INFORMATION BULLETIN / PUBLIC - BUILDING CODE
REFERENCE NO.: LABC 1005, 1006, 1011 & 2702 Effective: 01-01-2023
DOCUMENT NO.: P/BC 2023-019 Revised:
Previously Issued As: P/BC 2017-019

MEANS OF EGRESS SYSTEM, EXIT SIGN, INTERIOR SPACE LIGHTING ILLUMINATIONS, AND ASSOCIATED EMERGENCY POWER SYSTEM REQUIREMENTS

This bulletin provides information on the means of egress system illumination (lighting), exit sign illumination (lighting), interior environment space lighting, and associated emergency power system requirements in all occupancies covered by the Los Angeles Municipal Codes (Building Code, Electrical Code). These requirements are necessary for uniform application of the codes by the Department of Building and Safety and to help the public apply the codes correctly.

In general, Sections 1008, 1013, and Table 1006.23 of the Los Angeles Building Code (LABC) require means of egress including exit discharge used for egress in any building to have exit illumination, exit signs, and (in some occupancies) low level exit signs or pathway markings. Furthermore, Section 1204 of the LABC requires that every space of any building intended for human occupancy and all interior or exterior stairways of dwelling units to have lighting.

A. DEFINITIONS

For the purpose of this information bulletin, the following definitions apply:

1. **Exit** – That portion of a means of egress system between the exit access and the exit discharge or public way. Exits components include exterior exit doors at the level of exit discharge, interior exit stairways, interior exit ramps, exit passageways, exterior exit stairways and exterior exit ramps and horizontal exits. (LABC Section 202)

2. **Exit Access** – That portion of a means of egress system that leads from any occupied portion of a building or structure to an exit. (LABC Section 202)

3. **Exit Discharge** – That portion of a means of egress system between the termination of an exit and a public way. (LABC Section 202)

4. **Initial Average Illumination** – The average level of horizontal luminance (illumination) on a floor area from a lighting system consisting of luminaires that have operated for at least 100 hours.
5. **Public Way** – A Street, alley, or other parcel of land open to the outside air leading to a street, that has been deeded, dedicated, or otherwise permanently appropriated to the public for public use and which has a clear width and height of not less than 10 feet (3048 mm). (LABC Section 202)

B. MEANS OF EGRESS SYSTEM

Except as permitted, all buildings require a means of egress system (MES) to safely evacuate building occupants. Such a system is required to have exit illumination, exit signs (including the floor-level, as applicable), and in some cases low-level path markings. For the purposes of enforcement of Sections 1008 and 1013 of LABC, the MES is considered to be a continuous and unobstructed path of horizontal and vertical egress travel from any temporary or permanently occupied portion of a building or structure to a public way. Such system consists of three distinct areas defined as the exit access, the exit, and the exit discharge.

C. MEANS OF EGRESS SYSTEM ILLUMINATION REQUIREMENTS

According to Section 1008 of LABC, the MES illumination consists of the required “normal” and emergency egress illumination.

1. Normal Egress Illumination

Except as permitted by the LABC, all MES from within any building to the public way (including the exit discharge) are required to be provided with egress illumination having an intensity of not less than one foot-candle (11 lux) at the walking surface level at any time the building or portion of a building is temporarily or permanently occupied. (LABC Sections 1008.2 and 1008.2.1)

2. Emergency Egress Illumination

Except as permitted by the LABC, the following MES areas (LABC Section 1008.3), excluding the exit discharge to the public way, are required to have emergency egress illumination, where the minimum numbers of exits are determined by Section 1006 of LABC:

a. Aisles.

b. Corridors.

c. Exit access stairways and ramps.

In addition to above locations, emergency lighting shall be installed at doors on the egress side with sensor release of electrical locks in any occupancy except Group H as required in Section 1010.2.12 of LABC.

The emergency power system shall provide power for a duration of not less than 90 minutes and shall consist of storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Section 2702.

