



Legislation Details (With Text)

File #: Int 0581-2003 **Version:** A **Name:** Electrical Code
Type: Introduction **Status:** Enacted
In control: Committee on Housing and Buildings

On agenda: 9/30/2003

Enactment date: 12/22/2003 **Enactment #:** 2003/081

Title: A Local Law to amend the administrative code of the city of New York, in relation to the electrical code.

Sponsors: Madeline T. Provenzano, Leroy G. Comrie, Jr., Miguel Martinez, David I. Weprin, David Yassky, Letitia James, Robert Jackson, (by request of the Mayor)

Indexes:

Attachments: 1. Memo In Support, 2. Committee Report 11/10, 3. Hearing Transcript 11/10, 4. Committee Report 11/25, 5. Hearing Transcript 11/25, 6. Stated Meeting - Hearing Transcript 12/15, 7. Fiscal Impact Statement, 8. Local Law

Date	Ver.	Action By	Action	Result
9/30/2003	*	City Council	Introduced by Council	
9/30/2003	*	City Council	Referred to Comm by Council	
11/10/2003	*	Committee on Housing and Buildings	Hearing Held by Committee	
11/10/2003	*	Committee on Housing and Buildings	Laid Over by Committee	
11/25/2003	*	Committee on Housing and Buildings	Hearing Held by Committee	
11/25/2003	A	Committee on Housing and Buildings	Approved by Committee	Pass
11/25/2003	*	Committee on Housing and Buildings	Amended by Committee	
11/25/2003	*	Committee on Housing and Buildings	Amendment Proposed by Comm	
12/3/2003	A	City Council	Laid Over by Council	
12/15/2003	A	City Council	Sent to Mayor by Council	
12/15/2003	A	City Council	Approved by Council	Pass
12/22/2003	A	Mayor	Hearing Held by Mayor	
12/22/2003	A	Mayor	Signed Into Law by Mayor	
12/22/2003	A	City Council	Recved from Mayor by Council	

Proposed Int. No. 581-A

By Council Members Provenzano, Comrie, Martinez, Weprin, Yassky, James and Jackson (by request of the Mayor)

A Local Law to amend the administrative code of the city of New York, in relation to the electrical code.

Be it enacted by the Council as follows:

Section 1. Subdivisions a and c of section 27-3010 of the administrative code of the city of New York, as renumbered and amended by local law number 64 for the year 2001, are amended to read as follows:

a. An applicant for a license as a master electrician or special electrician must be over the age of twenty-one years, of good moral character and, at the time of applying for examination, shall have had, during the ten (10) years immediately preceding his or her application, at least seven and one-half (7 1/2) years or the equivalent as indicated below and during such time a minimum of [seventy-five hundred (7500)] ten thousand five hundred (10,500) hours or the equivalent as indicated below of satisfactory experience in the installation, alteration and repair of wiring and appliances for electric light, heat and power in or on buildings or comparable facilities. Except as otherwise provided below, such satisfactory experience must have been obtained while under the direct supervision of a licensed master electrician or special electrician or, with respect to experience outside the city, under the direct supervision of an individual with comparable qualifications as determined by the commissioner, and while in the employ of (i) a master electrician business as defined herein, or (ii) an individual, a partnership or a corporation owning, leasing or managing a building, buildings or parts thereof and employing a special electrician to perform electrical work in or on specific buildings, lots or parts thereof owned, leased or managed by such individual, corporation or partnership, or (iii) an individual, a partnership or a corporation deemed acceptable by the commissioner. No more than [fifty] twenty-five percent ([50] 25 %) of such satisfactory experience shall have been gained while working outside the United States unless the commissioner determines that the licensing system and electrical code of the foreign jurisdiction is essentially similar to licensing systems and electrical codes in the United States. The following shall be deemed to fulfill the satisfactory experience requirement:

1. A journeyman electrician who has worked at least seven and one-half (7 1/2) years and during such time a minimum of [seventy-five hundred (7500)] ten thousand five hundred (10,500) hours of such experience must have been obtained by working with his or her tools on the installation, alteration and repair of wiring and

appliances for light, heat and power in or on buildings or comparable facilities, or

2. A graduate of a college or university who holds a degree in electrical engineering, either a master of science (M.S.) or bachelor of science (B.S.) and has in addition worked at least (i) with respect to an applicant with an M.S. degree, two and one-half (2 1/2) years and during such time a minimum of [twenty-five hundred (2500)] thirty-five hundred (3500) hours of such experience or, (ii) with respect to an applicant with a B.S. degree, three and one-half (3 1/2) years and during such time a minimum of [thirty-five hundred (3500)] forty-nine hundred (4900) hours of such experience must have been obtained by working with his or her tools on the installation, alteration and repair of wiring and appliances for electric light, heat and power in or on buildings or comparable facilities, or

3. A graduate of a vocational, industrial, trade school or apprenticeship program, registered with the New York state department of labor, specializing in electrical wiring, installation and design or applied electricity, who has worked at least five and one-half (5 1/2) years and during such time a minimum of [fifty-five hundred (5500)] seventy-seven hundred (7700) hours of such experience must have been obtained by working with his or her tools on the installation, alteration and repair of wiring and appliances for electric light, heat and power in or on buildings or comparable facilities, or

4. Any person who attended courses in a college or university leading to a degree in electrical engineering, mechanical engineering, bachelor of science in electrical engineering or mechanical engineering, who passed all subjects in the required courses shall be credited with satisfactory experience equal to fifty per cent (50%) of the number of curricula years he or she has satisfactorily completed which, in no event, however, shall exceed two and one-half (2 1/2) years credit of satisfactory experience, the balance of the required seven and one-half (7 1/2) years, i.e., five (5) years and during such time a minimum of [five thousand (5000)] seven thousand (7000) hours of such experience must have been obtained by working with his or her tools on the installation, alteration and repair of wiring and apparatus for light, heat and power in or on buildings or comparable facilities, or

5. Any person who attended courses in a vocational, industrial or trade school, registered with the New York state department of labor, specializing in electrical wiring, installation and design or applied electricity who has passed all subjects in the required courses shall be credited with fifty per cent (50%) of the number of curricula years that he or she has satisfactorily completed which, however, in no event, shall exceed two (2) years credit of [practical] such experience, the balance of the required seven and one-half (7 1/2) years, i.e., five and one-half (5 1/2) years of such experience and during such time a minimum of [five thousand (5000)] seven thousand (7000) hours must have been obtained by working with his or her tools on the installation and repair of wiring for electric light, heat and power in or on buildings or comparable facilities, or

6. An employee of a government agency, private inspection agency or other entity, acceptable to the commissioner, whose duties primarily involve the inspection of electrical work for compliance with the electrical code and the electrical code technical standards and/or other laws relating to the installation, alteration or repair of electrical wiring or appliances shall be credited with fifty percent (50%) of the number of years that he or she has been satisfactorily employed in such duties within the ten (10) year period prior to application, which, however, in no event, shall exceed two and one-half (2 1/2) years credit of satisfactory experience. The balance of the required seven and one-half (7 1/2) years, i.e., five (5) years and during such time a minimum of [five thousand (5000)] seven thousand (7000) hours of such experience must have been obtained by working with his or her tools on the installation, alteration and repair of wiring and appliances for electric light, heat and power in or on buildings or comparable facilities except that the requirement of subdivision a of this section that an applicant's working experience must have been within the ten (10) year period prior to application shall not apply to such balance of five (5) years working experience required pursuant to this paragraph.

c. Every applicant shall be required to take an examination in accordance with the rules of the department. However, where the application is on behalf of a city agency, the commissioner may waive the examination requirement if the applicant has sufficient experience qualifications, as determined by the

commissioner.

§2. Subdivision a of section 27-3015 of the administrative code of the city of New York, as amended by local law 64 for the year 2001, is amended to read as follows:

a. Any license and seal issued hereunder may be renewed without examination, provided application for such renewal, accompanied by the renewal fees prescribed above and such information as may be required by the commissioner to ensure compliance with section 27-3016 of this chapter, shall have been filed prior to the expiration of the existing license. Where an applicant can show good and sufficient cause for his or her inability to renew his or her license and seal before its expiration, the commissioner may, within thirty days after the expiration of such license, permit the issuance, without examination, of a new license and seal upon payment of the prescribed fees for such new license and seal within said thirty days. No license shall be renewed and no new license and seal shall be issued unless all outstanding fees required by section 27-3018 of this code have been paid. The commissioner may promulgate rules requiring applicants for the renewal of master or special electrician's licenses to submit proof, in such form as he or she shall determine, that, in each year of the license term, such applicant completed at least ten hours of continuing education courses approved by the department. Such proof shall be submitted not less than two months prior to the expiration of the license term.

§3. Subdivision b of section 27-3018 of the administrative code of the city of New York, as amended by local law number 64 for the year 2001, is amended to read as follows:

b. Before commencing any electrical work, other than low voltage electrical work, a master electrician business or special electrician shall file with the commissioner an application for a permit and, if applicable, certificate of electrical inspection for such work on a form prescribed by the commissioner.

No such work shall be performed until the commissioner has reviewed and approved such application and issued an appropriate permit for such work. The permit shall be conspicuously posted at the work site at all times while the work is in progress. Each permit shall be issued with an expiration date to be determined in

accordance with the rules of the department, but not less than one year after the date of issuance. An expired permit may be renewed in accordance with the rules of the department upon payment of a renewal fee as set forth in such rules.

§4. Subdivision a of section 27-3024 of the administrative code of the city of New York, as amended by local law number 41 for the year 2002, is amended to read as follows:

a. The city of New York hereby adopts the [1999] 2002 edition of the National Fire Protection Association NFPA 70 National Electrical Code as the minimum requirements for the design, installation, alteration or repair of electric wires and wiring apparatus and other appliances used or to be used for the transmission of electricity for electric light, heat, power, signaling, communication, alarm and data transmission in the city subject to the amendments adopted by local law and set forth in section 27-3025 of this subchapter, which shall be known and cited as " the New York city amendments to the [1999] 2002 National Electrical Code". Such [1999] 2002 edition of the National Fire Protection Association NFPA 70 National Electrical Code with such New York city amendments shall together be known and cited as the "electrical code technical standards". [The electrical code technical standards shall apply to electrical work performed on and after January first, two thousand three except that, the commissioner may promulgate rules to extend the date of application for an additional period, not to exceed one hundred eighty days, for any electrical code technical standard as he or she deems necessary.] The commissioner shall make a copy of the electrical code technical standards available for public inspection at the department of buildings.

§5. Section 27-3025 of the administrative code of the city of New York is REPEALED and a new section 27-3025 is added to read as follows:

§27-3025 The New York city amendments to the 2002 National Electrical Code. The following New York city amendments to the 2002 National Electrical Code are hereby adopted as set forth in this section:

2002 NEC New York city amendment

110.2 Revise section 110.2 to read as follows:

110.2 Approval of Electrical Materials, Equipment and Installations.

(A) Listed and Approved Materials and Equipment. All electrical equipment, apparatus, materials, devices, appliances or wiring thereto installed or used in any electrical construction or installation regulated by the terms of this Code, shall be designed and constructed so as to be safe and suitable for the purpose intended.

(1) All electrical equipment, apparatus, materials, devices, appliances and wiring used in New York City shall be acceptable to the Commissioner of Buildings, with submittals required in accordance with rules of the Department of Buildings.

(2) The maker's name, trademark or other identification, symbol and number shall be placed on fittings, equipment and materials. Other markings shall be provided, giving voltage, current, wattage or other appropriate ratings as are prescribed elsewhere in this Code.

(B) Installations. All electrical installations regulated by the terms of this Code shall be designed and constructed so as to be safe and suitable for the purpose intended.

No electrical installations as described in (1) through (5) below shall be constructed unless an application for approval therefor has been submitted to the Commissioner of Buildings and approval has been granted. For the purpose of this section an electrical "installation" shall refer to the installation of service equipment, transformers, UPS systems, generators, generator paralleling equipment or other sources.

(1) A new installation of new equipment totaling 1000 kVA or larger.

