



YOUR SOURCE FOR SAFETY, HEALTH & ENVIRONMENTAL SOLUTIONS

Emergency evacuation

Six strategies for choosing the right light

By [Dawn Dalldorf-Jackson](#)

March 01, 2012

Would you be ready in a disaster or emergency situation to guide your employees to safety, even if back-up power systems failed? Does your safety checklist include using flashlight equipment that is safety-rated for use in hazardous environments? Are portable flashlights part of your facility's overall safety planning?

Smart safety managers realize that the right types of lighting tools can make a critical difference in emergency situations or when working in hazardous environments. Recent innovations in flashlight technology, such as unbreakable LED bulbs, exceptionally long run times, intense brightness and powerful, long-reaching beams offer safety and industry professionals the tools they need when choosing safe and reliable flashlights. Following are tips to help select lighting equipment that can keep your facilities and workers safe in a variety of emergency situations.

1 Assess hazards in your workplace.

Certain work environments can be extremely dangerous places for flashlights, as they can serve as a source of ignition in the presence of flammable gas and liquids and other substances. You need to have a thorough understanding of your work environment and how lights will be used under both normal and hazardous conditions.

2 Choose safety-rated lights where necessary.

How do you determine which lights to select? Look no further than the approval ratings of five leading independent laboratories, such as Underwriters Laboratories. Check flashlight packaging for the appropriate approval ratings seal.

Ratings are based on hazardous conditions, as defined by the National Electrical Code (NEC), using the following four terms: Class, Division, Group and Temperature Code.

- Class I: indicates the presence of possible flammable gases, vapors or liquids, such as a propane tank.
- Class II: indicates the possible presence of combustible dusts.
- Class III: indicates a situation where there is the possibility of ignitable fibers and flyings, such as a manufacturing facility where metal shavings are airborne.

The Division designation refers to the likelihood that ignitable concentrations of flammable materials are present.

- Division 1: an explosive atmosphere is likely to exist under normal operating conditions such as inside an oil or gasoline tank, or in certain confined spaces.
- Division 2: an explosive atmosphere is not likely to exist under normal operating conditions, such as at a manufacturing facility where a flammable substance like gasoline is flowing through pipes. In this instance, the explosive material is only present if something goes wrong — such as bursting pipes.

Hazardous classes are further defined by “group” based on the physical properties of their combustible materials. Groups include, but are not limited to:

- Group A Acetylene
- Group B Hydrogen
- Group C Ethylene, carbon monoxide
- Group D Propane, gasoline, naphtha, benzene, butane, ethyl alcohol, acetone, methane
- Group E Metals including aluminum, magnesium (Div. 1 only)
- Group F Carbonaceous dusts including coal, carbon black, and coke
- Group G Dusts not included in E and F including wood, plastics, flour, starch or grain dusts

Further, all approved flashlights are temperature rated from T1 (less than or equal to 450 °C) to T6 (less than or equal to 85 °C) and the flashlight you select partly depends on the auto ignition temperature characteristics of the substances you may encounter and the ambient temperature (adjusted to 40 °C) of the area.

3 Pay attention to light casings.

Bodies fabricated from polymer engineering resin materials are virtually indestructible, shock resistant and nonconductive. If you work in a flammable environment, make doubly sure your flashlights have a polymer casing because they do not retain heat.

4 Rechargeable or non-rechargeable?

Choose a light that is safety-rated, reliable and cost-effective, but also offers the desired features. Innovations in the lithium ion battery have set a new standard in rechargeability, allowing for smaller and lighter flashlights than their nickel-cadmium predecessors. Rechargeable lights now on the market also tend to burn brighter and cost less than their alkaline counterparts.

“Smart” lights. Safety managers often choose “smart” power failure rechargeable lights or lanterns. In the case of emergency, evacuees can easily locate these lights. Smart lights are equipped with special circuitry that automatically goes on when the power goes off. Wall mounting allows for easy removal from charging units, which provide up to nine hours of continuous lighting.

Economy. Rechargeable lights offer an additional benefit — savings. While their initial cost is higher than disposable lights, lifetime savings for rechargeables is significant. Rechargeable lights can be recharged up to 1,000 times, providing an average savings of \$300 compared to using traditional alkaline batteries over a four-year period. And using fewer alkaline batteries helps reduce pollution to the solid waste stream.

Disposable battery-powered lights. Although not as popular as rechargeable lights, disposable battery flashlights also are widely used by professionals, and can ensure flawless operation even after long periods of non-use — a real consideration in any emergency. Lights equipped with lithium batteries, for example, have a shelf life of up to 10 years. Non-rechargeables also can offer longer run times than rechargeables. Understanding how frequently a flashlight will be used is key when selecting between a rechargeable or disposable battery flashlight.

5 Let the light shine.

New flashlight standards now in use by many manufacturers define a bulb’s or LED’s brightness by total light output (lumens) and peak beam intensity (candela). Simply put, lumens is a good measure of the overall visible light, whereas candela is the brightest spot in a focused beam. Analyze your environment when choosing the right amount of brightness with the optimal run time for your needs.

Here are the options in bulb and LED technology:

Incandescent. These are filament-based bulbs, such as Xenon and Halogen lamps. They provide high output for their size, and a white, natural appearing light. They require periodic replacement and can shatter and fail on extreme impact. They are easily focused, can be very powerful, and often are the best choice for long distances.

LED (Light Emitting Diodes). Made from solid-state construction, LEDs can offer up to 100,000 hours of life. They do not require periodic replacement. With soft focus and short range, they are very good for close work. Although providing somewhat less “throw” than incandescents, they can deliver extremely long run times at low levels. They also are virtually unbreakable, an important safety consideration.

“Power” LEDs. These LEDs deliver the reliability and durability of an LED with the performance of an incandescent.

Combination LED/Incandescent. Some of today’s professional lighting tools offer LED/Xenon combination lights that combine the long running times and durability of LEDs with the brightness of an incandescent. Operation of these lights can be switched according to the specific task at hand, an advantage for workers who encounter a variety of conditions on the job.

6 Train personnel and schedule regular maintenance.

Once you select the lights best suited to your environment, educate all personnel on their operations and safety ratings, where appropriate. Training is critical to ensure that all personnel understand why certain lights can only operate in designated areas.

If you store certain flashlights and spare batteries for emergency use only, make sure all employees know where this equipment is kept, and incorporate these lights into fire and other regular safety drills. Perform routine inspections and tests of all lights used in hazardous environments, as well as other emergency lights. Add portable flashlights to your facility’s scheduled preventative maintenance program

Dawn is the director of sales for the Industrial Division of Streamlight, Inc. Streamlight is a leading manufacturer of high-performance lighting equipment. For additional information, call (800) 523-7488 or visit www.streamlight.com.

Link to Article on ISHN...

<http://www.ishn.com/articles/print/92646>