

Local Law 41
Int. No. 284

By Council Member Provenzano (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 and repealing section 23 of local law 64 for the year 2001, relating to the electrical code.

Be it enacted by the Council as follows:

Section 1. Subdivision a of section 27-3024 of the administrative code of the city of New York, as added by local law number 64 for the year 2001, is amended to read as follows:

a. The city of New York hereby adopts the 1999 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 [with] subject to the amendments [to be] 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 National Electrical Code”. Such 1999 edition of the National Fire Protection Association NFPA 70 National Electrical Code with such New York city amendments [to be adopted by local law] shall together be known and cited as the “electrical code technical standards”. [Except as otherwise provided in section twenty-three of the local law which added this section, the] The electrical code technical standards shall apply to electrical work performed on and after January first, two thousand three[. In addition] 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.

§2. Such code is amended by adding a new section 27-3025, to read as follows:

§27-3025. The New York city amendments to the 1999 National Electrical Code. The New York city amendments to the 1999 National Electrical Code are hereby adopted, to read as follows:

1999 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, with submittals required in accordance with the Department's rules.

(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 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 1999 National Electrical Code.

110-26(g) Add a new 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.

110-33(a) Revise the first sentence of 110-33(a) to read as follows:

At least one entrance not less than 30 in. (762 mm) wide and 6½ 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.

210-2 Delete the reference to “Fire alarm systems” and Article “760.”

210-12(b) Revise 210-12(b) to read as follows:

(b) Dwelling Unit Bedrooms. All branch circuits 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) Add new sentence at end of paragraph before exception as follows and delete FPN No. 4:

Conductors of branch circuits shall be sized to allow for a maximum voltage drop of 3% or less at 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(d) Revise 210-19(d) by changing the number at the end of the first sentence from “No. 14” to “No. 12.”

Table 210-24 Revise Table 210-24 by changing the numbers within the Circuit Rating section from “14” to “12.”

210-52 Add new 210-52 (i) and (j) 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.

(j) 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 (j)(1) and (j)(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.

210-60(a) Revise 210-60(a) to read as follows:-

(a) General. Guestrooms in hotels, motels, and similar occupancies shall have receptacle outlets installed in accordance with Section 210-52. See Section 210-8(b)(1). Refer also to the NYC Amendment to 210-12.

210-60(b) Add the following sentence at the end of 210-60(b):

Refer also to the NYC Amendment to 210-12.

210-63.1 Delete the exception.

215-2(a) Add two new sentences at end of paragraph before exception 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(d) Add two new sentences 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 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 paragraph 220-16(c) to read as follows:

(c) Air Conditioning Circuits-Dwelling Unit. A load of not less than 1500 volt-amperes shall be included for each air conditioning outlet required by Section 210-52(i). The demand factors shall not exceed 50%.

225-2 Delete the reference to “Fire Alarm Systems” and “Article 760.”

225-6(a)(1) Revise 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 40 ft (12.2 m) in length and No. 8 copper or No. 6 aluminum for a longer span, unless supported by a messenger wire

225-6(b) Revise first sentence 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.

225-21 Delete section 225-21.

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 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 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 the sum of the maximum ampere ratings of the service disconnects supplied. Service

disconnects supplying fire pumps shall be included at 125% of the fire pump full load current.

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

Ampacity of service-entrance cable shall be determined from Section 310-15. When service-entrance conductors consist of bus bars contained in either service busway or other service equipment, ampacity shall be determined by the following table:

<u>Current Rating of Bus</u>	<u>Maximum Current Per Square Inch in Amperes</u>			
	<u>Ventilated Housing</u>		<u>Unventilated Housing</u>	
	<u>Copper Bar</u>	<u>Alum. Bar</u>	<u>Copper Bar</u>	<u>Alum. Bar</u>
<u>Up to 1200Amp</u>	<u>1000</u>	<u>750</u>	<u>800</u>	<u>600</u>
<u>1201 to 2000 Amp</u>	<u>800</u>	<u>600</u>	<u>700</u>	<u>525</u>
<u>2001 to 4000 Amp</u>	<u>700</u>	<u>525</u>	<u>500</u>	<u>375</u>

230-42(d) Add new 230-42(d) to read as follows:

(d) Service Conductors. The conductors from the service point to the service disconnecting means.

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.

230-46

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 1½ 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, or by other wiring methods 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 374 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.

230 - 51 Delete section 230-51.

230 - 52 Delete section 230-52.

230 - 53 Delete the exception.

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 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 exposed current-carrying 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 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 230-70(a) to read as follows:

(a) 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 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.

230-72(a) Revise 230-72(a) to read as follows:

(a) General. The two to six disconnects as permitted in Section 230-71 shall be grouped.

Exception: One of the two to six service disconnecting means permitted in Section 230-71, where used only for a water pump also intended to provide fire protection, shall be permitted to be located remote from the other disconnecting means.

230-76(a) Add a new 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 230-82(1) to read as follows:

(1) Cable limiters

230-83 Add 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.

230-84 Add new section 230-84 to read as follows:

230-84. More than One Building or Other Structure. In a property comprising more than one building under single management, and which has a generating plant or a master service, the conductors running from one building to another shall not be considered as service conductors. Fuses or circuit-breakers will not be required where these conductors supply the wiring installation within any building, provided that the fuses or circuit-breakers immediately ahead of these conductors properly protect the conductors within that building, and provided that each such set of conductors is separately controlled by a suitable feeder-control switch located at the point of entrance of the supply conductors within the building served. The provisions of this section shall also apply to garages and similar out-buildings of residential installations.

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.

240-2 Revise the list by deleting the reference to “Fire alarm systems” and Article “760.”

240-3(g) Revise the list by deleting the reference to “Fire alarm system circuit conductors” and Article “760” and Sections “760-23, 760-24, 760-41, and Chapter 9, Tables 12(a) and 12(b).”

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 240-20(c).

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 Revise section 240-90 to read as follows:

240-90. General. Overcurrent protection in areas of supervised industrial installations shall comply with all the applicable provisions of the other sections of this article, except as provided in Part H. The provisions of Part H shall only be permitted to apply to those portions of the electrical system in the supervised industrial installation used exclusively for manufacturing or process control activities. Article 240-90 shall not be applied to any life safety circuits.

250-30(a)(2) Revise the first paragraph 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)(3)(b) Delete the Exception.

250-64(b) Revise 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 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.

250-162(a) Delete Exception No. 3.

250-178 Revise the first sentence 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 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.

300-5(a) Revise 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.

300-15(a) Revise 300-15(a) to read as follows:

(a) Box or Conduit Body. Where the wiring method is conduit, electrical metallic tubing, Type AC cable, Type MC cable, Type MI cable, nonmetallic-sheathed cable, or other cables, a box or conduit body complying with Article 370

shall be installed at each conductor splice point, outlet, switch point, junction point, or pull point, unless otherwise permitted in (b) through (n).

Fittings and connectors shall be used only with the specific wiring methods for which they are designed and listed.

300-15(e) Delete 300-15(e)

300-15(m) Add a fine print note as follows:

FPN: See Article 780.

