

Emergency Lighting

Introduction

When a building loses normal power, visibility is one key factor that could affect how people react to an emergency and their ability to evacuate safely. Emergency lighting will help people locate an exit if they do need to evacuate the building.

Unexpected power outages and rolling blackouts are common events that may require a building evacuation. In both cases, the loss of power will activate the emergency lighting. When there is a fire in a building, it is important to remember that the emergency lighting will not activate until building power is lost or disconnected.

All building codes and safety standards have fundamental requirements for emergency lighting that include:

- Providing adequate and reliable emergency lighting for all exits
- Regular testing and maintenance
- Documentation of the testing and maintenance

In the event of a loss of power to the normal building lighting, emergency lighting must be able to switch to an alternate power source within 10 seconds and provide at least 90 minutes of emergency egress illumination. Emergency lighting can be battery powered or have alternate power provided from a generator.

What CAU Recommends:

- > Install U.L. Listed emergency lighting fixture in all means of egress
- > Test each emergency lighting fixture monthly for 30 seconds
- > Test each emergency lighting fixture annually for 90 minutes
- > Maintain written records of monthly and annual test results

Need More Information?

Associations should consult their local building code officials to verify that any emergency lighting fixtures you plan to purchase comply with any local code requirements. Associations may also request additional information on this topic by contacting CAU's Loss Control Department.



Battery Powered Systems

Rechargeable lead acid or nickel cadmium batteries are the most common and economical alternate power source for emergency lighting. Both types of batteries are sealed and maintenance free.

Emergency lighting fixtures that use rechargeable batteries are self-contained fixtures either wired or plugged into the building's electrical system. The lights mount to a metal or plastic enclosure that holds the battery and electronic circuits. An internal relay switches to battery power and activates the light when normal building power is lost. There are a variety of wall mounted, ceiling mounted and recessed battery operated emergency lighting fixtures available.

Generator Powered Systems

A natural gas, propane or diesel powered generator is the second alternate energy source available to power emergency lighting systems. The generator typically supplies alternate power to selected lighting circuits within the building and uses the existing light fixtures. The generator may also provide standby power to other critical building systems such as fire alarms and elevators.

Installation Requirements

State and local building codes define the installation requirements for emergency lighting systems. These codes reference the National Fire Protection Association's (NFPA) Life Safety Code 101, which sets the illumination requirements based on building occupancy. Emergency lighting fixtures must be arranged to provide initial illumination of not less than an average of one foot candle and, at any point, not less than one tenth foot candle, measured along the path of egress at floor level. A foot candle is a measure of light intensity.

Residential occupancies, such as a condominium, four or more stories in height or with thirteen or more units should have emergency lighting installed in the common areas that make up the means of egress unless the units have a direct exit to the outside at grade level. Emergency lighting is not required within the residential units.

A clubhouse, meeting center, activities building or similar occupancy where people can gather should

have emergency lighting in assembly rooms and in the common areas that make up the means of egress.

Testing & Maintenance

Like any other building system, an emergency lighting system requires routine testing and maintenance. Unfortunately, many associations forget their emergency lighting system after installation.

The testing requirements for battery powered emergency lighting include activation of the emergency lighting monthly for 30 seconds and annually for 90 minutes by manual or automatic means.

Manual testing involves sending someone to each emergency lighting fixture to perform and document the tests. While this is the most common testing method used by associations, it is also more time consuming and costly.

Many lighting manufacturers have developed emergency lighting fixtures that self test automatically each month. These systems will automatically switch into emergency mode each month and check for a key component failure such as a light, battery, or transfer fault. When the system detects a failure, there is a visual indication on the fixture. This type of system will limit the monthly time and labor costs to a quick visual inspection of each fixture.

For emergency generators, follow all of the manufacturers recommended testing procedures. At a minimum, test generators monthly by starting and running the generator for at least 30 minutes and maintain written test logs to document the monthly test results. Most generators are capable of self testing automatically each month.

The most common maintenance items for emergency lighting systems are the bulbs and batteries. Older models incorporating wet cell batteries require significantly more battery maintenance than today's maintenance free, sealed lead acid or nickel cadmium batteries. Many of the newer emergency lighting fixtures also incorporate LED bulbs that have a much longer life than incandescent bulbs commonly found in older fixtures. Some systems have battery backup on the buildings' fluorescent light fixtures.