

1 **BILL NO. 2011-14**

2 **ORDINANCE NO. 6143**

3 AN ORDINANCE TO ADOPT THE 2008 EDITION OF THE NATIONAL ELECTRICAL CODE,
4 TOGETHER WITH LOCAL AMENDMENTS THERETO, AND TO PROVIDE FOR OTHER
RELATED MATTERS.

5 Sponsored by: Councilman Steven D. Ross

Summary: Adopts the 2008 Edition of the
National Electrical Code, together with local
amendments thereto.

7 THE CITY COUNCIL OF THE CITY OF LAS VEGAS DOES HEREBY ORDAIN
8 AS FOLLOWS:

9 SECTION 1: Title 16, Chapter 12, Section 10, of the Municipal Code of the City of
10 Las Vegas, Nevada, 1983 Edition, is hereby amended to read as follows:

11 **16.12.010:** Those certain documents, [three] copies of which are on file in the Office of the City
12 Clerk, and being marked and designated as follows, are adopted by reference as and for the City's
13 Electrical Code:

14 (A) National Electrical Code, [2005] 2008 Edition, hereby designated as Part 1 of
15 this Chapter; and

16 (B) [A document entitled "A Supplemental Document Amending the National
17 Electrical Code, 2005 Edition," deleting from and adding to the National Electrical Code, 2005
18 Edition, hereby designated as Part 2 of this Chapter; and

19 (C)] The Southern Nevada Amendments to the [2005] 2008 National Electrical
20 Code, hereby designated as Part [3] 2 of this Chapter.

21 SECTION 2: The document entitled the "Southern Nevada Amendments to the 2008
22 National Electrical Code," which is attached hereto, is modified as set forth in Section 3 of this
23 Ordinance.

24 SECTION 3: Where necessary for the sake of consistency, references in the Southern
25 Nevada Amendments to the 2008 National Electrical Code to "Article" numbers shall be deemed to
26 refer to "Section" numbers as contemplated in the National Electrical Code.

27 SECTION 4: The National Electrical Code, 2005 Edition, the supplemental document
28 amending that edition, and the Southern Nevada Amendments to the 2005 National Electrical Code,

1 are hereby repealed in their entirety.

2 SECTION 5: This Ordinance shall become effective on July 5, 2011.

3 SECTION 6: If any section, subsection, subdivision, paragraph, sentence, clause or
4 phrase in this ordinance or any part thereof is for any reason held to be unconstitutional or invalid or
5 ineffective by any court of competent jurisdiction, such decision shall not affect the validity or
6 effectiveness of the remaining portions of this ordinance or any part thereof. The City Council of the
7 City of Las Vegas hereby declares that it would have passed each section, subsection, subdivision,
8 paragraph, sentence, clause or phrase thereof irrespective of the fact that any one or more sections,
9 subsections, subdivisions, paragraphs, sentences, clauses or phrases be declared unconstitutional,
10 invalid or ineffective.

11 SECTION 7: Whenever in this ordinance any act is prohibited or is made or declared
12 to be unlawful or an offense or a misdemeanor, or whenever in this ordinance the doing of any act is
13 required or the failure to do any act is made or declared to be unlawful or an offense or a
14 misdemeanor, the doing of such prohibited act or the failure to do any such required act shall
15 constitute a misdemeanor and upon conviction thereof, shall be punished by a fine of not more than
16 \$1,000.00 or by imprisonment for a term of not more than six months, or by any combination of such
17 fine and imprisonment. Any day of any violation of this ordinance shall constitute a separate offense.

18 SECTION 8: All ordinances or parts of ordinances or sections, subsections, phrases,
19 sentences, clauses or paragraphs contained in the Municipal Code of the City of Las Vegas, Nevada,
20 1983 Edition, in conflict herewith are hereby repealed.

21 PASSED, ADOPTED and APPROVED this 6TH day of APRIL, 2011.

22 APPROVED:

23 By 
24 OSCAR B. GOODMAN, Mayor

24 ATTEST:

25 
26 BEVERLY K. BRIDGES, MMC
City Clerk

27 APPROVED AS TO FORM:

28 Val Steed 2-16-11
Date

1 The above and foregoing ordinance was first proposed and read by title to the City Council
2 on the 2nd day of March, 2011, and referred to a committee for recommendation; thereafter
3 the committee reported favorably on said ordinance on the 6th day of April, 2011, which as
4 a regular meeting of said Council; that at said regular meeting, the proposed ordinance
5 was read by title to the City Council as first introduced and adopted by the following vote:

