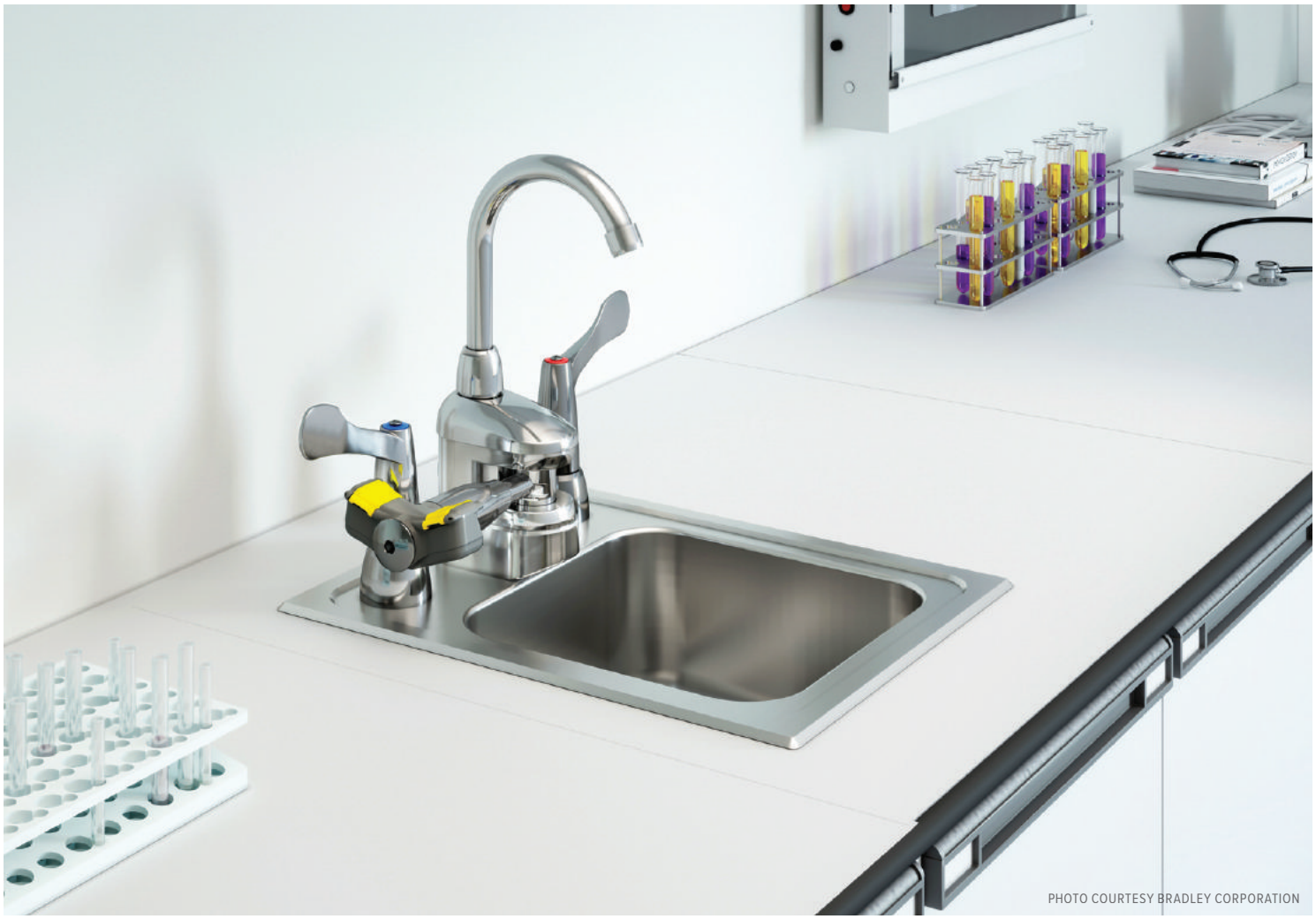

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Emergency Eyewash and Safety Shower Best Practices

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BY RYAN PFUND

As a part of any university safety plan, campus facilities that have potentially hazardous materials need emergency showers and eye/face wash fixtures onsite. However, while these fixtures may be installed, that doesn't always mean students and staff are automatically protected with this equipment. Sometimes the equipment is outdated, not in working order, not located near all hazards, unclean, unable to dispense tepid water and/or not in compliance with American National Standards Institute (ANSI/ISEA) Z358.1–2014 standards.

Plumbed emergency shower equipment is essential in all types of commercial buildings—including educational establishments—that involve any types of chemical, flammable and particulate hazards. When installed and used correctly, these fixtures can provide immediate emergency decontamination and relief resulting from direct exposure to these injurious materials.

