

NFPA LIFE SAFETY CODE 101

Section 5-8 Illumination of Means of Egress

5-8.1 General.

5-8.1.1* Illumination of means of egress shall be provided in accordance with this section for every building and structure where required in Chapters 8 through 32. 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.

5-8.1.2 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 places 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 switch controllers are equipped for fail-safe operation, illumination timers are set for a minimum 15 min duration, and the motion sensor is activated by any occupant movement in the area served by the lighting units.

5-8.1.3* The floors and other walking surfaces within an exit and within the portions of the exit access and exit discharge designated in 5-8.1.1 shall be illuminated to values of at least 1 ft-candle (10 lux) measured at the floor.

Exception: 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.

5-8.1.4* Any required illumination shall be arranged so that the failure of any single lighting unit shall not leave any area in darkness.

5-8.1.5 The equipment or units installed to meet the requirements of Section 5-10 shall be permitted also to serve the function of illumination of means of egress, provided that all requirements of Section 5-8 for such illumination are met.

5-8.2 Sources of Illumination.

5-8.2.1* Illumination of means of egress shall be from a source of reasonably ensured reliability.

5-8.2.2 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 5-9.

SECTION 5-9 EMERGENCY LIGHTING

5-9.1 General.

5-9.1.1* Emergency lighting facilities for means of egress shall be provided in accordance with this section for

(a) Every building or structure where required in Chapters 8 through 32, and

(b) At doors equipped with delayed egress locks, and

(c) The stair shaft and vestibule of smokeproof enclosures. A standby generator that is installed for the smokeproof enclosure mechanical ventilation equipment shall be permitted to be used for such stair shaft and vestibule 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.

5-9.1.2 Where maintenance of illumination depends upon changing from one energy source to another, there shall be no appreciable interruption of illumination during the changeover. Where emergency lighting is provided by a prime mover-operated electric generator, a delay of not more than 10 sec shall be permitted.

5-9.2 Performance of System.

5-9.2.1* Emergency illumination shall be provided for a period of 1½ hr in the event of failure of normal lighting. Emergency lighting facilities shall be arranged to provide initial illumination that is at least an average of 1 ft-candle (10 lux) and a minimum at any point of 0.1 ft-candle (1 lux) measured along the path of egress at floor level. Illumination levels shall

be permitted to decline to 0.6 ft-candle (6 lux) average and a minimum at any point of 0.06 ft-candle (0.6 lux) at the end of the emergency time duration. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.

5-9.2.2* The emergency lighting system shall be arranged to provide the required illumination automatically in the event of any interruption of normal lighting, such as any failure of public utility or other outside electrical power supply; opening of a circuit breaker or fuse; or any manual act(s), including accidental opening of a switch controlling normal lighting facilities.

5-9.2.3 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*.

5-9.2.4* 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*.[®]

5-9.2.5 The emergency lighting system shall be either continuously in operation or shall be capable of repeated automatic operation without manual intervention.

5-9.3 Periodic Testing of Emergency Lighting Equipment. A functional test shall be conducted on every required battery-powered emergency lighting systems at 30-day intervals for a minimum of 30 sec. An annual test shall be conducted for a 1½-hr duration. Equipment shall be fully operational for the duration of the test. Written records of visual inspections and test 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 minimum 30-sec test and diagnostic routine at least once every 30 days and indicates failures by a status indicator shall be exempt from the 30-day functional test, provided a visual inspection is performed at 30-day intervals.

SECTION 5-10 MARKING OF MEANS OF EGRESS

5.10.1 General.

5-10.1.1 Means of egress shall be marked in accordance with this section where required in Chapters 8 through 32.

5-10.1.2* Exits shall be marked by an approved sign readily visible from any direction of exit access.

Exception: Main exterior exit doors that obviously and clearly are identifiable as exits.

5-10.1.3 At each door into an exit stair enclosure, tactile signage stating and complying with CABO/ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*, 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: Existing buildings, provided the occupancy classification does not change.

