



AIRFIELD LIGHTING AND THE NEC

IES Aviation Lighting Committee
Government Contacts Sub-Committee Meeting
Washington, D.C.



Presented by: **Carl Johnson – AVCON, INC.** © 2015

AIRFIELD LIGHTING AND THE NEC



2016 NEC Annual Revision Cycle

Process Stage	Process Step	Dates for TC with CC	Wks
Public Input Stage (First Draft)	Public Input Closing Date for Paper Submittal	10/3/2014	
	Public Input Closing Date for Online Submittal (e-PI)	11/7/2014	9
	Final date for First Draft Meeting	1/12-24/2015	8
	Posting of First Draft and Panel Ballot	3/20/2015	2
	Final date for Receipt of First Draft ballot	4/3/2015	1
	Final date for Receipt of First Draft ballot - recirc	4/10/2015	1
	Posting of First Draft for CC Meeting	4/17/2015	6
	Final date for CC First Draft Meeting	5/29/2015	4
	Posting of First Draft and CC Ballot	6/26/2015	1
	Final date for Receipt of CC First Draft ballot	7/3/2015	1
	Final date for Receipt of CC First Draft ballot - recirc	7/10/2015	1
	Post Final First Draft for Public Comment	7/17/2015	10
Comment Stage (Second Draft)	Public Comment Closing Date for Paper Submittal	8/21/2015	
	Public Comment Closing Date for Online Submittal (e-PC)	9/25/2015	5
	Final date for Second Draft Meeting	11/2-14/2015	7
	Posting of Second Draft and Panel Ballot	1/4/2016	2
	Final date for Receipt of Second Draft Ballot	1/15/2016	1
	Final date for receipt of Second Draft ballot - recirc	1/22/2016	2
	Posting of Second Draft for CC Mtg	2/5/2016	2
	Final date for CC Second Draft Meeting	2/22-26/2016	3
	Posting of Second Draft for CC Ballot	3/18/2016	1
	Final date for Receipt of CC Second Draft ballot	3/25/2016	1
	Final date for Receipt of CC Second Draft ballot - recirc	4/1/2016	1
	Post Final Second Draft for NITMAM Review	4/8/2016	3
Tech Session Preparation	Notice of Intent to Make a Motion (NITMAM) Closing Date	4/29/2016	2
	Posting of Certified Amending Motions	5/13/2016	3
Tech Session	Association Meeting for Documents with CAMs	6/13-16/2016	
Appeals and Issuance	Appeal Closing Date for NEC CAMs (20 Days)	7/6/2016	
	SC Issuance Dates for Documents with CAMs	8/11/2016	



AIRFIELD LIGHTING AND THE NEC

The screenshot shows the NFPA 70: National Electrical Code website. The URL in the browser is <http://www.nfpa.org/codes-and-standards/docu...>. The page features the NFPA logo and the text "National Fire Protection Association The authority on fire, electrical, and building safety". The URL WWW.NFPA.ORG/70 is prominently displayed. A search bar is located at the top right. The navigation menu includes links for Sign-In, Join / Renew, My Profile, Catalog, News & Publications, About NFPA, Careers, and Press Room. Below this, a secondary menu highlights CODES & STANDARDS, SAFETY INFORMATION, TRAINING, RESEARCH, and MEMBER ACCESS. The main content area is titled "NFPA 70: NATIONAL ELECTRICAL CODE®" and provides information about the current edition (2014) and the next edition (2017). It includes a link for "Free access to the 2014 edition of NFPA 70" and a link for "About free access". A red arrow points to the "Technical Committee" tab in the "Next Edition" section. The "Technical Committee" section contains information about the revision cycle, public input closing dates, and pre-first draft meeting notices. The "Pre-First Draft Meeting Notices" section includes links for the National Electrical Code® Correlating Committee (NEC-AAC) meeting and the NEC First Draft Panel Meetings. The "Pre-First Draft Meeting Agendas" section also includes a link for the NEC-AAC meeting. On the right side, there is a sidebar with a search bar and a list of documents accepting public input. At the bottom right, there is a section for "On-Site Training" and a link to the "NFPA mobile" app.