Specifically, in universities, some of these environments include:

- Chemistry classrooms/labs
- Chemical and custodial storage areas
- Buildings and grounds chemical storage areas
- Swimming pool chlorine storage areas
- Industrial arts
- Art rooms/darkrooms
- Print shops
- Health centers
- Boiler rooms
- Kitchens

Compliance with ANSI/ISEA Standard

It's important to be aware that some older schools are not equipped at all with drench showers and eyewashes, or have equipment that is outdated, obsolete, nonworking or fails to meet the current American National Standards Institute (ANSI) Z358.1-2014 Standard. Moreover, few schools are following ANSI/ISEA standards for correct placement and regularly testing emergency equipment to make sure it is in proper working order. Because emergency eye wash and shower equipment are used by people in serious exposure situations, it is imperative these fixtures are inspected, tested and verified weekly to ensure immediate, reliable and proper usage.

Here's why: If chemical spills or toxic fumes occur, students and/or employees in the area could be at risk for serious chemical burns, eye injuries or blindness and respiratory irritation. And the cause could be something as simple as cleaning staff combining bleach and ammonia, releasing highly irritating fumes—or students inadvertently mixing or heating volatile chemicals incorrectly. These types of incidents dramatically illustrate why it is essential for facilities with potential hazards to provide the right emergency equipment to protect against serious injuries from chemical exposure. Plumbed drench showers and eyewash stations are usually the best solutions in these areas; when there is no access to plumbing, non-plumbed options are also available.

The following are guidelines for equipment selection and usage best practices:

1. Determining equipment placement and accessibility

Start with a site evaluation to identify at-risk areas, potential hazards and emergency needs, and evaluate factors like product location, water supply, water temperature, accessibility and equipment selection.

During a walk-through, it is essential to reference the ANSI/ISEA Z358.1–2014 emergency equipment standard, which outlines

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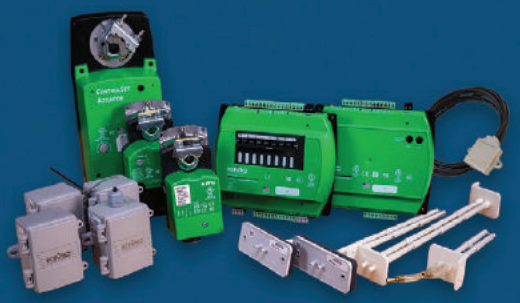

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For facilities such as classrooms, laboratory environments and tight workspaces, a new generation eyewash model combines a sink faucet with an eyewash built in for emergency eyewash use, offering a highly efficient and convenient space-saving solution for educational facilities.

the specific requirements for emergency eyewash and drench shower equipment installation, testing, performance, maintenance, training and use. Safety data sheets (SDS) are another excellent source for determining protection needs, since they contain first aid information stating if drenching facilities are required.

The ANSI/ISEA standard requires that such fixtures be installed within ten seconds' reach of each hazard, which is about fifty-five feet away. At sites where strong acids or caustics are used, the equipment should be placed immediately adjacent to where the exposure could occur. The equipment should be on the same level as the potential hazard. Drench showers and eyewash stations must supply tepid water with a temperature between 60∞ F and 100∞ F (15.6-37.8° C) and be capable of a full 15-minute flush.

Since work environments are dynamic and change over time, assessments should be conducted annually to ensure the proper type, quantity, installation and location of emergency fixtures. Some product manufacturers offer complimentary safety shower and eyewash system site surveys to check equipment operation and placement, and compliance with the ANSI/ISEA Z358.1–2014.

2. Recognizing hazards informs emergency shower/eyewash selection

Equipment selection should be based on the type and level of potential exposure to people and how many individuals could be affected. For example:

Emergency eyewash stations

- Effective for spills, splashes, dust or debris likely to affect only the eyes
- Provides a controlled flow of water to both eyes simultaneously
- Delivers an uninterrupted, fifteen-minute supply of tepid water. Plumbed units can supply a greater volume of water available—between 2.0 and 5.0 gallons (7.5 and 19.0 liters) per minute

