

MAINTAIN FIXTURES TO STANDARDS

In most facilities, a lot of thought and planning go into the design of a safety system. Potential hazards are assessed and the required equipment is identified, purchased and installed to support the facility's safety plan. Once eyewashes and drench showers are installed and the

safety requirements are met, it is easy to become complacent and assume workers are protected. Without correct installation, ongoing inspections and preventative maintenance, emergency fixtures may not function the way initially planned. Ultimately, workers may still be in harm's way.

GET IT RIGHT - FROM THE START

The easiest way to ensure that drench showers and eyewashes will perform as expected during an emergency is to make sure they are installed correctly from the start. It is important to make sure these units are installed in accordance with all applicable local and national plumbing

codes. Typically, these will be the same codes that apply to all plumbing fixtures in your location.

In addition, emergency fixtures should be installed with their unique purpose in mind. Many of these requirements are set by the ANSI Z358.1 emergency equipment standard, one of the more widely used standards for eyewash and drench showers. The standard covers the function, installation and maintenance of this type of safety equipment.

MANAGE THE WATER SUPPLY

Beyond the codes, another important consideration is water supply. It is best to install emergency equipment on a dedi-

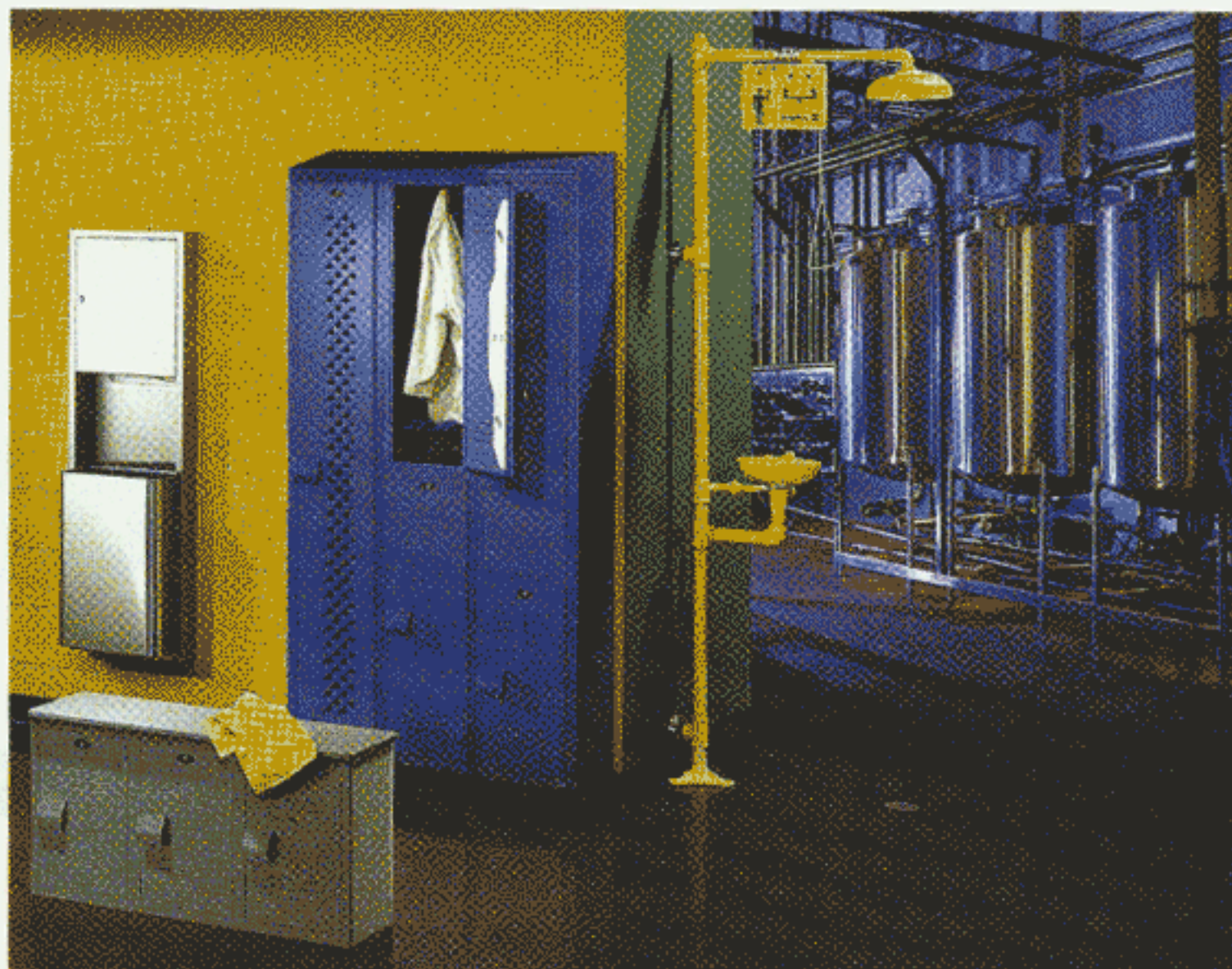
cated line where a large demand on the water flow elsewhere will not decrease the available flow to the drench shower or eyewash. The water supply to an emergency fixture must be on at all times. For example, a user cannot be expected to find a water main shut-off to turn on the water and then activate the unit before using. Timing is critical. Any delay in treatment to affected eyes and skin can increase the severity of an injury.

