‡‡‡ Appendix Q was amended by Local Law 77 of 2023. This law has an effective date of June 10, 2023.

APPENDIX Q

MODIFIED NATIONAL STANDARDS FOR AUTOMATIC SPRINKLER, STANDPIPE, FIRE PUMP, FIRE ALARM, AND SMOKE CONTROL SYSTEMS

SECTION BC Q101
SCOPE

Q101.1 Scope. This appendix provides the modifications to the nationally recognized standards NFPA 13, NFPA 13D, NFPA 13R, NFPA 14, NFPA 20, NFPA 72, and NFPA 92, governing the installation and maintenance requirements of automatic sprinkler systems, standpipe and hose systems, fire pumps, fire alarms, and smoke control systems. Where a referenced publication has been modified for the City of New York as by the *New York City Building Code* and the *New York City Fire Code*, every reference to such publication shall be deemed to include all such modifications.

SECTION BC Q102
INSTALLATION OF SPRINKLER SYSTEMS

Q102.1 General. Sprinkler systems, where required by this code, shall be installed in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2016 edition, modified for New York City as follows. Refer to the rules of the department for any subsequent additions, modifications or deletions that may have been made to this standard in accordance with Section 28-103.19 of the *Administrative Code*.

Chapter 1 Administration No changes.

Chapter 2 Referenced Publications

2.1 Add at end the following: "Where a referenced publication has been modified for the City of New York by the *New York City Building Code* or the rules of the Department of Buildings, every reference to such publication shall be deemed to include all such modifications. Where the edition of a publication referenced within this standard differs from the edition provided for the same standard in Chapter 35 of the *New York City Building Code*, the edition provided for in Chapter 35 of the *New York City Building Code* shall govern."

Chapter 3 Definitions No changes.

Chapter 4 General Requirements No changes.

Chapter 5 Classification of Occupancies and Commodities No changes.

Chapter 6 System Components and Hardware

6.3.1.1.1 Delete after the word wall and replace with the following: "in accordance with the *New York City Plumbing Code*."

Add the following at the end of section **6.3.9.1.1**: "The use of pipe or tube other than that described above must involve consideration of many factors, including but not limited to the following:

1. Pressure rating.
2. Beam strength (hangers).
3. Corrosion (chemical and electrolytic).

4. Resistance to failure when exposed to elevated temperatures.
5. Methods of joining (strength, permanence, fire hazard).
6. Availability of fittings (for sprinkler outlets and proper routings).
7. Physical characteristics relating to integrity during earthquakes.
8. Toxicity.
9. Combustibility.
10. Movement during sprinkler operation (water distribution).”

Add Section **6.3.9.9** Non-metallic piping and fittings are permitted to be used only in Group R occupancies 6 stories or less in height.

6.7.1.3 Delete.

6.7.3 Delete.

Add Section **6.8.2.2.3** The alarm apparatus for a dry-pipe system shall also consist of approved low and high air pressure alarm attachments to the dry-pipe valve.

6.8.5 Change “8.16.2.6” to “8.17.1.9”.

Chapter 7 System Requirements

7.1.5 Delete.

7.1.5.1 Delete.

Add **7.2.6.3.4** to read as follows: “High/Low air pressure in the system shall be monitored so that either condition sends a supervisory signal. Such signal shall trigger an audible notification signal and shall report to a supervising station if the system is required otherwise to do so.”

7.2.6.8.3 Delete and replace with the following: “High/Low air pressure in the system shall be monitored so that either condition sends a supervisory signal. Such signal shall trigger an audible notification signal and shall report to a supervising station if the system is required otherwise to do so.”

7.6.3.1 Delete.

Figure 7.6.3.1 Delete.

7.6.3.2 Add the following sentence at the end: “Backflow prevention device relief discharge shall be piped to a safe location.

7.9 Delete entire section, including subsections.

Chapter 8 Installation Requirements

8.2.1 Delete the first sentence and replace with the following: “The maximum floor area on any one floor to be protected by a single riser from a control and alarm device shall be as follows:”

8.15.3.2.1 Delete the words after “is” and replace with the following: “permanently blocked off so that storage cannot occur.”

8.15.4.1* Delete the reference to 8.15.4.4 and add the following at the end: “when required by other sections of this standard or the *New York City Building Code*.”

8.15.4.4 Delete.

8.15.5.3 Delete the words “in NFPA 101, or the applicable building code” and replace with the following: “in accordance with the *New York City Building Code*.”

8.15.5.4* Delete the words “in elevator machine rooms or”.

8.15.7.4 Delete.

8.15.7.5 Delete.

8.15.8.1.2 Delete all words after and including "as defined".

8.15.8.2* Delete and replace with the following: "Closets and Pantries. Sprinklers are not required in clothes closets, linen closets, and pantries within:

(1) Dwelling units in hotels and motels where the area of the closet or pantry does not exceed 24 square feet (2.2 m), the least dimension does not exceed 3 feet (0.9 m), and the walls and ceilings are surfaced with noncombustible or limited-combustible materials; and

(2) Dwelling units in Group R occupancies other than hotels and motels where the area of the closet or pantry does not exceed 12 square feet (1.1 m), the room or space upon which the closet or pantry opens is equipped with sprinklers designed to afford protection to the opening of the closet or pantry, and the walls and ceilings of the closet or pantry are surfaced with noncombustible or limited- combustible materials."

8.15.9 Add the following after the word "closets": "without solid doors".

8.15.16 Delete.

8.15.20.4.4 Delete and replace with the following: "In altering existing sprinkler systems which contain $^{3}/_{4}$-inch (19 mm) pipe, the existing $^{3}/_{4}$-inch (19 mm) pipe shall be removed and replaced with pipe having a minimum diameter of 1-inch (25 mm) except as provided for in 8.15.20.4.1, 8.15.20.4.2, 8.15.20.4.3 and 8.15.20.4.5."

Add **8.15.20.4.5** "Where nipples used are less than 1 in. (25 mm) diameter, nipples shall be schedule 80 and no longer than shoulder length."

8.15.20.5.4 Delete and replace with the following: "Where nipples used are less than 1 in. (25 mm) diameter, nipples shall be schedule 80 and no longer than shoulder length."

8.15.23.3 Delete.

8.15.26 Delete and replace with the following: "Sprinkler Interior Protected Glazing. Where sprinklers are used in combination with glazing as an alternative to a required fire-rated wall or window assembly, the sprinkler-protected assembly shall be approved by the commissioner and shall comply with the following:

"(1) Sprinklers shall be listed as specific application window sprinklers unless standard spray sprinklers are specifically permitted by the commissioner."

"(2) Sprinklers shall be supplied by a wet-pipe system."

"(3) Where the assembly is required to be protected from both sides, sprinklers shall be installed on both sides of the glazing."

"(4) The use of sprinkler protected glazing shall be limited to non-load-bearing walls."

"(5) The water supply duration for the design area that includes the window sprinklers shall not be less than the required rating of the assembly."