(2) Any change in an installation with a rating of 1000 kVA or larger, up to and including 2nd level overcurrent protection unless it was fully described and approved as "future" on the original approved plan.

(3) Any addition to an existing installation, which would bring the total to 1000 kVA or larger.

(4) The addition of any equipment in a room, which would affect clearances around the equipment of a 1000 kVA installation.

(5) A new installation or revised installation above 600V irrespective of kVA rating.

(C) Capacity.

(1) The capacity of a utility service, in kVA, shall be determined by summing the maximum ampere ratings of each service disconnect and calculating total kVA at the operating voltage. Service disconnects supplying fire pumps shall be included at 125% of the fire pump full load amps. The calculation shall include all new and existing service disconnects supplied from the common service entrance.

(2) The capacity of a transformer, UPS system, generator or other source shall be its maximum KVA output rating.

110.4 Revise section 110.4 to read as follows:

110.4 Voltages. Throughout this Code, the voltage considered shall be that at which the circuit operates. The voltage rating of electrical equipment shall not be less than the nominal voltage of a circuit to which it is connected. For the purposes of this Code, the term "low voltage (installer)" shall apply exclusively to circuits in the following categories: Class 1 circuits, power limited; Class 2 circuits; and Class 3 circuits of 50 volts or less. No wiring of Class 1 remote control and signaling circuits shall be considered "low voltage" regardless of the actual voltage. The requirements of Articles 725, 780, 800, 810, 820 and 830 shall apply.

Exception: Section 551.2 Definition of Low Voltage.

110.8 Add a new sentence at the end of section 110.8 to read as follows:

Refer to the New York City Amendments to the 2002 National Electrical Code.

110.26(A)(1)(a) Revise the last sentence in subsection 110.26(A)(1)(a) by replacing "762 mm (30 in) with "900 mm (36 in.)."

110.26(G) Add a new subsection 110.26(G) to read as follows:

(G) Network Compartments. All utility network compartments shall have at least two means of access, one of which must be from outside the building, or from a public area within the building.

110.31 Revise the second sentence of the second paragraph of section 110.31 to read as follows:

A fence shall not be less than 8 ft (2.44m) in height.

110.31(A) Revise the second sentence of subsection 110.31(A) by replacing "4 in. (102 mm)" with "6 in. (150mm)."

110.33(A) Revise the first sentence of subsection 110.33(A) to read as follows:

At least one entrance not less than 30 in. (762 mm) wide and 61/2 ft (1.98 m) high shall be provided to give access to the working space about electric equipment.

110.34(A) Revise the last sentence of the Exception to read as follows:

Where rear access is required to work on de-energized parts on the back of enclosed equipment, a minimum working space of 36 in. (914 mm) horizontally shall be provided.

210.12(B) Revise subsection 210.12 (B) to read as follows:

(B) Dwelling Unit Bedrooms. All branch circuits, other than circuits installed to comply with subsection 210.52(I) and which supply a single receptacle, that supply 125-volt, single-phase, 15- and 20-ampere receptacle outlets installed in dwelling unit bedrooms and sleeping areas of studio apartments shall be protected by an arc-fault circuit interrupter(s). Smoke detectors within dwelling units shall not receive electric energy from branch circuits protected by arc-fault circuit interrupters.

210.19(A)(1) Add a new sentence to subsection 210.19(A)(1) at end of the paragraph before the exception to read as follows and delete FPN No. 4:

Conductors of branch circuits shall be sized to allow for a maximum voltage drop of 3% the last outlet supplying light, heat or power and the maximum voltage drop allowable for feeders and branch circuit combined shall not exceed 5%.

210.19(A)(4) Revise subsection 210.19(A)(4) by changing the number at the end of the first sentence from "No. 14" to "No. 12."

210.24 Revise Table 210.24 by changing the numbers within the Circuit

Rating section from "14" to "12."

210.52(I) Add a new subsection 210.52(I) to read as follows:

(I) Outlet Requirements For Residential-Type Occupancies. In addition to the requirements set forth in subsections (A) through (H) of this section, living rooms, bedrooms, and dining rooms shall have at least one receptacle outlet installed for air conditioners. Such outlets shall be supplied by an individual appliance branch circuit.

Exception: Buildings with central air conditioning systems that serve any of the above areas shall not require separate outlets in those areas.

215.2(A)(1) Add two new sentences to subsection 215.2(A)(1) at the end of the paragraph before the exception to read as follows:

Feeder conductors shall be sized so that the maximum voltage drop at the last overcurrent device does not exceed 3% and the total maximum voltage drop of feeder and branch circuit conductors to the last outlet does not exceed 5%. The minimum feeder size to any dwelling unit shall not be smaller than three No. 8 conductors.

215.2(A)(4) Add the following two new sentences at the end of subsection 215.2(A)(4) to read as follows and delete FPN No. 2.

The maximum voltage drop in any branch circuit shall not exceed 3%. The minimum size of any feeder supplying any dwelling unit shall not be less than three No. 8 conductors.

215.5 Revise the first sentence of section 215.5 to read as follows:

A diagram showing feeder details shall be provided prior to the installation of the feeders.

220.16(C) Add a new subsection 220.16(C) to read as follows:

(C) Air Conditioning Circuits - Dwelling Unit. A load, if not less than 1500 Volt-Amperes, shall be included for each air conditioning outlet required by 210.52(I). When calculating conductor sizes for feeders or service entrance, a demand factor of 50% shall be permitted where applicable.

220.35 Revise section 220.35 to read as follows:

220.35 Optional Calculations for Determining Existing Loads. The calculation of a feeder load for existing installations shall be permitted to use actual maximum demand to determine the existing load under the following conditions:

- (1) The maximum demand data is available for a 1-year period.

Exception: If the maximum demand data for a 1-year period is not available, the calculated load shall be permitted to be based on the maximum demand (measure of average power demand over a 15-minute period) continuously recorded over a minimum 30-day period using a recording ammeter or power meter connected to the highest loaded phase of the feeder, based on the initial loading at the start of the recording. The recording shall reflect the maximum demand of the feeder by being taken when the building or space is occupied and shall include by measurement or calculation the larger of the heating or cooling equipment load, and other loads that may be periodic in nature due to seasonal or similar conditions.

- (2) The maximum demand at 125 percent plus the new load does not exceed the ampacity of the feeder.

- (3) The feeder has overcurrent protection in accordance with 240.4.

- (4) This section may not be used to determine service loads except by special permission.

225.6(A)(1) Revise subsection 225.6(A)(1) to read as follows:

(1) For 600 volts, nominal, or less, No. 10 copper or No. 8 aluminum for spans up to 12.2 m (40 ft) in length and No. 8 copper or No. 6 aluminum for a longer span, unless supported by a messenger wire.

225.6(B) Revise the first sentence of subsection 225.6(B) to read as follows:

Overhead conductors for festoon lighting shall not be smaller than No. 10 unless the conductors are supported by messenger wires.

225.11 Revise section 225.11 to read as follows:

225.11 Circuit Exits and Entrances. Where outside branch and feeder circuits leave or enter a building, the requirements of Section 230.54 shall apply.

225.12 Delete section 225.12 in its entirety.

225.21 Delete section 225.21 in its entirety.

230.7 Delete Exception No. 2.

230.23(B) Revise the exception to read as follows:

Exception: By Special Permission.

230.30 Delete the Exception.

230.31(B) Revise subsection 230.31(B) to read as follows:

(B) Minimum Size. The conductors shall not be smaller than No. 4 copper or No. 2 aluminum or copper-clad aluminum.

Exception: Conductors supplying only limited loads of a single branch circuit - such as small polyphase power, controlled water heaters, and similar loads - shall not be smaller than No. 10 copper or No. 8 aluminum or copper-clad aluminum.

230.40 Delete Exception No. 3.

230.41 Delete the Exception.

230.42(A) Revise subsection 230.42(A) to read as follows:

(A) General. The ampacity of the service-entrance conductors before the application of any adjustment or correction factors shall not be less than either (1) or (2) for services below 1000kVA and shall not be less than (3) for services 1000kVA and larger.

FPN: See NYC Electrical Code Amendment 110.2(C)(1) for determining service equipment capacity.

Loads shall be determined in accordance with Article 220. Ampacity shall be determined from 310.15 for respective cable types at 75(C). When service-entrance conductors consist of bus bars contained in either service busway or other service equipment, bus sizing shall conform to the following table:

(1) The sum of the noncontinuous loads plus 125 percent of the continuous loads.

(2) The sum of the noncontinuous load plus the continuous load if the service- entrance conductors

terminate in an overcurrent device where both the overcurrent device and its assembly are listed for operation at 100 percent of their rating.

(3) The sum of the maximum Ampere ratings of the service disconnects. When including fire pump disconnects in the calculation 125 percent of the fire pump full load Amperes shall be added.

Exception: The ampacity of service-entrance conductors need not exceed 4000 Amperes.

230.43 Revise section 230.43 to read as follows:

230.43 Wiring Methods for 600 Volts, Nominal, or Less.

Service-entrance conductors shall be installed in accordance with the applicable requirements of this Code covering the type of wiring method used and shall be limited to the following methods:

- (1) Type IGS cable.
- (2) Rigid metal conduit.
- (3) Intermediate metal conduit.
- (4) Electrical metallic tubing.
- (5) Wireways.
- (6) Busways.
- (7) Auxiliary gutters.
- (8) Mineral-insulated, metal-sheathed cable.
- (9) Flexible metal conduit not over 6 ft (1.83 m) long or liquidtight. flexible metal conduit not over 6 ft (1.83 m) long between raceways, or between raceway and service equipment, with equipment bonding jumper routed with the flexible metal conduit or the liquidtight flexible metal conduit according to the provisions of Section 250.102(A), (B), (C), and (E).

Service entrance conductors shall not be run within the hollow spaces of frame buildings.

230.44 Delete section 230.44 in its entirety.

230.46 Revise section 230.46 to read as follows:

230.46 Unspliced Conductors. Service-entrance conductors shall not be spliced except as follows:

(1) in a service end line box.

(2) taps supplying two to six service disconnects when grouped.

(3) approved terminals in meter enclosures.

(4) service-entrance conductors in the form of busway, shall be connected, as required in order to assemble the various fittings and sections.

230.49 Revise section 230.49 to read as follows:

230.49 Protection Against Physical Damage. Service-entrance conductors shall be protected against physical damage.

(A) Underground Service Entrance Conductors. Underground service entrance conductors shall enter the building in a listed and approved raceway, such as a duct, threaded rigid metallic conduit, or by other wiring methods approved for such purpose. The raceway shall have an inside diameter of not less than 1 1/2 inches (5.8 cm) or its equivalent area. Burial depths shall be in accordance with Section 300.5.

(B) Overhead Service Entrance Conductors. Overhead service entrance conductors shall enter buildings in threaded rigid conduit and threaded fittings approved for this purpose.

(C) Interior Service Entrance Conductors. Interior service entrance conductors within a building shall have mechanical protection in the form of rigid conduit, auxiliary gutters, or other wiring methods approved for such purpose. Flexible metal conduit, not in excess of 6 feet (1.83 meters) in length, may be used where the physical conditions make the installation of rigid metal conduit impracticable. The use of an auxiliary gutter shall be governed by the requirements of Article 366 of this Code. The mechanical protection shall enter a terminal box or service switch cabinet, or be made up directly to an equivalent approved device, enclosing all metal parts.

Exception No. 1: Auxiliary gutters may contain up to 40 service entrance conductors.

Exception No. 2: In existing installations, if a service switch is installed on a switchboard, which has

exposed bus-bars on the back, the raceway may terminate at the rear panel of the switchboard. Insulated bushings shall be used unless lead-covered conductors are used.

(D) Grounded. Service raceways or other methods approved for such purpose, shall be grounded.

230.50 Delete section 230.50 in its entirety.

230.51 Delete section 230.51 in its entirety.

230.52 Delete section 230.52 in its entirety.

230.54 Revise section 230.54 to read as follows:

230.54 Overhead Service Locations.

(A) Raintight Service Head. Service raceways shall be equipped with a raintight service head at the point of connection to service-drop conductors.