In most applications, a minimum water pressure of 30 psi should be supplied to the unit. The supply must also provide a sufficient number of litres per minute to satisfy the minimum flows according to the ANSI standard, which is typically a minimum 75.7 litres per minute for drench showers, 1.5 litres per minute for eyewashes and 11.4 litres per minute for eye/face washes. Actual flows vary by specific product, and the equipment manufacturer should be consulted to confirm the flow rates for the products used.

Also keep in mind that the plumbing system must supply tepid water to the emergency fixtures. It is possible that multiple units could be used at the same time, meaning the plumbing system should be able to deliver a 15-minute tepid water flow to all drench showers and eyewashes simultaneously. This can be a significant amount of water, which is why it is critical to evaluate the water flow when designing or retrofitting an emergency eyewash and drench shower system.

As with any plumbing installation, all connections should be tight and the product should be properly supported. It is also essential to provide adequate drainage for emergency fixtures installed. Emergency showers provide a large volume of flushing fluid and plans to handle the resulting wastewater should be in place.

A good initial installation can be achieved by referencing the ANSI



Plumbed emergency equipment should be tested weekly, according to the ANSI standard. Frequent use helps to ensure that there are no obstructions in the way of the fixture or damage to the unit that could delay treatment for an affected worker.

Z358.1 standard and the emergency equipment manufacturer's instructions.

INITIAL START-UP TESTING

Once an emergency fixture is assembled and installed according to the manufacturer's directions, the ANSI standard provides instructions for testing each type of equipment to verify proper performance. The first step is to turn on the incoming water supply to the unit, close the valves and visually check for leaks. The valve should then be opened. The valve should remain open and the user should not need to touch the unit to keep the flow going.

The next steps are specific to the type of equipment being tested. Drench showers should be checked for the correct spray pattern.

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This should be a diameter of at least 50.8 cm at a height of 152.4 cm from the floor. The centre of the pattern should be at least 40.6 cm from any obstructions. A test gauge can be used to determine whether an eyewash or eye/face wash unit meets the flow pattern requirements for adequately flushing eyes. These gauges are available from emergency equipment manufacturers. A flow meter or other method should also be used to establish that flow rate standards are met for all fixtures.

After the initial set up, inspection and maintenance information should be provided to facility staff for all of the emergency equipment installed. It is important that all maintenance personnel know how to conduct routine inspections and keep equipment properly maintained.

SCHEDULE ROUTINE MAINTENANCE

Regular testing is the best way to learn about eyewashes or drench showers that are not functioning correctly, rather than discovering a problem during an emer-

gency. An angry employee may have vandalized a unit, or perhaps the water supply has been accidentally shut off. Whatever the case, it is best to identify problems during testing.