Emergency lighting facilities shall be arranged to provide initial illumination that is not less than an average of 1 foot-candle (11 lux) and a minimum at any point of 0.1 foot-candle (1 lux) measured along the path of egress at floor level. Illumination levels shall be permitted to decline to 0.6 foot-candle (6 lux) average and a minimum at any point of 0.06 foot-candle (0.6 lux) at the end of the emergency lighting time duration. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded

The requirements for different types of emergency power supply sources and unit equipment for exit illumination are specified in Section G below. Emergency illumination located in any area shall be designed and installed so that the failure of any individual luminaire element, such as the burning out of a light bulb, or a ballast of single ballast luminaire, cannot leave any space which requires emergency illumination in total darkness. The design shall also take into account the brightness and location of emergency luminaires in the exit path that provides a clear delineation of exit by giving unambiguous and conspicuous indication of the path of exit without glare and shadowing effect.

D. EXIT SIGNS

The path of exit travel to and within a building shall be identified by exit signs conforming to the requirements of Section 1013 of LABC. In general, exit signs are required to be installed in rooms or areas that require two or more exits or exit accesses. An exit sign shall be readily visible from any direction of approach. Exit signs shall be located in the exit or in the path of exit as necessary to clearly indicate the direction of egress travel. No point shall be more than 100 feet (30480 mm) from the nearest visible sign, unless shorter viewing distance is required due to the exit sign listing or approval. Required exit signs may be internally or externally illuminated as required per Section 1013.3 of LABC. The face of an externally illuminated exit sign is required per section 1013.6.2 of LABC to be illuminated to an intensity of not less than 5 foot-candles (54 lux), by an approved external emergency luminaire complying with Section C above. The type of external emergency luminaire may be restricted based on the exit signs listing or approval.

The requirements for emergency power supply sources and unit equipment for exit signs are specified in section G below.

E. FLOOR LEVEL EXIT SIGN AND PATH MARKING

Floor level exit sign or path marking systems are required in occupancies noted in Sections 1013.2, 1013.7 and 1013.8 of LABC.

Except as indicated below, when exit signs are required in a building, floor level exit signs are required to be installed in all interior corridors of Group A, E, I, and R-2.1 occupancies and in all areas serving guest rooms of hotels in Group R-1 occupancies.

Floor-level exit signs are exempt to be installed in the following occupancies as specified:

1. Group A occupancy that are protected throughout by an approved supervised fire sprinkler system.

2. Group E occupancy where direct exit have been provided from each classroom.

3. Group I and R-2.1 occupancies which are provided with smoke barriers constructed in accordance with Section 407.5 of LABC.

4. Group I-3 occupancy.

Floor level exit signs may be internally or externally illuminated approved photoluminescent or self-luminous as required per Section 1013.7 of LABC.

The path marking shall be either installed at the floor level or no higher than 8 inches above the floor level in all interior rated exit corridors of unsprinklered Group A, R-1, and R-2 occupancies where an exit sign is required. The path marking shall be continuous except for interruptions by doorways, corridors, or other architectural features and it shall provide a visible delineation along the path of travel per section 1013.8 of LABC.

The requirements for emergency power supply sources and unit equipment for floor level exit sign and path marking are specified in section G below.

F. SPECIAL OCCUPANCIES OR USES

In addition to the requirements of section C.2 above, the following additional requirements apply:

1. Buildings containing existing emergency MES illumination that are properly maintained shall be permitted to have their use continued in accordance with the existing non-conforming rights provisions of the Los Angeles Municipal Code (Section 12.23). Where an addition, alteration, change of occupancy, or change of use occurs in an existing building and the addition, alteration, new occupancy, or new use requires emergency illumination in accordance with the aforementioned sections of the code, they shall be installed as required in new buildings.

2. Unit equipment and fuel cell power supply system (with or without a built-in storage battery) are not permitted to supply emergency illumination in the following buildings or occupancies:
   a. In any new high-rise building per Sections 1.1.4.1 and 3.3.5.1 of NFPA 111-19, as referred by Sections 403.4 and 2702 of LABC.

   b. In any existing retrofit high-rise buildings other than Group R-1 or R-2 occupancies per Sections 8604.6.5.1.5, 8604.6.5.2.5, and 8604.6.5.3.5 of LABC.

   c. In any existing high-rise Joint Live-Work Quarters building per Section 8502.6 of LABC.

   d. In any healthcare facility with either life support equipment or critical care areas per

Sections 517.45(B), 517.45(C), and 517.35(B) of the City of Los Angeles Electrical Code (LAEC).

e. In any ambulatory surgical clinic per Section 517.45(D.1) of the California Electrical Code (C.E.C).

f. In any underground building per Sections 405.9 and 2702 of LABC.

g. In any other building or occupancy as required by the LABC.

