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Feature Article

Beyond the Basics

You can try these 10 tips for specifying the right emergency fixture.

by Rebecca Geissler



As long as people have been heading to the workplace, there have been workplace accidents. According to OSHA, some 4 million non-fatal injuries and illnesses occur each year in workplaces across the United States, which is why it is essential for facilities with potential hazards to provide the right emergency fixtures as protection against serious injury or fatalities.

Some workplaces, such as construction sites, have fairly obvious hazards. Other hazards may be less obvious. Similarly, there are a few key factors for selecting drench showers and eyewashes that may not always

be top-of-mind. Ask yourself the following questions as a guide for specifying the best fixture(s) for your needs.

1. What are the potential hazards?

The first step in specifying emergency equipment should be to identify all potential hazards in the facility. Some are easy to identify, and this is especially true in manufacturing processes or laboratories. Other dangers may be lurking in unexpected locations such as janitorial closets, laundry areas, or warehouses.

Flying dust or particulate matter is another work-site hazard that may require flushing facilities to be available. Think about any workstation or area of the facility that could pose a threat to workers' safety; a complete safety plan should address all employees working with dangerous chemicals, as well other potential eye and skin hazards.

2. Is your location considered hazardous according to the National Electrical Code?

The National Electrical Code defines a hazardous location as one where there is the possible presence of an explosive atmosphere, such as flammable gases, vapors, or liquids (Class I), combustible dusts (Class II), or ignitable fibers and flyings (Class III). Combination drench shower and eyewash products have been

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designed for use at locations that have a Class 1, Division 1 rating or a Class 1, Division 2 rating.

3. What is the physical environment like?

Drench showers and eyewashes should be located within a 10-second walk from any hazard. This is estimated by the ANSI standard to be about 55 feet but should be adjusted if the worker is expected to be physically or emotionally impaired. If the chemical being used is considered highly corrosive, the fixture should be placed as close to the hazard as possible. When locating the fixture, place it far enough away to avoid further exposure to a spill. Because drench showers and eyewashes utilize a flushing fluid, they should be placed away from exposed electrical components. Assess the area for appropriate lighting--emergency fixtures should be easy to locate and identify. Bright-colored fixtures tend to stand out in most environments.

An exposed worker should not be required to go upstairs or downstairs, and pathways to the emergency fixture should be clear. Avoid any obstruction that would delay an employee's access to quick treatment, perhaps increasing the severity of injury.

If lots of dust or particulate matter is present, it is worthwhile to select a product that includes a full dust cover. All products are typically provided with dust caps for the eyewash or eye/face wash sprayheads, but a complete dust cover will provide additional protection.

When selecting a fixture location, there should be a sufficient water supply available to feed the drench shower and/or eyewash for a full 15 minutes with the correct water temperature. It is important to be aware of flow rates and spray patterns. ANSI requires that a drench shower's spray pattern have a minimum diameter of 20 inches at 60 inches above the surface on which the user stands. Eye/face wash heads should be no less than 33 inches and no more than 45 inches from the level on which the user stands and 6 inches minimum from the wall or nearest obstruction.

4. Are chemicals being used?

After making a complete list of chemicals in use, take the next step to research them and understand the appropriate method of treatment needed should the chemical come into contact with a worker's eyes or skin. This information is usually available from the chemical manufacturer, often in the form of a Material Safety Data Sheet. A safety or health adviser can provide additional information.

In most cases, hazardous materials will require flushing of the affected area. That is where drench showers and eyewashes can minimize trauma. Testing has shown that affected areas should be flushed for a full 15 minutes to minimize the eye and/or skin damage. All ANSI Z358.1-compliant products are capable of providing the full flush.

It is also important to know the right temperature of flushing fluid to use, as recommended by the chemical manufacturer. Water that is too warm could actually accelerate the damage caused by the chemical, while too cold can deter a user from flushing for the recommended 15 minutes. In fact, flushing with water below 60 degrees F may result in hypothermia, further complicating the injured worker's condition.