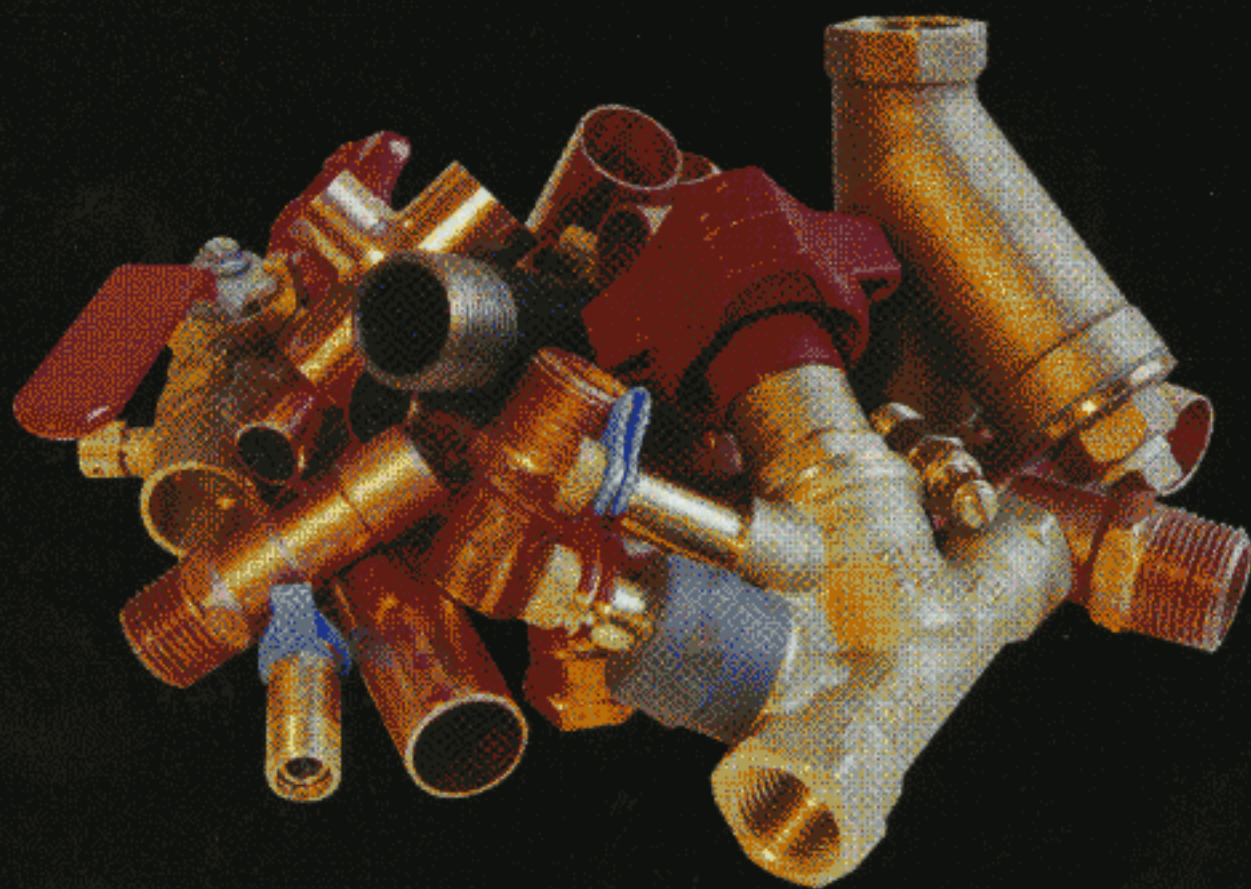
Plumbed emergency fixtures must be activated weekly, according to the ANSI Z358.1 standard. Weekly emergency activations and inspections should always be recorded, just as with fire systems and other routine facility maintenance. Most manufacturers supply a

hangtag for the emergency fixtures to allow inspections to be logged right at the unit, which is an easy way keep track of records and show inspectors that regular maintenance is being done.

Plumbing systems are designed to be used frequently and can suffer ill consequences when left dry. Regular flushing of drench showers and eyewashes serves multiple functions. This process flushes

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1 slow, complicated coil installation...