300-17 Delete the reference to “fire alarm circuits and “Article 760” in the Fine Print Note.

300-21 Revise section 300-21 to read as follows:

300-21. Spread of Fire or Products of Combustion. Electrical installations in hollow spaces, vertical shafts, and ventilation or air-handling ducts shall be made so that the possible spread of fire or products of combustion will not be substantially increased. Openings around electrical penetrations through fire-resistant-rated walls, partitions, floors, or ceilings shall be firestopped using approved methods to maintain the fire resistance ratings.

300-37 Revise section 300-37 to read as follows:

300-37. Aboveground Wiring Methods. Aboveground conductors shall be installed in rigid metal conduit, in intermediate metal conduit, or in rigid nonmetallic conduit encased in not less than 3 inches (76mm) of concrete or in busways.

In locations such as central stations, substations and transformer vaults accessible to qualified persons only, open runs of Type MV cables, bare conductors, bare busbars, cable trays, cable bus, and open runs of metal clad cable suitable for the use and purpose, shall also be permitted. Busbars shall be permitted to be either copper or aluminum.

300-50 Revise the section heading to read as follows:

300-50. Underground Conductors.

300-50(a) Revise 300-50(a) to read as follows:

(a) General. Underground conductors shall be identified for the voltage and conditions under which they are installed. Direct burial cables shall not be permitted. Underground cables shall be installed in raceways identified for the use and shall meet the depth requirements of Table 300-50. Cables shall be

installed in rigid metal conduit, intermediate metal conduit, or rigid nonmetallic conduit encased in not less than 3 in. (76 mm) of concrete.

300-50(b) Revise 300-50(b) to read as follows:

(b) Protection from Damage. Conductors emerging from the ground shall be enclosed in approved raceways. Raceways installed on poles shall be of rigid steel conduit, extending from the minimum cover depth specified in Table 300-50 to a point 8 ft (2.44 m) above finished grade. Conductors entering a building shall be protected by galvanized rigid steel conduits to the point of entrance.

300-50(c) Delete 300-50(c).

300-50(e) Revise 300-50(e) to read as follows:

(e) Raceway Seal. Where a raceway enters from an underground system, the open end within the building shall be sealed with an identified compound so as to prevent the entrance of moisture or gases, or it shall be so arranged to prevent moisture from contacting live parts.

Table 300-50 Revise Table 300-50 as follows:

Table 300-50. Minimum Cover Requirements (*Cover* is defined as the shortest distance in inches measured between a point on the top surface of any conduit, or other raceway and the top surface of finished grade, concrete, or similar cover.)

<u>Circuit Voltage</u>	<u>Rigid Nonmetallic Conduit Approved for Direct Burial *</u>	<u>Rigid Metal Conduit and Intermediate Metal Conduit</u>
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<u>Over 600 V through 22 kV</u>	<u>18</u>	<u>6</u>
<u>Over 22 kV through 40 kV</u>	<u>24</u>	<u>6</u>
<u>Over 40 kV</u>	<u>30</u>	<u>6</u>

Note: For SI units, 1 in. = 25.4 mm.

*Listed by a qualified testing agency as suitable for direct burial without encasement. All other nonmetallic systems shall require 2 in. (50.8 mm) of concrete or equivalent above conduit in addition to above depth.

Delete Exception No. 5:

305-4(b) Revise 305-4(b) to read as follows:

(b) Feeders. Feeders shall be protected as provided in Article 240. They shall originate in an approved distribution center. Conductors shall be permitted within cable assemblies, or within cords or cables of a type identified in Table 400-4 for hard usage or extra-hard usage. Feeders may be utilized as open conductors provided they are supported on insulators at intervals not exceeding 10 feet (3.05m), and provided that the voltage does not exceed 300 volts to ground and where not subject to physical damage.

Vertical feeders and horizontal feeders installed less than seven feet, six inches (2.3m) above the floor shall be protected by an approved raceway or armored cable and shall be properly supported.

Exception: Single insulated conductors shall be permitted where installed for the purpose(s) specified in Section 305-3(c).

305-4(c) Revise 305-4(c) to read as follows:

(c) Branch Circuits. All branch circuits shall originate in an approved panelboard. Conductors shall be permitted within cable assemblies, or within multiconductor cord or cable of a type identified in Table 400-4 for hard usage or extra-hard usage. All conductors shall be protected as provided in Article 240. Branch circuits installed for the purposes specified in Sections 305-3(b) or (c) shall be permitted to be run as single insulated conductors. Where the wiring is installed in accordance with Section 305-3(b), the voltage to ground shall not exceed 300 volts, the wiring shall not be subject to physical damage, and the conductors shall be supported on insulators at intervals of not more than 10 ft (3.05 m) and not less than seven feet, six inches (2.3m) above the floor; or, for festoon lighting, the conductors shall be arranged so that excessive strain is not transmitted to the lampholders. At no time shall a branch circuit conductor be laid on the ground or floor. Branch circuit conductors shall be protected from mechanical injury by an approved raceway or armored cable if installed below seven feet, six inches (2.3m) above the floor. Branch circuit conductors shall not be smaller than No. 14 copper.

The difference of potential between conductors of any circuit for lighting shall not exceed 150 volts and the number of outlets shall not exceed 12. Branch circuit over-current protection shall not exceed fifteen amperes. Series lighting shall not be employed.

The difference of potential between conductors of any power circuit shall not exceed 480 volts. Power circuits shall not be used for lighting purposes.

305-4(f) Revise 305-4(f) to read as follows:

(f) Lamp Protection. All lamps for general illumination shall be protected from accidental contact or breakage by a suitable fixture or lampholder with a guard.

Brass shell, paper-lined sockets, or other metal-cased sockets shall not be used.

Portable plug-in lampholders shall not be used in lieu of general illumination for temporary lighting.

305-4(i) Revise 305-4(i) to read as follows:

(i) Overcurrent Devices and Switches. Overcurrent devices and switches shall be installed in metal cabinets and shall comply with requirements for permanent installations. Overcurrent devices shall be provided on each floor where temporary wiring is used and shall apply to all lighting and receptacle circuits on that floor only. This does not apply to vertical lighting of stairs or shafts or in buildings where only a duplex lampholder is provided on each floor landing.

(1) One and two family dwellings are not required to have overcurrent devices on each floor.

(2) Commercial, industrial and residential structures having three or more units where the area per floor does not exceed 2400 square feet (outside dimension) may utilize one overcurrent device panel for no more than four consecutive floors.

(3) Existing panels may be utilized for temporary branch circuit wiring during alteration work, (subject to the above conditions).

305-4(j) Revise 305-4(j) to read as follows:

(j) Extension Cords. Trailers or extension cords for lights, portable machines, such as drills, hammers, floor scraping machines, etc., shall be of heavy duty type and shall not exceed fifty feet in length and shall not be less than No. 16.

305-4(k) Add a new 305-4(k) to read as follows:

(k) Rotating Machinery. Motors for hoisting apparatus, concrete mixers, electric welding and wiring shall be provided with the required overload and low voltage protection and where the conductors are exposed to mechanical injury, they shall be installed in rigid conduits. An externally operated switch shall be installed within reach of the operator. Frames of motors, controllers, switches, etc. shall be grounded as prescribed in Article 250.