3. Only approved emergency generators shall provide required back-up power for the emergency illumination in the following buildings or occupancies:

a. Any existing retrofit high-rise buildings other than Group R-1 or R-2 occupancies as required in Sections 8604.6.5.1, 8604.6.5.2, and 8604.6.5.3 of LABC.

b. Any existing Joint Living-Work Quarters high-rise buildings as required in Section 8502.6 of LABC.

c. Any ambulatory surgical clinic complying with the Office of Statewide Health Planning and Development (OSHPD 3) regulations as required in Sections 517.45(D.1) of the C.E.C.

G. EMERGENCY LIGHTING POWER SUPPLY, UNIT EQUIPMENT, CIRCUIT AND SYSTEM CIRCUIT WIRING

Per Article 700 of LAEC, an emergency system (which consists of a power supply, circuits, and equipment) is intended to automatically supply illumination, power, or both to designated areas and equipment in the event of failure of the normal supply. The emergency system and equipment are required by Section 700.3 of LAEC to be tested under load and inspected periodically (currently witnessed by the Los Angeles Fire Department) to verify that the system and equipment are maintained in proper operating condition.

Section 700.2 of LAEC defines that the emergency system is essential for safety to human life. Therefore, in order to alleviate loss of humane life or serious injuries, emergency systems shall be considered as Level 1 systems as recognized in Section 4.4.1 of NFPA 110-19 by reference from Chapter 27 of LABC.

The emergency lighting power supplies, unit equipment, and wiring must be installed in accordance with Article 700 of LAEC, Section 2702.1 of LABC, NFPA 110-19, and as specified in subsection 1 and 2 below:

1. POWER SUPPLY AND UNIT EQUIPMENT

Emergency power supplies and unit equipment for buildings or individual tenants exit illumination shall be as specified in Section 1008.3 of LABC.

Emergency power supplies and unit equipment for buildings or individual tenants exit signs, floor level exit signs, and path markings shall be as specified in Sections 1013.5 and 1013.6.3 of LABC.

Emergency power supplies and unit equipment are required LAEC to provide minimum of 1.5 hours (90 minutes) of power under the full load operation, unless larger operating time is specifically required by the codes. When an emergency generator with an internal combustion engine prime mover is used, per LAEC it shall provide minimum of 2 hours of power under full load operation. The power source(s) in existing retrofit (other than Group R-1 or R-2 occupancies) or joint live-work quarter high-rise buildings shall be capable of providing minimum of 4 hours of power under the full load operation (LABC Sections 8502.6, 8604.6.5.1.5, 8604.6.5.2.5, and 8604.5.5.3.5).

a. The following approved emergency power supplies and unit equipment are permitted to be used, unless otherwise as restricted in Section F above:

   i. Emergency generator in accordance with Sections 700.12, and 700.12(B) of the LAEC.

   ii. Storage batteries (or central battery system) in accordance with Sections 700.12, and 700.12(A), of LAEC.

   iii. Uninterruptible Power Supplies (listed Emergency Power Equipment per ANSI/UL 924 standard for emergency systems) in accordance with Sections 700.12, and 700.12(E) of LAEC.

   iv. Fuel cell system with built-in storage batteries in accordance with Sections 700.12, and 700.12(G) of LAEC.

   v. Unit equipment (listed Emergency Lighting Equipment per ANSI/UL 924 standard for emergency systems) in accordance with Sections 700.12(I) of LAEC.

b. The emergency power supplies are required by Section 700.12 of LAEC to be designed and located to minimize the hazards such as flooding, fire, icing, and vandalism. Furthermore, the emergency supplies service disconnecting means are required by Section 230.72(B) of LAEC to be located remotely from the normal service disconnecting means to minimize the possibility of simultaneous interruption of supply.