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out any sediment or debris that settles in the line from the incoming water supply. Some emergency fixtures include filters designed to trap sediment in the water supply. These filters should be changed in accordance with the manufacturer's instructions. If not properly maintained,

vents them from drying out and cracking, which can cause leaking. In addition, weekly operation flushes water through the drain traps. If water is not run through the traps, they can dry out allowing sewer gas to flow back through the pipes resulting in an unpleasant situation. If they are

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bacteria may begin to grow on sediment filters. This can pose a risk to users. Moreover, sediment can build up to the point where it restricts water flow through the eyewash.

Running water through the system also lubricates gaskets and o-rings and pre-

separate, both the waste for the eyewash and the drench shower should have traps that need to be flushed out.

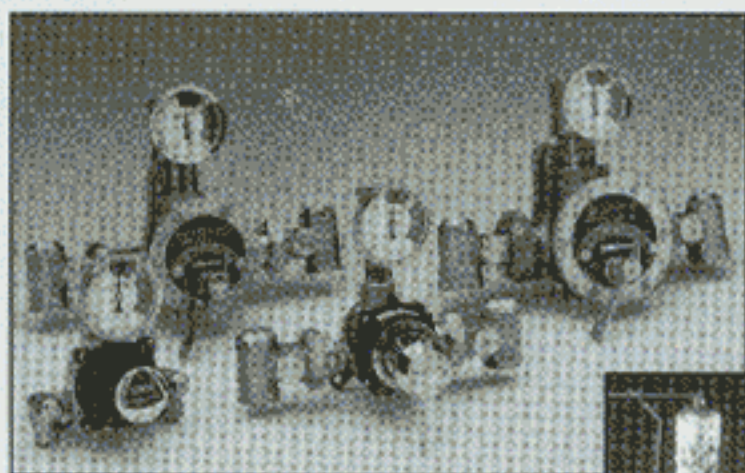
CONDUCT AN ANNUAL CHECK-UP

The ANSI Z358.1 standard also requires that all drench showers and eyewashes be



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inspected annually. A member of the facility staff, or a contractor who may not have been involved with the installation, generally conducts these inspections. If weekly testing is done as described earlier, there should not be any surprises. Yet, the annual inspection is still a critical part of a complete safety plan.

Most of the annual inspection process will mirror the inspection done at initial installation. Industrial locations are a tough environment for any plumbing fixture and it is important to verify that nothing has been damaged, vandalized or removed from the unit. For example, an eyewash bowl may be cracked from an incident with a forklift, or dust caps for the eyewashes may be missing and in need of replacing.

It is best to have the most recent copy of the emergency standard (currently the ANSI Z358.1-2004 version) on hand. Use it as a guideline to be sure the unit was installed correctly and that nothing has changed which would compromise

using the unit. It is also helpful to have a copy of the installation instructions for the emergency equipment to make sure the units have been properly installed. If the original set was not kept, a copy of the instructions should be available from the manufacturer.

Here are a few key things to evaluate for each emergency unit during an inspection:

- Monitor activation, spray patterns and flow rates.
- Visually inspect each component of fixtures for external damage.
- Check and tighten plumbing connections, as needed.
- Inspect pipes for any signs of rust or corrosion. Look for any marks or scratches on corrosion-resistant finishes.

Be sure to make a note of any areas where the fixture's coating is compromised. These areas need to be reevaluated in the future. If the fixture is floor-mounted and the floor is often wet, the base of the unit could be a potential site for corrosion.

ON THE MOVE

Portable eyewashes and drench showers also require an annual inspection, but typically are not activated weekly because of the limited supply of water in the unit. Instead, these units should be visually inspected regularly to determine if the flushing-fluid supply needs to be changed or supplemented. There are various types of portable units and the manufacturer's instruction sheets should indicate how often to replace flushing fluid, and the requirements for doing so.

TO SUM IT UP...

The best way to plan for safety is to have the necessary tools to design and maintain a good safety system. While the ANSI Z358.1 standard provides a guideline for the installation and maintenance of emergency fixtures, it is up to facility personnel to perform the necessary routine testing and keep emergency equipment in good working condition.

Choosing products that have been third-party certified to meet the ANSI standard is a good first step toward compliance. Following the installation guidelines and the equipment manufacturer's directions will ensure that products will function as required. After the initial installation, maintaining drench showers

and eyewashes, and replacing or repairing fixtures when they are no longer functioning correctly will keep workers safer.