(B) Service Heads Above Service-Drop Attachment. Service heads shall be located above the point of attachment of the service-drop conductors to the building or other structure.

Exception: Where it is impracticable to locate the service head above the point of attachment, the service head location shall be permitted not farther than 24 in. (610 mm) from the point of attachment.

(C) Separately Bushed Openings. Service heads shall have conductors of different potential brought out through separately bushed openings.

Exception: For jacketed multiconductor service cable without splice.

(D) Drip Loops. Drip loops shall be formed on individual conductors. To prevent the entrance of moisture, service-entrance conductors shall be connected to the service-drop conductors below the level of the service head.

(E) Arranged that Water Will Not Enter Service Raceway or Equipment. Service-drop conductors and service-entrance conductors shall be arranged so that water will not enter service raceway or equipment.

230.64 Add a new section 230.64 to read as follows:

230.64 Service Rooms or Areas.

(A) General. The minimum sufficient working space shall be as provided in Section 110.26, in order to assure the safety of operation, inspection, and repairs within the vicinity of the service equipment.

(B) Service Equipment Totaling 1000 kVA, or Larger. Where service equipment totaling 1000 kVA or larger is installed separately, or as part of a switchboard, the room in which such switchboard is located shall be constructed of noncombustible materials, and shall be of dimensions adequate to house the switchboard and to provide the following minimum clearances:

(1) At least 5 feet (1.52 meters) in front of the switchboard if it is in one line, and at least 7 feet (2.13 meters) in front of the board if boards are installed facing each other.

(2) At least 12 inches (30.48 cm) from the floor to any energized part of the switchboard, except by special permission.

(3) Where side and/or rear access is required, the following shall also apply:

At least 3 feet (0.914 meters) at each end of the board

At least 3 feet (0.914 meters) in the rear of the board clear of all obstructions.

(4) Front-only accessible switchboards may be installed 12 inches (30.48 cm) or less from a wall. However, if the front-only accessible switchboard is installed more than 12 inches (30.48 cm) from the wall, access must be sealed at each end or comply with the restrictions herein.

(5) Service equipment shall be arranged so that it is reachable from the entrance door without having to pass in front of, or behind any other electrical equipment in the room. This requirement shall be waived if a second entrance door is provided and located as remotely as practical from the first. Each door shall access an area, which leads to a legal exit.

230.65 Add a new section 230.65 to read as follows:

230.65 Available Short-Circuit Current. Service equipment shall be suitable for use at the available short-circuit current. See Section 110.10.

230.70(A) Revise subsection 230.70(A) to read as follows:

(A) Location. The service disconnecting means shall be installed at a readily accessible location inside a building or structure nearest the point of entrance of the service conductors.

Service disconnecting means shall not be installed in bathrooms.

Exception: Service disconnecting means approved for the purpose may be installed on the outside of residential buildings of one through four dwelling units.

230.70(B) Revise subsection 230.70(B) to read as follows:

(B) Marking. Each service disconnect shall be permanently marked to identify it as a service disconnect. Each disconnect shall be marked to indicate the load served.

230.76 (A) Add a new subsection 230.76(A) to read as follows:

(A) Service Equipment Totaling 1000 kVA or Larger. Where remote control devices are used on service equipment or manually operated circuit breaker devices, it shall be the responsibility of the owner of the building or such owner's authorized agent to cause the opening and closing mechanism of each service switch or service breaker to be tested at least once every year. The testing need not be performed under load. A record showing the date and signature of the qualified person making the test shall be kept posted at the switch or circuit breaker.

230.82(1) Revise subsection 230.82(1) to read as follows:

(1) Cable limiters.

230.83 Add a new section 230.83 to read as follows:

230.83 Transfer Equipment. Transfer equipment shall be designed and installed to prevent the inadvertent interconnection of normal and alternate sources of supply in any operation of the transfer equipment.

FPN: See also Section 700.6.

230.90(A) Delete Exception No. 3.

230.94 Revise Exception No. 3 to read as follows:

Exception No. 3: Circuits for load management devices and emergency supply shall be permitted to be connected on the supply side of the service overcurrent device where separately provided with overcurrent protection.

230.209 Add a Fine Print Note to read as follows:

FPN: Lightning protection systems installations. See NFPA 780-2000 Edition for lightning protection systems installation requirements.

240.12 Revise section 240.12 to read as follows:

240.12 Electrical System Coordination. Rating and arrangement of fuses, or overcurrent devices on service switches or service circuit breakers, which have a rating above 601 amperes, shall be coordinated.

Such coordination shall provide a system of selective short circuit and overload protection between the point of service and the main distribution point. Where an orderly shutdown is required to minimize the hazard (s) to personnel and equipment, a system of coordination based on the following two conditions shall be permitted:

- (1) Coordinated short-circuit protection
- (2) Overload indication based on monitoring systems or devices

For the purposes of this section, coordination is defined as properly localizing a fault condition to restrict outages to the equipment affected, accomplished by the choice of selective fault-protective devices.

Exception No. 1: Service overcurrent devices which supply single loads (i.e., motors) shall not require coordination.

Exception No. 2: Coordination between the service overcurrent device and distribution main shall not be required where the service disconnecting means supplies a single main overcurrent device for a single distribution panel or switchboard. However, selective coordination shall be required between distribution branch devices, and between the service equipment and the main panel.

Exception No. 3: The provisions of this Section shall not apply to the operation of ground fault protection equipment.

FPN: The monitoring system may cause the condition to go to alarm, allowing corrective action or an orderly shutdown, thereby minimizing personnel hazard and equipment damage.

240.20(C) Delete subsection 240.20(C) in its entirety.

240.40 Revise section 240.40 to read as follows:

240.40 Disconnecting Means for Fuses. A disconnecting means shall be provided on the supply side of all fuses in circuits over 150 volts to ground and cartridge fuses in circuits of any voltage where accessible to other than qualified persons so that each individual circuit containing fuses can be independently disconnected from the source of power. A single disconnecting means shall be permitted on the supply side of more than one set of fuses as permitted by Section 430.112, Exception, for group operation of motors and Section 424.22(C) for fixed electric space-heating equipment.

Exception: Fire Alarm Cutouts.

240.90 Add a new sentence at the end of section 240.90 to read as follows:

Article 240.90 shall not be applied to any life safety circuits.

250.30(A)(2) Revise the first paragraph of subsection 250.30(A)(2) to read as follows:

A grounding electrode conductor, sized in accordance with Section 250.66 for the derived phase conductors, shall be used to connect the grounded conductor of the derived system to the grounding electrode as specified in (3). Except as permitted by Sections 250.24(A)(3) or (A)(4), this connection shall be made at the same point on the separately derived system where the bonding jumper is installed. Grounding electrode conductors within buildings shall be installed in rigid metal conduit, flexible metal conduit, intermediate metal conduit, rigid non-metallic conduit, electrical metallic tubing or armored cable.

250.30(A)(4)(2) Delete the Exception.

250.52(A)(1) Delete the Exception.

250.64(B) Revise subsection 250.64(B) to read as follows:

(B) Grounding Electrode Conductor. A grounding electrode conductor and its enclosure shall be securely fastened to the surface on which it is carried. A No. 4 copper or aluminum, or larger conductor shall be protected if exposed to severe physical damage. A No. 6 grounding conductor that is free from exposure to physical damage shall be permitted to be run along the surface of the building construction without metal covering or protection where it is securely fastened to the construction; otherwise, it shall be in rigid metal conduit, intermediate metal conduit, rigid nonmetallic conduit, electrical metallic tubing, or cable armor. Grounding conductors smaller than No. 6 shall be in rigid metal conduit, intermediate metal conduit, rigid nonmetallic conduit, electrical metallic tubing, or cable armor. Grounding conductors smaller than No. 6, or where installed within buildings, shall be in rigid metal conduit, intermediate metal conduit, rigid nonmetallic conduit, electrical metallic tubing, or cable armor.

250.106 Revise the text of Fine Print Notes No. 1 and No. 2 by substituting "NFPA 780-2000" for "NFPA 780-1997."

250.178 Revise the first sentence of section 250.178 to read as follows:

The grounding conductor for secondary circuits of instrument transformers and for instrument cases shall not be smaller than No. 12 copper.

250.184(C) Revise subsection 250.184(C) to read as follows:

(C) Neutral Grounding Conductor. The neutral grounding conductor shall be permitted to be a bare conductor if isolated from phase conductors and protected from physical damage. Neutral grounding conductors within buildings shall be installed in rigid metal conduit or intermediate metal conduit.

300.3(C)(1) Add a new Exception No. 2 to read as follows:

Exception No. 2: Barriers shall be provided to isolate conductors energized from different sources when system voltage exceeds 250 Volts nominal and conductors are protected by first or second level overcurrent protective devices. Sources include service entrance points, secondaries of different transformers, generators

and UPS systems.

300.5(A) Revise subsection 300.5(A) to read as follows:

(A) Requirements. Direct-buried cable or conduit or other raceways shall be installed to meet the minimum cover requirements of Table 300-5. Direct buried cable shall not be installed except by special permission from the Commissioner of Buildings.

300.6(B) Add a new sentence at the end of subsection 300.6(B) to read as follows:

Aluminum raceways and fittings shall not be permitted to be embedded in concrete.

300.22(B) Revise the title of subsection 300.22(B) to read as follows:

(B) Ducts, Plenums or Fire Rated Spaces Used for Environmental Air.

300.22(C) Revise the first sentence of subsection 300.22(C) to read as follows:

This section applies to non-fire rated spaces used for environmental air-handling purposes other than ducts and plenums as specified in 300.22(A) and (B).

328.10 Revise section 328.10 to read as follows:

328.10 Uses Permitted. Type MV cables shall be permitted for use on power systems rated up to 35,000 volts, nominal, in wet or dry locations and in raceways.

328.12 Revise section 328.12 to read as follows:

328.12 Uses Not Permitted. Type MV cable shall not be used:

- (1) where exposed to direct sunlight,
- (2) in cable trays, and
- (3) directly buried.

330.10(A)(1) Revise subsection 330.10(A)(1) to read as follows:

- (1) For feeders and branch circuits

334.10 Revise section 334.10 to read as follows:

334.10 Uses Permitted. Type NM, Type NMC, and Type NMS cables shall be permitted to be used in

the following:

- (1) One- and two-family dwellings.
- (2) Multifamily dwellings, except as prohibited in Section 334.12.
- (3) Cable trays, where the cables are identified for the use.

FPN: See Section 310.10 for temperature limitation of conductors.

334.12(A)(1) Revise subsection 334.12(A)(1) to read as follows:

- (1) In any multifamily dwelling exceeding three floors above grade

334.12(A)(11),(12) Add two new subsections 334.12 (A)(11) and 334.12(A)(12) to read as follows:

- (11) In other than residential buildings of three floors or less.
- (12) In commercial buildings.

334.30(C) Delete subsection 334.30(C) in its entirety.

338.10(A) Revise second paragraph of subsection 338.10(A) to read as follows:

Where installed as service entrance conductors, Type SE cable shall be enclosed in a threaded metallic raceway.

338.10(B)(2) Delete the Exception.

338.10(B)(4)(b) Revise subsection 338.10(B)(4)(b) to read as follows:

(b) Exterior Installations. In addition to the provisions of this article, service-entrance cable used for feeders or branch circuits, where installed as exterior wiring, shall be installed in an approved threaded raceway.

340.10(1) Revise the first sentence of subsection 340.10(1) by deleting the words "including direct burial in the earth."

340.10(5) Delete subsection 340.10(5) in its entirety.

340.10(6) Delete subsection 340.10(6) in its entirety.

340.12(12) Add a new subsection 340.12(12) to read as follows:

(12) Direct burial

350.12(3) Add a new subsection 350.12(3) to read as follows:

(3) In lengths exceeding 6 feet (1.83m).

