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Statement of Substantial Need for Earlier Implementation

I hereby find, pursuant to §1043, subdivision e, paragraph 1(c) of the New York City Charter, and hereby represent to the Mayor, that there is substantial need for the implementation of new Section §4000-06 of Title 1 of the Rules of the City of New York, governing fire alarm wiring, upon the publication in the City Record of its Notice of Adoption.

This is one of the Rules needed to implement the City's new Construction Codes. The proposed rule promotes public safety and efficiency by continuing under the new construction codes the practice under Title 27 of the Administrative Code with respect to fire alarm wiring. By continuing current standards, the proposed rule benefits the public by continuing a proven safety practice.

The 2008 code does not provide any requirements for fire alarm wiring and, instead, references the NYC Electrical Code. However, Article 760 of the NYC Electrical Code, which governs fire alarm wiring, does not contain specific requirements and, in turn, refers to RS-17 of the 1968 Building Code. In order to resolve potential conflicts of applicability between the 1968 code and the 2008 code, this rule sets forth the requirements for fire alarm wiring for construction under the 2008 code. Early implementation is necessary to ensure that fire alarm wiring installations comply as soon as possible with this rule's requirements, since the 1968 building code requirements include the Material and Equipment Approval ("MEA") process, which no longer exists.

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Robert D. LiMandri
Acting Commissioner
Department of Buildings

APPROVED: _____

A handwritten signature in black ink, appearing to read "Michael R. Bloomberg", written over a horizontal line.

Michael R. Bloomberg
Mayor

DATE: 8/21/08

NOTICE OF ADOPTION OF RULE

NOTICE IS HEREBY GIVEN, pursuant to the authority vested in the Commissioner of Buildings by section 643 of the New York City Charter and in accordance with section 1043 of the Charter, that the Department of Buildings hereby adopts the addition of section 4000-06 of Title 1 of the Official Compilation of the Rules of the City of New York, regarding fire alarm wiring.

This rule was first published on May 28, 2008 and a public hearing thereon was held on July 1, 2008.

Dated: 8/13, 2008
New York, New York


Robert D. LiMandri
Acting Commissioner

Section 1. Title 1 of the Rules of the City of New York is amended by adding a new chapter 4000 and section 4000-06 to read as follows:

Chapter 4000
Electrical Code

§4000-06 Fire alarm wiring.

(a) Scope. Electrical wiring serving fire alarm systems shall be installed in accordance with this rule.

(b) References. Where Article 760 of the electrical code make reference to the installation of wiring and equipment as required by RS 17-3, RS 17-3A, RS 17-3B, and RS 17-3C of the building code, the requirements herein shall replace Section 3 of RS 17-3, Section 1(C)3 of RS 17-3A, 1(C)3 of RS 17-3B, and Section 5 of RS 17-3C.

(c) Construction requirements. Electrical wiring serving fire alarm systems shall comply with the following requirements:

(1) Power conductors (above 75 volts) shall be:

(i) Copper: THHN, THWN/THHN, TFFN, TFN, FEP, RHH, RHW-2, XHH, or XHHW; minimum 600 volts; 90 C; for installation in rigid metallic conduit (RMC), intermediate metallic conduit (IMC) or electric metallic tubing (EMT).

(ii) Cable type MI, listed for 2-hour fire resistance rating.

(2) Low voltage conductors (75 volts and less) shall be:

(i) Copper: THHN, THWN/THHN, TFFN, TFN, FEP, RHH, RHW-2, XHH, XHHW; minimum 600 volts; 90 C; for installation in RMC, IMC or EMT.

(ii) Minimum wire size No.18 AWG.

(iii) Multi-conductor cables run in raceways, or exposed as described hereinafter, and shall be listed to UL 1424-05, Standard for Cables for Power-Limited Fire-Alarm Circuits, with the listing agency certifying compliance with the following additional requirements:

(A) Type FPLP only; minimum insulation thickness 15 mils; minimum temperature 150 C; colored red.

(B) Red colored jacket overall; minimum thickness 25 mils.

(C) Cable marked as per UL 1424 must bear additional description "ALSO CLASSIFIED NYC CERT. FIRE ALARM CABLE" legible without removing jacket.

(3) Installation of conductors and raceways shall be in accordance with the following:

(i) Power conductors shall not be installed in common raceways with low voltage conductors.

(ii) Installations shall comply with applicable requirements of the electrical code, or if the requirements of this rule exceed those of the electrical code shall comply with the requirements of this rule.

(iii) Conductors other than MI cable shall be run in raceway, except as specifically described in item (c)(3)(iv) of this rule.