Remember that a solid safety plan is more than just an initial plan. It is an ongoing way to protect workers, and as such, should be continuously evaluated and actively maintained. **HPAG**

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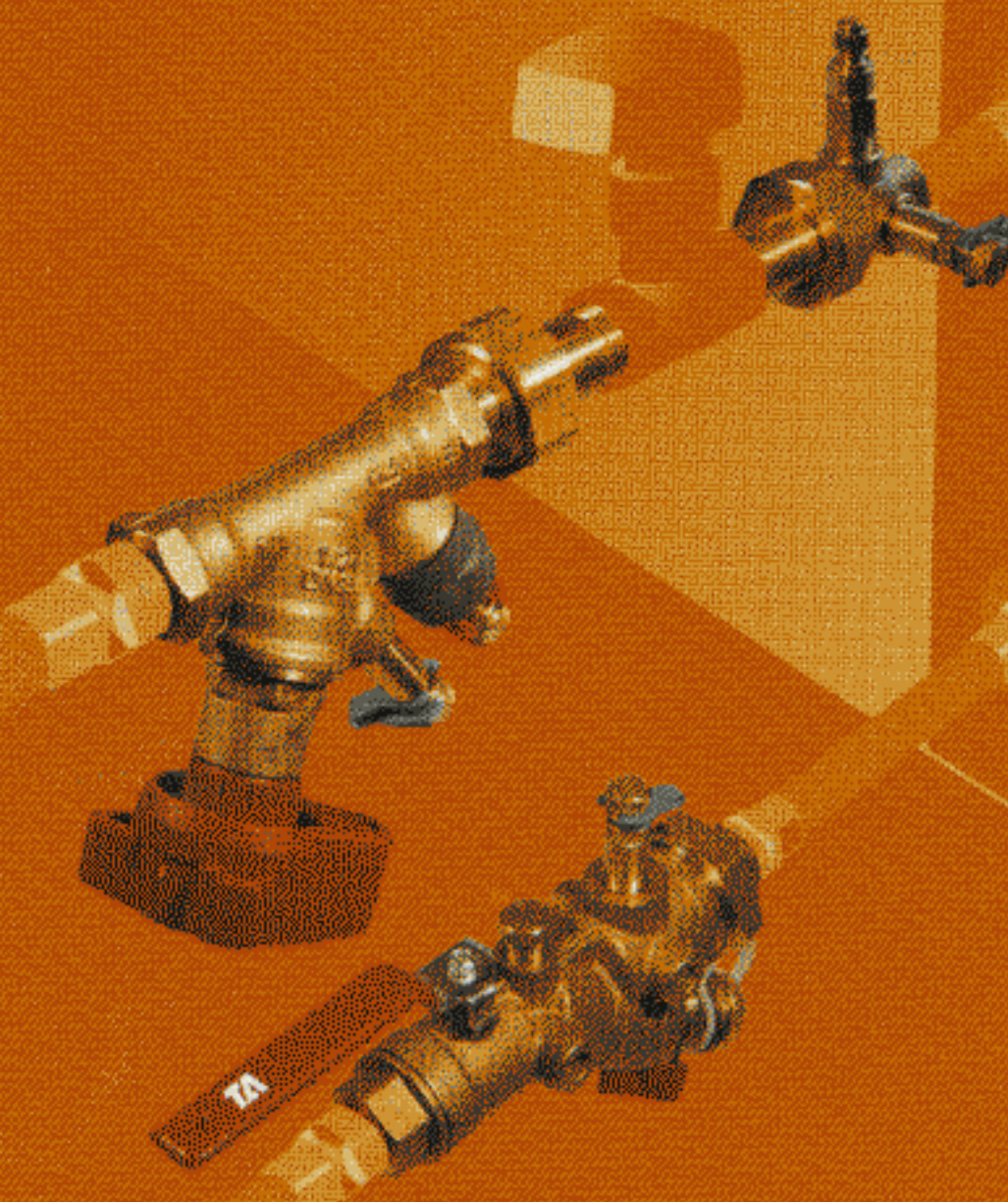
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