Introduction
Buildings and structures that are occupied by or open to the public have special concerns relating to the life safety of the occupants and visitors. The following information refers to self-contained battery-powered emergency lights. A system powered by an emergency power generator is another option to consider.

The purpose of this document is to provide a basic outline of the function, arrangement, requirements and testing of emergency lights that are found in commercial and public use buildings.

Why emergency lights?
Careful consideration should be given to the importance of emergency lighting. Many federal, state and local codes require reliable and sufficient emergency lighting for all commercial, industrial and institutional buildings in the United States as part of the conditions for a certificate of occupancy.

Emergency lights and emergency lighting systems provide lighting in corridors, stairwells, ramps, escalators, aisles and exit passageways during power outages. If your building lacks emergency lights, or your emergency lights fail to operate properly during a power outage, the building occupants may become disoriented. If a person is unable to determine where an exit is, or is unable to follow the correct exit pathway, that person may not be able to exit the building in a timely fashion during an emergency situation. As a result, his or her life may be put at risk.

Requirements
According to the latest edition of NFPA 101, The Life Safety Code, emergency lighting is required throughout the path of egress, including stairs, aisles, corridors, ramps, escalators and passageways leading to safety, and must be continually illuminated for a minimum of 90 minutes. Emergency lighting transfer must be automatic. Transfer of emergency lights must take place within 10 seconds of loss of normal lighting supply power. Fluorescent emergency ballasts in the light fixture must provide instant back-up lighting when the normal supply of power fails.

Emergency lighting must provide an average of 1-foot candle initial illumination. Emergency lighting facilities must provide initial illumination that is no less than an average of a 1-foot candle and a minimum at any point of 0.1-foot candle measured along the path of egress at floor level. A maximum to minimum illumination uniformity ratio of 40:1 must not be exceeded to minimize dark-to-bright spots. Proper placement of emergency lighting fixtures is essential to ensure compliance with the code.

Changes in direction of the exit pathways, or routes that are not immediately apparent must be clearly marked.

With regard to the type of light fixture that should be installed, try to purchase light fixtures that have been tested by Underwriters Laboratories in accordance with the standard set forth in UL924-Emergency Lighting and Power Equipment. Products that are UL listed are in compliance with the National Electrical Code, Life Safety Code and UL 90-minute requirements. In addition to the National Fire Protection Association (NFPA) standards, many local authorities have jurisdiction to enforce local rules and code.

When the light fixtures are going to be used in a hazardous environment, they must be rated for the hazard -- flammable gas, vapor, dust or fiber that will be present.

Purchasing the proper emergency lighting fixtures and having them professionally installed will greatly reduce any possible problems with code compliance.

Maintenance and testing of emergency lighting systems
Routine maintenance of emergency lights and emergency lighting is frequently overlooked until an emergency occurs, and then it is too late. Regular maintenance is required by NFPA Standard No. 101.
Emergency lights and emergency lighting systems

NFPA Standard No. 101 in the Periodic Testing of Emergency Lighting Equipment section of the Means of Egress Chapter states: “Functional testing shall be conducted on every required emergency lighting system at 30-day intervals for not less than 30 seconds. Functional testing shall be conducted annually for not less than 1½ hours if the emergency lighting system is battery powered. Equipment must be fully operational for the duration of the test. Written records of visual inspections and tests shall be kept by the owner of the building for inspection by the authority having jurisdiction.”

The following is the proper testing procedure for self-contained battery-powered emergency lighting systems:

- Disconnect A/C power supply to each emergency light.
- Check battery and lens for sulfation. Sulfation is the growth of lead sulfate crystals in lead-acid batteries which inhibits the flow of electricity.
- Clean each emergency light and lens as required.
- Adjust beam for proper alignment. The ideal situation is for the beam to illuminate the exit pathway for the person trying to exit the building. The light cast by the emergency lighting fixture should guide the person to the next set of lights or to the exit itself.
- Upon completion of the test, place a testing label on the emergency light and record in the testing log. The label should record the date of the test, the successful outcome of the test, and the initials of the tester.
- Troubleshooting/repair may also include checking and adjusting charging system voltage, checking battery output voltage, and checking line voltage to remote fixtures.

Summary

Building owners and property managers have the ability to make their buildings safer simply by following the codes set forth for emergency lighting and illumination of exit pathways. In a fire or a power outage, it is essential that occupants of a building have an easily identifiable and safe way to exit the building.

For more information, log in to the Risk Control Customer Portal at travelers.com/riskcontrol. (Need help? Read our Registration Quick Guide.) You also can contact your Risk Control consultant or email Ask-Risk-Control@travelers.com.