6 VOTING "AYE": Mayor Goodman and Councilmembers Reese, Tarkanian, Ross,
Barlow and Anthony

7 VOTING "NAY": None

8 EXCUSED: None

9 ABSTAINED: None

10 DID NOT VOTE: Councilmember Wolfson

11
12 APPROVED:

13 
14 _____
OSCAR B. GOODMAN, Mayor

15 ATTEST:

16 
17 _____
BEVERLY K. BRIDGES, MMC City Clerk



Southern Nevada Building
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Michael Bouse
City of Henderson

Lisa Conner
Clark County School District

SOUTHERN NEVADA AMENDMENTS TO THE 2008 NATIONAL ELECTRICAL CODE

**Approved by SNBO
July 23, 2010**

Article 110.12 Mechanical Execution of Work.

Add new Subsections (C) and (D) to Article 110.12, as follows:

(C) Abandoned Conductors and Cables. For those structures regulated by the Building or Swimming Pool Code, no electrical conductors or cables shall be abandoned in place. Such conductors or cables shall be removed from the building or structure back to the panelboard unless otherwise approved by the Building Official or designated representative based upon consideration of safety and combustibility.

(D) Used Materials and Equipment. The use of used materials which meet the requirements of this code for new materials is permitted. Used equipment and devices shall not be reused unless approved by the building official.

Article 110.26 Spaces About Electrical Equipment.

Revise Article 110.26 (C) (2), as follows:

(2) Large Equipment. For equipment rated 1200 amperes or more and over 1.8 m (6ft) wide that contains overcurrent devices, switching devices, or control devices, there shall be one entrance to and from the required working space not less than 610 mm (24 in.) wide and 2.0 m (6 ½ ft) high at each end of the working space. When more than one entrance is required by this ARTICLE both entrances shall open to the exterior of the building or into an approved means of egress that is not under the control of an individual tenant.

A single entrance to and egress from the required working space shall be permitted where either of the conditions in 110.26(C)(2)(a) or (C)(2)(b) is met.

The remainder of this Article remains unchanged.

Article 110.33 Entrance and Access to Work Space.

Revise Article 110.33 (A) (1), Large Equipment, as follows:

(1) Large Equipment. On switchboard and control panels exceeding 1.8 m (6 ft) in width, there shall be one entrance at the end of the equipment. When more than one entrance is required by this article both entrances shall open to the exterior of the building or into an approved means of egress that is not under the control of an individual tenant. A single entrance to the required working space shall be permitted where either of the conditions in 110.33 (A)(1)(a) or (A)(1)(b) is met.

The remainder of this Article remains unchanged.

Article 210.8 Ground-Fault Circuit-Interrupter Protection for Personnel.

Add a new Subsection (6) to Article 210.8 (B), as follows:

(6) Food and/or beverage serving areas.

Article 210.23 Permissible Loads.

Add a new Subsection (E) to Article 210.23, as follows:

(E) Dwelling Branch Circuits.

(1) Maximum Number (15-ampere). The maximum number of outlets on a 15-ampere, 125 volt (nominal) luminaire lighting fixture circuit shall be twelve (12) and shall not contain general purpose outlets.

Exception No 1: Dedicated branch circuits feeding only IC rated recessed luminaires (recessed lighting fixtures) and/or low wattage energy efficient luminaires (lighting fixtures) may use Article 220.14(D) for maximum number of lighting outlets.

Exception No 2: In branch circuits serving smoke detectors the smoke detectors outlets need not be counted with the other lighting outlets.

(2) Maximum Number (20-ampere). The maximum number of outlets on a 20-ampere, 125-volt (nominal) circuit used either exclusively for receptacles, for lighting outlets or for any combination of receptacles and lighting outlets shall be twelve (12).

Exception No 1: Dedicated branch circuits feeding only IC rated recessed luminaires (recessed lighting fixtures) and/or low wattage energy efficient luminaires (lighting fixtures) may use Article 220.14(D) for maximum number of lighting outlets.

Exception No 2: In branch circuits serving smoke detectors the smoke detectors outlets need not be counted with the other lighting outlets.

(3) Individual Branch Circuits. The following fastened-in-place appliances are required to have a separate minimum 20-ampere circuit: dishwasher, trash compactor and microwave oven. The required laundry circuit may serve one (1) additional outlet in the laundry area.

Article 210.52 Dwelling Unit Receptacle Outlets.

Revise Article 210.52 (A) (2), as follows:

(2) The space occupied by fixed panels in exterior walls, excluding sliding panels. Where panels consist of multiple sliding panels only the first panel in each direction may be excluded.

