that is suitable for human consumption. (Previously known as ‘potable water’.)

4.5 Emergency shower

A device specifically designed and intended to deliver flushing fluid in sufficient volume to cause that fluid to cascade over the entire body.

4.6 Eye/face wash

A device specifically designed and intended to deliver flushing fluid in sufficient volume to irrigate and flush both the face and the eyes simultaneously.

4.7 Eyewash

A device specifically designed and intended to deliver flushing fluid in sufficient volume to irrigate and flush the eyes.

4.8 Flow pressure

The gauge pressure measured at the pipe wall during flow. (Also referred to as ‘dynamic pressure’.)

4.9 Flow regulator

A mechanical device to control the flow of flushing fluid through pipes.

4.10 Flushing fluid

Drinking water, preserved water, preserved buffered saline solution or other medically acceptable solution manufactured and labelled in accordance with applicable government regulations.

4.11 Freeze protected

Designed to operate under freezing conditions.

4.12 Hazardous material

Any substance or compound that has the capability of producing adverse effects on the health and safety of humans or the environment.

4.13 Installer

A competent person carrying out the installation of equipment within the scope of this Standard.

4.14 Personal wash

A supplementary device that supports plumbed units, self-contained units or both, by delivering immediate flushing fluid to eyes, face or body.

4.15 Self-closing valve

A valve that closes automatically when released by the user.

4.16 Self-contained eyewash

An eyewash device that contains its own flushing fluid and needs to be refilled or replaced after use.

4.17 Self-contained shower

A shower that contains its own flushing fluid and needs to be refilled or replaced after use.

4.18 Stay-open valve

A valve that needs to be closed manually by the user.

4.19 Tepid

Moderately warm, lukewarm.

NOTE: There is no medically or industry accepted specification for the temperature range of fluids that may be defined as tepid. The term is used to allow the acceptable temperature range for a particular workplace environment to be decided based on factors such as the geographic location of the equipment, the location of the equipment within the facility and the types of hazardous materials to which the person may be exposed. A recommended temperature range for tepid fluids is 15.6°C to 37.8°C.

4.20 Valve actuator

A device connected to the valve to facilitate its operation.

5 MATERIALS, DESIGN AND MANUFACTURE

5.1 Materials for construction

All equipment within the scope of this Standard shall be constructed of corrosion-resistant materials.

NOTE: Some suitable materials are described in Appendix B.

The use of alternative materials may be appropriate where—

- (a) specific environmental conditions are expected to significantly reduce the corrosion-resistance of the listed materials;
- (b) a risk assessment is carried out to assess the suitability of the alternative chosen; and
- (c) other options such as exterior coatings, re-location, etc. are also assessed for suitability.

The use of alternative materials is the subject of agreement between the parties concerned.

5.2 Design and manufacture

Guidance regarding the design and manufacture of equipment within the scope of this Standard is given in Appendix C.

6 PLUMBED AND SELF-CONTAINED EMERGENCY SHOWERS

6.1 General

Emergency showers are designed to deliver high volumes of flushing fluid at significant fluid pressure. They are not suitable for use as an eyewash station.

6.2 Performance of shower heads

A means shall be provided to ensure that a controlled flow of flushing fluid is provided at a velocity low enough to be non-injurious to the user.

Emergency showers shall be designed and located so that the bottom of the shower head is not less than 2083 mm nor more than 2438 mm in height from the surface on which the user stands.