Add **8.16.1.1.1.4** to read as follows: "An approved indicating shutoff valve may be used in lieu of an O.S.&Y. gate valve wherever referred to in these modifications except such valve shall not be part of the pressure reducing valve. The indicator shall be readily visible from the floor."

Add **8.16.1.1.1.5** to read as follows: "A connection from public water system shall not extend into or through a building unless such connection is under the control of an outside indicator post or O.S.&Y. gate or under the control of an inside O.S.&Y. gate valve located near the outside wall of the building."

Add **8.16.1.1.1.6** to read as follows: "All gate valves controlling water supplied for sprinklers shall be located where readily accessible and when necessary, permanent ladders, clamped treads on risers, chains and wheels, or other accepted means shall be provided."

Add **8.16.1.1.1.7** to read as follows: "Floor control valves shall be provided where required or in special cases where area or height or number of tenants is excessive, both in manufacturing and mercantile buildings, or where contents are more than ordinarily susceptible to damage. Floor valves shall be located where they are readily accessible. They are to be O.S.&Y. or indicating type located ahead of the inlet of any pressure reducing valve."

Add **8.16.1.1.1.8** to read as follows: "Valves controlling sprinkler supplied from the standpipe system shall be listed for standpipe service in the pressure zone in which it is installed. They shall be O.S.&Y. or indicating valves, and shall be located ahead of the inlet of any pressure reducing valve installed."

8.16.1.1.2.2 Delete and replace with the following: "Floor control valves in high-rise buildings shall comply with 8.16.1.1.2.1(1) or 8.16.1.1.2.1(2)."

8.16.1.1.2.5 Delete.

8.16.1.1.3.5 Delete and replace with the following: "Where there is one water supply connection a check valve shall be installed. Such check valve may be a swing check, alarm check, an approved fire meter or an approved detector check."

Add **8.16.1.1.3.6** to read as follows: "Where a system having only one dry-pipe valve is supplied with city water and Fire Department connection, it will be satisfactory to install the main check valve in the water supply connection in a vertical position immediately inside of the building after the main indicating valve."

Add **8.16.1.1.3.7** to read as follows: "Check valves on tank or pump connections, when located underground, may be placed inside of buildings and at a safe distance from the tank riser or pump, except in cases where the building is entirely of one fire area, in which case the check valve may be located over-head in the lowest level."

Add **8.16.1.1.4.5** to read as follows: "Where either a wet or dry pipe sprinkler system is supplied by city water and a Fire Department connection and has more than one riser with O.S.&Y. gate valve in each, and the whole system is controlled by one outside post indicator valve, the main check valve in the water supply connection may be installed immediately inside building. If the supply is controlled by an underground gate valve with a Department of Environmental Protection standard curb, roadway or sidewalk flush box, the main check valve in the water supply connection shall be installed immediately after the O.S.&Y. gate valve inside the building."

Add **8.16.1.1.4.6** to read as follows: "A gate valve shall be installed on each side of each check valve under conditions other than described in 8.16.1.1.4.1, 8.16.1.1.4.2, 8.16.1.1.4.3 and 8.16.1.1.4.4. However, this shall not apply to two-way Fire Department check valves."

Add **8.16.1.1.4.7** to read as follows: "In a city connection serving as one source of supply, the city valve in the connection may serve as one of the required gate valves. An O.S.&Y. valve or an indicator post valve shall be installed on the systems (water supply) side of the check valve."

8.16.1.1.5 Delete and replace with the following: "Where a gravity tank is located on a tower in the yard, the gate valve on the tank side of the check valve shall be of O.S.&Y. type; the other shall be either an O.S.&Y. valve or other listed indicating valve. Where a gravity tank is located on a building, both gate valves shall be the O.S.&Y. type; and all fittings inside the buildings, except the drain tee fill line, and heater connections, shall be under the control of a gate valve."

8.16.1.2.4 Delete all words after and including the word "unless."

8.16.1.2.5 Delete all words after and including the word "at."

Add **8.16.1.3.4** to read as follows: "Where sprinklers are supplied from a yard main, a listed outside indicator post gate valve shall be placed in the connecting pipe at a safe distance from the building. Indicator post valves shall be located not less than 40 feet (12 192 mm) from buildings; but where necessary to place a valve close to a building, it shall be located at a blank part of the wall."

Add **8.16.1.3.5** to read as follows: "When a building has no basement, and an outside post indicator control cannot be furnished, a short post indicator may be installed in a horizontal position in riser with handwheel projecting outside of wall."

Add **8.16.1.4.2.7** to read as follows: "Pits for underground valves, except those located at the base of a tank riser, are described in the Standard for Outside Protection (ANSI/NFPA No. 24-2010). For pits protecting valves located at the base of a tank riser, refer to 8.15.1.4.2.6."

8.16.2.3.2 Add at the end the following: "unless the system is installed utilizing schedule 40 steel piping for sizes 1" to 6" and a minimum of schedule 30 steel piping for sizes 8" and larger."

Table **8.16.2.4.2** Delete and replace with the following:

TABLE 8.16.2.4.2
SECTIONAL OR FLOOR VALVE SIZE
MINIMUM SIZE OF DRAIN CONNECTION

Up to 2 in.	1 in.
$2^1/_2$ in. to 4 in	$1^1/_4$ in.
5 in. and larger	2 in.

8.16.4.1.5 Delete.

8.16.6 Delete.

Add **8.17.1.5.3** to read as follows: "Identification signs shall be provided for outside alarm devices. The sign shall be located near the device in a conspicuous position and shall be worded as follows: "SPRINKLER FIRE ALARM – WHEN BELL RINGS NOTIFY FIRE DEPARTMENT OR POLICE"."

8.17.1.6 Add at end a new item 4 as follows: "(4) Refer to NFPA 72 for further requirements."

Add **8.17.1.8** to read as follows: **"Dry Pipe System Alarms."**

Add **8.17.1.8.1** to read as follows: "The alarm apparatus for a dry-pipe system shall consist of approved low and high air pressure alarm attachments as well as waterflow pressure type alarm attachments to the dry-pipe valve. When a dry-pipe valve is located on the system side of an alarm valve, the actuating device of the alarms for the dry-pipe valve may be connected to the alarms on the wet-pipe system."

‡‡‡ Add **8.17.1.9** to read as follows: **"Drains for Alarm Devices."**

Add **8.17.1.9.1** to read as follows: "Where vents are necessary for satisfactory electric alarm switch operations, such vents shall be properly piped to a drain."

Add **8.17.1.9.2** to read as follows: "Drains from alarm devices shall be so arranged that there will be no danger of freezing, and so that there will be no overflowing at the alarm apparatus, at domestic connections or elsewhere with the sprinkler drains wide open and under pressure."

