

# NATIONAL FIRE PROTECTION ASSOCIATION

## LIFE SAFETY CODE (NFPA 101) - 2000

### SECTION 4.6 GENERAL REQUIREMENTS

#### 4.6.12 Maintenance and Testing.

**4.6.12.1** Whenever or wherever any device, equipment, system, condition, arrangement, level of protection, or any other feature is required for compliance with the provisions of this Code, such device, equipment, system, condition, arrangement, level of protection, or other feature shall thereafter be continuously maintained in accordance with applicable NFPA requirements or as directed by the authority having jurisdiction.

**4.6.12.2\*** Existing life safety features obvious to the public, if not required by the Code, shall be either maintained or removed.

**4.6.12.3** Equipment requiring periodic testing or operation to ensure its maintenance shall be tested or operated as specified elsewhere in this Code or as directed by the authority having jurisdiction.

**4.6.12.4** Maintenance and testing shall be under the supervision of a responsible person who shall ensure that testing and maintenance are made at specified intervals in accordance with applicable NFPA standards or as directed by the authority having jurisdiction.

### SECTION 7.8 ILLUMINATION OF MEANS OF EGRESS

#### 7.8.1 General.

**7.8.1.1\*** Illumination of means of egress shall be provided in accordance with Section 7.8 for every building and structure where required in Chapters 11 through 42. For the purposes of this requirement, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purposes of this requirement, exit discharge shall include only designated stairs, aisles, corridors, ramps, escalators, walkways, and exit passageways leading to a public way.

**7.8.1.2** Illumination of means of egress shall be continuous during the time that the conditions of occupancy require that the means of egress be available for use. Artificial lighting shall be employed at such locations and for such periods of time as required to maintain the illumination to the minimum criteria values herein specified.

*Exception: Automatic, motion sensor-type lighting switches shall be permitted within the means of egress, provided that the switch controllers are equipped for fail-safe operation, the illumination timers are set for a minimum 15-minute duration, and the motion sensor is activated by any occupant movement in the area served by the lighting units.*

**7.8.1.3\*** The floors and other walking surfaces within an exit and within the portions of the exit access and exit discharge designated in 7.8.1.1 shall be illuminated to values of at least 1 ft-candle (10 lux) measured at the floor.

*Exception No. 1: In assembly occupancies, the illumination of the floors of exit access shall be at least 0.2 ft-candle (2 lux) during periods of performances or projections involving directed light.*

*Exception No. 2: This requirement shall not apply where operations or processes require low lighting levels.*

**7.8.1.4\*** Required illumination shall be arranged so that the failure of any single lighting unit does not result in an illumination level of less than 0.2 ft-candle (2 lux) in any designated area.

**7.8.1.5** The equipment or units installed to meet the requirements of Section 7.10 also shall be permitted to serve the function of illumination of means of egress, provided that all requirements of Section 7.8 for such illumination are met.

#### 7.8.2 Sources of Illumination.

**7.8.2.1\*** Illumination of means of egress shall be from a source considered reliable by the authority having jurisdiction.

**7.8.2.2** Battery-operated electric lights and other types of portable lamps or lanterns shall not be used for primary illumination of means of egress. Battery-operated electric lights shall be permitted to be used as an emergency source to the extent permitted under Section 7.9.

### SECTION 7.9 EMERGENCY LIGHTING

#### 7.9.1 General.

**7.9.1.1\*** Emergency lighting facilities for means of egress shall be provided in accordance with Section 7.9 for the following:

- (1) Buildings or structures where required in Chapters 11 through 42
- (2) Underground and windowless structures as addressed in Section 11.7
- (3) High-rise buildings as required by other sections of this Code
- (4) Doors equipped with delayed egress locks
- (5) The stair shaft and vestibule of smokeproof enclosures, which shall be permitted to include a standby generator that is installed for the smokeproof enclosure mechanical ventilation equipment and used for the stair shaft and vestibule emergency lighting power supply

For the purposes of this requirement, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purposes of this requirement, exit discharge shall include only designated stairs, ramps, aisles, walkways, and escalators leading to a public way.

**7.9.1.2** Where maintenance of illumination depends on changing from one energy source to another, a delay of not more than 10 seconds shall be permitted.

#### 7.9.2 Performance of System.

**7.9.2.1\*** Emergency illumination shall be provided for not less than 1<sup>h</sup> 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 (10 lux) and, at any point, not less than 0.1 ft-candle (1 lux), 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 (6 lux) and, at any point, not less than 0.06 ft-candle (0.6 lux) at the end of the 1<sup>h</sup> hours. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.

**7.9.2.2\*** The emergency lighting system shall be arranged to provide the required illumination automatically in the event of any of the following:

- (1) Interruption of normal lighting such as any failure of a public utility or other outside electrical power supply
- (2) Opening of a circuit breaker or fuse
- (3) Manual act(s), including accidental opening of a switch controlling normal lighting facilities

**7.9.2.3** Emergency generators providing power to emergency lighting systems shall be installed, tested, and maintained in accordance with NFPA 110, *Standard for Emergency and Standby Power Systems*. Stored electrical energy systems, where required in this Code, shall be installed and tested in accordance with NFPA 111, *Standard on Stored Electrical Energy Emergency and Standby Power Systems*.

