



# FURNITURE & FIXTURES

focus



## Finding the Best EFX Solutions

By Rebecca Geissler and Pieter Steendam,  
Steendam Lab Furnishing Supplies, The Netherlands

In today's safety-conscious world, it seems there are more workplace hazards than ever. While business owners and facility managers strive to create safe work environments for all employees, it can be challenging to decipher and keep up with the different code regulations and safety requirements. Increasingly, building owners and operators are looking to plumbing contractors, code consultants and product manufacturers to provide the information and functional solutions necessary to meet their safety needs. To clarify the sometimes grey area of emergency solutions, this article will tackle the basics of emergency fixtures and their applications. So, let's get to it.

### EMERGENCY FIXTURES BY DEFINITION

Emergency fixtures, such as eyewashes and drench showers, are designed to offer a solution when primary protection like protective eyewear and clothing is either not used properly or fails to protect the user.

Emergency fixtures usually comply with the American ANSI standard (ANSI Z 358.1-1990) or the German DIN-standard for laboratory facilities (DIN 12899). Sometimes local conditions and regulations prevail. To create more uniformity all over Europe, a European Standard for laboratory safety showers is in development. A draft of this new standard has recently been published (prEN 15154).

### APPLICATIONS

Traditionally, emergency fixtures have been installed in industrial or manufacturing facilities, as well as corporate and educational chemistry laboratories. These are the more obvious applications where chemicals are used, but almost any manufacturing process results in dust, metal or other materials floating through the air that can pose a risk. Placing eyewashes and drench showers in these types of locations is usually the best solution. Eyewashes are effective for flushing hazards out of the eyes, and drench showers address larger scale risks to the skin. The value of these fixtures is easily justified – just imagine potentially losing your sight or a large area of skin!

As times change and safety concerns grow, new applications for eyewashes and drench showers are created. A growing application for these fixtures is in medical facilities. Exposure to bodily fluids from patients has become a concern and therefore emergency fixtures have become more common in hospitals.

There is also heightened awareness for protection against chemical warfare and other toxic agents. Hospitals, as well as military locations, have a need for permanent or temporary eyewashes and drench shower stations. Governments have identified other specific situations in which emergency fixtures are now being used, such as eyewashes for border patrol personnel exposed to car fluids while checking under cars.

### NEW MARKETS AND GROWTH OPPORTUNITIES

More general safety concerns have created a number of other opportunities in the emergency fixture market. Some are outgrowths of previous applications and uses. Schools and universities are a prime example of this. Where eyewashes and drench showers were once found only in the chemistry areas, they are now being installed in art classrooms and janitorial closets – anywhere potentially hazardous materials or chemicals are used. The health care industry is another example. Beyond hospitals, private offices such as dentists' offices are also now installing eyewashes to be used in case anything should become lodged in someone's eye during a dental procedure.

Retail applications are another newer market. Many large department stores and malls have started installing eyewashes to protect employees who work with cleaning

chemicals. Warehouses that stock chemical products may also require protection for employees in the event a case were to split open or containers are broken. Moreover, the dust and debris on shelves is often disturbed when rotating stock and can be an eye hazard.

Construction sites are another area where eyewashes are now used more frequently. The amount of particulate matter in the air resulting from construction activities is significant, and often a plumbed water source is a distance from the potential hazard.

As the need for emergency fixtures across a range of applications has grown, so has the number of options. Identifying the correct emergency unit for a specific application or location creates a safer environment for everyone. To specify the best product, attributes such as the application environment, visibility of the unit, the existing hazard and the availability of plumbed, potable water will all have an impact on selection.

### CONSIDERATIONS WHEN SELECTING EMERGENCY FIXTURES

#### 1. Evaluate the Risk

Before selecting an emergency fixture for a particular application, first you must determine the risk of the hazard. It is essential to work with local regulatory agencies, as well as the suppliers of any chemicals or potential hazards used.

These groups are good resources to help identify the risks to workers, and whether it is an isolated risk to the eye area or the entire body. This will guide the initial determination of whether an eyewash, drench shower or combination drench shower and eyewash will be required. Once this is determined, a wide range of options exist to meet the application requirements.

#### 2. Will It Be Plumbed or Portable?

When eyewashes and drench showers are required, the first group of products considered is usually the standard plumbed units. Plumbed eyewashes are typically either wall mounted or floor mounted.

Drench showers by themselves are either horizontally or vertically mounted, but some are freestanding units. Fixtures that combine showers and an eyewash are traditionally floor mounted. This group of products is often used in manufacturing locations, along with other traditional locations.

When a plumbed water source and an existing countertop or sink are already in place, a group of eyewashes referred to as laboratory eyewashes can be effective. Most of these units mount conveniently next to or behind a sink, allowing the eyewash to drain into the existing plumbing. Although referred to as laboratory products, due to their flexibility and ability to work with existing plumbing, these units are installed in many other applications including janitorial closets and medical facilities.