Revise Article 210.52 (A)(2)(3), as follows:

(3) The space afforded by fixed room dividers such as free standing bar-type counters or railings. Where room dividers consist of multiple moving panels only the first moving panel in each direction may be excluded as a wall space.

Revise Article 210.52 (B)(3), as follows:

(3) Kitchen Receptacle Requirements. Receptacles installed in a kitchen to serve countertop surfaces shall be limited to five (5) duplex receptacles on a circuit. They shall be supplied by not fewer than two small-appliance branch circuits, either or both of which shall also be permitted to supply receptacle outlets in the same kitchen or in other rooms as specified in 210.52(B)(1). Additional small-appliance branch circuits shall be permitted to supply receptacle outlets in the kitchen and other rooms specified in 210.52(B)(1). No small-appliance branch circuit shall serve more than one kitchen.

Add a new exception to Article 210.52 (B)(3), as follows:

Exception: Receptacles installed to provide power for electric ignition systems or clock timers for gas-fired ranges, ovens or counter-mounted cooking units.

Add a new exception No. 3 to Article 210.52 (F), as follows:

Exception No. 3: In structures more than four (4) stories in height where the configuration of a laundry area is such that only an electrically heated stackable type washer/dryer unit utilizing 208 volt or 240 volt power can be accommodated, the receptacle may be considered as meeting the laundry circuit requirement.

Article 210.70 Lighting Outlets Required.

Revise Item (1) in Article 210.70 (A), as follows:

(1) Habitable Rooms. At least one wall switch-controlled lighting outlet shall be installed in every habitable room and bathroom. Unless prohibited by structural design, a wall switch shall be located within 1.8 m (6 ft) of the point of entry, and shall not be located behind an active door in the fully open position.

The remainder of this Article remains unchanged

Revise Item (a) in Article 210.70 (A)(2), as follows:

(a) At least one wall switch-controlled lighting outlet shall be installed in hallways, stairways, attached garages, and detached garages with electric power. Hallways of 3.0 m (10 ft) or more in length shall have wall switches at every end. There shall be a wall switch within 1.8 m (6 ft) of each bedroom door unless prohibited by structural design.

Revise Item (b) in Article 210.70 (A)(2), as follows:

(b) For dwelling units, attached garages, and detached garages with electric power, at least one wall-switch controlled lighting outlet shall be installed to provide illumination on the exterior side of outdoor entrances or exits with grade level access. A vehicle door shall not be considered as an outdoor entrance or exit. At least one wall switch that controls an interior lighting outlet shall be located at each keyed exterior entry. This switch shall be located within 1.8 m (6 ft) of the latching jamb side, unless prohibited by structural design, and not behind an active door in the fully open position.

Add a new Subsection (4) to Article 210.70 (A), as follows:

(4) Closets. All walk-in closets or storage areas of 1.86 sq. m (20 square feet) or more in floor area shall contain a light fixture controlled by a wall switch.

Add a new Subsection (D) to Article 210.70, as follows:

(D) Self-Service Storage Facilities. All Self-Service Storage Facilities shall have egress illumination as required by the Building Code.

Article 220.5 Branch-Circuit, Feeder, and Service Calculations.

Add a new Subsection (C) to Article 220.5 to read as follows:

(C) Calculated Loads. The calculated load of a new single family dwelling service shall allow a minimum of 4800 volt-amperes for future expansion. These 4800 volt-amperes shall be added to the total net computed load.

Article 220.84 Multifamily Dwelling.

Delete item (5) in Article 220.84(C), in its entirety.

Add a new Subsection (D) to Article 220.84, as follows:

(D) Heating and Air Conditioning Load. The largest of the following six selections (load in kVA) shall be included:

- (1) 100 percent of the nameplate rating(s) of the air conditioning and cooling.
- (2) 100 percent of the nameplate rating(s) of the heat pump when the heat pump is used without any supplemental electric heating.
- (3) 100 percent of the nameplate ratings of electric thermal storage and other heating systems where the usual load is expected to be continuous at the full nameplate value. Systems qualifying under this selection shall not be calculated under any other selection in 220.84(D).
- (4) 100 percent of the nameplate rating(s) of the heat pump compressor and 65 percent of the supplemental electric heating for central electric space heating systems. If the heat pump compressor is prevented from operating at the same time as the supplementary heat, it does not need to be added to the supplementary heat for the total central space heating load.
- (5) 65 percent of the nameplate rating(s) of electric space heating if less than four separately controlled units.
- (6) 40 percent of the nameplate rating(s) of electric space heating if four or more separately controlled units.