(iv) Multi-conductor cables may be installed without raceway protection where cables are protected by building construction. Where not protected by building construction, cables shall be located 8 feet (2438 mm) vertical or more above the finish floor and not subject to physical tampering or hazard. Locations within 8 feet (2438 mm) of the finished floor that are deemed as protected by building construction shall include raised floors, shafts, telephone and communication equipment rooms and closets, and rooms used exclusively for fire alarm system equipment. In any suppression and extinguishing system activated by automatic fire detection, including but not limited to pre-action sprinkler, deluge sprinkler, clean air agent, halon, range hood, carbon dioxide and dry chemical, multi-conductor cables shall be installed in RMC, IMC, or EMT.

(v) All wiring within mechanical and elevator equipment rooms shall be run in raceways.

(vi) Raceways run within 8 feet (2438 mm) vertical of the finish floor in garage areas, loading docks, mechanical rooms, and elsewhere where subject to mechanical damage, shall be rigid galvanized steel conduit only.

(vii) Where wiring is required to be run in raceways, install conductors in RMC, IMC, or EMT except that multi-conductor cables may also be run in surface metal raceway. Flexible metallic conduit, not exceeding 36 inches (914 mm) in length, shall be permitted for final connections to initiating and notification devices. Conductors for other electrical systems shall not be installed in raceways containing conductors serving a fire alarm system.

(viii) Where allowed to be run without raceway protection, multi-conductor cables shall be installed as follows:

(A) Cables shall not depend on ceiling media, pipes, ducts, conduits, or equipment for support. Support independently from the building structure.

(B) Secure by cable ties, straps or similar fittings, so designed and installed as not to damage the cable. Secure in place at intervals not exceeding 60 inches (1524 mm) on centers and within 12 inches (305 mm) of every associated cabinet, box or fitting.

(ix) Installation of raceways, boxes and cabinets shall comply with the following general requirements:

(A) Covers of boxes and cabinets shall be painted red and permanently identified as to their use.

(B) Penetrations of fire-rated walls, floors or ceilings shall be fire stopped.

(C) Within stairways, raceways shall not be installed within 8 feet (2438 mm) vertical of the finish floor.

(D) Raceways or cables shall not penetrate top of any equipment box or cabinet.

(x) All conduits supplying 120-volt power to the fire command station and/or fire alarm control unit and/or to outlying control cabinets, shall contain a green insulated grounding conductor sized in accordance with the electrical code (#10 AWG minimum). The grounding conductor shall be connected to the ground bus or other suitable grounding terminal in each box and cabinet in which it enters. At the fuse cutout panel supplying the fire alarm system, a grounding electrode conductor sized and installed in accordance with the electrical code (#10 AWG minimum) shall be provided.

(xi) For cabinets whose 120-volt supply is not derived from the main fire alarm system cutout panel, green insulated separate grounding electrode conductors, sized and installed as per the electrical code (#10 AWG minimum), shall be provided. In steel-framed buildings, a connection to local steel structure will be acceptable.

(xii) Splices and terminations of wires and cables shall be as follows:

(A) Permitted only in boxes or cabinets specifically approved for that purpose.

(B) Utilize mechanical connections specifically approved by UL 486A-03, Wire Connectors or UL 486C-04, Splicing Wire Connectors for the conductors, or if soldered, first joined so as to be mechanically and electrically secure prior to soldering and insulating. Temperature rating of completed splices shall equal or exceed the temperature rating of the highest rated conductor.

(xiii) Wiring for audible and visual alarm notification devices shall be arranged so that a loss of a portion of the wiring on a floor will not render more than 60 percent of the devices of each type inoperative, and the devices shall be so connected to the circuitry (i.e., by means of alternate circuits) as to maintain at least partial audibility/visibility throughout the entire floor.

STATEMENT OF BASIS AND PURPOSE

The foregoing rule is proposed pursuant to the authority of the Commissioner of Buildings under Sections 643 and 1043(a) of the New York City Charter.

The proposed rule promotes public safety and efficiency by continuing under the new construction codes the practice under Title 27 of the Administrative Code with respect to fire alarm wiring. By continuing current standards, the proposed rule benefits the public by continuing a proven safety practice.

Article 760 of the Electrical Code requires fire alarm wiring to be installed in accordance with RS 17-3, RS 17-3A, RS 17-3B, and RS 17-3C of the *New York City Building Code*. Such requirement references Title 27 of the Administrative Code. The requirements herein shall replace Section 3 of RS 17-3, Section 1(C)3 of RS 17-3A, 1(C)3 of RS 17-3B, and Section 5 of RS 17-3C. This rule will facilitate compliance with the practices and standards established under Title 27 by providing technical standards for buildings erected in compliance with Title 28 of the Administrative Code.