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About Current & Prior Editions **Next Edition** Technical Committee Technical Questions Products & Training

Revision cycle information
Revision Cycle: [Annual 2016](#)
Revised Edition Date: 2017

First Draft (previously Report on Proposals (ROP))
Public Input Closing Date for Online Submission: 11/7/2014 [View Public Inputs](#)
Public Input Closing Date for Paper* Submittal: 10/3/2014
* Paper Submittals are considered any submission other than the online submission system
First Draft Report Posting Date: 7/17/2015

Pre-First Draft Meeting Notices

National Electrical Code® Correlating Committee (NEC-AAC)
[Correlating Committee Meeting and Panel Chair Training, November 5-7, 2014, NFPA, Quincy, MA](#) (PDF, 54 KB)

First Draft Meeting Notices
[NEC First Draft Panel Meetings, January 12-24, 2015, Hilton Head, SC, Sonesta 843-842-2400](#) (PDF, 188 KB)
[First Draft Panel Meeting Schedule](#) (PDF, 71 KB)

National Electrical Code® Correlating Committee (NEC-AAC)
[May 12-15, 2015, Ft. Lauderdale, Embassy Suites 954-527-2700](#) (PDF, 246 KB) [RSVP](#)

Pre-First Draft Meeting Agendas

National Electrical Code® Correlating Committee (NEC-AAC)

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AIRFIELD LIGHTING AND THE NEC

TWO ITEMS OF INTEREST

- **Article 300.37 Above Ground Wiring Methods**
 - **Code-Making Panel No. 3**
- **Article 392 Cable Tray**
 - **Code-Making Panel No. 8**

AIRFIELD LIGHTING AND THE NEC



Public Input No. 2762-NFPA 70-2014 [Section No. 300.37]

Statement of Problem and Substantiation for Public Input

Problem statement

Exposed runs of FAA L-824 cable is not specifically permitted in the NEC. Some AHJ do not see equivalence in permitting exposed runs of MV cables and exposed runs of L-824 cables in locations accessible only to qualified persons.

AIRFIELD LIGHTING AND THE NEC



Public Input No. 2762-NFPA 70-2014 [Section No. 300.37]

Substantiation

FAA L-824 cables are routed in free air (exposed runs) to the S-1 cut-outs and to allow for quick troubleshooting. The L-824 cable may have L-823 connectors installed to facilitate short circuiting the output of the constant current regulator or shorting the field circuit. Unlike a typical voltage circuit the airfield lighting series circuit is a current circuit where a short circuit is considered as no load.

The constant current regulator (CCR) output overcurrent protective device will not trip due to a change in series circuit resistance, shorts, or grounds in the airfield lighting circuit. The CCR recognizes a change in series circuit resistance, shorts, or grounds in the airfield lighting circuit as a change in load characteristics, and it adjusts the output voltage up or down to maintain the specified current. An open circuit is understood as an infinite increase in load, causing the CCR to trip on overvoltage.

The L-824 cable may also be installed in exposed runs to a cable tray or other raceway.

L-824 cables installed in exposed runs provides ready access and the necessary flexibility for troubleshooting, cable replacement, and moving the cables to a spare constant current regulator, thus expediting lighting circuit repairs. L-824 cable has been widely and safely used in exposed runs for more than 50 years in both military and civilian applications.

AIRFIELD LIGHTING AND THE NEC



Public Input No. 2762-NFPA 70-2014 [Section No. 300.37]



AIRFIELD LIGHTING AND THE NEC



Public Input No. 2762-NFPA 70-2014 [Section No. 300.37]

300.37 _ Aboveground Wiring Methods.

Aboveground conductors shall be installed in rigid metal conduit, in intermediate metal conduit, in electrical metallic tubing, in RTRC and PVC conduit, in cable trays, in auxiliary gutters, as busways, as cablebus, in other identified raceways, or as exposed runs of metal-clad cable suitable for the use and purpose. In locations accessible to qualified persons only, exposed runs of Type MV cables, exposed runs of FAA L-824 cables, bare conductors, and bare busbars shall also be permitted. Busbars shall be permitted to be either copper or aluminum.

Informational Note: Federal Aviation Administration (FAA) Advisory Circulars (ACs) provide additional practices and methods for airport lighting.