354.10 Revise the heading and the first sentence of section 354.10 to read as follows:

354.10 Uses Permitted by Special Permission Only.

The use of NUCC shall be permitted by special permission only, as follows:

356.10 Revise the heading and the first sentence of section 356.10 to read as follows:

356.10 Uses Permitted by Special Permission Only.

The use of LFNC shall be permitted by special permission only, as follows:

358.12(7) Add a new subsection 358.12 (7) to read as follows:

(7) For underground or exterior installations

362.10 Revise section 362.10 to read as follows:

362.10 Uses Permitted. The use of electrical nonmetallic tubing and

fittings shall be permitted:

(1) Concealed within walls, floors, and ceilings where the walls, floors, and ceilings provide a thermal barrier of material which has at least a 1 hour finish rating as identified in listings of fire-rated assemblies

(2) In locations subject to severe corrosive influences as covered in Section 300.6 and where subject to chemicals for which the materials are specifically approved

(3) In concealed, dry, and damp locations not prohibited by Section 362.12

(4) Above suspended ceilings where the suspended ceilings provide a thermal barrier of material, which has at least a 1 hour finish rating as identified in listings of fire-rated assemblies

(5) Embedded in poured concrete, provided fittings approved for this purpose are used for connections

(6) For wet locations indoors or in a concrete slab on or below grade, with fittings listed and approved for the purpose

FPN: Extreme cold may cause some types of nonmetallic conduits to become brittle and, therefore, more susceptible to damage from physical contact.

362.12(11) Add a new subsection 362.12(11) to read as follows:

(11) In ducts, plenums and other air handling spaces

362.20(B) Revise subsection 362.20(B) to read as follows:

(B) Maximum. ENT larger than metric designator 27 (trade size 1) shall not be used.

FPN: See 300.1(C) for the metric designators and trade sizes. These are for identification purposes only and do not relate to actual dimensions.

362.130 Add a new subheading IV. and a new section 362.130 to read as follows:

IV. Approval and Inspections

362.130 Approval Requirements. For each project, a letter of approval shall accompany the application. The letter(s) of approval shall testify as to the suitability and quantity to be installed.

362.140 Add new section 362.140 to read as follows:

362.140 Inspection. Wiring to be concealed or imbedded in concrete shall be left exposed for inspection and may be enclosed only after a satisfactory inspection has been performed.

366.1 Revise section 366.1 by adding the words "with special permission" so that the first sentence reads as follows:

This article covers the use, installation and construction requirements of metal auxiliary gutters and nonmetallic auxiliary gutters and associated fittings, with special permission.

368.40 Add a new part III to article 368 and a new section 368.40 to read as follows:

III. Requirements for Service Entrance Busways

368.40 Definition. Service-entrance busway is a busway that extends between the utility or point of service to one of the following:

(1) The current transformer enclosure where it is the first device and part of a switchboard.

(2) The service disconnect enclosure where it is the first device.

(3) The service disconnect enclosure where located after and separated from the current transformer enclosure.

Except by special permission, a service entrance busway shall be limited to a maximum of 10 feet (3.05m) in length.

368.41 Add a new section 368.41 to read as follows:

368.41 Construction. Service-entrance busway shall consist of insulated copper or aluminum busbars mounted on insulating supports, properly spaced and braced to withstand the maximum stresses due to short circuit current to which they may be subjected. The enclosure shall be made of at least one-eighth inch (3.175 mm) aluminum with a solid top; ventilation may be provided on the sides and bottom. A clearance of at least four inches (101.6 mm) shall be provided between any live bus and the enclosure.

368.42 Add a new section 368.42 to read as follows:

368.42 Specifications.

(A) Service busway shall be limited to a maximum of ten feet in length.

Exception: By special permission.

(B) A minimum of 4 inch clearance shall be provided from non-insulated phase bars to the enclosure.

(C) All bus bar joints and connections shall be plated with silver, tin or nickel.

370.3 Revise the last sentence of the first paragraph of section 370.3 by deleting the words "and services" so that the sentence reads as follows:

Cablebus shall be permitted to be used for branch circuits and feeders.

378.10 Revise the heading and first sentence of section 378.10 to read as follows:

378.10 Uses Permitted by Special Permission Only.

The use of nonmetallic wireways shall be permitted by special permission only as follows:

380.2(B)(7) Add a new subsection 380.2(B)(7) to read as follows:

(7) Use of cord and plug connected multioutlet assemblies shall not be permitted.

382 Revise subheading II.Installation of article 382 to read as follows and delete remainder of

Article:

II. Installation

Installation of Non-metallic Extensions Shall Not Be Permitted.

388.12(8) Add a new subsection 388.12(8) to read as follows:

(8) In residential buildings which exceed three floors above grade.

388.12(9) Add new subsection 388.12(9) to read as follows:

(9) In non-residential buildings.

394 Revise subheading II."Installation" of article 394 to read as follows:

II. Installation

Installation of Concealed Knob-and-Tube Wiring Shall Not Be Permitted.

400.5 Delete the last paragraph of section 400.5 before the Exception.

404.7 Revise the Exception to read as follows:

Exception: Vertically-operated double-throw switches and plug-in bus taps shall be permitted to be in the closed (on) position with the handle in either the up or down position.

404.10(A) Delete subsection 404.10(A) in its entirety.

408.3(C) Add a new paragraph and exception to subsection 408.3(C) to read as follows:

A bus link shall be provided for disconnecting the neutral service conductors from the outgoing load neutral conductors. Such disconnect link shall be readily accessible and located downstream of the main bonding jumper and grounding electrode conductor terminal. In a multi-section switchboard a single neutral disconnect link may be provided for all service disconnects.

Exception: A single cable lug accommodating a maximum of two cables may be used in lieu of a neutral disconnect link for service disconnects 800 Amperes and below.

408.3(G) Add a new subsection 408.3(G) to read as follows:

(G) Dielectric Test. All service and distribution equipment, switchboards, control panels, and panelboards shall be given a 60 HzAC dielectric test, phase to phase and phase to ground, at twice rated voltage plus 1,000 volts for one minute (minimum 1500 volts) prior to shipment from factory. A dielectric test voltage which is 20% higher than that in the one minute test may be applied for one second as an alternative to the one minute test. The date of the test and the name and title of the individual certifying the test shall be clearly shown on a label affixed to the equipment.

408.3(H) Add a new subsection 408.3(H) to read as follows:

(H) Warning Label. All 480/277 volt switchboards, panelboards and panelboard back boxes shall have a visible label, clearly marked "WARNING 480/277 VOLTS."

408.11 Revise section 408.11 to read as follows:

408.11 Grounding Switchboard Frames. Switchboard frames and structures supporting switching equipment shall be grounded. A multi-section switchboard shall be provided with an internal ground bus, which will electrically connect all of the sections of the switchboard. This ground bus shall have a minimum cross section of 1/2 square inch of copper or 3/4 square inch of aluminum. The contact surfaces of the equipment ground connections shall provide an effective electrical ground path for fault currents.

Exception: Frames of direct current, single-polarity switchboards shall not be required to be grounded if effectively insulated.

408.29 Add a new section 408.29 to read as follows:

408.29 Hinged Doors. Freestanding switchboards, which have rear access, shall have hinged rear doors fastened by captive screws or suitable latches.

408.31 Revise section 408.31 to read as follows:

408.31 Busbars.

(A) General.

(1) Insulated or bare busbars shall be rigidly mounted.

(2) Busbars shall be sized based on 1000 Amperes per square inch for copper and 750 Amperes per square inch for aluminum.

Exception: In service switchboards and when connecting to 100% rated devices.

See (B) and (C) below.

(B) Service Switchboards. Line-side busbars in service switchboards shall be considered service conductors and shall comply with the requirements of Section 230.42(A).

(C) Connection to 100% Rated Devices over 2500 Amperes. Line and load side busbars, other than service conductors, shall be sized in accordance with (1) and (2) below when connected to a device over 2500 Amperes listed and approved for continuous use at 100% of its rating:

(1) Over 2500 Amperes but less than 5000 Amperes, busbars shall be sized based on 800 Amperes per square inch for copper and 600 Amperes per square inch for aluminum.

(2) 5000 Amperes and over, busbars shall be sized based on 700 Amperes per square inch for copper and 525 amperes per square inch for aluminum.

Exception: Beyond a minimum distance of 4 feet (1.2m) along the current path from the 100% rated device, the busbar may be reduced in size, in accordance with (A)(2) above.

(D) Ampacity of Through (Main) Bus. The through (main) bus that feeds four or more overcurrent protective devices of a switchboard shall have a minimum ampacity of 70% of the sum of the frame ratings of all devices fed by that through bus. If provisions are made for the addition of overcurrent protective devices in the future, the expected overcurrent protective device ratings shall be included in the above calculations. The through bus ampacity shall not be required to be greater than the frame rating of the upstream overcurrent protective device.

Exception: In service switchboards and when connecting to 100% rated devices. See (B) and (C) above.

(E) Ampacity of Section Bus. The section bus is that portion of the bus that serves one or more overcurrent protective devices in the switchboard section and comprises that part of the bus between the through bus and the branch distribution bus. The minimum ampacity of the section bus of a switchboard shall be determined by the table below. The section bus ampacity shall not be required to be greater than that of the through bus.

Total Number of Branch Overcurrent Devices

Minimum Ampacity of Section Bus as a % of the Sum Total of Branch Overcurrent Devices *

1-2

100

3-4

80

Over 4

70

* For fusible switches, the maximum fuse size shall be used. For interchangeable trip circuit breakers, the maximum trip rating shall be used. If provisions are made for the future installation of branch overcurrent protective devices, the ampacity of these units shall be included in the calculation.

Exception: In service switchboards and when connecting to 100% rated devices. See (B) and (C) above.

(F) Busbar Joints. All busbar joints and connections shall be plated with silver, tin or nickel. The current density at contact surfaces in busbar joints shall not exceed 200 Amperes per square inch for copper and 150 Amperes per square inch for aluminum. A permanent label providing torque values or tightening instructions for all busbar joints shall be affixed to each section of a switchboard.

408.37 Add a new section 408.37 to read as follows:

408.37 Service and Distribution Equipment Rated Over 150 Volts to Ground.

(A)Common Bus. A common bus or cables supplying two or more service disconnecting devices shall

be separated from each of the disconnecting devices by listed and approved non-hygroscopic, arc resistant barriers having a snug fit around the conductors. Service switchboards shall be supplied from one point of service entrance only.

(B) Barriers. Listed and approved barriers shall be placed between adjacent sections of the switchboard. Listed and approved barriers shall be placed between the switchboard and its pullbox. All openings in the barriers for bus bars shall be closed with snug fitting, listed and approved non-hygroscopic, arc resistant material. Cables in pull boxes shall be securely fastened to support racks not more than four feet apart. Switchboards or their pullboxes shall not contain conductors originating from different points of service entrance.

Barriers shall be provided to isolate conductors energized from different sources when system voltage exceeds 250 Volts nominal and conductors are protected by first or second level overcurrent protective devices.

Sources include, but are not limited to, service entrance points, secondaries of different transformers, generators and UPS systems.

(C) Distribution from Different Points of Service Entrance. When system voltage exceeds 250 volts nominal, a minimum clearance of 12 inches (305 mm) shall be maintained between adjacent distribution equipment which provides second point overcurrent protection and are supplied from different points of service entrance.

410.4(A) Add a second paragraph and a Fine Print Note to subsection 410.4(A) to read as follows:

The "wet locations" referred to above shall include, but not be limited to, unprotected locations exposed to the elements, liquid and water saturated locations, underground installations or installations in masonry or concrete slabs in direct contact with the earth, spas and steam rooms, vehicle washing areas, and other similar locations.

FPN: For further information regarding luminaires (lighting fixtures) in wet and damp locations, see Article 680 for Swimming Pools, Fountains, and Similar Installations.

410.4(E) Add a new subsection 410.4 (E) to read as follows:

(E) Luminaires (fixtures) for Use in Poured Concrete. Recessed type luminaires (fixtures) intended for use in poured concrete shall be listed and approved and shall be plainly and permanently marked "Suitable for Installation in Poured Concrete."

410.16(C) Add two new subsections 410.16 (C)(1) and 410.16 (C)(2) to read as follows:

(1) A recessed fluorescent luminaire (fixture) weighing more than fifty pounds shall not be installed directly on a concealed or exposed ceiling spline of a lightweight, mechanical acoustical ceiling system. Such fixtures shall be supported from the channel iron or the building structure.