**7.9.2.4\*** Battery-operated emergency lights shall use only reliable types of rechargeable batteries provided with suitable facilities for maintaining them in properly charged condition. Batteries used in such lights or units shall be approved for their intended use and shall comply with NFPA 70, *National Electrical Code*®.

**7.9.2.5** The emergency lighting system shall be either continuously in operation or shall be capable of repeated automatic operation without manual intervention.

**7.9.3 Periodic Testing of Emergency Lighting Equipment.** A functional test shall be conducted on every required emergency lighting system at 30-day intervals for not less than 30 seconds. An annual test shall be conducted on every required battery-powered emergency lighting system for not less than 1<sup>h</sup> hours. Equipment shall be fully operational for the duration of the test. Written records of visual inspections and tests shall be kept by the owner for inspection by the authority having jurisdiction.

*Exception: Self-testing/self-diagnostic, battery-operated emergency lighting equipment that automatically performs a test for not less than 30 seconds and diagnostic routine not less than once every 30 days and indicates failures by a status indicator shall be exempt from the 30-day functional test, provided that a visual inspection is performed at 30-day intervals.*

### SECTION 7.10 MARKING OF MEANS OF EGRESS

#### 7.10.1 General

**7.10.1.1 Where Required.** Means of egress shall be marked in accordance with Section 7.10 where required in Chapters 11 through 42.

**7.10.1.2\* Exits.** Exits, other than main exterior exit doors that obviously and clearly are identifiable as exits, shall be marked by an approved sign readily visible from any direction of exit access.

**7.10.1.3 Exit Stair Door Tactile Signage.** Tactile signage shall be located at each door into an exit stair enclosure, and such signage shall read as follows:

EXIT

Signage shall comply with CABO/ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*, and shall be installed adjacent to the latch side of the door 60 in. (152 cm) above the finished floor to the centerline of the sign.

*Exception: This requirement shall not apply to existing buildings provided that the occupancy classification does not change.*

**7.10.1.4\* Exit Access.** Access to exits shall be marked by approved, readily visible signs in all cases where the exit or way to reach the exit is not readily apparent to the occupants. Sign placement shall be such that no point in an exit access corridor is in excess of 100 ft (30 m) from the nearest externally illuminated sign and is not in excess of the marked rating for internally illuminated signs.

*Exception: Signs in exit access corridors in existing buildings shall not be required to meet the placement distance requirements.*

**7.10.1.5\* Floor Proximity Exit Signs.** Where floor proximity exit signs are required in Chapters 11 through 42, signs shall be placed near the floor level in addition to those signs required for doors or corridors. These signs shall be illuminated in accordance with 7.10.5. Externally illuminated signs shall be sized



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in accordance with 7.10.6.1. The bottom of the sign shall be not less than 6 in. (15.2 cm) but not more than 8 in. (20.3 cm) above the floor. For exit doors, the sign shall be mounted on the door or adjacent to the door with the nearest edge of the sign within 4 in. (10.2 cm) of the door frame.

**7.10.1.6\* Floor Proximity Egress Path Marking.** Where floor proximity egress path marking is required in Chapters 11 through 42, a listed and approved floor proximity egress path marking system that is internally illuminated shall be installed within 8 in. (20.3 cm) of the floor. The system shall provide a visible delineation of the path of travel along the designated exit access and shall be essentially continuous, except as interrupted by doorways, hallways, corridors, or other such architectural features. The system shall operate continuously or at any time the building fire alarm system is activated. The activation, duration, and continuity of operation of the system shall be in accordance with 7.9.2.

**7.10.1.7\* Visibility.** Every sign required in Section 7.10 shall be located and of such size, distinctive color, and design that it is readily visible and shall provide contrast with decorations, interior finish, or other signs. No decorations, furnishings, or equipment that impairs visibility of a sign shall be permitted. No brightly illuminated sign (for other than exit purposes), display, or object in or near the line of vision of the required exit sign that could detract attention from the exit sign shall be permitted.

**7.10.2\* Directional Signs.** A sign complying with 7.10.3 with a directional indicator showing the direction of travel shall be placed in every location where the direction of travel to reach the nearest exit is not apparent.

**7.10.3\* Sign Legend.** Signs required by 7.10.1 and 7.10.2 shall have the word EXIT or other appropriate wording in plainly legible letters.

**7.10.4\* Power Source.** Where emergency lighting facilities are required by the applicable provisions of Chapters 11 through 42 for individual occupancies, the signs, other than approved self-luminous signs, shall be illuminated by the emergency lighting facilities. The level of illumination of the signs shall be in accordance with 7.10.6.3 or 7.10.7 for the required emergency lighting duration as specified in 7.9.2.1. However, the level of illumination shall be permitted to decline to 60 percent at the end of the emergency lighting duration.

### 7.10.5 Illumination of Signs.

**7.10.5.1\* General.** Every sign required by 7.10.1.2 or 7.10.1.4, other than where operations or processes require low lighting levels, shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be legible in both the normal and emergency lighting mode.

