

# 1 RCNY §15-02

## CHAPTER 15 FIRE PROTECTION

### §15-02 Interior Fire Alarm and Signal System for Place of Assembly Used as a Cabaret and for Stages, Dressing Rooms and Property Rooms.

(a) *Number of occupants.* Subdivisions 27-968(a)(10)(a) and (b) of the Building Code state that an interior fire alarm and signal system shall be provided in any room, place or space occupied or arranged to be occupied by 75 or more persons and in which either any musical entertainment, singing, dancing or other form of amusement is permitted in connection with the restaurant business or the business of directly or indirectly selling to the public food or drink, or where dancing is carried on and the public may gain admission, with or without payment of a fee, and food or beverages are sold, served, or dispensed, and any new or altered catering place as of April 4, 1979 having 300 or more persons. This does not apply to eating or drinking places which provide incidental musical entertainment, without dancing, either by mechanical devices, or by not more than three persons playing piano, organ, accordion or guitar or any stringed instrument or by not more than one singer accompanied by himself or a person playing piano, organ, accordion, guitar or any stringed instrument.

(b) *Occupant load.* The occupant load of a Place of Assembly shall be calculated by dividing the net floor area of the space by the appropriate figure in the following table:

	Occupancy	Net Floor Area per Occupancy (square feet)
(1)	Dance Floor	10
(2)	Dining Spaces	12
(3)	Standing Room (Audience) in all Places of Assembly	4
(4)	Seating Area (Audience) in all Places of Assembly	
(i)	Fixed Seats	Designed Number of Seats or Occupants
(i)	Movable Seats	10

(c) *Capabilities and components.*

(1) Fire Alarm System: shall be closed circuit, "electrically supervised", individually coded and connected to an approved franchise/central office alarm company.

A "supervised" system is one that is electrically monitored so that the occurrence of a single open or single ground fault condition of its wiring which prevents the required normal operation of the system or causes the failure of its primary (main) power supply source is indicated by a distinctive trouble signal.

(i) Manual fire alarm stations: shall be installed at each required natural path of egress from all levels from public assembly area.

(ii) Fire alarm gongs: shall be installed to provide adequate audibility throughout the Public Assembly area and all areas occupied in conjunction with the area at all levels including dressing rooms, rest rooms, coat rooms, etc. "Audibility" shall be loud and distinct under maximum sound system operation unless section 15-02(c)(2)(ii) is complied with.

(iii) Sprinkler waterflow device: shall be installed to indicate flow of water in the sprinkler system and shall be made part of the interior Fire Alarm by interconnecting the waterflow device to the interior Fire Alarm so that actuation of the waterflow device shall sound a distinctive coded alarm via the fire alarm gongs.

(2) General requirements.

(i) The components of the system shall require New York City M.E.A. approval.

(ii) A device may be installed to automatically turn off the sound system and psychedelic and special effects lighting when a manual fire alarm and/or sprinkler waterflow device is activated in all public assemblies that require an interior fire alarm and signal system.

(iii) A. SOURCES OF ELECTRICAL POWER

Two sources of electrical power shall be provided as follows:

1. The primary source shall be generated electric power not exceeding 277/480 volts, supplied by utility company power, or isolated plant.

2. The secondary source shall be an emergency power system (as per Section 27-396 of the Building Code), an emergency generator and/or battery power.

3 One source of power shall be connected to the system at all times. The primary and secondary power sources shall be so arranged and controlled by automatic transfer switches and/or circuitry that when the primary source of power fails, the secondary source will be connected automatically to the fire alarm signal system. Intermediary devices between the system supply and the source of power, other than fused disconnect switches, transformers, fused cutouts and automatic transfer switches, are prohibited. Such

disconnect switches, cutouts, transformers and automatic transfer switches shall supply only the fire alarm system and other systems covered by this reference standard. When the utility company requires the installation of metering current transformers, the system supply shall be connected on the load side of the current transformers. All installations shall comply with the applicable sections of the New York City Electrical Code.

The primary source of power and the secondary source (if said secondary source is an emergency power system or generator) shall each be provided with a means of disconnect from the fire alarm system. For buildings supplied at 120/208 volts, each disconnect shall consist of a fused cutout panel, utilizing cartridge fuses, with provision for interrupting the unfused neutral and all ungrounded conductors. The neutral shall be provided with a removable solid copper bar. The incoming service neutral shall be bonded to the metallic housing of the cutout panel on the line side of the removable bar. The fused cutout panel housing shall consist of a locked metallic cabinet with hinged door, painted fire department red, and permanently identified as to the system served. For buildings served at 265/460 volts, the primary and secondary service disconnects shall be fused disconnect switches (in lieu of fused cutout panels) in locked, red painted, permanently identified enclosures. The service voltage shall be transformed to 120/208 volts and a fused cutout panel provided within 5 feet of the transformer on the 120/208 volt side. The incoming supply connections shall comply with the New York City Electrical Code, and the fused cutout panel shall comply with the requirements specified in this rule.