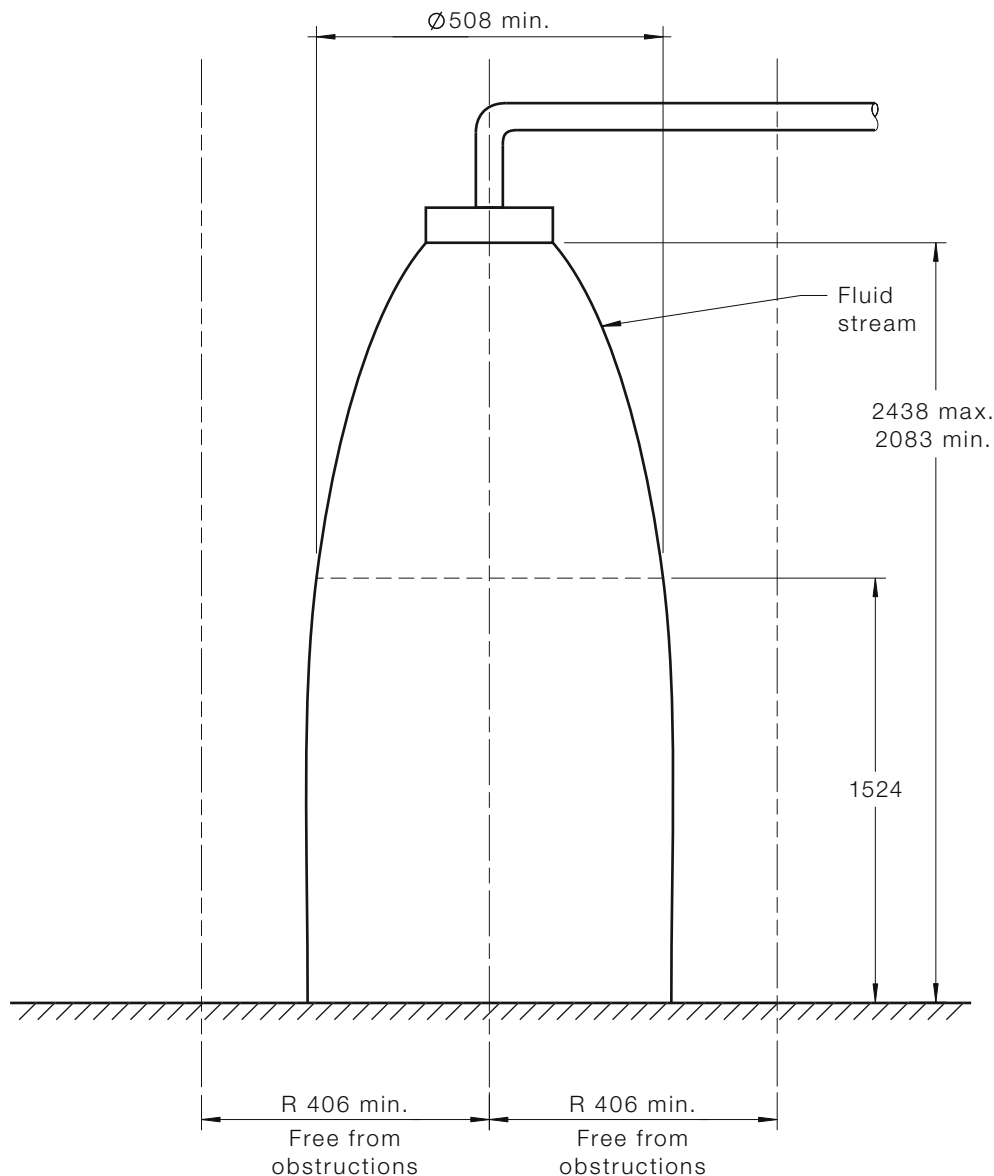
When activated, plumbed and self-contained shower equipment shall deliver flushing fluid at a minimum flow rate of 75.7 L/min for a minimum of 15 minutes.

Where shower equipment has a time-limited supply of flushing fluid, a risk assessment shall be conducted to identify if a longer flow period is required. Such a risk assessment may address the nature and quantity of hazardous materials at the location, likely exposure scenarios, distance to emergency response and emergency facilities and so on.

The spray pattern shall have a minimum diameter of 508 mm at 1524 mm above the surface on which the user stands, and the centre of the spray pattern shall be located at least 406 mm from any obstruction. The flushing fluid shall be substantially dispersed throughout the pattern.

NOTE: Dimensions for shower equipment are shown in Figure 6.1.

The eyewash section of a combination shower/eyewash station is not considered an 'obstruction' in this context to allow for simultaneous use of the shower and eyewash equipment. See Section 9.



DIMENSIONS IN MILLIMETRES

FIGURE 6.1 SHOWER DIMENSIONS

6.3 Performance of stay-open valve

The valve shall remain open without the use of the operator's hands until intentionally closed. The valve shall be simple to operate and shall go from closed to fully open in one second or less. The valve shall be corrosion-resistant. Manual or automatic actuators shall be easy to locate and readily accessible to the user. Valve actuators shall be located not more than 1733 mm above the level on which the user stands.

6.4 Shower enclosures

Enclosures, if used, shall provide for a minimum unobstructed area of 864 mm in diameter.

6.5 Performance testing procedures

6.5.1 *Plumbed emergency showers*

Plumbed emergency showers shall be tested as follows:

- (a) Connect a flowmeter to the shower to be tested, or provide other means of measuring flushing fluid flow.
- (b) Attach the shower to an uninterruptible flushing supply of 75.7 L/min at 210 kPa. The shower head's height shall be not less than 2083 mm nor more than 2438 mm from the surface on which the user stands. The flushing fluid supply shall have a control valve or pump system that can be adjusted.
- (c) Fully open the valve on the emergency shower and verify that it opens in one second or less and stays open.
- (d) Adjust the control valve on the flushing fluid supply to deliver a minimum of 75.7 L/min, and determine that flushing fluid is substantially dispersed throughout the pattern. Measure the diameter of the flushing fluid pattern 1524 mm above the surface on which the user stands. The diameter shall be a minimum of 508 mm.

6.5.2 *Self-contained emergency showers*

Self-contained emergency showers shall be tested as follows:

- (a) Fill the unit with flushing fluid.
- (b) Connect a flowmeter to the shower to be tested or provide other means of measuring flushing fluid flow.
- (c) Place the unit in operating position. The shower head height shall be not less than 2083 mm nor more than 2438 mm from the surface on which the user stands.
- (d) Throughout the 15 minute test, ensure that the unit is capable of delivering a minimum of 75.7 L/min and that the flushing fluid is substantially dispersed throughout the pattern. The diameter of the spray pattern shall be 508 mm at a point 1524 mm above the surface on which the user stands.

6.6 Location

Emergency showers shall be positioned in accessible locations that require no more than 10 s to reach. The shower 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. Where the possibility of temperature extremes exists, equipment shall be protected from their effects both with respect to the equipment's operation and the flushing fluid temperature.

Each emergency shower location shall be identified with a highly visible sign complying with AS 1319 positioned so the sign is visible throughout the area served by the shower. The area around the emergency shower shall be well illuminated.