c. To minimize fire hazard as prescribed in Section 700.12 of LAEC and to have a remote emergency supply service disconnecting means as required per Section 230.72(B) of LAEC, the following conditions shall be met:

   i. Per Sections 7.2.1 and 7.2.1.1 of NFPA 110-19 standard, as referred by Section 2702 of the LABC, emergency generators shall be installed in a separate 2-hour fire rated room within a building. Per Section 7.2.1.3, no other equipment, including architectural appurtenance, except for those that serve the space, shall be permitted in these rooms.

ii. Per Section 7.2.1 of NFPA 111-19 standard, as referred by Section 2702 of the LABC, approved emergency sources other than emergency generators as indicated in Section 700.12 of LAEC are in general permitted to be in the same room as the normal source, provided that it would comply with manufacturer's environmental specification(s). However, Section 7.2.3 of NFPA 111-19

standard requires that these sources shall not be installed in a room containing normal system equipment that is 1000 amperes or larger and rated over 150 volts to ground. Such installation shall also be provided with installation instruction as required per Section 110.3(b) of the LAEC.

2. **CIRCUIT WIRING**

a. To ensure reduction of illumination interruption in areas used for egress during emergencies, Section 700.10(B) of LAEC requires that the emergency circuit wiring shall not occupy the same raceway, junction box or enclosure as the normal or "legally required and optional standby" circuit wiring from emergency source or emergency source distribution overcurrent protection to emergency loads except as permitted in i through v below:

i. Wiring from the normal power source located in transfer equipment enclosure.

ii. In a luminaire or an exit sign that is listed as an Emergency Lighting Equipment per ANSI/UL 924 standard, containing separate wiring compartment and raceway entries for normal and emergency circuit wiring.

iii. The circuit wiring of the normal and emergency systems terminate into a listed load control relay supplying exit or emergency luminaires or in a common junction box, attached to or is a part of approved equipment, intended for the supply of exit signs and the emergency luminaires.

iv. A common junction box that is attached to the unit equipment may contain the normal branch circuit and the emergency circuit wirings supplying any remote unit equipment heads.

v. Wiring from an emergency source to supply any combination of emergency, legally required, or optional loads in accordance with 1), 2), 3), and 4) below:

1) Separate vertical switchgear sections or separate vertical switchboard sections, with or without a common bus, or individual disconnects mounted in separate enclosures shall be used to separate emergency loads from all other loads.

2) The common bus of separate sections of the switchgear, separate sections of the switchboard, or the individual enclosures shall be either of the following:

- Supplied by single or multiple feeders without overcurrent protection at the source
- Supplied by single or multiple feeders with overcurrent protection, provided that the overcurrent protection that is common to an emergency system and any nonemergency system(s) is selectively coordinated with the next downstream overcurrent protective device in the nonemergency system(s)

3) Emergency circuits shall not originate from the same vertical switchgear section, vertical switchboard section, panelboard enclosure, or individual disconnect enclosure as other circuits.

4) It shall be permissible to utilize single or multiple feeders to supply distribution equipment between an emergency source and the point where the emergency loads are separated from all other loads.

In addition, per Section 700.10(D) of LAEC, the generator control wiring between the transfer equipment and the emergency generator shall be kept entirely independent of all other wiring, were such an installation is in an assembly, educational, residential, detention and correctional, business, and mercantile building occupancies above 75 feet in height, or any assembly occupancy with occupant load of at least 1,000 persons.

b. The emergency circuit wiring is required by Section 700.10(C) of LAEC to be designed and located to minimize hazards such as flooding, fire, icing, vandalism, corrosive environment, or other adverse conditions. Some of these hazards could be achieved through physical separation of the normal and emergency circuits by means of wiring methods and equipment approved by code.