(2) A surface or pendant type luminaire (fixture), regardless of its weight, shall not be mounted directly on the concealed or exposed ceiling spline of lightweight, mechanical acoustical ceiling system. Such luminaires (fixtures) shall be supported from the channel iron or the building structure.

410.16(I) Add a new subsection 410.16(I) to read as follows:

(I) Combination Lighting/Fan Fixtures. Luminaires lighting (fixtures) used in combination with electric fans, air conditioning or heating systems shall be supported independently of the outlet box.

410.16(J) Add a new subsection 410.16(J) to read as follows:

(J) Large Luminaire (Fixtures). Large luminaires (fixtures) which are designed to be raised and lowered by means of a mechanical winch shall be designed so that they can be securely held in their permanent positions by means of a cable or other holding device that is entirely separate from the lowering cable. Where not in permanent positions, such systems shall be made mechanically failsafe to prevent them from falling.

410.25 Add a new section 410.25 to read as follows:

410.25 Conductors.

(A) Size of Conductors. Conductors for luminaires (fixtures) shall be No. 18 or larger.

FPN No. 1: See Table 402.5 for allowable ampacity for fixture wire.

FPN No. 2: See Section 402.3 for the thickness of insulation/voltage limitation of luminaire (fixture)

wires and the corresponding maximum operating temperature.

(B) Attachment Plug Receptacles. Conductors supplying attachment plug receptacles shall not be smaller than No. 14 and shall be of sufficient length to reach from the receptacle to the point where the power supply connection is made.

(C) Stranded Conductors. See Section 110.14.

410.29 Revise section 410.29 to read as follows:

410.29 Showcases. Show and wall cases shall be installed, wired and connected in a permanent manner. The use of exposed flexible cord or fixture wire shall not be permitted. Auxiliaries and other control equipment, where not a part of the luminaire (fixture) assembly, shall be enclosed in a separate metal cabinet which is suitably ventilated to ensure proper dissipation of heat, and installed in a permanent and accessible manner. For temporary display units, refer to Article 527.

410.30(C)(4) Add a new subsection 410.30(C)(4) to read as follows:

(4) The maximum voltage shall not exceed 300 volts nominal to ground.

410.30(C)(5) Add a new subsection 410.30(C)(5) to read as follows:

(5) Where screw shell type lampholders are used for electric discharge lamps, the luminaires (fixtures) shall be installed not less than eight feet (2.5 meters) from the floor to the underside of the luminaire (fixture).

410.34 Revise section 410.34 to read as follows:

410.34 Combustible Shades and Enclosures.

(A) Air Space. Adequate airspace shall be provided between lamps and shades or other enclosures of combustible material.

(B) Materials. Materials and fixtures shall comply with the applicable requirements of the New York City Building Code.

FPN: Refer to Subchapter 5 of the NYC Building Code for detailed specifications.

410.36 Revise section 410.36 to read as follows:

410.36 Design and Material. Fixtures shall be constructed of metal or of other such material as may be approved for the purpose and shall be so designed and assembled as to secure requisite mechanical strength and rigidity. Wiring compartments, including their entrances, shall be such that conductors may be drawn in and withdrawn without physical damage. Seams and joints of metal enclosures shall be welded, brazed, riveted, bolted or fastened with machine screws to provide ample strength and rigidity.

410.37 Revise section 410.37 to read as follows:

410.37 Nonmetallic Luminaires (Fixtures). Luminaire (fixture) housings not made entirely of metal shall have wireways lined with metal. Such wireways, if installed in separate sections, shall be grounded to the metallic raceway or other equipment grounding system. This requirement shall not apply to portable or floor lamps, nor to wireways in glass, marble or similar nonabsorptive, noncombustible insulating materials.

410.38(C) Delete the last paragraph of subsection 410.38(C).

410.40 Add a new section 410.40 to read as follows:

410.40 Metallic Luminaires (Fixtures).

(A) Enclosures. Luminaire (fixture) enclosures shall be fabricated of sheet steel not less than 20 U.S.S.G. Enclosures may be constructed of metals other than sheet steel, provided they are equivalent in mechanical strength and approved for the purpose.

(B) Lampholder. Lampholder saddle assemblies shall be constructed of not less than No. 20 gauge sheet steel or metals of equivalent strength.

(C) Ballast Covers. Ballast covers without attachment shall be constructed of not less than 22 U.S.S.G. sheet steel or metals of equivalent strength. Where ballasts are attached directly to reflectors or covers, those reflectors or covers shall be constructed of 20 gauge sheet steel or metals of equivalent strength.

Reflectors or enclosures that are relied upon for component support, raceway covers, or for protection of wiring, shall be made of metal.

410.51 Add a new section 410.51 to read as follows:

410.51 Lead Wires. Factory leads in weatherproof lampholders, if exposed, shall be No. 14 minimum, stranded and approved for the purpose. Such conductors shall be made raintight.

Exception: Candelabra sockets may be wired with No. 18 conductors.

410.54(A) Revise subsection 410.54(A) to read as follows:

(A) Enclosures. Ballasts, where not installed as part of a luminaire (lighting fixture) assembly, shall be enclosed in an accessible, permanently installed, ventilated, listed and approved metal box. Where remote ballasts are installed on or near non-fireproof materials, all woodwork and other combustible materials within 8 inches (203.2 mm) of the cabinet housing must be fireproofed. Such fireproofing must be held in place securely.

410.66(B) Revise subsection 410.66(B) to read as follows:

(B) Installation. Thermal insulation shall not be installed above a recessed luminaires (fixture) or within 3 in. (76 mm) of the recessed luminaries (fixture's) enclosure, wiring compartment, or ballast unless it is identified for contact with insulation, Type IC. Recessed Luminaire (fixtures) specifically listed and approved for the purpose may be permanently installed in mechanical or wet plaster ceilings if access to the outlet box is provided through the ceiling aperture or by other approved means.

410.72 Add a sentence at the end of section 410.72 to read as follows:

Where lamps of 75 watts or more are used, screw-shells shall be plated.

410.101(B) Add a fine print note to subsection 410.101(B) to read as follows:

FPN: See Section 220.12 for track load requirements.

410.101(E) Add a new subsection 410.101(E) to read as follows:

(E) Identification. The maker's name, trademark or other identification, symbol and number shall identify lighting track fixtures, fittings, equipment and materials. Other markings shall specify voltage, current, wattage or other appropriate ratings.

410.103(A) Add a new subsection 410.103(A) after the first paragraph of section 410.103 to read as

follows:

(A) Rating. Branch circuit overcurrent devices shall have a rating or setting not exceeding 50 amperes at 150 volts or less to ground and not exceeding 30 amperes at between 151 volts and 300 volts to ground.

410.103(B) Add a new subsection 410.103(B) to read as follows:

(B) Ampacity. The branch circuit conductors and the lighting track shall have an ampacity in accordance with the rating of the overcurrent protective device in series with them.

410.104 Add the a sentence at the end of section 410.104 to read as follows:

A single fixture supported by the lighting track shall have a maximum weight of 50 pounds, and fixtures supported between any two hangers shall not exceed a total of 12 1/2 pounds per linear foot of track.

410.105(A) Add a new Exception to subsection 410.105(A) to read as follows:

Exception: Where the fittings contain an integral device for the purpose of reducing the line voltage to accommodate a lamp of lower voltage.

422.12 Revise section 422.12 to read as follows:

422.12 Central Heating Equipment.

(A) Central heating equipment other than fixed electric space-heating equipment. All such equipment shall be supplied by an individual branch circuit.

(B) Oil Burners and Similar Equipment. Each oil burner, automatic stoker, or gas furnace shall be supplied by a dedicated branch circuit.

(1) Circuit Wiring. All new or additional circuit wiring shall be installed in accordance with one of the following wiring methods in Chapter 3 of this Code: Type AC cable, Type MC cable, Type MI cable, metallic conduit or metallic wireway.

(2) Circuit Voltage and Safety Devices Connections. Conductors of the control circuits shall only be connected to circuits not exceeding 150 volts to ground, nor more than 150 volts between conductors.

All safety devices, such as pressure controls, fire controls, relays, etc. shall have their electric switching

mechanism connected to the ungrounded conductor.

Connectors - detachable plug connectors shall not be used in circuits when disconnection or connection of the circuit may allow unsafe operation of the appliance.

(3) Boiler Controls on Low Pressure Boilers. Ahead of all valves, an electrical pressure switch with normally closed contacts shall be connected to the steam drum of every boiler. The pressure switch shall be set to open at safe working pressure of the boiler. This boiler electrical high-pressure cut-off switch shall be designed to reclose only by a reset device, which shall be manually controlled. One and two family residences are exempt from these provisions except that residences constructed after July 1, 1963 shall comply with (B)(1) and (B)(2) above.

a. In boilers installed in buildings on and after July 1, 1963, the boiler electrical high pressure cut-off switch contacts shall be connected in series with the other safety devices.

b. In boilers installed in buildings prior to July 1, 1963.

1. If the control circuit is connected to circuits not exceeding 150 volts to ground, the boiler electrical high-pressure cut-off switch shall be connected in series with the other safety devices.

2. If the control circuit is connected to circuits exceeding 150 volts between ungrounded conductors, the high pressure cut-off switch contacts shall be connected in series with both ungrounded conductors of the control circuit.

(4) Definition. Low Pressure Boiler. Any steam boiler operating at fifteen (15lbs.) pound gauge pressure or less, or any boiler rated at 10 horsepower or less, regardless of pressure.

Exception: Auxiliary equipment, such as a pump, valve, humidifier, or electrostatic air cleaner directly associated with the heating equipment, shall be permitted to be connected to the same branch circuit.

440.62(C) Delete subsection 440.62(C) in its entirety.

450.1 Delete Exception No. 7.

450.9 Revise the first paragraph of section 450.9 to read as follows:

Mechanical ventilation and/or air conditioning shall be provided and shall be adequate to dispose of the transformer full-load losses without exceeding 40oC (104oF) ambient temperature in the room.

450.25 Delete section 450.25 in its entirety.

450.42 Revise section 450.42 to read as follows:

450.42 Walls, Roofs and Floors. The vault shall be of such dimension as to permit the installation of all electrical equipment in accordance with Section 110.26. The vault shall be of fireproof construction with a minimum fire resistance rating of three hours with floors, walls and ceilings six inches thick if of concrete, or eight inches thick if of brick, or eight inches thick if of filled cement block. All building steel forming part of the vault construction shall have a comparable fire resistance rating. Each compartment within a vault shall be built to the same specifications in respect to the thickness of walls and fireproof door, as the vault. The floors shall be of ample strength to carry the weight of the equipment to be installed in the vault. The floors and wall, to the height of the sill, shall be given a hard impervious finish and painted to prevent the absorption of oil.

Exception: Where transformers are protected with automatic sprinkler, carbon dioxide, or halon, construction of 1-hour rating shall be permitted.

450.43(A) Revise subsection 450.43(A) and the exception to read as follows and delete the fine print note:

(A) Type of Door. Each doorway leading into a vault from the building interior shall be provided with a tight-fitting door that has a minimum fire rating of 3 hours. Where practicable, basement vaults or vaults opening up on a roof shall be provided with an outside entrance so that no entrance directly into the vault from the interior of the building will be necessary. Where entrance into the vault is from the interior of the building, the vault shall open upon a vestibule, passage hall or switchboard room not commonly in public use.

Exception: Where transformers are protected with carbon dioxide, or halon, construction of 1-hour rating shall be permitted.

450.45 Revise the first paragraph of section 450.45 to read as follows:

A system of ventilation shall be provided to dispose of transformer full load losses and maintain a vault ambient temperature not to exceed 40°C (104°F). Minimum criteria for ventilation shall be in accordance with (A) through (F) below:

450.45(C) Add a new exception to read as follows:

Exception. Where required to meet the temperature conditions of section 450.45, the minimum of three square inches per kVA of natural ventilation may be supplemented by a dedicated mechanical ventilation system.