AIRFIELD LIGHTING AND THE NEC



Public Input No. 2762-NFPA 70-2014 [Section No. 300.37]

Committee Statement

Resolution: Based upon cable manufacturer's data and the FAA advisory Circular No. 150/5345-7E and F, airfield lighting cable is only permitted for underground direct burial, in raceways, or in ducts, not for exposed use above ground.

AIRFIELD LIGHTING AND THE NEC



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Public Input No. 2762-NFPA 70-2014 [Section No. 300.37]



AIRFIELD LIGHTING AND THE NEC



Public Input No. 2739-NFPA 70-2014 [New Section after 392.10(D)]

Problem statement

FAA L-824 cable is not specifically permitted to be installed in cable tray by the NEC. Some AHJ do not see equivalence in permitting MV cables and L-824 cables to be installed in cable tray in locations accessible only to qualified persons.

AIRFIELD LIGHTING AND THE NEC



Public Input No. 2739-NFPA 70-2014 [New Section after 392.10(D)]

Substantiation

Expedited repair of airfield lighting series circuits is necessary for the safety of the traveling public. When a constant current regulator fails, typically the effected airfield lighting circuit is quickly reconnected to a spare constant current regulator. A typical constant current regulator weighs 1,000 pounds or more. The airfield lighting series circuit cables are moved to the spare constant current regulator location and connected.

The failed constant current regulator can then be repaired at a later date once the airfield lighting circuit is functional and aircraft are operating.

Moving the L-824 airfield lighting series circuit cables between constant current regulators is expedited by having ready access to the series circuit cables. The airfield lighting series circuit cables are equipped with FAA L-823 connectors. The L-823 connectors are used to connect the L-824 cable to other electrical components within the airfield lighting series circuit, but also allow for a quick constant current regulator replacement. Making use of the cable tray and L-823 connectors, the airfield lighting series circuit cables are physically moved to the spare constant current regulator and connected.

Additionally the use of cable tray for L-824 cables has all the benefits of traditional cable tray installations.

L-824 cables installed in free-air and/or in cable tray provide ready access and the necessary flexibility to move the cables to the spare constant current regulator, thus expediting the repairs or cable replacement. L-824 cable and cable tray have been widely and safely used for this purpose for more than 50 years in both military and civilian applications.

AIRFIELD LIGHTING AND THE NEC



Public Input No. 2739-NFPA 70-2014 [New Section after 392.10(D)]

392.10(E) Airfield Lighting Cable Tray

In airport establishments, where conditions of maintenance and supervision ensure that only qualified persons, have access, install, or service the cable, airfield lighting cable used in series circuits rated up to 5000 volts and powered by constant current regulators shall be permitted to be installed in cable tray. The cable shall be FAA L-824 Type B or Type C cable.

Informational Note to 392.10(E): Federal Aviation Administration (FAA) Advisory Circulars (ACs) provide additional practices and methods for airport lighting.

AIRFIELD LIGHTING AND THE NEC



Public Input No. 2739-NFPA 70-2014 [New Section after 392.10(D)]

Committee Statement

Resolution: The Submitter asks for an addition to address FAA Cable L-824 Type B and Type C cable as suitable for use in cable tray. The Public Input addresses advantages in repair and labor which can enhance public safety. FAA L-824 cable is a 5000V PVC jackets cable with a Class C Soft drawn copper multi-strand wire per ASTM B3 and B8 with an EPR insulation per NEMA WC 71. This cabling is equivalent to many acceptable cables and is similar in construction to many TC rated power cables. Additionally, the submitter proposed limited acceptance in areas with controlled access and maintenance. CMP8 supports the addition in principle to use cable tray for this installation, however as a single conductor 5kV cable would require additional technical input relative to guidance on restrictions to single phase inductive heating with ferrous cable tray and supports as this cable is not specifically addressed in the NEC.

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Public Input No. 2739-NFPA 70-2014 [New Section after 392.10(D)]



SUMMARY

- Looking for input from the airfield lighting community.
- Pros and Cons for each Public Input.
- Inductive heating?
- Fire load, vertical burn, normally unmanned building?
- Any negative or positive experiences?
- Public Comment opens July 17, 2015.
- Public Comment Closes September 25, 2015

THANK YOU

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