Add **8.17.1.9.3** to read as follows: "Drain from retarding chamber and electric alarm switch shall be permitted to discharge through an open cone and be run separate from main system drains to a safe and visible point of free discharge or to sewer or ground drain. Drain from water-motor-operated alarm device may run separately to sewer or ground drain or may be connected to drain from retarding chamber at a point between such sewer and a check valve on this drain, a union or plug being inserted in the drain from the alarm device to permit inspection. Where checks are used, they shall be so located as to have the equivalent of at least a four-foot (1219 mm) head and shall not be installed in a vertical position."

Add **8.17.1.9.4** to read as follows: "Where drains are conveyed to a sewer, a proper trap shall be provided."

Add **8.17.1.9.5** to read as follows: "Where it is necessary to drain alarm valves outside the wall, an open discharge cone shall be provided inside to break the pipe line so that cold air will not conduct directly into the retarding chamber. Alternately, all drains shall have at least 4 feet (1219 mm) of pipe beyond the valves, in a warm area."

8.17.2.2 Delete items 1–3 and add the following:

"(1) Systems with sprinklered areas not exceeding 2000 square feet (186 m^2)."

"(2) Systems containing 36 or fewer sprinkler heads except as otherwise required by other sections of this referenced standard."

8.17.2.3 Delete items 1–3 and add the following:

"(1) Minimum size of two-way Fire Department connection is 5 inches (127 mm) except for two-way Fire Department connections supplying a single system with a riser smaller than 5 inches (127 mm) where a 4 inch (102 mm) two-way Fire Department connection may be used."

8.17.2.4.6 Delete.

Add **8.17.4.2.1.1** to read as follows: "This test pipe shall be not less than 1-inch in diameter, located in the upper story, and the connection shall be permitted to be piped from the end of the most remote branch line. The discharge shall be at a point where it can be readily observed. In locations where it is not practical to terminate the test pipe outside the building, the test pipe may terminate in a drain. In such case, the test connection shall be made using a sight test connection containing a smooth bore corrosion resistant orifice giving a flow equivalent to one sprinkler. The test valve shall be located at an accessible point, and not over seven feet above the floor. The control valve on the test connection shall be located at a point not exposed to freezing."

8.17.5 Delete.

Chapter 9 Hanging, Bracing, and Restraint of System Piping

9.2.1.3.3 Delete all subsections and replace with the following:

"9.2.1.3.3.1 Listed flexible hose fittings and their anchoring components intended for use in installations connecting the sprinkler system piping to sprinklers shall be rigidly fixed to the building structure at the sprinkler end of the flexible hose, independent of the ceiling suspension and support system in accordance with ASTM C 635, Section 3.1.1.10, as modified by Appendix R of the *New York City Building Code*."

9.3.4.11 Delete.

9.3.4.11.1 Delete.

Chapter 10 Underground Piping

10.10.1 Delete and replace with the following: "The installing contractor shall perform all required inspections and acceptance tests in accordance with this chapter prior to scheduling an inspection."

Figure 10.10.1 Delete.

Chapter 11 Design Approaches

11.1.4.2* Delete and replace with the following: "The minimum water supply requirements for a pipe schedule designed sprinkler system shall be per the requirements of 11.2.2. The minimum water supply requirement for a hydraulically calculated sprinkler system shall be the calculated sprinkler system demand only, for the duration indicated in Table 11.2.3.1.2. Where gravity tanks are used as the supply or a portion of the supply to a hydraulically designed sprinkler system, it shall not be required to balance the calculated sprinkler flow and pressure demand to the outlet pressure of the gravity tank for the calculation of the water supply duration. The total water supply required shall be the product of the calculated system flow only, multiplied by the required water supply duration."

Add **11.1.4.2.1** to read as follows: "In fully sprinklered buildings, where an Automatic Wet Standpipe System is not required by Section 905 of the *New York City Building Code*, the storage capacity of the fire reserve in the tank supplying water to the sprinkler system shall be as required for the sprinkler demand, at a minimum."

11.1.6 Delete.

Add **11.2.2.10** to read as follows: "Where the water supply to a system sized in accordance with the pipe sizing schedules is taken from a water storage tank, the adequacy of the tank capacity shall be verified with a hydraulic calculation."

Table **11.2.3.1.2** Delete hose stream allowances.

11.2.3.1.5.2 (10) Delete.

Add **11.2.3.2.3.4** to read as follows: "Reductions in the size of the calculated area of operation shall not be taken for the use of quick response sprinklers in the design of systems in existing buildings employing fixed duration stored water supplies of less than 5,000 gallons."

Chapter 12 General Requirements for Storage

12.2 Delete.

12.7.2 Delete the following: "the hose stream allowance and".

12.7.4 Delete the following: "adding the hose stream allowance from 12.8 to".

12.8 Delete the following: "Hose Stream Allowance and".

12.8.4 Delete.

12.8.5 Delete.

12.8.6 Delete the following: "adding the hose stream allowance from Table 12.8.6 to".

Table **12.8.6** Remove the column(s) titled "Hose Stream Allowance" and all of its corresponding requirements.

12.12.1.2 Delete the following: "existing with a hose stream demand of at least 250 gpm (950 L/min)".

Chapter 13 Protection of Miscellaneous and Low-Piled Storage

13.1.2 Delete.

Table 13.2.1 Remove the column(s) titled "Inside Hose" and all of its corresponding requirements.

Chapter 14 Protection for Palletized, Solid-Piled, Bin Box, Shelf, or Back-to-Back Shelf Storage of Class I through Class IV Commodities

14.3.4 Delete the following: "Hose stream allowance and".

Chapter 15 Protection for Palletized, Solid-Piled, Bin Box, Shelf, or Back-to-Back Shelf Storage of Plastic and Rubber Commodities No changes.

Chapter 16 Protection of Rack Storage of Class I Through Class IV Commodities

Table 16.3.3.1 Remove Hose Stream Allowance Requirements.

Chapter 17 Protection of Rack Storage of Plastic and Rubber Commodities

17.3.1.17 Delete the following: "adding the hose stream allowance from Table 17.3.1.17 to".

Table 17.3.1.17 Delete.

Chapter 18 Protection of Rubber Tire Storage

18.3 Delete the following: "hose streams".

Chapter 19 Protection of Roll Paper

19.1.1.1 Delete the following: "plus the hose stream allowance".

Chapter 20 Special Designs of Storage Protection

20.3.1 Delete the following: "with 500 GPM (1900 L/min) hose stream allowance".

20.3.2 Delete the following: "with 500 GPM (1900 L/min) hose stream allowance".

20.3.3 Delete the following: "with 500 GPM (1900 L/min) hose stream allowance".

20.3.4 Delete the following: "with 500 GPM (1900 L/min) hose stream allowance".

20.3.5 Delete the following: "with 500 GPM (1900 L/min) hose stream allowance".

20.3.6 Delete the following: "with 500 GPM (1900 L/min) hose stream allowance".

20.4.1.1 Delete the following: "plus a minimum of 500 gpm (1900 L/min) for hose streams".

20.4.1.2 Delete the following: "and hose streams".

Table 20.5.6.2 Remove the row(s) titled "Hose Allowance" and all of its corresponding requirements.