#### B. PRIMARY POWER SOURCE

1. The primary service to the fire alarm system shall be so arranged that the building source of supply can be disconnected without de-energizing the fire alarm supply. To accomplish this, the primary fire alarm supply shall be connected ahead of all building over current protection and/or switching devices.

2. Partial systems such as strobe light control panels, partial fire alarm, automatic smoke/heat detection, and sprinkler alarm subsystems and/or other associated systems may be connected to an emergency supply riser panel via a tapped connection, and an identified, locked fused cutout box located within 5 feet of the tap. Where an emergency power system (E.P.S.) is provided in accordance with Section 27-396.4 of the Building Code, it shall be connected to the emergency supply riser. Where an E.P.S. is not available, the emergency supply riser shall be connected to a tap ahead of the service switch.

#### C. SECONDARY POWER SOURCE

The secondary service to the fire alarm system shall be provided as follows:

1. If the building has a required emergency power system, the secondary source shall be the emergency power system, regardless of whether the primary source is utility company power or an isolated plant.

2. If the building has an emergency generator supplying power to any of the loads listed in Section 27-396.4 of the Building Code, the secondary source shall be the generator.

3. For all other buildings, the secondary source shall be a battery supply provided in accordance with Reference Standard 17-5 for storage batteries. The battery shall be designed for 24-hour supervisory operation of the system, followed by 15 minutes of total system load.

#### (iv). WIRING

##### A. Power Conductors (Above 75 volts) shall be:

1. 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).

2. Cable type MI, M.E.A. approved for fire alarm service.

##### B. Low Voltage (75 volts and less) shall be:

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

2. Minimum wire size No. 18 AWG.

3. Multi-conductor cables run in raceways, or exposed as described hereinafter, shall meet 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 printing as per UL1424; must bear additional description "ALSO CLASSIFIED NYC CERT. FIRE ALARM CABLE" legible without removing jacket.

##### C. Installation of Conductors and Raceway shall be in accordance with the following:

1. Power conductors shall not be installed in common raceways with low voltage conductors.

2. Comply with applicable requirements of New York City Electrical Code, except where requirements are exceeded by this Reference Standard.

3. Conductors other than M.I. cable shall be run in raceway, except as specifically described below.

4. Multi-conductor cables may be installed without raceway protection where cable is protected by building construction. Where not protected by building construction, cables shall be located 8 feet or more above the finished floor and not subject to physical tampering or hazard. Locations within eight feet 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.

5. All wiring within mechanical and elevator equipment rooms shall be run in raceways.

6. Raceways run within 8 feet of finished floor in garage areas, loading docks, mechanical rooms, and elsewhere where subject to mechanical damage, shall be rigid galvanized steel conduit only.

7. Where wiring is required to be run in raceway, install conductors in rigid metallic conduit (RMC), intermediate metallic conduit (IMC) or electric metallic tubing (EMT), except that multi-conductor cables may also be run in surface metal raceway. Flexible metallic conduit, not exceeding 36" 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 REFERENCE STANDARD 17 conductors.

8. 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; Cables must be supported independently from the building structure.

(b) Cables must be secured by cable ties, straps or similar fittings, so designed and installed as not to damage the cable. Cables must be secured in place at intervals not exceeding 5'-0" on centers and within 12" of every associated cabinet, box or fitting.

9 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 within 8 feet of the floor shall not be installed so as to reduce or obstruct the stairway radius.

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

10. All conduits supplying 120-volt power to the fire alarm control unit and/or to outlying control cabinets, shall contain a green insulated grounding conductor sized in accordance with the New York City 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, provide a grounding electrode conductor sized and installed in accordance with the New York City Electrical Code (#10 AWG minimum).

\*12. For cabinets whose 120 volt supply is not derived from the main fire alarm system cutout panel, provide green insulated separate grounding electrode conductors, sized and installed as per New York City Electrical Code (#10 AWG minimum). In steel-framed buildings, a connection to local steel structure will be acceptable.

*\*"12." enacted but "11" probably intended.*

12. Splices and terminations of wires and cables shall be as follows:

(a) Permitted only in boxes or cabinets specifically approved for the purpose.

(b) Utilize mechanical connections specifically approved by U.L.486 A & C 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.

13. 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% 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.

(v) The equipment shall be colored RED and enclosed in suitable housing permanently fastened to the structure at the appropriate locations. A diagonal white stripe one inch wide from upper left corner to lower right corner shall be painted or applied to sending stations. The stripe shall not render any lettering illegible or obliterate the station number.

(vi) The name and telephone number of the central office company shall be displayed at all manual pull stations and at all central office transmitters.

(vii) There shall be a fire guard on duty at all times that the Place of Assembly is open and functioning as a cabaret. The fire guard shall have a Certificate of Fitness issued by the New York City Fire Department.

(viii) Emergency Lighting and Sprinkler Systems shall be installed and maintained as required by law.

(ix) A Fire Alarm System in a Place of Assembly subject to this rule in a high rise (Class E) office building shall interface with Fire Alarm and Communication System required by Local Law No. 5/1973.

(x) Applications shall be filed and permits obtained as required by Departmental Memorandum.