Article 225.32 Location.

Revise Article 225.32, in its entirety, as follows:

225.32 Location. The disconnecting means shall be installed as described in 230.70 of these amendments. For the purposes of this Article the requirements in 230.6 shall be utilized.

Exception No. 1: *For installations under single management, where documented safe switching procedures are established and maintained for disconnection, and where the installation is monitored by qualified individuals, the disconnecting means shall be permitted to be located elsewhere on the premises.*

Exception No. 2: *For buildings or other structures qualifying under the provisions of Article 685, the disconnecting means shall be permitted to be located elsewhere on the premises.*

Exception No. 3: *For towers or poles used as lighting standards, the disconnecting means shall be permitted to be located elsewhere on the premises.*

Exception No. 4: *For accessory buildings to one and two-family dwellings the disconnecting means may be installed either inside or on the exterior of the accessory structure.*

Article 230 Services.

Add a new Article 230.11 Location of Customer Owned Service Lateral or Drop, as follows:

230.11 Location of Customer Owned Service Lateral or Drop. All conductors shall traverse only the property to be served except through recorded power easements.

Article 230.70 General.

Revise Article 230.70, in its entirety, as follows:

230.70 General. Means shall be provided to disconnect all ungrounded service entrance conductors to a building or structure.

(A) Location. The service disconnecting means shall be installed in accordance with 230.70(A)(1), (2), (3), (4) and (5).

(1) Exterior of the Building. The service disconnecting means shall be installed in a readily accessible exterior location and within 3.7 m (12 ft.) of the building or structure. Where the distance is greater than 3.7 m (12 ft.) from the building or structure the service disconnecting means shall be considered as a separate structure.

Exception No1: A fire pump and its associated electrical equipment.

(2) Electrical Equipment Room. The service disconnecting means may be installed within a dedicated electrical equipment room with a readily accessible direct access on the exterior of a building or structure. Such rooms shall be separated from all other rooms or spaces within the building by a minimum of one (1) hour fire resistive construction and shall have approved Fire Department access.

FPN: A recessed 3200 series Knox Box may serve as the approved Fire Department access in some jurisdictions.

(3) Bathrooms. Service disconnecting means shall not be installed in bathrooms.

(4) Remote Control. Where a remote control device(s), required by another code such as in a fire command center, is used to actuate the service disconnecting means, the service disconnecting means shall be located in accordance with 230.70(A)(1) or (2). The remote control device shall be supervised by a local signaling service that causes an audible signal and illumination of an amber visual signal at the Fire Command Center and at each auxiliary location required for the Life Safety System.

(5) Emergency Systems, Information Technology Equipment and Uninterruptible Power Supplies (UPS). Emergency Systems driven by prime movers and UPS Systems shall have separate disconnecting means with separate identification. Information Technology Equipment rooms complying with Article 645.2 shall be permitted to have their disconnecting means installed per article 645.10 and 645.11 if identified at the same location as the "Service Disconnect."

(B) Marking. Each service disconnecting means shall be marked with a sign(s). When located in a dedicated electrical room the exterior door(s) providing access to the disconnecting means located in a dedicated electrical room shall be permanently marked with a sign(s). Each sign shall be a minimum 0.093sq.m (1 sq. foot), colored yellow with 25.4mm (1 inch) high, 6.35 mm (¼ inch) stroke raised or engraved letters and/or numbers indicating the address or unit it serves and be identified as the "Electrical Service Disconnect(s)" and/or "Electrical Service Disconnect(s) Inside." Emergency Systems disconnects shall be permanently marked with sign(s), identified as "Emergency Electrical Disconnect(s)" and/or "Main Emergency Electrical Disconnect(s) Inside." When the service disconnecting means is located inside a dedicated electrical room and it is not the first service disconnect encountered or there are multiple service disconnects there shall be a directional 75mm (3inch) wide painted yellow stripe on the floor from the entry door(s) to each service disconnect. Other durable means of identification may be used with prior approval by The Authority Having Jurisdiction.

Exception: One and two family dwelling units and their associated accessory structures.

(C) Suitable for Use. Each service disconnecting means shall be suitable for the prevailing conditions. Service equipment installed in hazardous (classified) locations shall comply with the requirements of Articles 500 through 517.

Article 230.202 Service-Entrance Conductors.