Chapter 21 Alternative Sprinkler System Designs for Chapters Through 20

21.1.7(5) Delete.

21.4 Delete the following: "Hose Stream Allowance and".

21.4.1 Delete the following: "adding the hose stream allowance from Table 21.4.1 to".

Table 21.4.1 Remove the column(s) titled "Hose Stream Allowance" and all of its corresponding requirements.

Chapter 22 Special Occupancy Requirements

Add **22.1.1.3** to read as follows: "The application of the requirements of this chapter are subject to the approval of the Fire Commissioner."

22.12.1.2 Delete.

22.12.1.3 Delete the following: "to augment hand hose streams".

22.13.1 Delete the following: "plus an allowance of 1000 gpm (63 L/sec) for hand hose streams for not less than 2 hours".

22.15.2.2.1 Gravity Waste and Linen Chutes. Add the following after the heading: "Sprinklers shall be provided in chute vestibules on all floors; if no vestibule exists, sprinklers shall be provided above chute doors and shall be located no more than 1-foot (25 mm) horizontally from face of chute door. All building service chute sprinkler systems shall be provided with a local water flow and valve supervisory alarm with supervising station annunciation. In high rise buildings where sprinklers in chutes are supplied by a chute riser(s), such riser(s) shall be zoned to coincide with the zoning of the standpipe riser(s)."

22.15.2.2.1.5 Delete.

22.21.1.7.3 Delete.

22.21.7.4 Delete the following: "plus the hose stream demand specified in 22.21.1.7.3".

22.25.1.4 Delete the following: "plus a minimum of 500 gpm (1893 L/min) for hose streams".

22.26.1.2 Delete the following: "plus hose stream demand".

22.26.1.2.1 Delete.

22.27.1.1(1) Delete the following: "500 gpm (1892.5 L/min) for manual hose streams plus".

22.28.1(2)(a) Delete the following: "500 gpm (1892.5 L/min) for manual hose streams plus".

Table 22.37.1.4.4.1(B) Remove the row titled "hose stream demand" and all of its corresponding requirements.

Table 22.37.1.4.4.3 Remove the row titled "hose stream demand" and all of its corresponding requirements.

Chapter 23 Plans and Calculations

23.1.3(35) Delete the following: "and the water required for hose streams both inside and outside."

23.3.2(9) Delete "inside hose".

23.3.4(3) Delete and renumber (4) to (3).

23.3.5.2(16) Delete "inside hose."

23.3.5.3(3) Delete and renumber (4) and (5) to (3) and (4), respectively.

23.3.5.5(4) Delete.

23.4.4.2.5 Delete "not including hose stream allowance".

Chapter 24 Water Supplies

24.1.1 Add the following at the end of the section:

"(a) Two automatic sources of water supply shall be provided for sprinklers in:"

"(1) Buildings classified in occupancy group H."

"(2) Buildings classified in occupancy group M when the area on one floor exceeds 20,000 square feet (1858 m^2)."

"(3) Buildings classified in occupancy group A-1 with stages larger than 1,000 square feet (93 m^2) in floor area or with a stage height greater than 40 feet (15 240 mm)."

"(b) The domestic water supply may be used to supply any sprinklers required by Section 903 of the *New York City Building Code* when installed in buildings classified in occupancy groups B, E, I and R, and not classified as a high-rise building, provided that all the requirements stated in subdivision (d) of this section are met."

"(c) The domestic water supply may be used to supply water to sprinklers in cooling towers if provision is made to automatically stop the use of water through the domestic supply lines and provided that all of the requirements stated in subdivision (d) of this section are met."

"(d) When the domestic water is used to supply sprinklers as permitted in subdivisions (b) and (c) of this section, all of the following conditions shall be met:"

"(1) The domestic water supply line from the tank or street supply shall be at least the size of the sprinkler line and the capacity available shall be at least equal to the capacity required for the sprinklers."

"(2) The domestic water supply line from the tank or street shall have the required pressure as provided in this referenced standard."

"(3) The domestic water supply line shall be of nonferrous material except when the domestic water supply is four inches (102 mm) or more."

"(4) An O.S.&Y. valve or other listed valve having visual indication, and sealed open, shall be installed in the sprinkler supply branch, or such other valve arrangement as may be provided in this referenced standard and in referenced standards NFPA-13R or NFPA 13-D as modified for New York City, as applicable."

"(5) The pipe connecting the domestic water supply and the sprinkler control valve shall be of nonferrous material and not less than twelve inches (305 mm) long."

"(6) The number of heads in each fire section shall not exceed six, except that the number of heads in each fire section may exceed six in buildings classified in occupancy group R-2, or R-3 not exceeding six stories or 75 feet (22 860 mm) in height and in spaces classified in occupancy group R-2, or R-3 in buildings not exceeding six stories or 75 feet (22 860 mm) in height, provided that no more than three heads are supplied from any one domestic water riser."

"(7) The connection shall be made at the supply or riser side of any domestic branch control valves."

"(8) In connection with the above conditions, the number of fire sections having 6 or fewer heads may be unlimited; and the installation of alarms in branches supplying fire sections shall be at the option of the owner, except that such alarms shall be provided where required by referenced standards NFPA-13R and NFPA-13D as modified for New York City."

"(9) A check valve shall be installed on the sprinkler supply branch."

24.1.3.2(1) Delete the words "or Class II Standpipes".

Add **24.2.3.1** to read as follows: "Combined Use. In light hazard occupancies with only limited ordinary hazard areas, an automatic fire pump serving the lower 300 feet (91 440 mm) of the standpipe system may be used as the primary supply to the sprinkler system, provided that an automatic switching secondary power supply is available to drive the pump, where secondary power is required by other provisions of this code, and that the pump is fully supervised as to pump running and power loss. The supervisory attachments shall be directly connected to an office where maintenance personnel are in attendance twenty-four hours a day; or, in lieu thereof, the supervisory attachment may be directly connected to the supervising station of an approved operating fire alarm company."

Add **24.2.3.2** to read as follows: "In hydraulically designed sprinkler systems supplied from a gravity tank, the pressure may be increased by means of an automatic, special service fire pump. The pump shall be sized to satisfy the water supply requirements of this section and the *New York City Building Code* and shall be arranged with a bypass to permit the portion of the system so supplied to be served by the system's two-way Fire Department connections.

If the pump is not supplied from the street side of the building service switch, the electrical service and pump operation shall be fully supervised and an automatic switching secondary power supply provided to drive the pumps, where secondary power is required by other provisions of this code."

Add **24.2.3.3** to read as follows: "Wiring for Fire Pumps. When the fire pump feeder conductors are routed through the building(s), they shall be enclosed by 2 inches (51 mm) of concrete or an assembly that has a minimum of 2-hour fire resistive rating. Wiring for all fire and sprinkler pumps shall be in accordance with the *New York City Electrical Code*."