To reduce the fire hazard and to have adequate separation between normal and emergency distribution system equipment, following conditions shall be met:

i. Per Section 7.2.3 of NFPA 110-19 standard, as referred by Section 2702 of LABC, the wiring installation from an emergency or legally required stand-by generator to the emergency load shall not be installed in the same room as normal service equipment that is rated over 150 volts to ground and is equal to or greater than 1000 amperes. The room for the emergency and legally required distribution systems must either have an approved fire sprinkler system, or it shall have minimum 2-hour fire rated enclosure without an approved sprinkler system and the installation comply with other requirements as specified in Section 8.15.11.3 of NFPA 13-13 standard.

ii. Per Section 7.2.1 of NFPA 111-19 standard, as referred to by Section 2702 of the LABC, the wiring installation from sources other than emergency or legally required stand-by generators as indicated in Sections 700.12 and 701.12 of LAEC to their loads are permitted to be in the same room as the normal source, provided that it would comply with manufacturer's environmental specification(s), if any. This installation shall also comply with Section 110.3(B) of the LAEC. However, per Section 7.2.3 of NFPA 111-19 standard, these wiring systems shall

not be installed in a room containing 1000 amperes or larger normal wiring equipment that are rated over 150 volts to ground.

iii. In addition to part i, and ii above, per Section 700.10(D) of LAEC, equipment for emergency wiring feeder-circuits installed in assembly, educational, residential, detention and correctional, business, and mercantile building occupancies above 75 feet in height, or any assembly occupancy with occupant load of at least 1,000 persons shall be located either in spaces fully protected by approved automatic fire suppression systems or in spaces with a 2-hour fire resistance rating.

c. For assembly, educational, residential, detention and correctional, business, and mercantile building occupancies above 75 feet in height or any assembly occupancy with occupant load of at least 1,000 persons, the emergency wiring feeder-circuits and the control wiring installed between the transfer equipment and the emergency generator are required to be protected against fire by one of the approved methods described in Sections 700.10(D) of LAEC.

3. BRANCH CIRCUIT WIRING

The branch circuit wiring supplied from an emergency power supply and emergency system wiring, are considered and treated as emergency branch circuit wiring. When an emergency load is supplied by an emergency power supply through a transfer switch, the conductors on the load side of the transfer switch to distribution boards, panels and loads are considered as emergency system feeders and branch circuit wiring.

The intent of both the Los Angeles Building and Electrical Codes is to ensure continuous operation of emergency loads such as exit signs and exit illumination during emergencies. To accomplish continuous operation, Section 700.17 of LAEC requires compliance of branch circuit wiring with one or both of the following methods:

a. An emergency lighting power supply, independent of normal lighting supply, with provisions for automatic transfer of the emergency lighting, in the event of the normal lighting branch circuit failure.

b. Two or more branch circuits supplied from separate and complete systems with independent power sources. One of the two power sources and systems shall be part of the emergency system, and the other shall be permitted to be part of the normal power source and system. Each system shall provide sufficient power for emergency lighting purpose.

Use of option b above may become mandatory where minimum of two branch circuits is required in a particular area or space in a building. An example of such locations would be corridors or stairwells. If only one branch circuit supplied from an emergency panelboard is installed in a stairwell, failure of that one branch circuit will leave the entire area in dark, thus necessitating installation of at least two branch circuits complying with option b above.

Unless both the emergency and nonemergency lighting systems are used for regular lighting purposes and are both kept lighted, means shall be provided for automatically energizing either system upon failure of the other. Either or both systems shall be permitted to be a part of the general lighting of the protected occupancy if circuits supplying lights for emergency illumination are installed in accordance with other sections of article 700 of LAEC.

B. INTERIOR GENERAL LIGHTING

Every room intended for human occupancy is required to be provided with natural or artificial (luminaire) general lighting. According to Sections 1204.1 and 1204.2 of LABC, the natural lighting must be accomplished through exterior glazed openings. These exterior openings must have total glazed area of not less than 8% of the floor area of the room they serve, and they must open directly onto a public way, or onto a yard or a court that meets the requirements of Section 1205 of LABC.

Adjoining spaces may receive their required natural lighting through an opening in a common wall with an interior space that contains the required minimum exterior glazing when the installation complies with Section 1204.2 of LABC.

When the required exterior glazed openings are not provided for a room, Section 1204.3 of ~~the~~ LABC requires installation of artificial general lighting (luminaires) in that room. The luminaires in such a room are required to provide an average illumination of 10 foot-candelas (107 lux) over the area of the room at a height of 30 inches (762 mm) above the floor level.

Furthermore, Section 1204.4 of LABC requires general lighting with an illumination level of not less than 1 foot-candle (1 lux) on the tread runs of any interior stairways within a dwelling unit or exterior stairways serving a dwelling unit.