5. What is the level of workers' exposure, and how many will be affected?

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Both the chemical itself and the process of using the chemical should be evaluated to determine whether an eyewash, eye/face wash, drench shower, or combination drench shower/eyewash is appropriate. The following are a few additional guidelines to consider:

- * *Eyewash*: effective for spills or splashes likely to affect only the eyes.
- * *Eye/face wash*: designed to be used when the entire face is at risk.
- * *Drench shower*: quickly flushes a larger portion of the body but is not appropriate for the eyes.
- * *Combination eyewash and drench shower*: flushes the eyes and rinses larger areas of the body.

If a process involves multiple workers who all probably will be exposed, a sufficient number of eyewashes and drench showers should be provided to protect all workers. No worker should be required to wait 15 minutes for another employee to complete the flushing process before getting treatment.

6. Are there corrosives in the environment?

A range of material options is available for emergency fixtures exposed to corrosive elements, either in the air or during flushing or a cleaning/wash down process. These are the materials most commonly available:

- * *Galvanized steel*: The typical choice for drench showers and eyewashes, it offers no special anti-corrosion protection.
- * *Coated galvanized steel*: An additional, corrosion-resistant coating is provided over the galvanized steel to improve the life of the fixture. Specify those with a bright color (such as yellow) to help users quickly locate the fixture. Some manufacturers charge up to 33 percent more for this option, but others offer it as their base model.
- * *Bowl/showerhead materials*: Typically, plastic or stainless steel are the two options available for these components. Both can handle a range of corrosives.
- * *Stainless steel*: Basic stainless steel units are generally type 304 stainless. Type 316 stainless steel combination fixtures also are available.
- * *Polyvinyl chloride*: PVC fixtures will provide corrosion resistance in environments that are particularly harmful to metal.

7. Is the hazard outdoors or in an unheated environment?

Outdoor applications require emergency fixtures that are specifically designed to function through a range of temperatures, particularly in northern climates. According to the ANSI Z358.1 standard, any emergency fixture installed where the potential for freezing exists should be protected from freezing, or freeze-protected equipment should be installed. There are multiple solutions for outdoor applications, all of which comply with this standard:

- * *Frost-proof units*: Through-wall fixtures protect pipes by keeping them on the inside of a building wall. Other frost-proof fixtures protect pipes containing water by placing them underground, below the frost line.
- * *Heat-traced fixtures*: Heat-traced (cable heated) fixtures are designed for cold-weather applications and have a heat-trace cable wrapped around the piping, which regulates the temperature of the water inside the fixture. These units are well-suited for extreme cold and often have a hazardous location rating.
- * *Polar showers*: Polar showers usually offer a heated, insulated enclosure paired up with a local tempered water supply, but they may involve only a heat-traced shower in a heated enclosure.
- * *Portable fixtures*: Portable eyewashes or self-contained products also can eliminate temperature concerns with the use of a heater jacket.

8. Are hazards in a remote location?

If the eyewash or drench shower is located in a remote area, it makes sense to include an alarm system with the fixture. A horn and strobe light will start when the unit is activated, notifying others that a drench shower or eyewash is in use. This feature allows others to respond to the emergency situation, assist the injured worker, and contact emergency personnel.

Most alarm systems include a second set of contacts that allow the alarm to be wired into an existing system. In addition to a local alarm being activated, a remote alarm or central location could be notified when a fixture is in use.

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9. What type of water supply is available?

If a potable water supply is not available, a portable unit can be used to provide protection. Portable products should comply with all requirements of the ANSI Z358.1 standard when used to replace a plumbed fixture.

It is important to provide tepid water to emergency fixtures. Otherwise, workers can be at risk for hypothermia, scalding, or an accelerated chemical reaction with their skin. An emergency thermostatic mixing valve is a great way to mix hot and cold incoming water to the correct flushing temperature. Valves designed for this application will shut off if the cold water supply is lost to protect users from scalding, but they will continue to allow cold water to flow if the hot water is lost. In an emergency, flushing with cold water is preferable to no water at all.

10. Where is your documentation?

Once a fixture has been specified and delivered, be sure to keep a copy of the ANSI Z358.1 standard and all installation and instruction manuals readily available. These documents will provide information on how to install and maintain the correct equipment to ensure it functions optimally. Not all manufacturers' products and equipment operate the same.

Finally, review your safety plan regularly to ensure all workers are protected. While these issues may be not top-of-mind during your daily work routine, paying attention to important details about your safety equipment ultimately will result in a safer workplace.

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