Add **24.2.3.4** to read as follows: "Sprinkler Booster Pumps. Where the pressure from the city water main is insufficient to comply with the requirements of this referenced standard, but is sufficient to provide at least 5 PSI (34 kPa) at the highest level of sprinklers as determined by test, an automatic, electrically driven pump installed for the purpose of boosting or increasing the city water pressure in the sprinkler system may be used subject to the following requirements:"

"(a) Pumps shall be of approved centrifugal type, capable of delivering at least 200 gpm (757 L/m), and shall be capable of supplying the calculated flow and pressure demand of the sprinkler system."

"(b) Pumps shall be maintained under approved automatic control with closed circuit supervisory attachment. The supervisory attachments shall be directly connected to an office where maintenance personnel are in attendance twenty-four hours a day; or, in lieu thereof, the supervisory attachment may be directly connected to the supervising station of an approved operating fire alarm company. The supervisory alarm services shall be arranged so as to provide positive indication at an approved central office or sprinkler alarm panel board that the pump has operated or that the source of electrical supply has failed."

"(c) Such pumps shall also comply with the applicable provisions of this referenced standard and the *New York City Building Code* pertaining to fire pumps, except that only one water supply shall be required."

"(d) Power to such pumps shall be supplied from the street side of the building service switch. Secondary power shall be provided where required by other provisions of this code."

"(e) If a secondary power supply is provided to drive the pump and such power supply is automatic switching, the 5 psi (34 kPa) requirement in Section‡ 23.2.2.4 and the requirements of paragraph (d), for power to be supplied from the street side of the building service switch, may be waived."

24.2.4.1 through 24.2.4.3, including all subsections Delete.

Add **24.2.4.1** to read as follows: "A pressure tank providing water supply in accordance with Table 11.2.2.1 or section 11.2.3 is an acceptable water supply source. The total available quantity of water in pressure tanks need not exceed 15,000 gallons (56 781 L) when there is a secondary source of water supply available from a gravity tank or a street connection. The maximum gross capacity of a single pressure tank shall be 9,000 gallons (34 069 L) and shall include the needed extra capacity to fill dry-pipe or preaction systems when installed."

Add **24.2.4.1.1** to read as follows: "Each tank shall be kept at a maximum of $^{2}/_{3}$ full of water and a minimum of $^{1}/_{3}$ full of air maintained under a minimum pressure of 75 psig (517 kPa). The water-to-air ratio shall be so proportioned and the tank so located that a minimum pressure of 15 psig (103 kPa) will be available on the highest line of sprinklers below the main roof when all the water has been discharged from the tank."

Add **24.2.4.1.2** to read as follows: "The tank supports shall be designed on the basis of a full tank. The tanks shall be supplied with water through a fixed pipe, independent of the sprinkler piping and at least 2 inch (51 mm) in size. The water supply shall be capable of supplying the tank at a rate of at least 65 gpm (4 L/s) without decreasing the pressure in the tank. The tank shall have a fixed water level plate on the end of the tank opposite the gage glass, or equivalent devices, to indicate the level of the water in the tank."

Add **24.2.4.1.3** to read as follows: "The air compressor shall be provided with automatic controls for maintaining the air pressure. The capacity of the compressor shall be sufficient to build up the tank pressure to 75 psig (517 kPa) within 3 hr. or less."

Add **24.2.4.1.4** to read as follows: "Pressure tanks shall be provided with closed circuit high and low water and high and low air pressure alarms."

Add **24.2.4.1.5** to read as follows: "Pressure tanks shall be located at or above the top level of sprinklers."

24.2.5 Add at end the following: "If any of the sprinkler heads are supplied from domestic water tanks, the combined water supply in the tank shall be at least 5,000 gallons (18 927 L). Further, the sprinkler water supply shall be taken from the lowest level of the tank."

Add **24.2.5.1** to read as follows: "Combined Use. In A, B, E, I and R Occupancies, with only limited ordinary hazard areas, the sprinkler and standpipe reserve may be common to both. The Reserve shall be sized for the greater demand, in accordance with NFPA 14 Section‡ 7.10.1.3. For purposes of this section, limited shall be defined as less than 30 percent of the floor area on the given floor. Buildings whose occupancies are more than 85 percent light hazard may have a light hazard water supply, provided the ordinary hazard areas are designed for ordinary hazard requirements with respect to sprinkler spacing and pipe sizing."

Add **24.2.5.2** to read as follows: "Combined standpipe and sprinkler systems may be used in Occupancies A, B, E, F, I, M, R and S. If an automatic fire pump is used as the primary supply, the requirements of Section‡ 23.2.2.1 shall apply."

Chapter 25 Systems Acceptance

25.1 Delete and replace with the following: "The installing contractor shall inspect and test the installation in accordance with the procedures of this chapter prior to scheduling an inspection."

25.2.1.1 Delete the words "2 hours" and replace with "1 hour".

25.2.1.4.1 Delete the words "2 hours" and replace with "1 hour".

25.2.1.7 Delete the words "150 psi (10.3 bar)" and replace with "200 psi (13.8 bar)".

25.3 Delete entire section, including subsections.

25.3.1 Delete.

25.3.2 Delete.

25.3.3 Delete.

25.3.4 Delete.

25.5.2(5) Delete.

25.6.2 (13) Delete item 13 and renumber remainder of items accordingly.

Chapter 26 Marine Systems. No changes.

Chapter 27 System Inspection, Testing, and Maintenance

27.1 Delete and replace with the following: "General. A sprinkler system installed in accordance with this standard shall be properly inspected, tested, and maintained in accordance with NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems and the *New York City Fire Code*, to provide at least the same level of performance and protection as designed."

ANNEXES

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Annex A Explanatory Material

Annex B Miscellaneous Topics

Annex C Explanation of Test Data and Procedures for Rack Storage

Annex D Sprinkler System Information from the 2012 Edition of the Life Safety Code

Annex E Development of the Design Approach to Conform with SEI/ASCE 7

Annex F Informational References

SECTION BC Q103
INSTALLATION OF SPRINKLER SYSTEMS IN ONE- AND TWO-FAMILY DWELLINGS AND MANUFACTURED HOMES

Q103.1 General. Sprinkler systems, where required by this code, shall be installed in accordance with NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*, 2016 edition, modified for New York City as follows. Refer to the rules of the department for any subsequent additions, modifications or deletions that may have been made to this standard in accordance with Section 28-103.19 of the *Administrative Code*.

Chapter 1 Administration No changes.

Chapter 2 Referenced Publications

2.1 Add at end the following: "Where a referenced publication has been modified for the City of New York by the *New York City Building Code* or the rules of the Department of Buildings, every reference to such publication shall be deemed to include all such modifications. Where the edition of a publication referenced within this standard differs from the edition provided for the same standard in Chapter 35 of the *New York City Building Code*, the edition provided for in Chapter 35 of the *New York City Building Code* shall govern."