305-4(l) Add a new 305-4(l) to read as follows:

(l) 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.

305-4(m) Add a new 305-4(m) to read as follows:

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

305-4(n) Add a new 305-4(n) to read as follows:

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

305-4(o) Add a new 305-4(o) to read as follows:

(o) 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.

318-3(a) Revise 318-3(a) to read as follows:

(a) Wiring Methods. The following shall be permitted to be installed in cable tray systems under the conditions described in their respective articles and sections:

<u>Section</u>	<u>Article</u>
<u>Armored cable</u>	<u>333</u>
<u>Electrical metallic tubing</u>	<u>348</u>
<u>Flexible metal conduit</u>	<u>350</u>
<u>Flexible metallic tubing</u>	<u>349</u>
<u>Instrumentation tray cable</u>	<u>727</u>
<u>Intermediate metal conduit</u>	<u>345</u>

<u>Metal-clad cable</u>	<u>334</u>
<u>Mineral-insulated, metal-sheathed cable</u>	<u>330</u>
<u>Multipurpose and communications cables</u>	<u>800</u>
<u>Power and control tray cable</u>	<u>340</u>
<u>Power-limited tray cable</u> <u>725-61(c) and 725-71(e)</u>	
<u>Optical fiber cables</u>	<u>770</u>
<u>Other factory-assembled, multiconductor control,</u> <u>signal, or power cables that are specifically approved</u> <u>for installation in cable trays</u>	
<u>Rigid metal conduit</u>	<u>346</u>

324 Delete article 324.

326 - 3 Revise section 326-3 to read as follows:

326-3 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.

326 - 4 Revise section 326-4 to read as follows:

326-4 Uses Not Permitted. Type MV cable shall not be used (1) where exposed to direct sunlight, (2) in cable trays, and (3) directly buried.

331-3 Revise section 331-3 to read as follows:

331-3 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 331-4

(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.

331-4 Revise section 331-4 to read as follows:

331-4. Uses Not Permitted. Electrical nonmetallic tubing shall not be used:

(1) In hazardous (classified) locations, except as permitted by Section 504-20

(2) For the support of fixtures and other equipment

(3) Where subject to ambient temperatures exceeding those for which the tubing is listed

(4) For conductors whose insulation temperature limitations would exceed those for which the tubing is listed

(5) For direct earth burial

(6) Where the voltage is over 600 volts

(7) In exposed locations

(8) In theaters and similar locations, except as provided in Articles 518 and 520

(9) Ducts, plenums and other air handling spaces

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

331-5(b) Revise the sentence to read as follows:

Tubing larger than 1-in. electrical trade size shall not be used.

331-15 Revise section 331-15 to read as follows:

331-15. General. Electrical nonmetallic tubing shall be clearly and durably marked at least every 10 ft (3.05 m) as required in the first sentence of Section 110-21. The type of material shall also be included in the marking.

331-16 Add new part “D. Approval and Inspections” to article 331 and new section 331-16 to read as follows:

D. Approval and Inspections

331-16. 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.

331-17 Add new section 331-17 to read as follows:

331-17. 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.

334-3(1) Revise 334-3(1) to read as follows:

(1) For feeders and branch circuits

336-4 Revise 336-4 to read as follows:

336-4. 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 336-5
- (3) Cable trays, where the cables are identified for the use

FPN: See Section 310-10 for temperature limitation of conductors.

(a) Type NM. Type NM cable shall be permitted for concealed work in normally dry locations. It shall be permissible to install or fish Type NM cable in air voids in masonry block or tile walls where such walls are not exposed or subject to excessive moisture or dampness.

(b) Type NMC. Type NMC cable shall be permitted as follows:

- (1) For concealed work in dry, moist, damp, or corrosive locations
- (2) In outside and inside walls of masonry block or tile
- (3) In a shallow chase in masonry, concrete, or adobe protected against nails or screws by a steel plate at least 1/16-in. (1.59-mm) thick, and covered with plaster, adobe, or similar finish

(c) Type NMS. Type NMS cable shall be permitted for concealed work in normally dry locations. It shall be permissible to install or fish Type NMS cable in air voids in masonry block or tile walls where such walls are not exposed or subject to excessive moisture or dampness. Type NMS cable shall be used as permitted in Article 780.

336-5(a)(1) Revise first sentence to read as follows:

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

336-5(a) Add new 336-5 (a)(10) and 336-5(a)(11) to read as follows:

(10) In other than residential buildings of three floors or less

(11) In commercial buildings

336-18 Delete Exception No. 2.

336-21 Revise 336-21 to read as follows:

336-21. Devices of Insulating Material. Switch, outlet, and tap devices of insulating material shall not be permitted.

338-1(c) Add the following new sentence:

The uninsulated conductor may only be used as an equipment ground.

338-2 Revise second paragraph to read as follows:

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

338-4(b) Revise 338-4(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.

339-3(a)(1) Revise 339-3(a)(1) to read as follows:

(1) Type UF cable shall be permitted for use underground, as feeder or branch-circuit cable where provided with overcurrent protection of the rated ampacity as required in Section 339-4.

339-3(a)(2) Revise 339-3(a)(2) to read as follows:

(2) Where single-conductor cables are installed, all cables of the feeder circuit or branch circuit, including the neutral and equipment grounding conductor, if any, shall be run together in the same raceway.

339-3(a)(5) Delete 339-3(a)(5).

339-3(a)(6) Delete 339-3(a)(6).

339-3(b)(11) Add a new 339-3(b)(11) to read as follows:

(11) Direct burial

342 Delete article 342.

343 Delete article 343.

347-1 Revise section 347-1 to read as follows:

347-1 Description. This article shall apply to a type of conduit and fittings of suitable nonmetallic material that is resistant to moisture and chemical atmospheres. For use aboveground, it shall also be flame retardant, resistant to impact and crushing, resistant to distortion from heat under conditions likely to be encountered in service, and resistant to low temperature and sunlight effects. For use underground, the material shall be acceptably resistant to moisture and corrosive agents and shall be of sufficient strength to withstand abuse, such as by impact and crushing, in handling and during installation. Where intended for direct burial, without encasement in concrete, the material shall also be capable of withstanding continued loading that is likely to be encountered after installation.

347-2(1) Add new 347-2(1) after the Fine Print Note to read as follows:

(1) In any residential building or dwelling unit not exceeding three floors above grade.

347-2(2) Add new 347-2(2) to read as follows:

(2) In any nonresidential building, rigid nonmetallic conduit shall be concealed within non-plenum walls, floors and ceilings where the walls, floors and ceilings provide a thermal barrier of material that has at least a one hour rated assembly as identified in listings of fire-rated assemblies.

347-3(a)(1) Delete 347-3(a)(1).

347-3(a)(2) Delete 347-3(a)(2).

348-5(6) Add a new subsection (6) to read as follows:

(6) For underground or exterior installations.

351-4(b)(3) Add new 351-4(b)(3) to read as follows:

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

351-23 Revise section 351-23 to read as follows:

351-23 Use Not Permitted. The use of liquidtight flexible nonmetallic conduit shall not be permitted.

