Eye on Safety

Inside this issue:

National Institutes of Health
Office of Research Services
Division of Occupational Health and Safety

Providing a safe and healthy environment for employees, patients and visitors.

"Safe science and good science go hand-in-hand."

Exit right or left — which is it?

How do employees safely escape from your workplace in an emergency?

Do they know where all the exits are in case their first choice isn't accessible? Are you sure the doors will be unlocked? Is the exit access wide enough to safely evacuate a mass of employees? Will it be blocked during a fire, explosion, or other crisis?

These questions should be answered long before you or your employees hear the alarm.

What is an exit route?

Under 1910.37(a)(3), OSHA says that "the exit route must be free and unobstructed No materials or equipment may be placed, either permanently or temporarily, within the exit route" An exit route consists of three parts:

1. **Exit access.** The portion of an exit route that leads to an exit This must be at least 28 inches wide at all points Again, no materials or equipment or supplies can project into the route so as to reduce the width at any point.
2. **Exit.** The portion of an exit route that is generally separated from other areas to provide a protected way of travel to the exit discharge
3. **Exit discharge.** The part of the exit route that leads directly to a street, walkway, refuge area, public way, or open space with access to the outside

How many exit routes must a workplace have?

Normally, a workplace must have at least two exit routes to permit prompt evacuation of employees and other building occupants during an emergency More than two exits are required, however, if the number of employees, size of the building, or arrangement of the workplace will not allow employees to evacuate safely Exit routes must be located as far away as practical from each other in case one is blocked by fire or smoke

The only exception where one exit is permitted is if the number of employees, the size of the building, its occupancy, or the arrangement of the workplace allows all employees to evacuate safely during an emergency

Can any door serve as an exit?

Revolving, sliding, and overhead doors are prohibited from serving as exit doors Specifically, under 1910.36(e), OSHA requires that a side-hinged door be used to connect any room to an exit route No other type of door is acceptable under the standard

Employees must be able to open an exit route door from the inside at all

(continued on page 2)

Exit right or left — which is it? *(continued from page 1)*

times without keys, tools, or special knowledge. A device such as a panic bar that locks only from the outside is permitted on exit discharge doors. OSHA has clearly stated that exit doors must not be locked or obstructed.

Also, the door that connects any room to an exit route must swing out in the direction of exit travel under 1910.36(e)(2).

How many exit signs are required?

If the direction of travel to the exit or exit discharge is not immediately apparent, signs must be posted along the exit access indicating the direction of travel to the nearest exit and exit discharge. OSHA does not require a specific number of signs be used to mark the exit access, but each individual exit door must be marked.

If a doorway or passage along an exit access could be mistaken for an exit, it must be marked "Not an Exit" or similar designation, or be identified by a sign indicating its actual use (e.g., closet).

What must an exit sign look like?

The line-of-sight to an exit sign must clearly be visible at all times. Each exit sign must have the word "Exit" in plainly legible letters not less than six inches (15.2 cm) high, with the principal strokes of the letters in the word "Exit" at least three-fourths of an inch (1.9 cm) wide. The color of exit signs is addressed in a 09/14/1972 Letter of Interpretation in which OSHA says, "Any color, or color combination, that is readily visible or distinctive in appearance on exit signs is acceptable to OSHA. It is possible that local building codes may require a certain color, but our standards do not."

Also, 1910.35 allows for general industry employers to comply with the exit route provisions of NFPA 101-2000, Life Safety Code. According to this standard, "Externally illuminated signs shall…have a [color] contrast ratio of not less than 0.5. Colors providing a good contrast are red or green letters on matte white background. Glossy background and glossy letter colors should be avoided…"

Must exit signs be lit?

Whatever color of exit sign is used, it must be illuminated. Each exit sign must be illuminated to a surface value of at least five foot-candles by a reliable light source. Self-luminous or electroluminescent signs are permitted, but must have a minimum luminance surface value of at least .06 footlamberts (0.21 cd/m^2). In other words, exit signs don't need to be illuminated with a bulb. If the exit sign meets the foot candle requirement, then it may be used.

If emergency lighting provides the necessary illumination, then that is all that is needed. However, if the emergency lighting were to fail, and the exit sign was not properly illuminated, then the employer would be in violation of the standard.

What are the maintenance, safeguarding, and operational features for exit routes?

OSHA standards also require employers to do the following:

- Keep exit routes free of explosive or highly flammable furnishings and other decorations;
- Arrange exit routes so employees will not have to travel toward a high-hazard area unless the path of travel is effectively shielded from the high-hazard area;
- Maintain exit routes during construction, repairs, or alterations; and
- Provide an emergency alarm system to alert employees, unless employees can promptly see or smell a fire or other hazard in time to provide adequate warning.

All buildings designed for human occupancy must have a way for occupants to quickly leave in case of an emergency. As such, OSHA requires employers to ensure that there are clear, permanent exit routes and adequate exits for employees. These requirements can cause confusion and generate questions, but they need to be answered so there is no confusion during an emergency.

Safety focus: Battery safety

A 68-year-old boat repairman placed a battery on the floor of a marine repair shop near a battery charger and a customer's boat. He was attempting to connect the battery charger to the battery when the battery exploded. The explosion started a fire that engulfed the boat and the repairman A passersby saw the fire and called 911. The injured boat repairman was transported to a local hospital where he died from burns he received from the fire.