Chapter 3 Definitions

3.3.11.3 Delete.

3.3.11.7 Delete.

Chapter 4 General Requirements

. No changes.

Chapter 5 System Components

5.2.2 Add at end the following: "Non-metallic pipe shall be used in wet systems only."

5.2.2.3 Delete.

5.4 Delete.

Chapter 6 Water Supply

6.2 Add the following as item (6):

"(6) A common supply main to the building, serving both sprinklers and domestic uses, may be used if provision is made to prevent flow on the domestic water system upon operation of sprinklers, and closure of the main sprinkler control valve (the house control valve) will shut off the domestic water supply."

6.3 Delete.

Chapter 7 Installation

7.1.1 Delete the words "unless a separate shutoff valve for the sprinkler system is installed in accordance with Section‡ 7.1.2."

7.1.2 Delete and replace with the following: "Except for the meter set controlling combined domestic water and fire sprinkler systems, sectional control valves and other valves if provided in supply pipes to sprinklers shall be locked open and supervised open by one of the following methods:"

"(a) Supervising station, proprietary or remote station signaling service, or"

"(b) Local signaling service that will cause the sounding of an audible signal."

"Exception: Underground gate valves with roadway boxes need not be supervised."

7.1.3 Delete the words "other than those complying with Section 6.3."

7.6 Add at the end the following: "as modified for New York City."

Chapter 8 Sprinkler Position and Location

8.3.4 Add the following after the word "garages": "provided that at least one sprinkler head is located within 3 feet (914 mm) of any communicating opening between the garage and the dwelling."

8.3.5 Add after the word "attics", the words "without floors".

Chapter 9 Protection from Freezing

9.2.3.1.1 Delete and replace with the following: "Arrangement of supply piping to an anti-freeze system shall be in accordance with NFPA-13-2016 as modified for New York City."

9.2.3.1.2 Delete.

9.2.3.1.3 Delete.

9.2.3.1.4 Delete.

9.2.3.2 Delete.

9.2.3.2.1 Delete.

9.2.3.2.2 Delete.

9.2.3.2.3 Delete.

Chapter 10 Discharge and Hydraulic Calculations

10.4.2.2 Delete the words "unless smaller sizes are permitted by Section‡ 10.4.2.3."

10.4.2.3 Delete.

Chapter 11 System Acceptance

11.2.1.1 Delete and replace with the following: "Where a Fire Department pumper connection is not provided, the system shall be hydrostatically tested for leakage at 50 psi (344 kPa) above normal system operating pressure and checked visually for leakage at each joint or coupling."

11.2.1.2 Add the following to the end: "As modified for New York City. Dry systems shall also be tested by placing the system under 40 pounds (2.8 bar) air pressure. Any leak that results in a drop in system pressure greater than 2 psi (0.14 bar) in 24 hours shall be corrected. Check for leaks using soapy water brushed on each joint or coupling. Leaks will be shown by the presence of bubbles. This test shall be made prior to concealing of piping."

Chapter 12 Inspection, Testing, and Maintenance

12.1 Add at end the following: "The owner is responsible for the maintenance of the system."

ANNEXES

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Annex A Explanatory Material

A.5.2.3.2 Delete.

Figure A.6.2(c) Delete the "Fire sprinkler shutoff valve (supervised or lockable)*" shown.

A.6.3 Delete.

Figure A.6.3(a) Delete.

Figure A.6.3(b) Delete.

Figure A.6.3(c) Delete.

Figure A.6.3(d) Delete.

A.10.4.2.3(1) Delete.

Figure A.10.4.2.3(1) Delete.

Annex B Informational References No changes.

SECTION BC Q104
INSTALLATION OF SPRINKLER SYSTEMS IN RESIDENTIAL OCCUPANCIES

Q104.1 General. Sprinkler systems, where required by this code, shall be installed in accordance with NFPA 13R, *Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*, 2016 edition, modified for New York City as follows. Refer to the rules of the department for any subsequent additions, modifications or deletions that may have been made to this standard in accordance with Section 28-103.19 of the *Administrative Code*.

Chapter 1 Administration

1.1 Delete after the word "including" and replace with the following: "six stories in height in buildings not exceeding 60 ft (18.3 m) in height above grade plane."

1.2.3 Add at end the following: "in accordance with the *New York City Building Code*."

Chapter 2 Referenced Publications

2.1 Add at end the following: "Where a referenced publication has been modified for the City of New York by the *New York City Building Code* or the rules of the Department of Buildings, every reference to such publication shall be deemed to include all such modifications. Where the edition of a publication referenced within this standard differs from the edition provided for the same standard in Chapter 35 of the *New York City Building Code*, the edition provided for in Chapter 35 of the *New York City Building Code* shall govern."

Chapter 3 Definitions

3.3.6 Delete after the word "walls."

‡‡‡ **3.3.9** Delete (Use definitions contained in the *New York City Building Code*).

Chapter 4 General Requirements No changes.

Chapter 5 System Components

5.2.1 Add at the end the following: "Non-metallic pipe shall be used in wet systems only when standpipe is not present."

5.2.11 Add at the end the following: "in accordance with the *New York City Plumbing Code*."

5.4.2(1)‡ Delete and replace with the following: "Antifreeze systems – Only glycerin type anti-freeze is permitted for use in systems containing non-metallic pipe or fittings."

Chapter 6 Installation

6.5.4 Delete and replace with the following: "Sprinkler Interior Protected Glazing. Where sprinklers are used in combination with glazing as an alternative to a required fire-rated wall or window assembly, the sprinkler-protected assembly shall be approved by the commissioner and shall comply with the following:

"(1) Sprinklers shall be listed as specific application window sprinklers unless standard spray sprinklers are specifically permitted by the commissioner."

"(2) Sprinklers shall be supplied by a wet pipe system."

"(3) Where the assembly is required to be protected from both sides, sprinklers shall be installed on both sides of the glazing."

"(4) The use of sprinkler protected glazing shall be limited to non-load-bearing walls."

"(5) The water supply duration for the design area that includes the window sprinklers shall not be less than the required rating of the assembly."

6.6.6* After the word "attics" add the words: "without floors".

Add **6.6.10** to read as follows: "Location of sprinklers installed in buildings classified in occupancy group R-1 shall be in accordance with the requirements of the *New York City Building Code* and NFPA-13-2016 as modified for New York City."

6.8.2 Delete and replace with the following: "Except for the meter set controlling combined domestic water and fire sprinkler systems, sectional control valves and other valves if provided in supply pipes to sprinklers shall be locked open and supervised open by one of the following methods:"

"(a) Supervising station, proprietary or remote station signaling service, or"

"(b) Local signaling service that will cause the sounding of an audible signal at a constantly attended point."

"Exception: Underground gate valves with roadway boxes need not be supervised."

