National Electrical Manufacturers Association

A NEMA Lighting Systems Division Document
NEMA LS 20009-2022

Controlled Emergency Lighting, a Technical Clarification Bulletin

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Executive Summary

a. This revised version of the bulletin previously titled NEMA LSD 81-2019 reflects changes in the 2023 *National Electrical Code*® (NEC), NFPA 70®, including a definition change and a requirement change related to Directly Controlled Emergency Luminaires.
b. There have been updates to the 2014, 2017, 2020, and 2023 *National Electrical Code* (NEC), NFPA 70, to address the increasing complexity of emergency lighting systems, specifically regarding the newly defined Directly Controlled Luminaires.
c. These updates were needed to adapt to technology changes that could enable luminaires to be specified with controls or components that can influence the emergency light level.
d. Because of the complexity and varied nature of these system designs, it is important to clarify that many emergency lighting system designs already have extensive evaluations completed.
e. This bulletin aims to provide clarity as to the technology and evaluations that are required for different emergency lighting system designs. In particular, detailing systems that ARE NOT Directly Controlled Luminaires, including:
    1. Distributed Battery Packs.
    2. Non-integrated solutions, including field-installed products that bypass normal control and default to the required emergency illumination level.
    3. Most luminaires with Integrated Automatic Load Control Relays (ALCR).
    4. Some configurations of Branch Circuit Emergency Lighting Transfer Switches (BCELTS).

This bulletin contains details of several emergency system configurations:

Clause 1: Distributed Battery Packs

Clause 2: Centrally Transfer[illegible] Emergency

Clause 2a: Non-Integrated Solutions

Clause 2b: Directly Controlled Luminaires

Clause 2c: Luminaires with Integrated ALCR

Clause 2d: Additional Potential Scenarios

Clause 3: Compliance for BCELTS

f. The information in this bulletin was collected by a shared task force of the NEMA Lighting Division, including representatives of the Ballast and Driver, Emergency Lighting, Lighting Controls, and Luminaire Sections, as well as in consultation with safety and standards development organizations.

References

NFPA 70	*National Electrical Code*
ANSI/UL 924	*Standard for Emergency Lighting and Power Equipment*
ANSI/UL 1008	*Standard for Transfer Switch Equipment*
ANSI/UL 1573	*Standard for Stage and Studio Luminaires and Connector Strips*
ANSI/UL 1574	*Standard for Track Lighting Systems*
ANSI/UL 1598	*Standard for Luminaires*
ANSI/UL 2108	*Standard for Low Voltage Lighting Systems*

Introduction

This bulletin is intended to assist in the specification of devices used with emergency lighting that is controlled (dimming, switching, etc.) to satisfy the requirements of the applicable electrical and life safety codes.[1] The dual objectives of the resulting lighting system include:

a. providing fully functional lighting control during normal occupation (for the satisfaction of regulatory, optional, and preferential requirements); and
b. to address the unique requirements during loss of normal power.

The focus of this bulletin is both luminaire-integrated solutions and lighting system–integrated solutions that include wired or wireless control signal inputs that are typically provided by the luminaire manufacturer as part of a lighting system. Not covered by this bulletin are unit equipment, which are fully separate/dedicated emergency lighting systems that consist of a rechargeable battery(s), a battery charging means, and provisions for emergency lamps mounted on the equipment or with terminals for remote emergency lamps, where the lamps will be automatically energized upon failure of the supply to the unit equipment. While there are numerous emergency wiring architectures, this bulletin will address the following architectures:

a. Distributed Emergency Battery Packs (Figure 1/Section 1).
b. Centrally Transferred Normal/Emergency (Figure 2/Section 2).
c. Luminaire Transferred Emergency (Figure 3/Section 3).

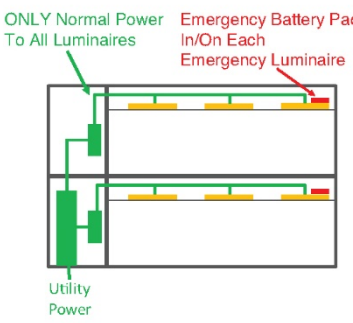

Fig 1 Distributed Emergency Battery Packs See Section 1

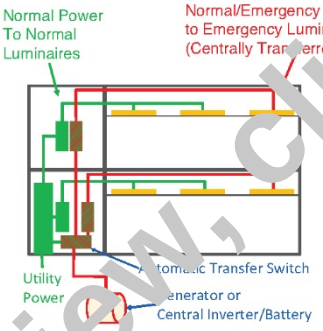

Fig 2 Centrally Transferred Normal/Emergency See Section 2

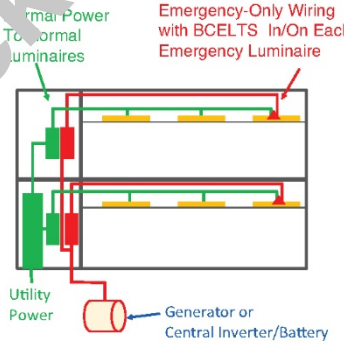

Fig 3 Luminaire Transferred Emergency See Section 3

A particular emphasis has been given to the concept of "Directly Controlled Emergency Luminaires." This type of emergency luminaire is defined in the 2023 NEC (NFPA 70®) as: "A luminaire supplied by the facility emergency power system and with a control input for dimming or switching that provides an emergency illumination level upon loss of normal power." This is most applicable for emergency lighting supplied by a centralized source of emergency power and where the luminaire is performing differently when supplied by emergency power versus when supplied by normal power. It is important to note that while this term was introduced to address the needs presented by new technology solutions, this bulletin provides information to guide in the interpretation of the full spectrum of solutions, many of which have been in use and widely accepted for decades.

The acceptance of emergency lighting installations is subject to the approval of the Authority Having Jurisdiction (AHJ) who should be consulted for additional guidance on local requirements.