351.24 Delete section 351-24.

351.25 Delete section 351-25.

351-26 Delete section 351-26.

351-27 Delete section 351-27.

351-28 Delete section 351-28.

351-29 Delete section 351-29.

351-30 Delete section 351-30.

352-22(b)(8) Add new 352-22(b)(8) to read as follows:

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

352-22(b)(9) Add new 352-22(b)(9) to read as follows:

(9) In commercial buildings

353-2(b)(7) Add new 353-2(b) (7) to read as follows:

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

362-15 Revise section 362-15 to read as follows:

362-15. Use. The use of nonmetallic wireways shall not be permitted.

362-16 Delete section 362-16.

362-17 Delete section 362-17.

- 362-18** Delete section 362-18.
- 362-19** Delete section 362-19.
- 362-20** Delete section 362-20.
- 362-21** Delete section 362-21.
- 362-22** Delete section 362-22.
- 362-23** Delete section 362-23, including the fine print note.
- 362-24** Delete section 362-24.
- 362-25** Delete section 362-25.
- 362-26** Delete section 362-26.
- 362-27** Delete section 362-27.
- 362-30** Add new part “C. Isolation Barriers” to article 362 and new section 362-30 to read as follows:

C. Isolation Barriers

362-30. Barriers. 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.

- 364-5** Revise section 364-5 to read as follows:

364-5. Support. Busways shall be securely supported at intervals not exceeding 5 ft (1.52 m) unless otherwise designed and marked. Horizontal busways shall be installed at least 8 feet (2.44m) above the finished floor and if stacked, shall have a clearance of not less than 18 inches (457mm) between busways. Busways installed in a vertical position shall be designed for vertical installation and shall be supported at intervals not exceeding 6 feet (1.83m).

- 364-6(b)** Amend the first sentence of 364-6(b) and add new 364-6(b)(4) before fine print note to read as follows:

Floor penetration shall comply with (1), (2) and (3).

(3) By special permission, in existing buildings that do not have electric closets or rooms for electrical equipment, a busway may be located in a service or freight corridor and shall be located where it will not be subject to mechanical injury. Where installed vertically, that portion of the busway from the floor to a height of 7 feet (2.13m) shall have additional protection in the form of a No. 10 steel plate covering, bent to fit around the busway enclosure and fastened to the wall. Provisions must be made to allow for access to any joints in the busway.

364-8 Revise section 364-8 to read as follows:

364-8. Branches from Busways. Branches from busways shall be permitted to be made by the following.

1. rigid metal conduit
2. intermediate metal conduit
3. flexible metal conduit
4. metal-clad cable
5. surface metal raceway
6. electrical metallic tubing

Also with suitable cord assemblies listed and approved for extra-hard usage or hard usage for the connection of stationary equipment or for the connection of portable equipment to facilitate their interchange.

Where the connection includes a suitable tension take-up support device on the cord, flexible cord assembly connections made directly to the load end terminals of a busway plug-in device shall be permitted.

364-16 Add a new section 364-16 to read as follows:

364-16. Drip Pans. A drip pan of nonferrous metal or other listed and approved material shall be installed directly below any water pipe, soil line, etc., running above the busway and such pan shall extend at least one foot (305mm) beyond the busway enclosure.

364-17 Add new section 364-17 to read as follows:

364-17. Clearance. Horizontal busways shall be installed at least 8 feet (2.2 m) above the finished floor and if stacked, shall have a clearance in accordance with the manufacturer's installation requirements.

364-40 Add a new part "C Requirements for Service Entrance Busways" and a new section 364-40 to read as follows:

C. Requirements for Service Entrance Busways

364-40. 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.

364-41 Add a new section 364-41 to read as follows:

364-41. 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.

364-42 Add a new section 364-42 to read as follows:

364-42. 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.

365-2(a) Revise the last sentence of the first paragraph of 365-2(a) to read as follows:

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

370-28(e) Add new 370-28(e) to read as follows:

(e) Isolation Barriers. 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.

374-10 Add new section 374-10 to read as follows:

374-10. Isolation Barriers. 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.

380-7 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.

380-10(a) Delete 380-10(a).

384-3(c) Add an additional paragraph and a new exception 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.

384-3(h) Add new 384-3(h) to read as follows:

(h) 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.

384-3(i) Add new 384-3(i) to read as follows:

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

384-11 Add a new section 384-11 to read as follows:

384-11. 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 ½ square inch of copper or ¾ 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.

384-29 Add new section 384-29 to read as follows:

384-29. Hinged Doors. Freestanding switchboards, which have rear access, shall have hinged rear doors fastened by captive screws or suitable latches.

384-31 Revise section 384-31 to read as follows:

384-31. 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 50 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.

<u>Total Number of Branch Overcurrent Devices</u>	<u>Minimum Ampacity of Section Bus as a % of the Sum Total of Branch Overcurrent Devices *</u>
<u>1-2</u>	<u>100</u>
<u>3-4</u>	<u>80</u>
<u>Over 4</u>	<u>70</u>

* 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.

384-37

Add a new section 384-37 to read as follows:

384-37. Isolation.

(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.

400-5

Delete the last paragraph before the exception.

400-11

Delete the exception.

410-4(e)

Add a new 410-4 (e) to read as follows:

(e) Fixtures for Use in Poured Concrete. Recessed type 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.”

410-4(a) Add new second paragraph and Fine Print Note 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 lighting fixtures in wet and damp locations, see Article 680 for Swimming Pools, Fountains, and Similar Installations.

410-16(c) Add new 410-16 (c)(1) and 410-16 (c)(2) to read as follows:

(1) A recessed fluorescent 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 fixture, regardless of its weight, shall not be mounted directly on the 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.

410-16 (i),(j) Add new 410-16(i) and 410-16 (j) to read as follows:

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

(j) Large Fixtures. Large 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 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 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 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 305.

410-30(c)(4) Add a new 410-30(c)(4) to read as follows:

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

410-33 Add new section 410-33 under part “G. Construction of Fixtures” of article 410 as follows:

410-33. Metallic Fixtures.

(a) Enclosures. 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.

410-34 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 Fixtures. 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.

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 410-54(a) to read as follows:

(a) Enclosures. Ballasts, where not installed as part of a 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 410-66(b) to read as follows:

(b) Installation. Thermal insulation shall not be installed above a recessed fixture or within 3 in. (76 mm) of the recessed fixture's enclosure, wiring compartment, or ballast unless it is identified for contact with insulation, Type IC. Recessed 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 the following sentence to the paragraph:

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

410-101(e) Add a new 410-101(e) 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.

410-101(b) Add a new fine print note to read as follows:

FPN: See Section 220-12 for track load requirements.

410-103(a) Add a new 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 new 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 following sentence at the end of the paragraph:

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 ½ pounds per linear foot of track.

410-105(a) Add a new Exception 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.

424 Add new text under part “ G. Resistance-Type Boilers” of article 424 as follows:

For other than resistance or electrode-type boilers refer to 210-52 (i) and (j).