Add a new Subsection (C) to Article 230.202, as follows:

(C) Conductors Considered Outside the Building. Service-entrance conductors shall be installed in accordance with Article 230.6.

Article 230.205 Disconnecting Means.

Revise Article 230.205(A), in its entirety, as follows:

(A) Location. The service disconnecting means shall be installed in accordance with 230.70. Facilities on private property, under single management with a Life Safety System, Fire Command Center and 24 hour on-site qualified maintenance personnel shall be permitted to utilize a remote control device for their power disconnecting means. The main electrical room is not required to be located on the exterior of the building or other structure.

Revise Article 230.205(C), as follows:

(C) Remote Control. For multi-building, industrial installations under single management, the service disconnecting means shall be permitted to be located at a separate building or structure. In such cases, the service disconnecting means shall be permitted to be electrically operated by a readily accessible, remote-control device. The remote control device shall be supervised by a local signaling service that causes an audible signal and the illumination of an amber visual signal at the Fire Command Center and at each auxiliary location required for the Life Safety System.

Article 240.6 Standard Ampere Ratings.

Revise Article 240.6 (B), as follows:

(B) Adjustable-Trip Circuit Breakers. The rating of adjustable-trip circuit breakers having external means for adjusting the current setting (long-time pickup setting), shall be the maximum setting possible.

Delete Subsection (C) of Article 240.6, in its entirety.

Article 240.86 Series Ratings.

Revise Article 240.86, as follows:

240.86 Series Ratings. Where a circuit breaker is used on a circuit having an available fault current higher than the marked interrupting rating by being connected on the load side of an acceptable overcurrent device having a higher rating, the circuit breaker shall meet the requirements specified in (A) or (B), and (C). All of the information including manufacturers and part numbers of each component making up the series combination rating shall be provided on the submittal drawings for plans examination and permit. Only those manufacturers and part numbers shall be permitted for the installation.

Article 250.32 Buildings or Structures Supplied by Feeder(s) or Branch Circuit(s).

Revise Article 250.32 (A), as follows:

(A) Grounding Electrode. For the purposes of this Article all buildings or structures not joined by a continuous concrete foundation or footing and roof shall be considered as separate buildings or structures. Building(s) or structure(s) supplied by feeder(s) or branch circuit(s) shall have a grounding electrode system installed in accordance with Part III of Article 250. The grounding electrode conductor(s) shall be connected in accordance with 250.32 (B) or (C). Where there is no existing grounding electrode, the grounding electrode(s) required in 250.50 shall be installed.

Article 250.50 Grounding Electrode System.

Revise Article 250.50, as follows:

250.50 Grounding Electrode System. All grounding electrodes as described in 250.52(A)(1) through (A)(7) that are present at each building or structure served shall be bonded together to form the grounding electrode system. Where none of these grounding electrodes exist, one or more of the grounding electrodes specified in 250.52(A)(4) through (A)(8) shall be installed and used. The concrete-encased electrode described in Article 250.52(A)(3) shall be required for new buildings and structures that are supplied with electrical power and have concrete foundations or footings.

***Exception:** Concrete-encased electrodes of existing buildings or structures shall not be required to be part of the grounding electrode system where the steel reinforcing bars or rods are not accessible for use without disturbing the concrete.*

Article 250.52 Grounding Electrodes.

Revise Item (5) of Article 250.52(A), as follows:

(5) Rod Electrodes. Rod electrodes shall not be less than 2.44 m (8 ft) in length and shall consist of the following materials and shall be installed according to Article 250.53 (G). Electrodes shall be copper clad or their equivalent and shall not be less than 15.875 mm (5/8 in.) in diameter, or listed non-ferrous rods or their equivalent and not less than 12.7 mm (1/2 in.) in diameter.

Delete Item (7) of Article 250.52(A), in its entirety and renumber the subsequent items sequentially, as follows:

(7) Other Local Metal Underground Systems or Structures.

The remainder of this Article remains unchanged

Article 250.53 Grounding Electrode System Installation.

Revise Article 250.53(A), as Rod Electrodes, as follows:

(A) Rod Electrodes. Where practicable, rod electrodes shall be embedded below permanent moisture level. Rod electrodes shall be free from nonconductive coatings such as paint or enamel.

Revise Article 250.53(B), as follows:

(B) Electrode Spacing. Where more than one of the electrodes of the type specified in 250.52(A)(5) are used, each electrode of one grounding system (including that used for air terminals) shall not be less than 1.83 m (6 ft) from any other electrode of another grounding system. Two or more grounding electrodes that are bonded together shall be considered a single grounding electrode system.