After a thorough site visit, investigators recommended employers should:

- Ensure employees follow documented procedures;
- Choose appropriate personal protective equipment (PPE) for the work being done;
- Establish and maintain a safety program; and
- Institute a formal training program.

Follow documented procedures

The charging of lead-acid batteries can be hazardous. However, many employees may not see it as hazardous since it is such a common activity in many workplaces. As a result, employees may take shortcuts or become lax while changing batteries.

Worker compliance can be enhanced with documented safety procedures through programs of task-specific training and follow-up, supervision, recognition, and progressive disciplinary measures.

Choose appropriate PPE

Most man-made fabrics, such as nylon, acrylic, or polyester, will melt when ignited and produce a hot, sticky, melted substance causing extremely severe burns.

The investigation concluded that the clothing worn by the victim in this case was made of a polyester material, and therefore, was inappropriate for the work being performed. Clothing should be of such design, fit, and durability as to provide adequate protection against the hazards for which it is designed, as well as be reasonably comfortable and not unduly encumber the employee's movements. Employees should also wear safety apparel, such as a face mask, goggles, apron, and gloves when handling and charging batteries.

Had the victim been wearing the proper safety apparel for the job, the incident might not have been prevented, but his injuries may not have been fatal.

Establish a safety program

In this particular case, the employer had no safety program in place for the employees to follow. Having a documented safety program has proven to be an effective method of ensuring all employees receive the necessary safety information to do their jobs.

Although not a federal requirement, OSHA says that a safety program should address the following elements:

- Management leadership and employee participation;
- Hazard identification and assessment;
- Hazard prevention and control;
- Training and instruction;
- Evaluation of program effectiveness; and
- Host/contractor responsibilities.

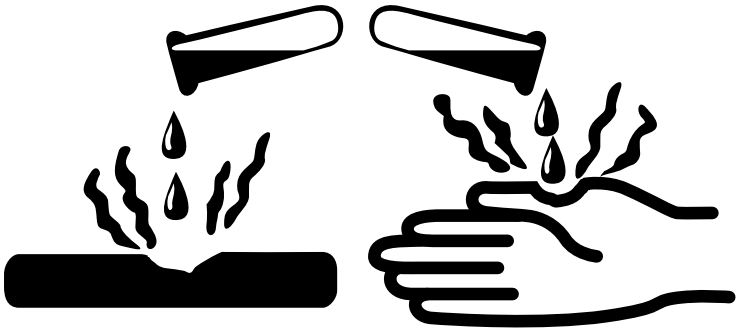
Be aware that some states, including California where this incident took place, require some sort of safety and health program.

Training

In this particular case, the employer had no training program in place for the employees to follow. The purpose behind a formal training program is to ensure all employees receive the same safety information and that their achievement of skills is verified before proceeding with any given task. As such, training is one of the most important elements in an OSHA compliance program.

A training program should be given:

- To all new employees;
- To all employees given new job assignments for which training has not previously been received;
- Whenever new substances, processes, procedures, or equipment are introduced to the workplace and represent a new hazard;
- Whenever the employer is made aware of a new or previously unrecognized hazard; and
- For supervisors to familiarize themselves with the safety and health hazards to which employees under their immediate direction and control maybe exposed.



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Coping with stress when life hurts

"The greatest weapon against stress is our ability to choose one thought over another."

William James

American philosopher and psychologist (1842-1910)

Long-term stress can lead to high blood pressure, heart disease, obesity, or depression.

The news from the doctor isn't good. A relationship unravels. A storm floods your home. Changes at work bring uncertainty.

When life takes a turn for the worse, stress kicks in. The body releases hormones that make muscles tense, increase the pulse, and put the brain on high alert.

When stress doesn't subside, it can lead to high blood pressure, heart disease, obesity, or depression. Long-term stress can also make a person more prone to getting a cold or the flu.

A number of symptoms can indicate you're under stress. A headache, sleeplessness or too much sleep, a lack of energy, weight gain, or an upset stomach can all be signs that stress is affecting your health.

To help manage the effects of stress, take action. Do your best to manage the difficult situation to the extent possible and work on controlling the emotional impacts stress brings. These steps won't make the problem disappear, but can help alleviate some of the negative impacts of stress.

Stress-relievers

Deal with the situation

Make a list. Write down your concerns or make a list of tasks that you need to accomplish.

Prioritize. Decide what needs to be addressed soon, and what can wait.

Review accomplishments. At the end of the day, focus on what you've been able to do rather than what you've been unable to do.

Deal with emotional effects

Understand that emotion is OK. A person needs time to come to terms with a negative situation. It's not unusual to experience a variety of emotions, and it is likely that they will become less intense over time.

Practice healthy behavior. Make sure to get seven to nine hours of sleep each night, and eat well-balanced meals.

Exercise. Take advantage of this natural stress-reliever, which can also distract you from negative thoughts. Walk for 30 minutes, or take three 10-minute walks. Setting a regular time for exercise can help you establish an important routine and regulate your sleep pattern.

Find time to laugh. Laughter increases pulse and blood pressure, and brings more oxygen into the body. Ultimately, it produces a relaxed feeling. Try watching a lighter television show or funny movie.