450.46 Revise section 450.46 to read as follows:

450.46 Drainage. Where practicable, vaults containing more than 100 kVA transformer capacity shall be provided with a drain or other means that will carry off any accumulation of oil or water in the vault unless local conditions make this impracticable. The floor shall be pitched to the drain where provided. Drainage shall be permitted to carry off water accumulation. Such drainage shall prevent drainage of transformer coolant into the water drainage system and shall be provided in accordance with the New York City Building Code and other authorities having applicable regulations.

503.3(A) Revise the first sentence of subsection 503.3(A) to read as follows:

In Class III, Division 1 locations, the wiring method shall be rigid metal conduit, intermediate metal conduit, electrical metallic tubing, dusttight metallic wireways, or Type MC or MI cable with approved termination fittings.

503.3(A)(2) Delete any references to "liquidtight flexible nonmetallic conduit" from subsection 503.3(A)(2).

505.15(C)(2) Delete any references to "liquidtight flexible nonmetallic conduit" subsection from subsection 505.15(C)(2)

511.7(A)(1) Delete any reference to "rigid nonmetallic conduit, electrical nonmetallic tubing and liquidtight flexible nonmetallic conduit" from subsection 511.7(A)(1)

514.8 Delete Exception No. 2 from section 514.8.

515.8(A) Revise subsection 515.8 (A) to read as follows:

515.8(A) Underground Wiring. Underground wiring shall be installed in threaded rigid metal conduit or threaded steel intermediate metal conduit.

515.8(C) Delete subsection 515.8(C) in its entirety.

517.10 Delete the Fine Print Note from section 517.10.

517.30(B)(4) Revise subsection 517.30(B)(4) to add the following text at the end of the paragraph:

A separate automatic transfer switch shall be required for the fire pump. For fire pump requirements refer to Article 695 - Fire Pumps.

517.32(A) Delete the Fine Print Note from subsection 517.32(A).

517.32(B) Delete the Fine Print Note from subsection 517.32(B).

517.32(C) Revise the first sentence of subsection 517.32(C) to read as follows:

A separate automatic transfer switch shall be required for alarm and alerting systems including the following:

517.32(C)(1) Delete the Fine Print Note from subsection 517.32(C)(1).

517.34(A) Add a new exception to subsection 517.34(A) to read as follows:

Exception No. 2: A separate automatic transfer switch shall be required for smoke control and stair pressurization systems or both.

517.41(B) Add the following text at the end of the paragraph:

A separate automatic transfer switch shall be required for the fire pump. For fire pump requirements refer to Article 695 - Fire Pumps.

517.42(A) Delete the Fine Print Note from subsection 517.42(A).

517.42(B) Delete the Fine Print Note from subsection 517.42(B).

517.42(C) Revise the first sentence of subsection 517.42(C) to read as follows:

A separate automatic transfer switch shall be required for alarm and alerting systems including the following:

517.42(C)(1) Delete the Fine Print Note from subsection 517.42(C)(1).

518.1 Revise the first sentence of section 518.1 to read as follows:

This article covers all buildings or portions of buildings or structures classified as places of assembly.

518.2(A) Revise subsection 518.2(A) to read as follows:

(A) General. Places of Assembly shall be classified as places of assembly under guidelines set by the New York City Fire Prevention Code (Title 27, Chapter 4 of the Administrative Code of the City of New York) and Title 27, Chapter 1, Subchapter 3, Table 3-2 of Article 4 and Article 8 of the New York City Building Code.

518.2(B) Revise subsection 518.2(B) to read as follows:

(B) Multiple Occupancies. Subject to Title 27, Chapter 1, Subchapter 3, Article 2 of the New York City Building Code.

518.2(C) Delete the Fine Print Note from subsection 518.2(C).

518.4(B) Delete subsection 518.4(B) in its entirety.

518.4(C) Delete subsection 518.4(C) in its entirety.

520.5(C) Delete subsection 520.5(C) in its entirety.

520.6 Revise the first sentence of section 520.6 to read as follows:

The number of conductors permitted in any metal conduit as permitted in this article, or electrical metallic tubing for border or stage pocket circuits or for remote-control conductors shall not exceed the percentage fill shown in Table 1 of Chapter 9.

527.4(K) Add a new subsection 527.4(K) to read as follows:

(K) Permanent Feeders and Branch Circuits used for Temporary Light and Power. Permanent feeders may be used for temporary light, heat or power service if run in approved raceways or conduits from the source of supply directly to the distribution center. Temporary polarized lampholders may be connected to permanent

branch circuit wiring pending the erection of the permanent fixtures.

In all cases where wiring is used for temporary light, heat or power, the rating given in Table 310.16 of allowable carrying capacities of conductors in Article 310 shall determine the carrying capacities of conductors.

527.4(L) Add a new subsection 527.4(L) to read as follows:

(L) Grounding. All portable machines shall be grounded. All grounding shall conform with Article 250.

527.4(M) Add a new subsection 527.4(M) to read as follows:

(M) Hazardous Locations. Temporary wiring shall not be installed in hazardous locations.

527.4(N) Add a new subsection 527.4(N) to read as follows:

(N) Support. Temporary wiring shall be properly and substantially supported on noncombustible, nonabsorbitive insulators and shall be kept off the floor and free and clear of contact with woodwork, metal pipes and metal portions of the building structure.

545.4(A) Revise subsection 545.4(A) to read as follows:

(A) Methods Permitted. Only raceway and cable wiring methods permitted in this Code and such other wiring systems specifically intended and listed for use in manufactured buildings shall be permitted with listed fittings identified for manufactured buildings.

545.6 Delete the Exception from section 545.6.

545.10 Delete section 545.10 in its entirety.

600.3 Revise section 600.3 to read as follows:

600.3 Listing. Electric signs and outline lighting -(fixed, mobile, or portable)- shall be listed and installed in conformance with that listing, unless otherwise approved by special permission.

(A) Field Installed Skeleton Tubing. Field installed skeleton tubing shall not be required to be listed where installed in conformance with this Code.

(B) Outline Lighting. Outline lighting shall not be required to be listed as a system when it consists of

listed lighting fixtures wired in accordance with Chapter 3.

(C) Inspection. Electric signs manufactured for installation in the city shall be inspected by the Commissioner of Buildings before installation. Such inspection may either be at the factory before final assembly, or at the place of installation, before being installed, at the option of the Commissioner of Buildings, and no such sign shall be erected unless and until the same has been approved.

(D) Relocated Signs. The moving of an approved sign from one location to another may be permitted without inspection provided no alterations in or additions to the existing sign are made, and the application for leave to connect at the new location shows the previous location, lettering, and the connected electrical load of the sign.

(E) Plastic Materials. All plastic materials to be used in the manufacture of electric signs must first be submitted for approval.

(F) Markings. Each individual plastic section or letter shall be permanently marked with the material manufacturer's name, trademark, or other identification symbol.

(G) Receptacles. Only receptacles for sign maintenance shall be permitted to be installed in or on sign enclosures.

600.7(D) Revise subsection 600.7(D) to read as follows:

(D) Bonding Conductors. Bonding conductors shall be copper and not smaller than 12 AWG.

600.8(C) Revise subsection 600.8(C) to read as follows:

(C) Minimum Thickness of Enclosure Metal. Sheet steel shall be at least 0.0250 in. (0.635mm) (No. 24 MSG) thick. Sheet copper or aluminum shall be of equivalent strength.

604.1(A) Add new subsection 604.1(A) after the first paragraph of section 604.1 to read as follows:

(A) General. All such wiring systems must be approved, and installed by an electrician licensed in New York City, who must comply with the below-listed installation standards.

In addition to the regular installation instructions supplied for Manufactured Wiring Systems, manufacturers are required to also include this supplement:

(1) Along with the application for certificate of electrical inspection for each installation or any subsequent modification thereof, the licensed electrical contractor must include a diagram or specification sheet clearly defining the boundaries where the wiring method will be installed.

(2) All wiring must be installed by an electrician licensed in New York City.

(3) All branch circuit wiring must be number 12 AWG, minimum.

(4) All branch circuits are limited to a maximum number of ten outlets per circuit.

(5) Manufactured wiring systems may not be used for emergency exit signs or emergency lighting.

(6) Such wiring may only be used for general lighting circuits above the hung ceiling line.

(7) All points of connection must be accessible.

(8) No outlet shall have any unused utilization attachment point.

(9) Must be properly supported in accordance with the New York City Electrical Code.

604.6(A)(2) Revise subsection 604.6(A)(2) to read as follows:

(2) Conduit shall be listed flexible metal conduit or listed conduit containing nominal 600-volt No. 10 or 12 copper-insulated conductors with a bare or insulated copper equipment grounding conductor equivalent in size to the ungrounded conductor.

605.4 Revise section 605.4 to read as follows:

605.4 Partition Interconnections. The electrical connection between partitions shall be flexible assemblies listed and approved for use with wired partitions or metallic raceways that do not exceed 2 feet (610mm) in length.

605.6 Revise section 605.6 to read as follows:

605.6 Fixed and Free Standing-Type Partitions.

Wired partitions that are fixed (secured to building surfaces) shall be permanently connected to the

building electrical system by one of the wiring methods of Chapter 3. Where liquid tight flexible metal conduit is used, the maximum length shall be 18 inches (457mm).

605.7 Delete section 605.7 in its entirety.

605.8 Delete section 605.8 in its entirety.

620.3(A) Revise subsection 620.3(A) to read as follows:

(A) Power Circuits. The nominal voltage used for elevator, dumbwaiter, escalator, and moving walk operating control and signaling circuits, operating equipment, driving machine motors, machine brakes, and motor-generator sets shall not exceed the following:

300 Volts. For operating control and signaling circuits and related equipment, including door operator motors.

600 Volts. Driving machine motors, machine brakes, and motor-generator sets. Internal voltages of power conversion and functionally associated equipment, including the interconnecting wiring, shall be permitted to have higher voltages provided that all such equipment and wiring shall be listed for the higher voltages. Where the voltage exceeds 600 volts, warning labels or signs that read "DANGER - HIGH VOLTAGE" shall be attached to the equipment and shall be plainly visible.

620.12(B) Revise subsection 620.12(B) to read as follows:

(B) Other Wiring. All signaling and operating control circuits: No. 20.

620.21 Revise section 620.21 by deleting all references to "rigid nonmetallic conduit" and "liquidtight flexible nonmetallic conduit."

620.44 Revise the second paragraph of section 620.44 to read as follows:

Traveling cables shall be permitted to be continued to elevator controller enclosures and to elevator car and machine room connections, as fixed wiring, provided they are suitably supported and protected from physical damage. Any cable in excess of 1.83m (6 ft) shall be supported and installed in a raceway.

620.51 Add the following new text after the second paragraph of section 620.51:

If sprinklers are provided in the elevator machinery room, the power supply circuit to the elevator shall comply with section 6.15.4 of NFPA 72-2003, National Fire Alarm Code.

620.51(A) Revise subsection 620.51(A) to read as follows:

(A) Type. The disconnecting means shall be an enclosed externally operable motor circuit switch or circuit breaker capable of being locked in the open position. The disconnecting means shall be a listed device.

FPN: For additional information, see RS 18 of the NYC Building Code and the Safety Code for Elevators and Escalators, ASME/ANSI A17.1-1996.

620.51(C)(4) Revise 620.51(C)(4) to read as follows:

(4) On Wheelchair Lifts and Stairway Chair Lifts. On wheelchair lifts and stairway chair lifts, the disconnecting means shall be located within sight of the motor controller. The disconnecting means shall be located where it is accessible to qualified persons.

640.3(J) Delete subsection 640.3(J) in its entirety.

640.7(A) Revise subsection 640.7(A) by changing "14 AWG" to "12 AWG."

645.5(D)(5)(c) Revise subsection 645.5(D)(5)(c) to read as follows:

(c) Cable type designations Type TC (Article 340); Types CL2, CL3, and PLTC (Article 725); Types OFC and OFN (Article 770); Types CM

and MP (Article 800); Type CATV (Article 820). These designations shall be permitted to have an additional letter P or R or G. Green insulated single conductor cables, No. 4 and larger, marked "for use in cable trays" or "for CT use" shall be permitted for equipment grounding.