5-10.1.4* Access to exits shall be marked by approved, readily visible signs in all cases where the exit or way to reach it is not readily apparent to the occupants. Sign placement shall be such that no point in the exit access corridor is more than 100 ft (30-m) from the nearest sign.

Exception: Signs in exit access corridors in existing buildings shall not be required to meet the 100-ft (30-m) distance requirements.

5-10.1.5* Where floor proximity exit signs are required in Chapters 8 through 32, exit signs shall be placed near the floor level in addition to those signs required for doors or corridors. These signs shall be sized and illuminated in accordance with 5-10.2 and 5-10.3. The bottom of the sign shall be at least 6 in. (15.2 cm) nor 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.

5-10.1.6* Every sign required in Section 5-10 shall be located and of such size, distinctive color, and design as to be readily visible and shall provide contrast with decorations, interior finish, or other signs. No decorations, furnishings, or equipment that impairs visibility of an exit sign shall be permitted, nor shall there be any brightly illuminated sign (for other than exit purposes), display, or object in or near the line of vision of the required exit sign of such a character as to detract attention from the exit sign.

5-10.1.7* Where floor proximity egress path marking is required in Chapters 8 through 32, 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 5-9.2.

5-10.2* Size of Signs.

5-10.2.1 Externally illuminated signs required by 5-10.1 and 5-10.4.1.1 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 $\frac{3}{4}$ 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 $\frac{3}{8}$ 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: Approved existing signs.

Exception No. 2: Existing signs having the required wording in plainly legible letters not less than 4 in. (10.2 cm) high.

Exception No. 3: Marking required by 5-10.1.3 and 5-10.1.7.

5-10.2.2* Internally illuminated signs required by 5-10.1 and 5-10.4.1.1 shall have the word "EXIT" or other appropriate wording in letters legible from a distance of at least 100 ft (30 m) under all normal and emergency lighting conditions (30 ft-candle and 1 ft-candle, respectively). Internally illuminated signs shall be listed in accordance with UL 924, *Standard for Safety Emergency Lighting and Power Equipment*.

Exception No. 1: Approved existing signs.

Exception No. 2: Existing signs having the required wording in legible letters not less than 4 in. (10.2 cm) high.

Exception No. 3: Marking required by 5-10.1.3 and 5-10.1.7.

5-10.3* Illumination of Signs.

5-10.3.1* Every sign required by 5-10.1.2 or 5-10.1.4 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.

5-10.3.2* Externally illuminated signs shall be illuminated by not less than 5 ft-candles (54 lux) and shall employ a contrast ratio of not less than 0.5.

5-10.3.3* The visibility of an internally illuminated sign shall be the equivalent of an externally illuminated sign that complies with 5-10.3.2.

Exception No. 1: Approved existing signs.

Exception No. 2: Listed self-luminous or electroluminescent signs that provide evenly illuminated letters shall have a minimum luminance of 0.06 foot-lamberts (0.21 cd/sq m) as measured by a color-corrected photometer. New signs shall be located such that the viewing distance along the path of egress is not more than the sign's marked rating.*

5-10.3.4* Every sign required to be illuminated by 5-10.3 shall be continuously illuminated as required under the provisions of Section 5-8.

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

5-10.3.5 Where emergency lighting facilities are required by the applicable provisions of Chapters 8 through 32 for individual occupancies, the exit signs shall be illuminated by the emergency lighting facilities. The level of illumination of the exit sign shall be at the levels provided in accordance with 5-10.3.2 or 5-10.3.3 for the required emergency lighting time duration as specified in 5-9.2.1, but shall be permitted to decline to 60 percent of the illumination level at the end of the emergency lighting time duration.

Exception: Approved self-luminous signs.

5-10.4 Specific Requirements.

5-10.4.1 Directional Signs.