Emergency eye/face wash stations

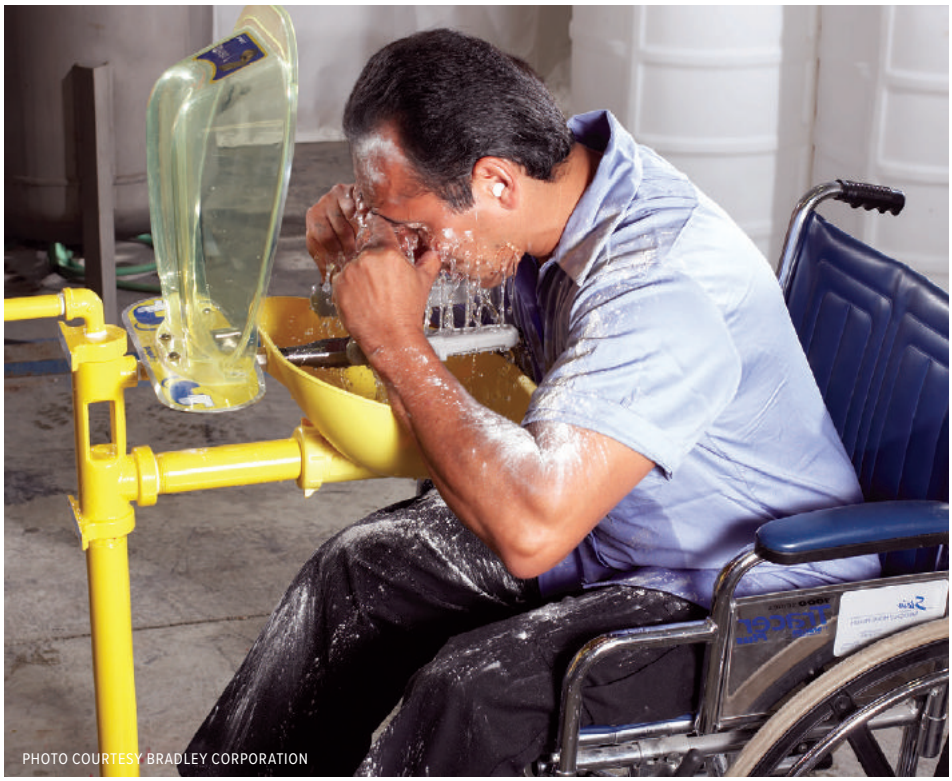
- Used when the entire face is at risk from spills, splashes, dust and debris
- Irrigates the eyes and face simultaneously
- Provides a large distribution pattern of water (minimum 3.0 gpm/11.4 lpm) to effectively rinse the entire face

Drench showers

- Used when larger areas of the body are at risk
- Flushes a larger portion of the body but is not appropriate for the eyes (a combination eyewash and drench shower may be used to simultaneously flush the eyes and rinse larger areas of the body)

Non-plumbed, self-contained eyewash fixtures

- When there is no access to a plumbed water source, self-contained units can be used



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- Water tanks deliver a minimum of .4 GPM for minimum of fifteen minutes
- Systems can be portable and gravity fed

3. New technology ensures the best wash-down coverage

The newest generation of emergency fixtures is designed to deliver a more uniform and complete spray pattern distribution. Older shower designs push the flow of water to the outer rim of the showerhead, creating a hollow space in the center of the pattern that can miss affected areas.

Using the latest technology in fluid dynamics, new drench shower designs work in tandem with a pressure regulated flow control and the spinning motion of water, which creates an optimal spray pattern to rinse off contaminants as quickly and thoroughly as possible. The contoured shape combined with the spinning water funnels the water into a concentrated, yet gentle, deluge to ensure the most effective flush available.

New eye/face wash designs using this new technology can ensure water is dispersed to all areas of the face including the forehead, temples and chin. These new types of eye/face washes provide twenty percent better washdown protection than other designs.

4. Dual-use swing-activated eyewash models save space

For facilities such as classrooms, laboratory environments and tight workspaces, a new generation eyewash model combines a sink faucet with an eyewash built in for emergency eyewash use, offering a highly efficient and convenient space-saving solution for educational facilities.

During regular faucet use, the eyewash is stored out of the way. In an emergency, the eyewash is immediately activated when it is swung out 90 degrees over the sink. When the eyewash is activated, the swing-activated design ensures that the faucet moves out of the way, positioning the eyewash directly over the sink and allowing clear access to the fixture. With the eyewash in the optimal position over the sink, water is contained in the sink without dripping or spraying on countertops and floors, which can create mess and risk of slipping and falling.

5. Weekly inspections ensure good working order

According to ANSI/ISEA Z358.1–2014, emergency drench showers, and eye and eye/face washes must be activated one time per week to ensure they work properly in supplying tepid water when needed.

This activation ensures that nothing is blocking the flow of the flushing fluid and eliminates any chance of contamination from stagnant water. It's important that all heads of the device are activated, including the eyewash or eye/face wash head, as well as the showerhead.

Take time to flush lines long enough to clear any sediment and debris. Self-contained units should also be visually inspected weekly. Inspection tags are often included with fixtures to document testing and to satisfy a safety audit. Keeping a dated checklist for inspections helps follow-through and accountability. Training workers on the location and operation of fixtures also helps reinforce proper usage.

Finally, review your safety plan regularly and take time to train staff on the usage of equipment to ensure all students and faculty are protected. Even though hazardous exposure issues may not be top-of-mind during your campus' daily work routine, paying attention to regular maintenance and inspections of your safety equipment ultimately will result in a safer learning environment.

ABOUT THE AUTHOR: Ryan Pfund is Senior Product Manager, Emergency Fixtures, for Bradley Corporation of Menomonee Falls, Wis., a USGBC & ISEA member and manufacturer of locker room products, plumbing fixtures, washroom accessories, partitions, emergency fixtures and tankless water heaters.