647.7(A) Delete subsection 647.7(A) in its entirety.

668.1 Add a new paragraph at the end of section 668.1 to read as follows:

No new electrolytic cell line shall be installed, nor any existing cell line modified without special permission.

680.4 Revise section 680.4 to read as follows:

680.4 Approval of Equipment. All electrical equipment installed in the water, walls, or decks of pools, fountains, and similar installations shall comply with the provisions of this article.

All transformers and submersible lighting unit assemblies shall be of a type approved for such use in New York City.

All provisions applicable in any other article of the New York City Building Code shall apply.

680.9 Revise section 680.9 to read as follows:

680.9 Electric Pool Water Heaters. All electric pool water heaters shall have the heating elements subdivided into loads not exceeding 32 amperes and protected at not more than 40 amperes.

The ampacity of the branch-circuit conductors and the rating or setting of overcurrent protective devices shall not be less than 125 percent of the total load of the nameplate rating.

All such circuits shall be GFCI protected.

Electric water heaters of the immersion or submersible type shall not be permitted.

680.21(A)(3) Revise subsection 680.21(A)(3) by deleting all references to "nonmetallic conduit."

680.21(A)(5) Delete subsection 680.21(A)(5) in its entirety.

680.22(B)(5) Delete subsection 680.22(B)(5) in its entirety.

680.23(A)(2) Add a new sentence to the end of subsection 680.23(A)(2) to read as follows:

The output voltage of the secondary windings shall not exceed 24 volts.

680.23(A)(4) Revise subsection 680.23(A)(4) by replacing "150 Volts" with "15 Volts."

680.23(B)(1) Revise the first sentence of subsection 680.23(B)(1) to read as follows:

Listed and approved forming shells shall be installed for the mounting of all wet-niche underwater luminaires (fixtures) and shall be equipped with provisions for conduit entries.

680.23(B)(2) Revise subsection 680.23(B)(2) by deleting all reference to "liquidtight flexible nonmetallic."

680.23(B)(2)(b) Revise the first sentence of subsection 680.23(B)(2)(b) to read as follows:

Where a rigid nonmetallic conduit is used, an 8 AWG insulated solid or stranded copper equipment grounding conductor shall be installed in this conduit unless a listed low-voltage lighting system not requiring grounding is used.

680.23(D) Revise subsection 680.23(D) to read as follows:

(D) No-Niche Luminaires (Fixtures). A no-niche lighting fixture shall be supplied from a transformer meeting the requirements of section 680.23(A)(2) and shall:

- (1) Have no exposed metal parts
- (2) Operate at 15 volts or less
- (3) Have an impact resistant polymeric lens and body, and
- (4) Be listed and approved for the purpose

680.23(F)(1) Revise subsection 680.23(F)(1) to read as follows:

(1)Wiring Methods. Branch-circuit wiring on the supply side of enclosures and junction boxes connected to conduits run to wet-niche and no-niche luminaires (fixtures), and the field wiring compartments of dry-niche luminaires (fixtures), shall be installed using listed and approved rigid metal conduit, intermediate metal conduit, or rigid nonmetallic conduit.

Exception: Electrical metallic tubing shall be permitted to be used to protect conductors, when installed within buildings.

680.33 Revise section 680.33 to read as follows:

680.33 Storable Pool Luminaires (Lighting Fixtures).

Luminaires (lighting fixtures) for storable pools shall not be permitted.

680.41 Revise section 680.41 by deleting the last sentence.

680.42(A)(1) Revise subsection 680.42(A)(1) by deleting all references to "liquidtight flexible nonmetallic conduit."

680.51(B) Revise subsection 680.51(B) to read as follows:

(B) Operating Voltage. All luminaires (lighting fixtures) shall be installed for operation at 15 volts or less between conductors. Pumps and other equipment shall operate at 300 volts or less between conductors.

695.3(A) Revise the first sentence of subsection 695.3(A) to read as follows:

Where reliable and in compliance with the New York City Building Code, and where capable of carrying indefinitely the sum of the locked-rotor current of the fire pump motor(s) and the pressure maintenance pump motor(s) and the full-load current of the associated fire pump accessory equipment when connected to this power supply, the power source for an electric motor-driven fire pump shall be one or more of the following.

695.3(A)(1) Revise the first sentence of subsection 695.3(A)(1) to read as follows:

A fire pump shall be supplied by a separate service, or by a tap located ahead of and not within the same cabinet, enclosure, or vertical switchboard section as the service disconnecting means.

695.3(A)(2) Revise subsection 695.3(A)(2) to read as follows:

(2) On-Site Power Production Facility. Where approved by the Commissioner of Buildings, a fire pump shall be permitted to be supplied by an on-site power production facility. The source facility shall be located and protected to minimize the possibility of damage by fire. A tap, ahead of the disconnecting means of the power production facility, shall be required.

695.3(B) Revise subsection 695.3(B) to read as follows:

(B) Multiple Sources. Where required per NYC Code, power from sources described in 695.3(A) shall be supplied from an approved combination of two or more of such sources or from an approved combination of one such source and an on-site generator complying with (1) as follows:

(1) Generator Capacity. An on-site generator(s) complying with Article 700 used to comply with this section shall be of sufficient capacity to allow normal starting and running of the motor(s) driving the fire pump(s) while supplying all other simultaneously operated load. Automatic shedding of one or more optional standby loads in order to comply with this capacity requirement shall be permitted. A tap ahead of the on-site generator

disconnecting means shall be required.

(2) Arrangement. The power sources shall be arranged so that a fire at one source will not cause an interruption at the other source. [NFPA 20, 6.2.3, 6.2.4.1, 6.2.4.3, 6.6.1]

695.3(C) Add a new subsection 695.3(C) to read as follows:

(C) Multiple Independent Sources. Two or more feeder sources to the building arranged to be independently operated may be permitted, as approved by the Commissioner of Buildings, where reliability of the sources can be demonstrated.

695.4 Revise section 695.4 to read as follows:

695.4 Continuity of Power.

(A) General. Circuits that supply electric motor-driven fire pumps shall be supplied from a single disconnecting means and associated overcurrent protective device and shall be installed between the power source and one of the following:

- (1) A listed fire pump controller
- (2) A listed fire pump power transfer switch, or
- (3) A listed combination fire pump controller and power transfer switch

(B) Disconnecting Means and Overcurrent Protection. All disconnecting means and overcurrent protective devices shall be unique to the fire pump loads and shall comply with the following:

(1) Manual Standpipe Fire Pumps, Automatic Standpipe Fire Pumps, Sprinkler Booster Pumps, Special Service Fire Pumps, Spray Mist Fire Pumps, and Foam Fire Pumps:

(a) Exceeding 30 HP motor rating or located at or below street level shall have overcurrent protection fused at 600% of the motor full load current. The controller shall have overload protection set at not less than 300% of the motor full current.

Exception: Sprinkler Booster Pumps installed in J-2 occupancies where a minimum of 5 psig is maintained at the highest line of sprinklers shall comply with paragraph b following.

(b) With motors that are 30 HP motor rating or less located above street level and connected to a limited service controller shall have minimum overcurrent protection fusing at 150% of motor full load current selected such that overcurrent protection will not trip or fuse prior to the actuation of the controller overload protection. The controller overload protection shall be rated from 150% to 250% of the motor full load current.

(c) With emergency power provided in accordance with 1 RCNY 12-01, the overcurrent protection at the emergency power switch shall be rated at least 150% of the motor full load current.

(2) Disconnecting Means. The disconnecting means shall be:

(a) Identified as suitable for use as service equipment, and

(b) Lockable in the closed position, and

(c) Located sufficiently remote from the other building or other fire pump source disconnecting means.

(3) Disconnect Marking. The disconnecting means shall be marked "Fire Pump- Do Not Disconnect."

The letters shall be at least 1 in. (25.4 mm) in height, and they shall be visible without opening enclosure doors or covers. Fire pump disconnecting means shall be red in color.

(4) Controller Marking. A placard shall be placed adjacent to the fire pump controller stating the location of this disconnecting means and the location of the key (if the disconnecting means is locked).

(5) Supervision. The power continuity shall be supervised by:

(a) Central station signal confirming power source availability where central station connection is provided as required by building occupancy or use.

(b) Local signaling device (audible/visual) which will be activated at a constantly attended location where central station is not otherwise required.

695.6 Revise the first paragraph of section 695.6 to read as follows:

Power circuits and wiring methods shall comply with the requirements in (A) through (G), and as permitted in 230.90(A), Exception No. 4; Section 230.94, Exception No. 4; Section 230.95, Exception No. 2; 240.13(3); 240.3(A); and Section 430.31.

695.5(B) Revise subsection 695.5(B) to read as follows:

(B) Disconnecting Means and Overcurrent Protection. See Section 695.4(B)(1) for requirements.

Transformer secondary protection shall not be permitted.

695.5(C) Revise subsection 695.5(C) to read as follows:

(C) Feeder Source. Where a feeder source is provided in accordance with Section 695.3(C), transformers supplying the fire pump system shall be permitted to supply other loads. All other loads shall be calculated in accordance with Article 220, including demand factors as applicable.

(1) Size. Transformers shall be rated at a minimum of 125 percent of the sum of the fire pump motor(s) and pressure maintenance pump(s) motor loads, and 100 percent of the remaining load supplied by the transformer.

(2) Disconnecting Means and Overcurrent Protection. See 695.4(B)(1) for requirements.

695.6(A) Revise subsection 695.6(A) to read as follows:

(A) Service Conductors. Supply conductors shall be physically routed outside a building(s) and shall be installed as service entrance conductors in accordance with Article 230. Where supply conductors cannot be physically routed outside buildings, they shall be permitted to be routed through buildings where installed in accordance with Section 230.6(1), (2) or (4).

Exception: Where there are multiple sources of supply with means of automatic connection from one source to the other, the requirement shall not apply to the emergency conductors on the line side of that point of automatic connection between the sources.

95.6(B)(3) Add a new sentence to 695.6 (B) (3) to read as follows:

The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system.

695.6(E) Revise subsection 695.6 (E) to read as follows:

(E) Pump Wiring. All wiring from the controllers to the pump motors shall be in rigid metal conduit,

liquidtight flexible metal conduit (for final connection to motor terminal housing only) or MI cable.

695.10 Revise section 695.10 to read as follows:

695.10 Listed Equipment. Diesel engine fire pump controllers, electric fire pump controllers, electric motors, fire pump power transfer switches, foam pump controllers, and limited service controllers shall be listed and approved for fire pump service.

695.14(E) Revise subsection 695.14(E) by deleting reference to liquidtight flexible nonmetallic conduit Type B (LFNC-B), to read as follows:

(E) Electric Fire Pump Control Wiring Methods. All electric motor-driven fire pump control wiring shall be in rigid metal conduit, intermediate metal conduit, liquidtight flexible metal conduit, or Type MI cable.

700.1 Delete Fine Print Notes ("FPN") No. 2, 3, 4, and 5 and revise second sentence to read as follows:

Emergency systems are those lighting, fire protection and power systems legally required and classed as emergency by any governmental agency having jurisdiction.

700.4(A) Revise subsection 700.4(A) to read as follows:

(A) Acceptance Test. The Commissioner of Buildings shall receive a test report of the completed system upon installation, to be submitted by a licensed professional.

700.4(E) Revise subsection 700.4(E) to read as follows:

(E) Installation Test Requirements. Installation tests shall be conducted and documented in accordance with NFPA 110-1999 Section 5-13 amended as follows:

5-13.1: Delete second sentence.

5-13.2.3(d): Add at end of (d): Time to initial load transfer shall not exceed 10 seconds.

5-13.2.3(i): Revise to read as follows: The load test with building load or other loads that simulate the intended load shall be continued for 2 hours, observing and recording load changes and the resultant effect on voltage and frequency.

5-13.2.8: Delete last sentence and replace with the following: The complete crank/rest cycle shall consist of 3-15 second crank cycles with 15 second rest periods between cranks.

5-13.10: Add new paragraph to read as follows: Transfer switches shall be tested in accordance with 6-4.5.