Revise Article 250.53(D) (2), as follows:

(2) Supplemental Electrode Required. A metal underground water pipe shall be supplemented by an additional electrode of a type specified in 250.52(A)(2) through (A)(7). Where the supplemental electrode is a rod type, it shall comply with 250.56. The supplemental electrode shall be permitted to be bonded to the grounding electrode conductor, the grounded service-entrance conductor, the nonflexible grounded service raceway, or any grounded service enclosure.

Exception: The supplemental electrode shall be permitted to be bonded to the interior metal water piping at any convenient point as covered in 250.52(A)(1), Exception.

Revise Article 250.53(E), as follows:

(E) Supplemental Electrode Bonding Connection Size. Where the supplemental electrode is a rod electrode, that portion of the bonding jumper that is the sole connection to the supplemental grounding electrode shall not be required to be larger than 6 AWG copper wire or 4 AWG aluminum wire.

Revise Article 250.53(G), as follows:

(G) Rod Electrodes. The electrode shall be installed such that at least 2.44 m (8 ft) of length is in contact with the soil. It shall be driven to a depth of not less than 2.44 m (8 ft) except that, where rock bottom is encountered, the electrode shall be driven at an oblique angle not to exceed 45 degrees from the vertical or, where rock bottom is encountered at an angle up to 45 degrees, the electrode shall be permitted to be buried in a trench that is at least 750 mm (30 in.) deep. The upper end of the electrode shall be flush with or below ground level unless the aboveground end and the grounding electrode conductor attachment are protected against physical damage as specified in 250.10.

Delete Subsection (H) of Article 250.53, in its entirety.

Article 250.56 Resistance of Rod, Pipe and Plate Electrodes.

Revise Article 250.56, as follows:

250.56 Resistance of Rod Electrodes. A single electrode consisting of a rod that does not have a resistance to ground of 25 ohms or less shall be augmented by one additional electrode of any of the types specified by 250.52(A)(4) through (A)(8). Where multiple rod electrodes are installed to meet the requirements of this article, they shall not be less than 1.8 m (6 ft) apart.

FPN: The paralleling efficiency of rods longer than 2.5 m (8 ft) is improved by spacing greater than 1.8 m (6 ft).

Article 250.94 Bonding for Other Systems.

Add new items (4) and (5) to Article 250.94, as follows:

(4) A set of listed terminals connected to the concrete-encased electrode as defined in Article 250.52(A)(3).

(5) A set of listed terminals connected to the concrete-encased electrode conductor as defined in Article 250.24(D), 250.30(A)(3), 250.30(A)(4), 250.30(B)(1) and 250.32(E).

Article 250.120 Equipment Grounding Conductor Installation.

Add a new Subsection (D) to Article 250.120, as follows:

(D) Equipment Grounding Conductor. All raceways installed on roofs shall contain an equipment grounding conductor sized per Table 250.122 installed with the circuit conductors.

Exception No. 1: Low voltage, communication and similar type systems unless required elsewhere in the Code.

Exception No. 2: As permitted by Article 250.86 for short Articles of metal enclosures or raceways.

Table 250.122 Equipment Grounding Conductors for Grounding Raceway and Equipment

Revise Table 250.122 Minimum Size Equipment Grounding Conductors for Grounding Raceway and Equipment, as follows:

<i>Rating or Setting of Automatic Overcurrent Device in Circuit Ahead of Equipment, Conduit, etc., Not Exceeding (Amperes)</i>	<i>Size (AWG or kcmil) Copper</i>	<i>Size (AWG or kcmil) Aluminum or Copper-Clad Aluminum*</i>
4000	500	750

Article 300.1 Scope.

Add a new paragraph (D) to Article 300.1, as follows:

(D) Article 760 System Wiring.

(1) Wiring for Article 760 systems installed in the construction of buildings and structures shall be contained in a raceway or cable tray system.

Exception No. 1: AC cable, MC cable and MI cable. Articles 320, 330, and 332 respectively.

Exception No.2: Wiring in residential occupancies two stories or less in height.

(2) Raceway systems for Article 760 systems in buildings and structures of Type I or Type II A construction as defined in the Building Code shall be of metallic non-combustible materials and cable trays shall be of the fully enclosed type.

Exception No. 1: Non-metallic raceways encased in concrete, or masonry, or underground or solid grouted building components that are in compliance with the Building Code.

Exception No. 2: Liquid-tight flexible conduit in lengths of 1.8 m (6 ft) or less which comply with NEC Articles 350 and 356.

