

## SECTION 26 52 00

### EMERGENCY LIGHTING

#### PART 1 GENERAL:

##### 1.1. SUMMARY:

- A. This standard is intended to establish a basis of design for building Emergency lighting in new construction and existing facility renovations such that the University may achieve a level of quality and consistency in the design and construction of their facilities.
- B. Related Sections:
  - 1. Section 01701 - Building Systems Identification and Labeling
  - 2. Section 265000 – Interior Lighting
  - 3. Section 265600 - Exterior Lighting

##### 1.2. GENERAL EMERGENCY LIGHTING DESIGN GUIDELINES:

- A. Emergency Lighting requirements shall be in accordance with applicable RI Codes and University requirements noted herein.
- B. In addition to Code–required locations, provide Emergency lighting in large classrooms, places of assembly, public bathrooms serving assembly spaces, research labs, central building mechanical and electrical rooms, and any areas where hazardous tasks are performed.
- C. Selection of lighting fixtures for normal and Emergency use shall minimize the number of different lamp types utilized and required to be stocked by Operations staff.
- D. Proper Emergency lighting design includes review and verification of the following:
  - 1. Foot-candle requirements,
  - 2. Appropriate light source technology: fluorescent, LED, incandescent, etc.,
  - 3. Control Strategies (24/7 “night light” circuits, switching, interconnection with building central lighting control system, etc.),
  - 4. Access for component replacements.

##### 1.3. DETAILED EMERGENCY LIGHTING DESIGN GUIDELINES:

- A. Emergency egress lighting is required to illuminate a minimum of 2 foot candles (maintained) along all interior paths of egress, stairways, egress doorways and 1 foot candle (maintained) at building exterior paths.
- B. Emergency egress lighting shall be powered by the Life Safety branch automatic transfer switch (ATS) in buildings where a standby generator is installed. In buildings where no generator or Life Safety branch circuits are installed, utilize central inverter(s) or emergency lighting battery units. Use of local battery units in other than residential housing requires approval from FM Director of Operations.

- C. Life Safety and egress lighting in Residential housing (Multi-family apartments): Provide a central inverter or central battery unit(s) (for service to local emergency heads and exit signage). For the latter, the design intent shall be to minimize the quantity of individual battery units installed; for example, to provide a single battery unit to serve the overall floor level or stairwell landings.
  - D. Life Safety and egress lighting in smaller office, classroom, Residence Hall and other non-critical facilities: Provide central inverters for powering of required egress lighting and exit signage. In larger facilities, multiple inverters, for example, one inverter per floor, is acceptable.
  - E. Fluorescent emergency ballasts (“Bodine”-brand ballasts) are not allowed.
  - F. Emergency circuit switching: Coordinate with FM staff on desired means of control for dedicated Emergency lighting circuits, which may vary depending on the type of facility:
    - 1. Certain facilities, such as Research and lab facilities, typically require 24/7 unswitched control of emergency lighting, also known as “night light” circuits.
    - 2. Large assembly spaces with central lighting controls typically require emergency lighting to be controlled on/off/dimmed; provide override controls such as transfer relays, to override “on” emergency lights in the event of a power failure.
    - 3. Small assembly spaces where it is desired to normally switch emergency lighting “off” for presentations, etc.: provide override controls such as transfer relays, to override “on” emergency lights in the event of a power failure.
- 1.4. EMERGENCY BATTERY UNITS:
- A. Emergency battery units, where installed, shall be 12 volt type.
  - B. Avoid the use of multiple battery units; centralize emergency lighting power supply with a single battery unit (with zone relays for multiple circuits) wherever possible.
  - C. Battery units shall have maintenance-free batteries.
  - D. Battery units to have built-in “self test” features with alarm on test failure.
- 1.5. EMERGENCY INVERTERS:
- A. Inverters shall match building utilization voltage for lighting circuits, and avoid the use of step-down transformers.
  - B. Inverters to provide minimum 90 minutes system run time.
  - C. Provide inverter with local distribution panel on larger size units for individual breaker control of emergency lighting circuits, main input circuit breaker, integral bypass switch to allow for system testing and battery replacement without affecting downstream loads, and built-in “self test” features with alarm on test failure.
  - D. Size inverter with 15% spare capacity to allow for future system connections.

1.6. EXIT SIGNS:

- A. Exit Signs shall be LED (Light Emitting Diode) type, red colored.
- B. Self-luminous type exit signs are not acceptable.
- C. Exit signs in Residence Halls: install with sign recessed or with sign back mounted flush to the wall or building surface: do not install with ceiling canopy or side mount connection to wall.
- D. Exit signs in retrofit applications to match existing installed building exit signs for style and configuration.
- E. Die-cast exit signs are preferred in all other facility types; other configurations, such as top-lit may be acceptable upon review by FM Operations staff.
- F. Connect exit signs to central inverter circuits or to output of battery units for standby power source: avoid use of exit signs with integral batteries.

PART 2 PRODUCTS:

2.1. EMERGENCY BATTERY UNITS:

- A. Approved Manufacturers:
  - 1. Beghille
  - 2. EmergiLite
  - 3. Mule

2.2. INVERTERS:

- A. Approved Manufacturers:
  - 1. Meyers
  - 2. Beghille
  - 3. EmergiLite
  - 4. Mule

PART 3 EXECUTION:

3.1. INSTALLATION:

- A. Install materials and systems in accordance with manufacturer's instructions.
- B. Install fixtures with sufficient clearance from other utilities, ducts, piping, etc. to allow for ready access to fixture components for servicing.
- C. Test Emergency Lighting system for proper operation and illumination levels.
- D. Restore or replace damaged components and finishes. Clean and protect work from damage.
- E. Inverters, exit signs, and battery units shall be labeled with the manufacturer, model number and lamp type, in addition to the source panel, circuit number and voltage.

3.2 DOCUMENTATION –CLOSEOUT DATA:

- A. Provide a complete list of fixture, lamp and ballast data, organized by building and room area, for use in procuring spare parts inventories. The tabulation shall be in a spreadsheet format consistent with FM - Lighting Fixture Inventory data.
- B. Include the following Operations & Maintenance information for building lighting systems:
  - 1. As-built drawings of the Emergency lighting and control system including locations of all lighting transfer relays and controllers,
  - 2. Schedule for inspecting and recalibrating lighting controls and batteries.
  - 3. Complete narrative of how Emergency lighting control system is supposed to operate, including its recommended settings.

3.3 SPARE PARTS:

- A. Provide spare fixtures, lamps and ballasts in quantities equal to 5 percent of the amount used on the project. Provide lockable space within the building for the storage of spare lamps and spent lamps to be recycled.
- B. For special lamps, provide attic stock of six spare lamps.

END OF SECTION