700.4(F) Add a new subsection 700.4(F) to read as follows:

(F) Maintenance and Operational Testing. Maintenance and operational testing shall be performed and documented in accordance with NFPA 110-1999 Chapter 6 amended as follows:

6-1.2 : Delete.

6-2: Delete.

6-3.1: Delete the following text from the end: "...for the type and for the time duration specified for the class."

6-3.4: Delete first sentence and replace with the following: A written record of the EPSS inspection, tests, exercising, operation and repairs shall be maintained on the premises and made available to the Commissioner of Buildings upon request. Records shall be inclusive of the transfer switches and storage batteries.

6-3.6: Delete "Level 1 and Level 2 systems" and replace with "EPSS."

6-4.1: Delete "Level 1 and Level 2."

6-4.1: Add new sentence to read as follows: Inspection shall consist of observation of all EPSS components for leaks, abnormal device position and status of all alarm/trouble indicators.

6-4.2: Delete "Level 1 and Level 2."

6-4.4: Delete.

6-4.5: Delete "Level 1 and Level 2." Change "monthly" to "semi-annually."

6-4.6 Exception: Change "Level 1" to "EPSS."

700.5(B) Delete the third paragraph of subsection 700.5(B), revise the first paragraph of such

subsection and add a fine print note to read as follows:

The alternate power source shall be permitted to supply emergency and optional standby system loads where automatic selective load pickup and load shedding is provided as needed to ensure adequate power to (1) the emergency circuits and (2) the optional standby circuits, in that order of priority. The alternate power source shall be permitted to be used for peak load shaving, provided the above conditions are met.

FPN: Peak reduction program shall require utility approval.

700.6(E) Add a new subsection 700.6.(E) to read as follows:

(E)Mechanical Operation. Means shall be provided to mechanically operate the switch without hazard to personnel.

700.7 Revise the first sentence of section 700.7 to read as follows:

Audible and visual signal devices shall be provided for the following purposes.

700.9(A) Revise subsection 700.9 (A) to read as follows:

(A) Identification. All boxes and enclosures (including transfer switches, generators, and power panels) for emergency circuits shall be permanently marked by yellow color so they will be readily identified as a component of an emergency circuit or system. Acceptable means of marking shall include, but not be limited to, a permanently affixed identification nameplate, yellow in color with black lettering.

700.10 Add a new section 700.10 to read as follows:

700.10 Conductors for Emergency Circuits.

(A) Ampacity of Conductors. See Section 445.3.

(B) Installation of Conductors. Generator conductors shall be installed in accordance with the requirements of Article 230, Service Entrance Conductors.

(C) Overcurrent Devices. There shall be no limit to the number of overcurrent devices connected to the generator terminal conductors.

(D) Fire System Pumps. Fire system pumps or fire protection pumps requiring connections directly

with the emergency generator as defined in the New York City Building Code shall be connected as follows:

(1) Circuits feeding fire system pumps shall be connected directly to the emergency generator with only one overcurrent protective device. This shall be rated at not less than 150% and not more than 600% of the pump motor full load current.

(2) Where multiple generators are paralleled, the connection for the fire system pumps shall be taken from the generator paralleling bus.

(3) Conductors and transformers, where used, feeding the fire system pump shall be sized at a minimum of 125% of the nameplate full load current.

(4) Separate circuits shall be used for each fire system pump.

(E) Alarm Systems. All building-wide alarm systems shall be directly connected to the emergency generator with overcurrent protective devices as follows:

208/120 V systems-by a dedicated single set of fused cutouts.

460/265 V systems-by a dedicated fused disconnecting means with fused cutouts on the secondary of associated transformer.

Dedicated automatic transfer switch for all such systems.

700.12 Revise the fourth paragraph of section 700.12 and add a new exception to read as follows and delete the fine print notes:

Fire, sprinkler, standpipe, smoke detection, oxygen, nitrous oxide and other alarms or extinguishing systems shall be connected to the line side of the service equipment and shall have separate overcurrent protection.

Exception: Such systems installed for local area protection only, may connect ahead of the supply to the area protected.

700.12(B)(2) Revise the first sentence of subsection 700.12(B)(2) to read as follows:

Where internal combustion engines are used as the prime mover, an on-site fuel supply shall be

provided with an on-premise fuel supply sufficient for not less than 6 hours full-demand operation of the system.

700.12(B)(6) Revise subsection 700.12(B)(6) to read as follows:

(6) Outdoor Generator Sets. Where an outdoor generator set is equipped with a disconnecting means and such generator set is located within sight of the building or structure supplied, an additional disconnecting means shall not be required where ungrounded conductors pass through the building or structure. Appropriate signage shall be provided at the generator set and first disconnecting means or transfer switch within building or structure supplied.

700.12(C) Add an exception to read as follows:

Exception: Uninterruptible power supplies shall not be permitted as the transfer device for fire alarm systems.

700.12(D) Revise first sentence of subsection 700.12(D) to read as follows:

Where acceptable to the department of buildings as suitable for use as an emergency source, a second service independent of the source normally supplying the building shall be permitted.

700.26 Revise section 700.26 to read as follows:

700.26. Ground-Fault Protection of Equipment. The alternate source for emergency systems shall not be permitted to have ground-fault protection of equipment with automatic disconnecting means. Ground-fault indication of the emergency source shall be provided per Section 700.7(D).

700.30 Add a new section 700.30 under a new part "VII Grounding" of article 700 to read as follows:

VII. Grounding

700.30 General. Grounding shall be in accordance with the provisions of Article 250.

700.31 Add a new section 700.31 to read as follows:

700.31 Control Circuits.

(A) Grounding. Low voltage control circuits and dc control circuits derived from engine generator starting batteries shall have one leg grounded.

(B) Arrangements. Control circuits shall be arranged so that an additional accidental ground shall not cause operation of the connected devices.

(C) Return Path. Control circuits shall make use of grounding as a circuit return.

701 Delete article 701 in its entirety.

705.40 Revise section 705.40 to read as follows:

705.40. Loss of Primary Source. Upon loss of primary source, an electric power production source shall be automatically disconnected from all ungrounded conductors of the primary source and shall not be reconnected until the primary source is restored.

Special detection methods shall be required to determine that a primary source supply system outage has occurred, and whether there should be automatic disconnection. When the primary source supply system is restored, special detection methods shall be required to limit exposure of power production to out-of-phase reconnection.

FPN: Induction-generating equipment on systems with significant capacitance can become self-excited upon loss of primary source and experience severe over-voltage as a result.

705.42 Revise section 705.42 to read as follows:

705.42. Unbalanced Interconnections. A 3-phase electric power production source shall be automatically disconnected from all ungrounded conductors of the interconnected systems when one of the phases of that source opens. This requirement shall not be applicable to an electric power production source providing power for an emergency system.

725.3(C) Revise the last sentence of subsection 725.3(C) to read as follows:

Type CL2P or CL3P cables shall be permitted for Class 2 and Class 3 circuits in other spaces used for environmental air.

725.51 Revise the exception to read as follows:

Exception: The input leads of a transformer or other power source supplying Class 2 and Class 3 circuits shall be permitted to be smaller than No. 12, but not smaller than No. 18 if they are not over 12 in. (305 mm) long and if they have insulation that complies with 725.27(B).

725.52(A) Delete Exception No. 2.

725.55 Delete all references to "non-power limited fire alarm" in all instances.

725.55(I) Delete references to "rigid nonmetallic conduit" and "liquidtight flexible nonmetallic conduit".

725.56(E)(1) Delete subsection 725.56(E)(1).

725.61(A) Delete the words "ducts, plenums, and" .

725.61(E)(5) Delete subsection 725.61(E)(5).

727.4 Revise the first sentence of section 727.4 to read as follows:

Where approved, Type ITC cable shall be permitted to be used in industrial establishments where the conditions of maintenance and supervision ensure that only qualified persons will service the installation:

(1) In cable trays.

(2) In raceways.

(3) In hazardous locations as permitted in Articles 501, 502, 503, 504, and 505

(4) As open wiring where equipped with a smooth metallic sheath, continuous corrugated metallic sheath, or interlocking tape armor applied over the nonmetallic sheath in accordance with Section 727.6.

The cable shall be supported and secured at intervals not exceeding 6 ft (1.83m).

760.1 Amend section 760.1 to read as follows:

760.1 Scope. The installation of wiring and equipment shall be as required by RS 17-3, RS 17-3A, RS 17-3B, and RS 17-3C of the New York City Building Code.

770.2 Revise the definition "Abandoned Optical Fiber Cable" to read as follows:

Abandoned Optical Fiber Cable. Installed optical fiber cable that is not terminated at equipment other than a connector and not identified for future use with a tag securely fixed to each end and indicating the location of the opposing end.

770.3 Revise first sentence of section 770.3 to read as follows:

Circuits and equipment shall comply with 770.3(A), (B) and (C).

770.3(C) Add a new subsection 770.3(C) to read as follows:

(C) Electric Closets. Fiber optic circuits and equipment shall not be installed in electric closets.

770.8 Add a Fine Print Note to read as follows:

FPN: For further clarification, refer to a nationally recognized standard such as NECA/BICSI - 568 - 2001.

780.2(A) Add a second sentence to subsection 780.2(A) to read as follows:

All restrictions stated elsewhere in this code shall apply for NM cable.

800.2 Revise the definition "Abandoned Communications Cable" to read as follows:

Abandoned Communications Cable. Installed communications cable that is not terminated at both ends at a connector or other equipment and not identified for future use with a tag securely fixed to each end and indicating the location of the opposing end.

800.6 Add Fine Print Note to read as follows:

FPN: For further clarification refer to a nationally recognized standard such as NECA/BICSI - 568 - 2001.

800.48 Revise section 800.48 to read as follows:

800.48 Raceways for Communications Wires and Cables.

Where communications wire and cable are installed in a raceway, the raceway shall be of a type permitted in Chapter 3 and installed in accordance with Chapter 3.

800.53(F) Add the following new sentence to subsection 800.53(F).

Notwithstanding any other provision of the electrical code, installation shall not be performed by low voltage installers. All such work shall be performed by licensed master or special electricians.

820.2 Revise the definition "Abandoned Coaxial Cable" to read as follows:

Abandoned Coaxial Cable. Installed coaxial cable that is not terminated at equipment other than a coaxial connector and not identified for future use with a tag securely fixed to each end and indicating the location of the opposing end.

830.2 Revise the definition "Abandoned Network-Powered Broadband Communications Cable" to read as follows:

Abandoned Network-Powered Broadband Communications Cable. Installed network-powered broadband communications cable that is not terminated at equipment other than a connector and not identified for future use with a tag securely fixed to each end and indicating the location of the opposing end.

830.12 Revise table 830.12 by deleting the columns under the heading "Direct Burial Cables."

830.12(B) Revise the first sentence and Exception No. 2 of subsection 830.12(B) to read as follows:

Direct-buried network-powered broadband communications cables shall be separated at least 12 in. (305 mm) from conductors of any light, power, or Class 1 circuit.

Exception No. 2: Where electric light or power branch-circuit or feeder conductors, or Class 1 circuit conductors are installed in a raceway or in metal-sheathed, metal-clad cables; or the network-powered broadband communications cables have metal cable armor or are installed in a raceway.

830.12(C) Delete the Exception and revise subsection 830.12(C) to read as follows:

(C) Mechanical Protection. Conduit or other raceways shall be installed to meet the minimum cover requirements of Table 830.12.

§6. (a) This local law shall take effect on January 1, 2004.

(b) Sections 4 and 5 of this local law shall take effect on January 1, 2004 and shall apply to electrical work

performed on and after such date except that, during a transition period commencing on January 1, 2004 and ending on June 30, 2004 electrical work may be performed in accordance with the electrical code technical standards in effect prior to January 1, 2004 (the 1999 edition of the National Fire Protection Association NFPA 70 National Electrical Code and the New York city amendments to the 1999 NEC) at the option of the person performing such electrical work.

(c) A copy of the 2002 edition of the National Fire Protection Association NFPA 70 National Electrical Code, incorporated by reference into this local law, shall be kept on file by the City Clerk with this local law and shall be available for public inspection.