5-10.4.1.1* A sign complying with 5-10.2 reading "EXIT," or a similar designation with a directional indicator showing the direction of travel shall be placed in every location where the direction of travel shall be placed in every location where the direction of travel to reach the nearest exit is not apparent. Directional signs shall be listed.

5-10.4.1.2* Directional Indicator. The directional indicator shall be located outside of the EXIT legend, not less than $\frac{3}{8}$ in. (1 cm) from any letter, and shall be permitted to be integral to or separate from the sign

body. The directional indicator shall be of a chevron type as shown in Figure 5-10.4.1.2 and shall be identifiable as a directional indicator at a minimum distance of 40 ft (12.2 m) at 30 ft-candle and 1 ft-candle average illumination on the floor representing normal and emergency lighting levels respectively. The directional indicators shall be located at the end of the sign for the direction indicated.

Exception: Approved existing signs.

Figure 5-10.4.1.2 Chevron-type indicator.

5-10.4.2 Special Signs. 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 reading "NO EXIT." Such sign shall have the word "NO" in letters 2 in. (5 cm) high with stroke width of $\frac{3}{8}$ in. (1 cm) and the word "EXIT" in letters 1 in. (2.5 cm) high, with the word "EXIT" below the word "NO."

Exception: Approved existing signs.

5-10.4.3 Elevator Signs. Elevators that are a part of a means of egress (see 5-2.13.1) shall have the following signs, with minimum letter height of 5/8 in. (1.6 cm), in every elevator lobby:

(a)* Signs that indicate that the elevator can be used for egress including any restrictions on use, and

(b)* Signs that indicate the operational status of elevators.

5-10.5 Testing and Maintenance.

5-10.5.1 Exit signs shall be visually inspected at maximum 30-day intervals for operation of the illumination sources.

5-10.5.2 Exit signs connected to or provided with a battery-operated emergency illumination source, where required in 5-10.3.5, shall be tested and maintained in accordance with 5-9.3.

SECTION 5-11 SPECIAL PROVISIONS FOR OCCUPANCIES WITH HIGH HAZARD CONTENTS

(See Section 4-2.)

5-11.1* In all cases where the contents are classified as high hazard, exits of such types and numbers shall be provided and arranged to permit all occupants to escape from the building or structure or from the hazardous area thereof to the outside or to a place of safety with a travel distance of no more than 75 ft (23 m), measured as required in 5-6-2.

5-11.2 Egress capacity for high hazard contents areas shall be based on 0.7 in./person (1.8 cm/person) for stairs or 0.4 in./person (1.0 cm/person) for level components and ramps in accordance with 5-3.3.1.

5-11.3 At least two means of egress shall be provided from each building or hazardous area thereof.

Exception: Rooms or spaces not more than 200 sq ft (18.6 sq m) and having an occupant load of not more than three persons and a travel distance to the room door of not more than 25 ft (7.6 m).

5-11.4 Means of egress shall be arranged so that there are no dead ends in corridors.

Exception: Spaces meeting the requirements of the Exception to 5-11.3.

5-11.5 Doors serving high hazard contents areas with occupant loads of more than five shall be permitted to be provided with a latch or lock only if it is panic hardware or fire exit hardware complying with 5-2.1.7.

SECTION 5-12 MECHANICAL EQUIPMENT ROOMS, BOILER ROOMS, AND FURNACE ROOMS

5-12.1 Mechanical equipment rooms, boiler rooms, furnace rooms, and similar spaces shall be arranged to limit common path of travel to not more than 50 ft (15 m).

Exception: A common path of travel not more than 100 ft (30 m) shall be permitted:

(a) *In buildings protected throughout by an approved, supervised automatic sprinkler system installed in accordance with Section 7-7, or*

(b) *In mechanical equipment rooms with no fuel-fired equipment, or*

(c) *In existing buildings.*

5-12.2 Stories used exclusively for mechanical equipment, furnaces, or boilers shall be permitted to have a single means of egress where the travel distance to an exit on that story is not more than the common path of travel limitations of 5-12.1.