Article 310.15 Ampacities for Conductors Rated 0-2000 Volts.

Revise Article 310.15(B)(2)(c), as follows:

(c) *Conduits Exposed to Sunlight on Rooftops.* Where conductors or cables are installed in conduits exposed to direct sunlight on or above rooftops, one of the following conditions shall be met:

- (1) All conductors shall have an insulation rating of 90°C and the conduits shall be installed at least 3 1/2" above the roof surface.
- (2) The adjustments shown in Table 310.15(B)(2)(c) shall be added to the outdoor temperature to determine the applicable ambient temperature for application of the correction factors in Table 310.16 and Table 310.18.

FPN: One source for the average ambient temperatures in various locations is the ASHRAE Handbook — *Fundamentals*.

Article 314.24 Depth of Outlet Boxes.

Revise Article 314.24, as follows:

314.24 Minimum Depth of Boxes for Outlets, Devices, and Utilization Equipment. Outlet and device boxes shall have sufficient depth to allow equipment installed within them to be mounted properly and with sufficient clearance to prevent damage to conductors within the box. All boxes for outlets, devices, utilization equipment or junction boxes less than 200 mm (8 inches) in any dimension, shall have no more than two extension boxes or one extension box and one plaster ring.

Exception: Listed unit(s) or assembly(s).

Article 352.10 Uses Permitted.

Add a new Subsection (I) to Article 352.10, as follows:

(I) Exposed to Direct Sunlight. Rigid non-metallic conduit shall be a minimum Schedule 80 and identified for such use.

Article 358.12 Uses Not Permitted.

Add new items (7), (8) and (9) to Article 358.12, as follows:

- (7) Embedded within concrete or masonry in contact with earth.
- (8) Underground installations.
- (9) Within earth fills.

Article 408.54 Maximum Number of Overcurrent Devices.

Add the following paragraph to the end of Article 408.54 to read as follows:

Each panelboard or load center installed in a new one or two-family dwelling shall have a capacity for a minimum of two (2) additional full-size single pole overcurrent devices on adjacent opposite poles for expansion. All available overcurrent device spaces shall comply with Article 404.8(A).

Article 514.11 Circuit Disconnects.

Revise Article 514.11(A), as follows:

(A) General. Each circuit leading to or through dispensing equipment, including equipment for remote pumping systems, shall be provided with a clearly identified and readily accessible switch or other acceptable means, located remote from the dispensing devices, to disconnect simultaneously from the source of supply, all conductors of the circuits, including the grounded conductor, if any. Single-pole breakers utilizing handle ties shall not be permitted. The switch shall be a momentary contact type. The disconnect station sign shall be 0.093 sq. m (1 ft square), colored yellow and have black, 25.4 mm (1 inch) high, 6.35 mm (¼ inch) stroke permanent lettering describing it as "Emergency Pump Shutoff".

Article 600.41 Neon Tubing.

Revise Article 600.41(D), as follows:

(D) Protection. Field-installed skeleton tubing shall not be subject to physical damage. Where the tubing is readily accessible to other than qualified persons, field-installed skeleton tubing shall be provided with suitable guards or protected by other approved means. Installations less than 2.44 m (8 ft.) above finished grade or floor level shall be considered as readily accessible.

Article 682 Natural and Artificially Made Bodies of Water.

Delete Article 682 in its entirety.

Article 690.14 Additional Provisions.

Delete the exception and revise Article 690.14(C) (1), as follows:

(1) Location. The photovoltaic disconnecting means and overcurrent device shall be installed at an accessible location on the outside of a building or structure before any system conductors enter the building or structure.

The photovoltaic system disconnecting means shall not be installed in bathrooms.

Article 700.1 Scope.

Revise Article 700.1, as follows:

700.1 Scope. For the purposes of this ARTICLE items considered as meeting the requirements for high rise applications (i.e. buildings with an occupied floor located more than 55 feet (16 764 mm) above the lowest level of fire department vehicle access to be placed on the emergency distribution system may include: Emergency illumination, exit signage, electric fire pumps, fire jockey or makeup pumps, fire alarm equipment, smoke control equipment, one elevator per bank of elevators, cooling and heating equipment for emergency electrical rooms and elevator machine rooms, FAA required obstruction lighting, battery chargers for emergency generating equipment, heating equipment for freeze protection of fire sprinkler systems, telecommunications equipment (i.e. for 911 applications) fire command center loads such as monitoring and display equipment and other equipment approved by the Authority Having Jurisdiction that will enhance the survivability of life safety systems.

