ACE LEDS
WE BRING THE POWER

Code and Compliance

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Codes Protect Property and Save Lives

UNITED STATES DEPARTMENT OF LABOR

OSHA® Occupational Safety and Health Administration

NFPA® NATIONAL FIRE PROTECTION ASSOCIATION

NFPA 101 Life Safety Code 2021 + NFPA 70 National Electrical Code 2020

UL 924
STANDARD FOR SAFETY
EMERGENCY LIGHTING AND POWER EQUIPMENT

- In 1970, President Richard Nixon signed into law the Occupational Safety and Health (OSH) Act.

- **Objective—** "... to provide protection from unhealthy and dangerous conditions that are likely to cause death or serious harm."
- **It's the law!** That is... comply with OSHA's rules and regulations or face citations and penalties.

- OSHA enlisted the NFPA to achieve this objective. NFPA is devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards.
- **OSHA →** tells what to do; **NFPA →** tells how to do it

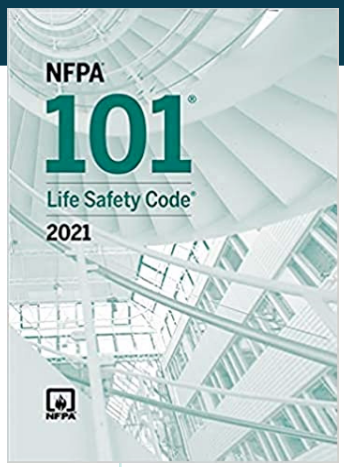
- CODE at the **building level**
- NFPA 70 National Electrical Code (NEC) NFPA 101 Life Safety Code
- The NEC ensures the proper application, installation, operation, and maintenance of systems & equipment at the building level

UL: PRODUCT and EQUIPMENT LEVEL

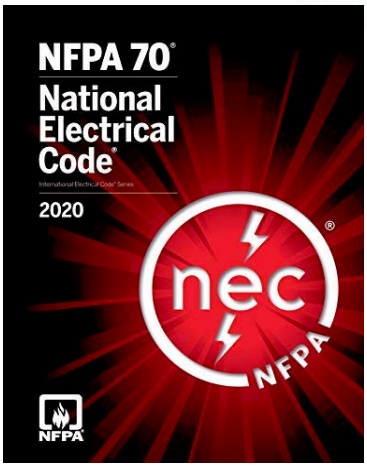
NEC requires all Emergency Lighting and Power Equipment to be approved and clearly marked for its intended use per this standard.

Emergency Lighting Equipment is Life Safety Equipment

Primary Emergency Lighting Building Codes and Regulations



- **NFPA 101, Life Safety Code, Chapter 7:** Defines operational and performance requirements for paths of egress as well as minimum illumination levels that the emergency lighting system must provide.



- **The National Electric Code (NEC), NFPA 70. Article 700:** Requirements for emergency lighting and power systems and equipment. Emergency Systems are those systems that are intended to supply, distribute, and control the power and illumination essential for safety to human life.

- **UL924:** Underwriters Laboratories Inc. UL924. The standard for Emergency Lighting and Power Equipment. UL924 is applicable to all equipment that automatically supplies illumination or power or both to critical areas and to equipment in the event of failure of the normal supply, in accordance with Article 700 of the National Electrical Code, NFPA 70, the Life Safety Code, NFPA 101, International Building Code, IBC, and the International Fire Code, IFC.

Emergency Lighting is a Code-Driven Industry

NFPA 101, Life Safety Code, Section 7.9
Basic Requirements

- Emergency illumination shall be provided for not less than 1 ½ hours in the event of failure of normal lighting.
- Emergency lighting facilities shall be arranged to provide initial illumination that is not less than an average of 1 ft-candle and, at any point, not less than 0.1 ft-candle, measured along the path of egress at floor level.
- Illumination levels shall be permitted to decline to not less than an average of 0.6 ft-candle and, at any point, not less than 0.06 ft-candle at the end of the 1 ½ hours.
- A maximum-to-minimum illumination uniformity ratio of 40:1 shall not be exceeded.

Note: State and local codes may vary, however these regulations set the minimum performance criteria

NFPA 101 Section 7.9.3 Periodic Testing of Emergency Lighting Equipment.

Upon installation, the authority having jurisdiction (AHJ) shall conduct a witness test of the complete emergency system. In addition, periodic testing of the required emergency lighting systems shall be conducted in accordance with the type emergency lighting equipment provided.