Add new text under part “ H. Electrode-Type Boilers” of article 424 as follows:

For other than resistance or electrode-type boilers refer to 210-52 (i) and (j).

426-43 Add a new sentence to read as follows:

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

440-62(c) Delete 440-62(c).

450-1 Delete Exception No. 7.

450-9 Revise the first paragraph 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 40°C (104°F) ambient temperature in the room.

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 ½ pounds per linear foot of track.

450-21(c) Revise 450-21(c) to read as follows:

(c) Over 15,000 Volts. Dry-type transformers rated over 15,000 volts shall be installed in a vault complying with Part C of this article.

450-24 Revise the second sentence of the section to read as follows:

Such transformers installed indoors and rated over 15,000 volts shall be installed in a vault.

450-25 Delete section 450-25.

450-42 Revise the paragraph as follows and delete the exception:

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.

450-43(a) Revise 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 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:

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.

450-49 Add new section 450-49 to read as follows:

450-49 Lighting in Vaults. Adequate electric lights, including receptacles, shall be installed and maintained in the vault. The lights and receptacles in the vault shall be connected to circuits that supply only

outlets in the vaults.

460-8(b)(2) Revise 460-8(b)(2) to read as follows:

(2) The rating or setting of the overcurrent device shall be as low as practicable, but shall not exceed 200% of the rated capacity of the capacitor.

503-3(a) Revise the first sentence 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.

514-8 Delete Exception No. 2.

515-5 Revise section 515-5 to read as follows:

515-5. Underground wiring. Underground wiring shall be installed in threaded rigid metal conduit or threaded steel intermediate metal conduit.

517-10 Delete the Fine Print Note.

517-30(a)-(d) Add a new Exception to 517-30(a) through (d) to read as follows:

Exception: For Fire Pump requirements, refer to Article 695-Fire Pumps.

517-30(b)(4) Revise the first sentence to read as follows:

The number of transfer switches to be used shall be based on reliability, design, and load considerations. Each branch of the essential electrical system shall be served by one or more transfer switches as shown in Figures 517-30(a), 517-30(b), and 517-30(c).

517-32(a) Delete the Fine Print Note.

517-32(b) Delete the Fine Print Note.

517-32(c)(1) Delete the Fine Print Note.

517-42(a) Delete the Fine Print Note.

517-42(b) Delete the Fine Print Note.

517-42(c)(1) Delete the Fine Print Note.

517-81 Revise section 517-81 to read as follows:

517-81. Other-than-Patient-Care Areas. In other-than-patient-care areas, installations shall be in accordance with the appropriate provisions of Articles 640, 725 and 800.

518-1 Revise section 518-1 to read as follows:

518-1. Scope. This article covers all buildings or portions of buildings or structures classified as places of assembly.

518-2(a) Revise 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 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.

518-4(b)(c) Delete 518-4 (b) and 518-4 (c) in their entirety, including fine print notes (“FPN”).

518-4(a) Delete “d. Fire alarm circuits — Article 760” from the Exception.

520-5(a) Revise the Exception to read as follows:

Exception: Fixed wiring methods shall be as provided in Article 640 for audio signal processing, amplification and reproduction equipment, in Article 800 for communication circuits, and in Article 725 for Class 2 and Class 3 remote-control and signaling circuits.

520-5(c) Delete 520-5(c).

520-6 Revise the first sentence 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.

530-11 Revise the Exception to read as follows:

Exception: Communications circuits; audio signal processing, amplification, and reproduction circuits; Class 1, Class 2, and Class 3 remote-control or signaling circuits and power-limited fire alarm circuits shall be permitted to be wired in accordance with Articles 800, 640, and 725.

545-4(a) Revise 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.

545-10 Delete section 545-10.

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 shall not be required to be listed where installed in conformance with this Code.

(b) 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 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, 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.

600-8(c) Revise 600-8(c) to read as follows:

(c) Minimum Thickness of Enclosure Metal. Sheet steel shall be at least 0.0250 in. (635µm) (No. 24 MSG) thick. Sheet copper or aluminum shall be of equivalent strength.

604-1(a) Add new 604-1(a) after the first paragraph of 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 12AWG, 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 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.

605-8 Delete section 605-8.

620-3(a) Revise 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(a) Revise 620-12(a) to read as follows:

(a) Traveling Cables.

(1) For lighting and auxiliary circuits: No. 12.

(2) Signaling and operating control circuits: No. 20.

620-12(b) Revise 620-12(b) to read as follows:

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

620-21 Revise section 620-21 to read as follows:

620-21. Wiring Methods. Conductors and optical fibers located in hoistways, in escalator and moving walk wellways, in wheelchair lifts, stairway chair lift runways, and machinery spaces, in or on cars, and in machine and control rooms, not including the traveling cables connecting the car or counterweight and hoistway wiring, shall be installed in rigid metal conduit, intermediate metal conduit, electrical metallic tubing or wireways, or shall be Type MC, MI, or AC cable unless otherwise permitted in (a) through (c).

(a) Elevators.

(1) Hoistways.

(a) Flexible metal conduit or liquidtight flexible metal conduit shall be permitted in hoistways between risers and limit switches, interlocks, operating buttons, and similar devices.

(b) Cables used in Class 2 power-limited circuits shall be permitted to be installed between risers and signal equipment and operating devices provided the cables are supported and protected from physical damage and are of a jacketed and flame-retardant type.

(2) Cars.

(a) Flexible metal conduit or liquidtight flexible metal conduit of 3/8-in. nominal trade size or larger, not exceeding 6 ft (1.83 m) in length shall be permitted on cars where located so as to be free from oil and if securely fastened in place.

(b) Hard-service cords and junior hard-service cords that conform to the requirements of Article 400 (Table 400-4) shall be permitted as flexible connections between the fixed wiring on the car and devices on the car doors or gates. Hard-service cords only shall be permitted as flexible connections for the top-of-car operating device or the car-top work light. Devices or fixtures shall be grounded by means of an equipment grounding conductor run with the circuit conductors. Cables with smaller conductors and other types and thicknesses of insulation and jackets shall be permitted as flexible connections between the fixed wiring on the car and devices on the car doors or gates, if listed for this use.

(c) Flexible cords and cables that are components of listed equipment and used in circuits operating at 30 volts rms or less or 42 volts dc or less shall be

permitted in lengths not to exceed 6 ft (1.83 m) provided the cords and cables are supported and protected from physical damage and are of a jacketed and flame-retardant type.

(d) Flexible metal conduit, liquidtight flexible metal conduit or flexible cords and cables, or conductors grouped together and taped or corded that are part of listed equipment, a driving machine, or a driving machine brake shall be permitted on the car assembly, in lengths not to exceed 6 ft (1.83 m) without being installed in a raceway and where located to be protected from physical damage and are of a flame-retardant type.

(3) Machine Room and Machinery Spaces.

(a) Flexible metal conduit or liquidtight flexible metal conduit of 3/8-in. nominal trade size or larger, not exceeding 6 ft (1.83 m) in length, shall be permitted between control panels and machine motors, machine brakes, motor-generator sets, disconnecting means, and pumping unit motors and valves.