The provisions of this article apply to the electrical safety of the installation, operation, and maintenance of emergency systems consisting of circuits and equipment intended to supply, distribute, and control electricity for illumination, power, or both, to required facilities when the normal electrical supply or system is interrupted.

Emergency systems are those systems legally required and classed as emergency by municipal, state, federal, or other codes, or by any governmental agency having jurisdiction. These systems are intended to automatically supply illumination, power, or both, to designated areas and equipment in the event of failure of the normal supply or in the event of accident to elements of a system intended to supply, distribute, and control power and illumination essential for safety to human life.

Article 700.9 Wiring, Emergency System.

Revise Article 700.9(D), as follows:

(D) Fire Protection. Emergency systems shall meet the additional requirements in 700.9(D)(1) and (D)(2) in any occupancy(s) of 300 or more persons or in buildings with an occupied floor located more than 55 feet (16 764 mm) above the lowest level of fire department vehicle access.

Add a new exception and amend Article 700.9 (D) (2), as follows:

(2) Feeder-Circuit Equipment. Equipment for feeder circuits (including transfer switches, transformers, and panelboards) shall be located either in spaces fully protected by approved automatic fire suppression systems (including sprinklers, carbon dioxide systems) or in spaces with a 1-hour fire resistance rating. This equipment shall be located in room(s) dedicated to this equipment.

Exception: *System components described in Article 701 may occupy the same dedicated room(s) as emergency systems.*

FPN: For the definition of *Occupancy Classification*, see Article 6.1 of NFPA 101-2006, *Life Safety Code*.

Article 700.12 General Requirements.

Revise Article 700.12, as follows:

700.12 General Requirements. Current supply shall be such that, in the event of failure of the normal supply to, or within the building or group of buildings concerned, emergency lighting, emergency power, or both shall be available within the time required for the application but not to exceed 10 seconds. The supply system for emergency purposes, in addition to the normal services to the building and meeting the general requirements of

this ARTICLE, shall be one or more of the types of systems described in 700.12(A) through (E). Unit equipment in accordance with 700.12(F) shall satisfy the applicable requirements of this article.

In selecting an emergency source of power, consideration shall be given to the occupancy and the type of service to be rendered, whether of minimum duration, as for evacuation of a theater, or longer duration, as for supplying emergency power and lighting due to an indefinite period of current failure from trouble either inside or outside the building.

Equipment shall be designed and located so as to minimize the hazards that might cause complete failure due to flooding, fires, icing, and vandalism.

Equipment for sources of power as described in 700.12(A) through 700.12(E) shall meet the following additional requirements in any occupancy(s) of 300 or more persons or in buildings with an occupied floor located more than 55 feet (16 764 mm) above the lowest level of fire department vehicle access. This equipment shall be installed in spaces fully protected by approved automatic fire suppression systems (sprinklers, carbon dioxide systems and so forth) or in spaces protected by a fire-rated assembly listed to achieve a minimum fire rating of one-hour.

FPN No. 1: For the definition of *Occupancy Classification*, see ARTICLE 6.1 of NFPA 101-2006, *Life Safety Code*.

FPN No. 2: Assignment of degree of reliability of the recognized emergency supply system depends on the careful evaluation of the variables at each particular installation.

Add a new Subsection (7) to Article 700.12 (B), as follows:

(7) The emergency generator shall not be located more than 55 feet (16 764 mm) above the lowest level of fire department vehicle access. When the generator set is located inside a building it shall be located in a room dedicated to the Emergency Power Supply System. This room shall be separate from the interior of the building by a minimum of two-hour resistive construction or shall be in room(s) fully protected by approved automatic fire suppression systems. Unless otherwise required by Building Codes openings for generator cooling and exhaust shall not be required to be fire-resistive construction.

When a generator set is located within 1.5 m (5 ft) of a building it shall be separated from the building with a rated separation wall equal to the highest fire rating within the building that has no openings. It shall be isolated within an enclosure and protected from physical damage.

When a generator set is located more than 1.5 m (5 ft) from a building it shall be isolated within an enclosure and protected from physical damage.

Article 760.3 Other Articles.

Add a new paragraph (A) to Article 760.3, and re-alphabetize the existing paragraphs (A) through (G) to (B) through (H) respectively:

(A) Wiring Methods. Article 760 Fire Alarm Systems wiring shall comply with Article 300.1(D).

Add a new paragraph to the end of this section, as follows:

All Fire alarm wiring installed in the construction of buildings and structures shall be contained in a raceway or cable tray system.