6.11 Delete and replace with the following: "Fire Department Connection. Except in buildings classified in occupancy group R-1, at least one 3 in. (76 mm) single inlet Fire Department connection shall be provided and located in accordance with the *New York City Building Code*. Buildings classified in occupancy group R-1 shall be provided with two-way Fire Department connections in accordance with the referenced standard NFPA-13-2016 as modified for New York City. A Fire Department connection is not required in one-and two-family dwellings."

6.11.1 Delete.

6.11.2 Delete.

6.11.5 Delete.

Chapter 7 Discharge Criteria No changes.

Chapter 8 Plans and Calculations No changes.

Chapter 9 Water Supply

9.3 Add the following as item (5):

"(5) A common supply main to the building, serving both sprinklers and domestic uses, may be used if provision is made to prevent flow on the domestic water system upon operation of sprinklers, and closure of the main sprinkler control valve (the house control valve) will shut off the domestic water supply."

9.6 Delete.

Chapter 10 System Acceptance

10.1.2 Delete.

Figure 10.1.2 Delete.

10.1.3 Delete.

Chapter 11 Care and Maintenance

11.3 Delete and replace with the following: "Sprinkler systems shall be inspected, tested, and maintained in accordance with the *New York City Fire Code* and with the rules of the Fire Department."

11.4 Delete.

ANNEXES

The annexes are not a part of the requirements of this Referenced Standard but are included for informational purposes only. These annexes contain explanatory material, numbered to correspond with the applicable text paragraphs. In the event of any conflict between the Annexes and the body of the Referenced Standard, particularly where modifications have been made for New York City, the body of the Referenced Standard will govern.

Annex A Explanatory Material

A.1.1 Delete the words "four stories" and replace with the words: "six stories".

A.5.2.12.2 Delete.

A.9.6 Delete.

Table A.9.6(a) Delete.

Table A.9.6(b) Delete.

Annex B Informational References No changes.

SECTION BC Q105
INSTALLATION OF STANDPIPE AND HOSE SYSTEMS

Q105.1 General. Standpipe and hose systems, where required by this code, shall be installed in accordance with NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*, 2016 edition, modified for New York City as follows. Refer to the rules of the department for any subsequent additions, modifications or deletions that may have been made to this standard in accordance with Section 28-103.19 of the *Administrative Code*.

Chapter 1 Administration No changes.

Chapter 2 Referenced Publications

2.1 Add at end the following: "Where a referenced publication has been modified for the City of New York by the *New York City Building Code* or the rules of the Department of Buildings, every reference to such publication shall be deemed to include all such modifications. Where the edition of a publication referenced within this standard differs from the edition provided for the same standard in Chapter 35 of the *New York City Building Code*, the edition provided for in Chapter 35 of the *New York City Building Code* shall govern."

Chapter 3 Definitions

3.3.3.1 Delete and replace with the following: "Fire Department Connection (FDC)."

3.3.3.1.1 Delete and replace with the following: "Standpipe System Fire Department Connection (Standpipe FDC). A connection through which the fire department can pump water to a standpipe system at the required system demand. Supplemental water can also be provided into the sprinkler system or other system furnishing water for fire extinguishment to supplement existing water supplies. Unless otherwise allowed in the *New York City Building Code*, FDCs shall be 2-way connections."

3.3.3.1.2 Delete.

3.3.5.1 Delete the words 'NFPA 101' and replace with 'the *New York City Building Code*'.

3.3.6 Delete and replace with the following: "Fire Department. The New York City Fire Department (FDNY)."

3.3.7 Add at end the following: "For the purposes of this section, a penthouse of any area with an occupant load greater than 10 shall be considered a story."

3.3.8 Delete the words "or reel".

3.3.9.1.1 Delete.

3.3.18 Delete.

3.3.19.2 Delete the words "trained personnel" and replace with "building occupants".

3.3.19.3 Delete the words "trained personnel" and replace with "building occupants"‡. Add at end the following: "The hose stations shall be attached to the hose connections by a reducing coupling."

3.3.21 Delete the words "and exclusive of pressure from the fire department connection".

Add **3.3.24** to read as follows: "3.3.24 Zones"

Add **3.3.24.1** to read as follows: "Standpipe System Zone. A vertical subdivision of a standpipe system limited or determined by the pressure limitations of the system components. Standpipe System Zones shall not exceed 300 feet (91.4 m) in height."

Add **3.3.24.2** to read as follows: "Fire Department Connection (FDC) Zone. A vertical subdivision of a standpipe system in buildings with more than two standpipe system zones arranged so that the Fire Department will pump through express FDC risers to upper zones."

Chapter 4 System Components and Hardware

4.2.2 Delete and replace with the following: "Pipe for buried portions of the standpipe system, whether inside or outside of the building, shall be red brass, ductile iron, hard tempered type "K" copper tubing, galvanized steel or other approved corrosion resistant material. All such pipe, other than ductile iron, shall be adequately wrapped or otherwise protected against corrosion."

Add **4.2.2.1** as follows: "Where ductile iron pipe is installed in accordance with Table 4.2.1, it shall be lined in accordance with AWWA C 104, *Cement-Mortar Lining for Ductile-Iron Pipe and Fittings*."

4.2.3 Add at end the following: "Piping conforming to the specifications contained in this section may only be used in buildings with floor heights not exceeding 300 feet (91.4 m) above grade plane or in the highest 300 feet (91.4 m) portion of other buildings. Otherwise, piping conforming to the wall thicknesses specified in Section‡ 4.2.4 shall be used."

4.4.1.2 Delete.

4.4.2.2.2 Replace "NFPA 51B" with "the *New York City Fire Code*".

4.4.2.2.3 Replace "NFPA 51B" with "the *New York City Fire Code*".

4.5.1 Add at end the following: "6 inch (152 mm) and larger sectional and riser control valves shall have a minimum $^{3}/_{4}$ inch (19.1 mm)‡ valved bypass."

‡‡‡ **4.6.2.1** Delete and replace with the following: "Class III Standpipe Hose Stations. Class III standpipe systems shall have $2^{1}/_{2}$ in. (64 mm) hose connections located as required for Class I standpipes. At each hose connection there shall be a hose station. The hose stations shall be equipped with a minimum of 125 feet (38.1 m), or a maximum of 150 feet (45.7 m), of $1^{1}/_{2}$ in. (38 mm) fire hose, connected to an adjustable fog nozzle. The hose shall be attached to the hose connection by a $2^{1}/_{2}$ in. × $1^{1}/_{2}$ in. (64 mm × 38 mm) non-swivel reducing coupling. A pressure restricting device shall be installed on the $2^{1}/_{2}$ in. hose connection when required by Appendix Q of the *New York City Building Code*. The hose shall be mounted on a rack and may be located in a cabinet, in accordance with Section 905.7 of the *New York Building Code*. The hose, pressure restricting device (when required) and reducing coupling shall be installed in such a manner that they can be readily removable by the Fire Department."

4.6.2.2 Delete.

4.6.3.2 Delete.

4.6.4 Delete "for Class II service".

4.6.5 Delete and replace with the following: "Label. Each rack or storage facility for $1^1/_2$-in. (40-mm) hose shall be provided with a label that shall include operating instructions."