(b) Where motor-generators, machine motors, or pumping unit motors and valves are located adjacent to or underneath control equipment and are provided with extra-length terminal leads not exceeding 6 ft (1.83 m) in length, such leads shall be permitted to be extended to connect directly to controller terminal studs without regard to the carrying-capacity requirements of Articles 430 and 445. Auxiliary gutters shall be permitted in machine and control rooms between controllers, starters, and similar apparatus.

(c) Flexible cords and cables that are components of listed equipment and used in circuits operating at 30 volts rms or less or 42 volts dc or less shall be permitted in lengths not to exceed 6 ft (1.83 m) provided the cords and cables are supported and protected from physical damage and are of a jacketed and flame-retardant type.

(d) On existing or listed equipment, conductors shall also be permitted to be grouped together and taped or corded without being installed in a raceway. Such cable groups shall be supported at intervals not over 3 ft (914 mm) and located so as to be protected from physical damage.

(4) Counterweight. Flexible metal conduit, liquidtight flexible metal conduit or flexible cords and cables, or conductors grouped together and taped or corded that are part of listed equipment, a driving machine, or a driving machine brake shall be permitted on the counterweight assembly, in lengths not to exceed 6 ft (1.83 m) without being installed in a raceway and where located to be protected from physical damage and are of a flame-retardant type.

(b) Escalators.

(1) Flexible metal conduit or liquidtight flexible metal conduit shall be permitted in escalator and moving walk wellways. Flexible metal conduit or liquidtight flexible conduit of 3/8-in. nominal trade size shall be permitted in lengths not in excess of 6 ft (1.83 m).

(2) Cables used in Class 2 power-limited circuits shall be permitted to be installed within escalators and moving walkways provided the cables are supported and protected from physical damage and are of a jacketed and flame-retardant type.

(3) Hard-service cords that conform to the requirements of Article 400 (Table 400-4) shall be permitted as flexible connections on escalators and moving walk control panels and disconnecting means where the entire control panel and disconnecting means are arranged for removal from machine spaces as permitted in Section 620-5.

(c) Wheelchair Lifts and Stairway Chair Lift Raceways.

(1) Flexible metal conduit or liquidtight flexible metal conduit shall be permitted in wheelchair lifts and stairway chair lift runways and machinery spaces. Flexible metal conduit or liquidtight flexible conduit of 3/8-in. nominal trade size shall be permitted in lengths not in excess of 6 ft (1.83 m).

(2) Cables used in Class 2 power-limited circuits shall be permitted to be installed within wheelchair lifts and stairway chair lift runways and machinery spaces provided the cables are supported and protected from physical damage and are of a jacketed and flame-retardant type.

620-44

Revise the second paragraph 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 6 ft (1.83m) shall be supported and installed in a raceway.

620-51(a)

Revise 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 640-3(j).

645-5(d)(5)(c) Revise 645-5(d)(5)(c) to read as follow:

(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.

645-6 Revise the Fine Print Note by deleting the last sentence.

668-1 Add a new paragraph to read as follows:

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

680-2 Revise section 680-2 to read as follows:

680-2. 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.

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

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

680-5(a) Add a new sentence to read as follows: _____

The output voltage of the secondary windings shall not exceed twenty-four volts.

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.

680-10

Revise the last sentence of section 680-10 to read as follows:

The minimum burial depth for rigid metal conduit, intermediate metal conduit or rigid nonmetallic conduit shall be 6 inches.

Delete the table contained within the section.

680-20

Revise section 680-20 to read as follows:

680-20. Underwater Lighting Fixtures. Paragraphs (a) through (d) of this section apply to all lighting fixtures installed below the normal water level of the pool.

(a) General.

(1) The design of an underwater lighting fixture supplied from a branch circuit by way of a transformer meeting the requirements of Section 680-5(a) shall be such that, where the fixture is properly installed without a ground-fault circuit-interrupter, there is no shock hazard with any likely combination of fault conditions during normal use (not relamping).

In addition, a ground-fault circuit-interrupter shall be installed in the branch circuit supplying fixtures operating at up to 15 volts, so that there is no shock hazard during relamping. The installation of the ground-fault circuit-interrupter shall be such that there is no shock hazard with any likely fault-condition combination that involves a person in a conductive path from any ungrounded part of the branch circuit or the fixture to ground.

Compliance with this requirement shall be obtained by the use of a listed and approved underwater lighting fixture and by installation of a listed and approved ground-fault circuit-interrupter in the branch circuit.

(2) No lighting fixtures shall be installed for operation at more than 15 volts between conductors.

(3) Lighting fixtures mounted in walls shall be installed with the top of the fixture lens at least 18 inches (457 mm) below the normal water level of the pool. A lighting fixture facing upward shall have the lens adequately guarded to prevent contact by any person.

Exception: Lighting fixtures approved for use at a depth of not less than 4 inches (102 mm) below the normal water level of the pool shall be permitted.

(4) Fixtures that depend on submersion for safe operation shall be inherently protected against the hazards of overheating when not submerged.

(b) Wet-Niche Fixtures.

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

Conduit shall extend from the forming shell to a suitable junction box or other enclosure located as provided in Section 680-21. Conduit shall be rigid metal, intermediate metal, or rigid nonmetallic.

Metal conduit shall be of brass or other approved corrosion-resistant metal.

Where rigid nonmetallic conduit is used, a No. 8 insulated copper conductor shall be installed in this conduit with provisions for terminating in the forming shell, junction box or transformer enclosure. The termination of the No. 8 conductor in the forming shell shall be covered with, or encapsulated in, an approved potting compound to protect such connection from the possible deteriorating effect of pool water. Metal parts of the fixture and forming shell in contact with the pool water shall be of brass or other approved corrosion-resistant metal.

(2) The end of the flexible-cord jacket and the flexible-cord conductor terminations within a fixture shall be covered with, or encapsulated in, an approved potting compound to prevent the entry of water into the fixture through the cord or its conductors. In addition, the grounding connection within a fixture shall be similarly treated to protect such connection from the deteriorating effect of pool water in the event of water entry into the fixture.

(3) The fixture shall be bonded to and secured to the forming shell by a positive locking device that assures a low-resistance contact and requires a tool to remove the fixture from the forming shell.

(c) Dry-Niche Fixtures. A dry-niche lighting fixture shall be provided with: (1) provision for drainage of water and (2) means for accommodating one equipment grounding conductor for each conduit entry.

Listed and approved rigid metal conduit, intermediate metal conduit, or rigid nonmetallic conduit shall be installed as in section 680-10 from the fixture to the service equipment or panelboard. A junction box shall not be required, but if used shall not be required to be elevated or located as specified in Section 680-21(a)(4) if the fixture is specifically approved for the purpose.

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

(d) No-Niche Fixtures. A no-niche lighting fixture shall be supplied from a transformer meeting the requirements of Section 680-5(a) 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.

680-32(a) Revise 680-32(a) to read as follows:

(a) Storable pool fixtures. Lighting fixtures for storable pools shall not be permitted.

680-32(b) Delete 680-32(b).