**7.10.5.2\* Continuous Illumination.** Every sign required to be illuminated by 7.10.6.3 and 7.10.7 shall be continuously illuminated as required under the provisions of Section 7.8.

*Exception:\** Illumination for signs shall be permitted to flash on and off upon activation of the fire alarm system.

### 7.10.6 Externally Illuminated Signs.

**7.10.6.1\* Size of Signs.** Externally illuminated signs required by 7.10.1 and 7.10.2, other than approved existing signs, shall have the word EXIT or other appropriate wording in plainly legible letters not less than 6 in. (15.2 cm) high with the principal strokes of letters not less than 3/4 in. (1.9 cm) wide. The word EXIT shall have letters of a width not less than 2 in. (5 cm), except the letter *I*, and the minimum spacing between letters shall be not less than 3/8 in. (1 cm). Signs larger than the minimum established in this paragraph shall have letter widths, strokes, and spacing in proportion to their height

*Exception No. 1:* This requirement shall not apply to existing signs having the required wording in plainly visible letters not less than 4 in. (10.2 cm) high.

*Exception No. 2:* This requirement shall not apply to marking required by 7.10.1.3 and 7.10.1.5.

**7.10.6.2\* Size and Location of Directional Indicator.** The directional indicator shall be located outside of the EXIT legend, not less than 3/8 in. (1 cm) from any letter. The directional indicator shall be of a chevron type, as shown in Figure 7.10.6.2. The directional indicator shall be identifiable as a directional indicator at a distance of 40 ft (12.2 m). A directional indicator larger than the minimum established in this paragraph shall be proportionately increased in height, width and stroke. The directional indicator shall be located at the end of the sign for the direction indicated.

*Exception:* This requirement shall not apply to approved existing signs.

FIGURE 7.10.6.2 Chevron-type indicator.



**7.10.6.3\* Level of Illumination.** Externally illuminated signs shall be illuminated by not less than 5 ft-candles (54 lux) at the illuminated surface and shall have a contrast ratio of not less than 0.5.

### 7.10.7 Internally Illuminated Signs.

**7.10.7.1 Listing.** Internally illuminated signs, other than approved existing signs, or existing signs having the required wording in legible letters not less than 4 in. (10.2 cm) high, shall be listed in accordance with UL 924, *Standard for Safety Emergency Lighting and Power Equipment*.

*Exception:* This requirement shall not apply to signs that are in accordance with 7.10.1.3 and 7.10.1.5.

**7.10.7.2\* Photoluminescent Signs.** The face of a photoluminescent sign shall be continually illuminated while the building is occupied. The illumination levels on the face of the photoluminescent sign shall be in accordance with its listing. The charging illumination shall be a reliable light source as determined by the authority having jurisdiction. The charging light source shall be of a type specified in the product markings.

### 7.10.8 Special Signs.

**7.10.8.1\* No Exit.** Any door, passage, or stairway that is neither an exit nor a way of exit access and that is located or arranged so that it is likely to be mistaken for an exit shall be identified by a sign that reads as follows:

NO  
EXIT

Such sign shall have the word NO in letters 2 in. (5 cm) high with a stroke width of 3/8 in. (1 cm) and the word EXIT in letters 1 in. (2.5 cm) high, with the word EXIT below the word NO.

*Exception:* This requirement shall not apply to approved existing signs.

**7.10.8.2 Elevator Signs.** Elevators that are a part of a means of egress (see 7.2.13.1) shall have the following signs, with minimum letter height of 5/8 in. (1.6 cm), in every elevator lobby:

- (1) \*Signs that indicate that the elevator can be used for egress, including any restrictions on use
- (2) \*Signs that indicate the operational status of elevators

### 7.10.9 Testing and Maintenance.

**7.10.9.1 Inspection.** Exit signs shall be visually inspected for operation of the illumination sources at intervals not to exceed 30 days.

**7.10.9.2 Testing.** Exit signs connected to or provided with a battery-operated emergency illumination source, where required in 7.10.4, shall be tested and maintained in accordance with 7.9.3.

## SECTION 11.8 HIGH-RISE BUILDINGS

### 11.8.4 Emergency lighting and Standby Power.

**11.8.4.1** Emergency lighting in accordance with Section 7.9 shall be provided.

**11.8.4.2\*** Class 1, Type 60, standby power in accordance with NFPA 70, *National Electrical Code*, and NFPA 110, *Standard for Emergency and Standby Power Systems*, shall be provided. The standby power system shall have a capacity and rating sufficient to supply all required equipment. Selective load pickup and load shedding shall be permitted in accordance with NFPA 70, *National Electrical Code*. The standby power system shall be connected to the following:

- (1) Emergency lighting system
- (2) Fire alarm system
- (3) Electric fire pump
- (4) Central control station equipment and lighting
- (5) Not less than one elevator serving all floors, with standby power transferable to any elevator
- (6) Mechanical equipment for smokeproof enclosures
- (7) Mechanical equipment required to conform with the requirements of Section 9.3