For applications where plumbing is not readily available, portable eyewash products are available. Although some portable units do not provide the flushing fluid required to fully rinse an affected area, most manufacturers offer at least one eyewash model that provides a full 15-minute flush at a volume that exceeds 1.5 litre per minute. These units are capable of protecting workers working in remote or outdoor locations, such as on heavy construction sites.

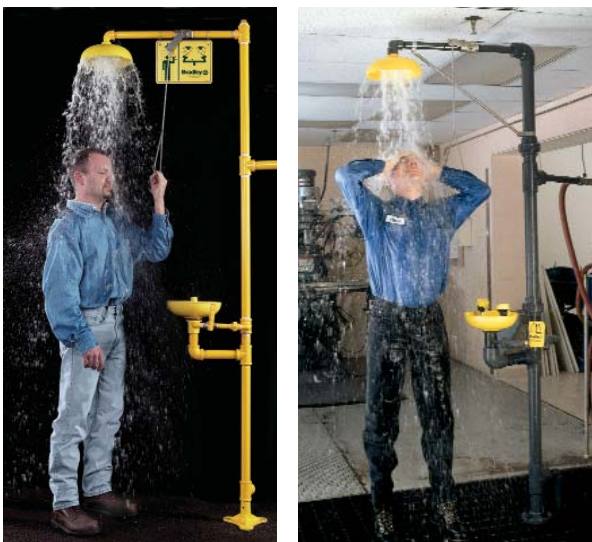
#### 3. Look at the Thermometer

Another important factor is the temperature at the fixture site, particularly for outdoor applications. A group of fixtures exists that is designed specifically to withstand extremely hot or cold outdoor temperatures. Most of these products are modified versions of the plumbed and portable products mentioned earlier. Outdoor plumbed fixtures are designed with systems that protect against water freezing in the pipes. For example, traditional frost-proof fixtures keep water below the frost line and have ball valves located underground that drain water from the system to prevent freezing, which can damage the pipes.

Other frost-proof units take advantage of a heated building in the vicinity by installing the plumbing through the wall. This leaves the eyewash or drench shower on the outside of the building for outdoor use and the pipes inside. Both of these types of frost-proof units can also provide some protection against water overheating in hot temperatures.

Heat traced showers are another way to protect pipes from freezing. These fixtures use an insulated cable that is run along the length of the pipes to prevent the water from freezing in the system. It is worth noting that portable products are also typically available with an insulated jacket and heating system that offers frost protection.

Another aspect is the water temperature of the flushing water. Medical recommendations suggest to provide flushing water at tepid temperatures. If the water is too cold to withstand 15 minutes of flushing, it is recommended to



install a thermostatic mixing valve before the fixture. A number of manufacturers offer safe thermostatic valves which are specially designed for emergency fixtures. These valves blend hot and cold water to a comfortable temperature of around 25-30°C.

#### 4. Select the Finishing Touches

Emergency fixtures are typically made of galvanized steel or brass piping, and a corrosion-resistant coating that is either offered standard or available as an option. This coating can significantly extend the life of a standard fixture and serves as a dual safety function. A safety yellow coloured coating helps people find the fixture during an emergency. Fixtures are also available in stainless steel for highly corrosive applications, and some manufacturers offer a PVC option for situations that require it. A chrome-plated product is another option for eyewashes and drench showers placed in highly visible locations like laboratories.

#### 5. Have a Back-up Plan

Once you have evaluated the risks and chosen an emergency fixture or fixtures, another important aspect is to make sure support products are also in place. In many situations, this could mean providing a bottle eyewash station very close to a potential eye hazard as an immediate aid.

Keep in mind that personal bottle eyewashes are only intended to be an interim emergency aid. After use of bottle eyewash, users should proceed to a full flush at an eyewash station. Drench hoses can also be used to provide an additional rinse option but these units should supplement an eyewash or drench shower, not replace one.

Once a potential hazard has been identified, it is important to carefully consider the wide range of available products to ensure the correct product is installed for each application. There are many other product features beyond those mentioned, and the right emergency fixture will depend on the specific situation.

In one application, a barrier-free product may be needed to provide extra clearance for those with physical disabilities, while another facility may have a need for a customised fixture.

The options can seem overwhelming, but emergency fixture manufacturers and other industry experts can offer guidance on which types of fixture are most suitable for different applications.

#### About the Authors

Rebecca Geissler is a Product Manager for Emergency Fixtures at Bradley Corporation, a leading manufacturer of plumbing fixtures, washroom accessories, partitions, emergency fixtures and solid plastic lockers.

Pieter Steendam is director of Steendam lab furnishing supplies, European distributor of Bradley Emergency fixtures.