680-38 Revise section 680-38 to read as follows:

680-38. Emergency Switch for Spas and Hot Tubs. A clearly labeled emergency shutoff or control switch for the purpose of stopping the motor(s) that provide power to the recirculation system and jet system shall be installed readily accessible to the users and at least 5 ft (1.52 m) away, adjacent to, and within sight of the spa or hot tub.

680-41(h) Revise the first sentence to read as follows:

All electric spa or hot tub water heaters shall be listed and shall have the heating elements subdivided into loads not exceeding 32 amperes and protected at not more than 40 amperes.

680-51(b) Revise 680-51(b) to read as follows:

(b) Operating Voltage. All 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 695-3(a) to read as follows:

Where reliable and in compliance with the NYC 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 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 695-3(a)(2) to read as follows:

(2) On-Site Power Production Facility. Where approved by the Commissioner, 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 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.

Delete 695-3 (b)(2) Feeder Sources. and renumber 695-3(b)(3) Arrangement. as 695-3(b)(2).

695-3(c) Add new 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, 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:

- a. A listed fire pump controller
- b. A listed fire pump power transfer switch, or
- c. 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.

(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 provide 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

695-5(b) Revise 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 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 Revise the first paragraph 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.

695-6(a) Revise 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 Condition No. 1 or Condition No. 2 of Section 230-6.

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.

695-6(d) Revise 695-6(d) to read as follows:

(d) Disconnecting Means and Overcurrent Protection. See 695-4(b)(1) for requirements.

695-6(e) Revise 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.

700-1 Delete fine print notes (“FPN”) No. 3, 4 and 5 and revise second sentence and FPN No.2 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.

FPN No. 2: For further information regarding performance and maintenance of emergency systems, see New York City Building Code.

700-4(f) Add a new 700-4(f) to read as follows:

(f) Notification. Immediate notification shall be given to the New York City Fire Department wherever the emergency system is out of service.

700-4(a) Revise 700-4(a) to read as follows:

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

700-4(e) **Revise 700-4(e) to read as follows:**

Means for testing all emergency lighting, fire protection and power systems during maximum anticipated load conditions shall be provided.

700-5(b) Delete the third paragraph and revise first paragraph 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 700-6 (e) as follows:

(e) Means shall be provided to mechanically operate the switch without hazard to personnel.

700-7 Revise the first sentence to read as follows:

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

700-9(a) Revise 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 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.

700-12 Revise the fourth paragraph 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 first sentence 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(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 to read as follows:

Where acceptable to the authority having jurisdiction 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 “G. Grounding” of article 700 to read as follows:

G. 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.

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.

720-1 Revise the exception to read as follows:

Exception: As covered in Articles 411, 551, 650, 669, 690, and 725.

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 Section 725-27(b).

725-54 Revise section 725-54 to read as follows:

725-54. Installation of Conductors and Equipment.

(a) Separation from Electric Light, Power, Class 1 and Medium Power Network-Powered Broadband Communications Cables.

(1) In Cables, Compartments, Cable Trays, Enclosures, Manholes, Outlet Boxes, Device Boxes, and Raceways. Cables and conductors of Class 2 and Class 3 circuits shall not be placed in any cable, cable tray, compartment, enclosure, manhole, outlet box, device box, raceway, or similar fitting with conductors of electric light, power, Class 1 and medium power network-powered broadband communications cables.

Exception No. 1: Where the conductors of the electric light, power, Class 1 and medium power network-powered broadband communications circuits are

separated by a barrier from the Class 2 and Class 3 circuits. In enclosures, Class 2 or Class 3 circuits shall be permitted to be installed in a raceway within the enclosure to separate them from Class 1, electric light, power and medium power network-powered broadband communications circuits.

Exception No. 2: Conductors in compartments, enclosures, device boxes, outlet boxes, or similar fittings, where electric light, power, Class 1, and medium power network-powered broadband communications circuit conductors are introduced solely to connect to the equipment connected to Class 2 or Class 3 circuits to which the other conductors are connected, and

- (a) The electric light, power, Class 1 and medium power network-powered broadband communications circuit conductors are routed to maintain a minimum of 0.25 in. (6.35 mm) separation from the conductors and cables of Class 2 and Class 3 circuits, or
- (b) The circuit conductors operate at 150 volts or less to ground and also comply with one of the following:
 - 1. The Class 2 and Class 3 circuits are installed using Type CL3, CL3R, or CL3P or permitted substitute cables, provided these Class 3 cable conductors extending beyond the jacket are separated by a minimum of 0.25 in. (6.35 mm) or by a nonconductive sleeve or nonconductive barrier from all other conductors, or
 - 2. The Class 2 and Class 3 circuit conductors are installed as a Class 1 circuit in accordance with Section 725-21.

Exception No. 3: Conductors entering compartments, enclosures, device boxes, outlet boxes, or similar fittings, where electric light, power, Class 1 and medium power network-powered communications circuit conductors are introduced solely to connect the equipment connected to Class 2 or Class 3 circuits to which the other conductors in the enclosure are connected. If the conductors must enter an enclosure that is provided with a single opening, they shall be permitted to enter through a single fitting (such as a tee) provided the conductors are separated from the conductors of the other circuits by a continuous and firmly fixed nonconductor, such as flexible tubing.

Exception No. 4: Underground conductors in a manhole where one of the following conditions is met.

- (a) The electric light, power, Class 1 and medium power network-powered broadband communications circuit conductors are in a metal-enclosed cable or Type UF cable.
- (b) The conductors are permanently and effectively separated from the conductors of the other circuits by a continuous and firmly fixed nonconductor, such as flexible tubing, in addition to the insulation or covering on the wire.

(c) The conductors are permanently and effectively separated from conductors of the other circuits and securely fastened to racks, insulators, or other approved supports.

Exception No. 5: As permitted by Section 780-6(a) and installed in accordance with Article 780.

Exception No. 6: In cable trays, where the conductors of the electric light, power, and Class 1 circuits are separated by a solid fixed barrier of a material compatible with the cable tray, or where the Class 2 and Class 3 circuits are installed in Type MC cable.

(2) In Hoistways. Class 2 or Class 3 circuit conductors shall be installed in rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, or electrical metallic tubing in hoistways.

Exception: As provided for in Section 620-21 for elevators and similar equipment.

(3) Other Applications. Conductors of Class 2 and Class 3 circuits shall be separated by at least 2 in. (50.8 mm) from conductors of any electric light, power, Class 1 or medium power network-powered broadband communications circuits.

Exception No. 1: Where either (1) all of the electric light, power, Class 1 and medium power network-powered broadband communications circuit conductor or (2) all of the Class 2 and Class 3 circuit conductors are in raceway or in metal-sheathed, metal-clad, nonmetallic-sheathed, or Type UF cables.

Exception No. 2: Where all of the electric light, power, Class 1 and medium power network-powered broadband communications circuit conductors are permanently separated from all of the Class 2 and Class 3 circuit conductors by a continuous and firmly fixed nonconductor, such as porcelain tubes or flexible tubing, in addition to the insulation on the conductors.

(a) Conductors of Different Circuits in Same Cable, Enclosure, or Raceway.