There are three types, categorized according to the testing method and diagnostic method provided:

1. Section 7.9.3.1.1:
Functionally (manually) tested and visually diagnosed

2. Section 7.9.3.1.2:
Self-Testing/Self-Diagnostic.

3. Section 7.9.3.1.3:
Computer-based, Self-Testing/Self-Diagnostic:

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1. Functional (manual) testing and visually diagnosed
• Functional testing shall be conducted monthly for not less than 30 seconds
• Functional testing shall be conducted annually for a minimum of 1.5 hours
• Written records of visual inspections and tests shall be kept by the owner for inspection by the AHJ.

2. Self-Testing/Self-Diagnostic
• Self-testing/self-diagnostic emergency lighting equipment shall automatically perform a test not less than once every 30 days with a duration of a minimum of 30 seconds and a diagnostic routine.
• Self-testing/self-diagnostic emergency lighting equipment shall indicate failures by a status indicator
• Visual inspections shall be performed at intervals not exceeding 30 days
• Functional testing shall be conducted annually for a minimum of 1.5 hours
• Written records of visual inspections and tests shall be kept by the owner for inspection by the AHJ.

3. Computer-based, Self-Testing/Self-Diagnostic
• Computer-based, self-testing/self-diagnostic battery-operated emergency lighting equipment shall automatically perform a test not less than once every 30 days with a duration of a minimum of 30 seconds and a diagnostic routine.
• The emergency lighting equipment shall automatically perform annually a test for a minimum of 1.5 hours.
• The computer-based system shall be capable of providing a report of the history of tests and failures at all times for inspection by the AHJ.

NFPA 101 Section 1.6 Enforcement

This Code shall be administered and enforced by the authority having jurisdiction designated by the governing authority

- State and local building codes may vary with further requirements imposed; however, most codes are based upon these primary laws, codes, and regulations.
- At the discretion of the local authority having jurisdiction (AHJ), code interpretive variances may be imposed.
- The AHJ is that person or office charged with enforcing the Life Safety Code. In many states the AHJ is the state fire marshal who has local inspectors work on his/her behalf.
- The AHJ is a signee for building permits and the Certificate of Occupancy (CO). A Certificate of Occupancy is a document issued by a local government agency or building department certifying compliance with applicable building codes and other laws, indicating suitability for occupancy

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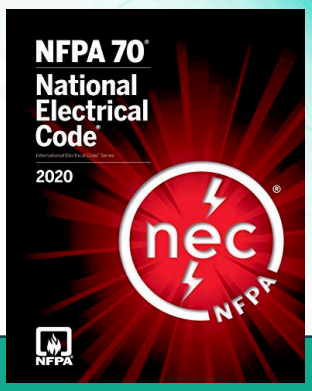
The National Electric Code (NEC), NFPA 70 Article 700 Emergency Systems



Code	Impact
Emergency wiring circuits shall be designed and located so as to minimize the hazards that might cause failure due to flooding, fire, icing, vandalism, and other adverse conditions.	• Wiring from the emergency source of power to the luminaire must be protected with metal conduit or an enclosure. • For a more reliable system, the emergency source of power should be located as close to the luminaire as possible. • Unit Equipment, such as Emergency LED Drivers, intrinsically meet these requirements; contrarily, centralized inverters or generators require expensive wiring practices.
The NEC defines a Class 2 circuit as that portion of the wiring system between the load side of a Class 2 power source and the connected equipment. Due to its power limitations, a Class 2 circuit is considered safe from a fire initiation standpoint and provides acceptable protection from electrical shock.	Class 2 circuits cannot be mixed with class 1 (or non-class 2) circuits. The Emergency LED Driver output must be a UL class 2 circuit to be used in a class 2 luminaire or connect to a class 2 Normal LED Driver.
All emergency lighting and associated circuits must be separated physically and electrically from normal power (non-emergency power) and devices.	Unit Equipment, such as Emergency LED Drivers, intrinsically meet this requirement; contrarily, centralized inverters or generators require expensive wiring practices, and pose additional risks.
The AHJ must approve all equipment used for the emergency system and confirms that equipment is marked for this purpose.	All Emergency Lighting Equipment must be certified and marked. UL develops the standard for testing these products.

UL 924

STANDARD FOR SAFETY

Emergency Lighting and Power Equipment

- All Emergency Lighting Equipment must be certified and marked. UL develops the standard for testing these products.
- UL develops the standard for product safety which includes enabling NEC to accomplish their mission of the proper application, installation, operation, and maintenance of systems & equipment. The UL requirements are designed to mitigate risks of improper application, installation, and operation, and to ensure performance is maintained reliably over the operational lifetime of all equipment.

c UL US
LISTED
EMER.LIGHT &
POWER EQ.
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Products cannot go to market without this certification mark!