(1) Two or More Class 2 Circuits. Conductors of two or more Class 2 circuits shall be permitted within the same cable, enclosure, or raceway.

(2) Two or More Class 3 Circuits. Conductors of two or more Class 3 circuits shall be permitted within the same cable, enclosure, or raceway.

(3) Class 2 Circuits with Class 3 Circuits. Conductors of one or more Class 2 circuits shall be permitted within the same cable, enclosure, or raceway with conductors of Class 3 circuits, provided that the insulation of the Class 2

circuit conductors in the cable, enclosure, or raceway is at least that required for Class 3 circuits.

(4) Class 2 and Class 3 Circuits with Communications Circuits. Class 2 and Class 3 circuit conductors shall be permitted in the same cable with communications circuits, in which case the Class 2 and Class 3 circuits shall be classified as communications circuits and shall meet the requirements of Article 800. The cables shall be listed as communications cables or multipurpose cables.

Exception: Cables constructed of individually listed Class 2, Class 3, and communications cables under a common jacket shall not be required to be classified as communications cables. The fire-resistance rating of the composite cable shall be determined by the performance of the composite cable.

(5) Class 2 or Class 3 Cables with Other Circuit Cables. Jacketed cables of Class 2 or Class 3 circuits shall be permitted in the same enclosure or raceway with jacketed cables of any of the following:

- (a) Nonconductive and conductive optical fiber cables in compliance with Article 770
- (b) Communications circuits in compliance with Article 800
- (c) Community antenna television and radio distribution systems in compliance with Article 820
- (d) Low power network-powered broadband communications in compliance with Article 830

(c) Circuit Conductors Extending Beyond One Building. Where Class 2 or Class 3 circuit conductors extend beyond one building and are run so as to be subject to accidental contact with electric light or power conductors operating at over 300 volts to ground, or are exposed to lightning on interbuilding circuits on the same premises, the requirements of the following shall also apply:

- (1) Sections 800-10, 800-12, 800-13, 800-30, 800-31, 800-32, 800-33, and 800-40 for other than coaxial conductors
- (2) Sections 820-10, 820-33, and 820-40 for coaxial conductors

(d) Support of Conductors. Class 2 or Class 3 circuit conductors shall not be strapped, taped, or attached by any means to the exterior of any conduit or other raceway as a means of support.

Exception: Except as permitted by Section 300-11(b)(2).

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 Revise article 760 to read as follows:

Article 760 -- Fire Alarm Systems

A. General

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 NYC Building Code.

770-3 Revise section 770-3 to read as follows:

770-3. Locations and Other Articles. Circuits and equipment shall comply with (a), (b) and (c).

(a) Spread of Fire or Products of Combustion. See Section 300-21.

(b) Ducts, Plenums, and Other Air-Handling Spaces. Section 300-22, where installed in ducts or plenums or other space used for environmental air.

Exception to (b): As permitted in 770-53(a).

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

770-8 Revise fine print note by replacing “ANSI/EIA/TIA 568-A-1995” with “NECA/BICSI-568-2001.”

770-52(b)(2) Delete 770-52(b)(2)

780-6(a) Add a new sentence at the end of 780-6(a) to read as follows:

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

800-1 Delete Fine Print Note (‘FPN’) No. 1.

800-2 Add a new definition of “Abandoned Communications Cable” to read as follows:

Abandoned Communications Cable. Installed communication cable that is not terminated at both ends at a connector or other equipment and not identified for future use with a tag.

800-6 Add a new sentence at the end of the first paragraph to read as follows:

Abandoned communications cable shall not be permitted to remain in place. Such cable must be removed.

Also revise fine print note by replacing “ANSI/EIA/TIA 568A-1995” with “NECA/BICSI-568-2001.”

800-40(a)(3) Revise by changing the number at the end of the sentence from “No. 14” to “No. 12.”

800-52 Revise the first sentence to read as follows:

Communications wires and cables from the protector to the equipment or, where no protector is required, communications wires and cables attached to the outside or inside of the building shall comply with (a) through (f).

800-52(a)(1)(a)(2) Delete 800-52(a)(1)(a)(2).

800-52(f) Add new 800-52 (f) to read as follows:

(f) Electric Closets. Communication wires, cables and equipment shall not be installed in electric closets.

800-53(e) Add a new sentence to read as follows:

Installations must be done by a licensed master electrician.

800-53(g) Add new 800-53(g) to read as follows:

(g) Abandoned communications cable as defined in Section 800-2 will not be permitted to remain.

810-6 Add a new section 810-6 to read as follows:

810-6. Electric Closet.

Radio and television equipment and wiring shall not be installed in an electric closet.

820-6 Revise Fine Print Note to read as follows:

FPN: One way to determine accepted industry practice is to refer to nationally recognized standards such as Commercial Building Telecommunications Cabling Standard, NECA/BICSI-568-2001; Commercial Building Standard for Telecommunications Pathways and Spaces, ANSI/EIA/TIA 569-1990; and Residential and Light Commercial Telecommunications Wiring Standard, ANSI/EIA/TIA 570-1991.

820-7 Add a new section 820-7 to read as follows:

820-7. Electric Closet.

No community antenna television and radio distribution systems shall be installed in electric closets.

820-11 Revise Exception No. 2 to read as follows:

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; or the coaxial cables have metal cable armor or are installed in a raceway.

820-40(a)(3) Revise 820-40(a)(3) to read as follows:

(3) Size. The grounding conductor shall not be smaller than No. 12 AWG. It shall have a current-carrying capacity approximately equal to that of the outer conductor of the coaxial cable.

830-3 Revise first sentence to read as follows:

Circuits and equipment shall comply with (a) through (e).

830-3(d)(5) Delete 830-3(d)(5).

830-3(e) Add new 830-3(e) to read as follows:

(e) Electric Closet. Network powered broadband communications equipment shall not be installed in electric closets.

830-7 Revise the Fine Print Note to read as follows:

FPN: One way to determine accepted industry practice is to refer to nationally recognized standards such as Commercial Building Telecommunications Cabling Standard, NECA/BICSI-568-2001; Commercial Building Standard for Telecommunications Pathways and Spaces, ANSI/TIA/EIA 569-A-1997; and Residential and Light Commercial Telecommunications Wiring Standard, ANSI/EIA/TIA 570-1991, or other ANSI-approved installation standards.

830-11(b) Revise the first sentence and Exception No. 2 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.

830-40(a)(3) Revise 830-40(a)(3) to read as follows:

(3) Size. The grounding conductor shall not be smaller than No. 12, and shall have a current-carrying capacity approximately equal to that of the grounded metallic member(s) and protected conductor(s) of the network-powered broadband communications cable. The grounding conductor shall not be required to exceed No. 6.

830-58(a)(1)(b)(2) Delete 830-58(a)(1)(b)(2)

830-58(a)(1)(c)(2) Delete 830-58(a)(1)(c)(2)

§3. Section 23 of local law 64 for the year 2001, relating to the electrical code is REPEALED.

§4. This local law shall take effect on January 1, 2003 except that the commissioner of buildings may promulgate rules and take other actions for the implementation of this local law prior to such effective date.