4.7.2. Delete and replace with the following: "Hose connections shall have nominal $2^1/_2$ inch (64 mm) threads conforming to FDNY standards."

4.7.3 Add at end the following: "Caps are not required to be listed and shall be brass upon completion of construction and are permitted to be impact-resistant plastic during construction."

4.7.4 Delete.

Add **4.7.6** to read as follows: "Pressure-reducing valves shall not be installed as hose valves or installed downstream of hose valves."

4.8 Delete entire section, including all subsections and replace with the following: "Fire Department Connections (FDCs). (See Figure A.6.4.)"

Add **4.8.1** to read as follows: "FDCs shall be listed or approved for a working pressure equal to or greater than the pressure requirement of the system demand."

Add **4.8.2** to read as follows: "Each FDC shall have at least two 3-inch (76 mm) internally threaded swivel fittings having threads conforming to FDNY standards and be of a minimum size of 5 inches (127 mm) except where supplying a single 4-inch (102 mm) standpipe riser, in which case the minimum size shall be 4 inches (102 mm)."

Add **4.8.2.1** to read as follows: "FDCs shall be provided as follows:"

"(a) One FDC shall be provided for each 300 feet (91.4 m) of exterior building wall or fraction thereof facing upon each street or public space."

"(b) Where buildings face upon two parallel streets or public spaces without an intersecting street or public space, one FDC shall be provided for each 300 feet (91.4 m) of exterior building wall or fraction thereof facing upon each such parallel street or public space."

"(c) Where a building faces upon two intersecting streets or public spaces and the total length of the exterior building walls facing upon such streets or public spaces does not exceed 300 feet (91.4 m) only one FDC need be installed provided the FDC is located within 15 feet (4.6 m) of the corner and on the street with the longest building frontage."

"(d) Where a building faces on three streets or public spaces, one FDC shall be provided for each 300 feet (91.4 m) of building wall or fraction thereof facing upon such streets or public spaces provided that at least one FDC is installed on each of the parallel streets or public spaces, and further provided that the FDCs shall be located so that the distance between them does not exceed 300 feet (91.4 m)."

"(e) Where a building faces upon four streets or public spaces, at least one FDC shall be provided on each street front or public space; however, only one FDC need be provided at the corner of two intersecting streets or public spaces if the FDC is located within 15 feet (4.6 m) of the corner and on the street with the longest building frontage or public space, and if the distances between FDCs, in all cases, do not exceed 300 feet (91.4 m)."

"(f) In any case where the exterior building walls of a building facing a street or public space are obstructed in part by another building, one FDC shall be provided for each clear three hundred feet of exterior building wall or fraction thereof facing upon such street or public space."

"(g) High-rise buildings shall have at least two remotely located fire department connections. In high-rise buildings with multiple FDC zones, each FDC zone shall have two remotely located fire department connections."

"(h) Location."

"(1) FDCs shall be placed between 18 inches (457 mm) and 36 inches (914 mm) above the sidewalk level."

"(2) FDCs shall be of the flush, free standing or exposed type, and with the exception of the swivels, caps, and plugs, shall not project beyond the street property line. The riser pipe to a free standing FDC shall be red brass. When FDCs are installed in wall recesses, the recesses shall be of ample size to permit convenient hose attachment."

"(i) Check valves. Each FDC shall be provided with a swing-type check valve inside of the building or in a valve pit outside of the building."

"(j) FDC Express Riser Check Valves. In addition to the check valve required in (h), each FDC express riser supplying an upper FDC zone shall be provided with a swing-type check valve located at the connection between the express riser and the high zone standpipe system and located at the level of such connection."

"(k) Drip valves. A $^3/_4$ inch (19 mm) automatic ball drip valve shall be placed between the FDC and the check valve, except that on a fireboat FDC, a $^1/_2$ inch (13 mm) open drip without a shutoff may be used. Automatic ball drips shall be placed in the horizontal position."

"(l) Fire Department Connection Zones. FDCs shall be arranged in maximum FDC zone heights of 600 feet (15 240 mm), supplying no more than two standpipe system zones. A normally closed valved interconnect shall be provided at the highest point between each FDC zone interconnecting the zones. FDC express riser piping shall not be installed in stairway enclosures but may be installed in any other protected shaft."

"(m) Sectional Valves. Sectional valves shall be provided in all standpipe risers at 100 foot (30 480 mm) vertical intervals. This does not apply to FDC express risers."

Add **4.8.3** to read as follows: "FDCs shall be equipped with approved plugs or caps, properly secured, and arranged for easy removal by fire departments. Caps shall be painted red, except that the caps for combination standpipe and sprinkler systems shall be painted yellow, and caps for sprinkler systems only shall be painted green."

Add **4.8.4** to read as follows: "FDCs shall be of an approved type."

4.10 Add at end the following: "All interior signage shall have a red background with minimum 1-inch high white letters. All exterior signage shall have a white background with minimum 1 inch (25 mm) high red letters."

Chapter 5 System Requirements

5.1.3 Add at end the following: "and Section 905 of the *New York City Building Code*."

5.3.2.1 Delete and replace with the following: "Class II systems are not allowed."

5.3.2.2 Delete.

‡‡‡ **5.3.3** Delete and replace with the following: "Class III Systems. Class III standpipe systems shall have $2^1/_2$ in. (64 mm) hose connections located as required for Class I standpipes in Section 905.4 of the *New York City Building Code*. At each hose connection there shall be a hose station. The hose stations shall be equipped with a minimum of 125 feet (38.1 m), or a maximum of 150 feet (45.7 m), of $1^1/_2$ in. (38 mm) fire hose, connected to an adjustable fog nozzle. The hose shall be attached to the hose connection by a $2^1/_2$ in. × $1^1/_2$ in. (64 mm × 38 mm) non-swivel reducing coupling. A pressure restricting device shall be installed on the $2^1/_2$ in. hose connection when required by Appendix Q of the *New York City Building Code*. The hose shall be mounted on a rack, and may be located in a cabinet, in accordance with Section 905.7 of the *New York City Building Code*. The hose, pressure restricting device (when required) and reducing coupling shall be installed in such a manner that they can be readily removable by the Fire Department."

5.3.3.1 Delete.

5.3.3.2 Delete.

5.3.3.2.1 Delete.

5.4.1.1 Delete the words "automatic dry," and delete the words "semiautomatic dry, manual dry," and add at end the following: "unless otherwise permitted in the code."

5.4.1.2 Delete the words "automatic or semiautomatic" and replace with "automatic wet".

5.4.2.1 Delete.

5.5.2.1 Add at end the following: ", except for pressure-restricting devices supplying hose outlets."

5.5.2.2 Add at end the following: ", except for pressure-restricting devices supplying hose outlets."

Chapter 6 Installation requirements

6.1.2.1 Add at end the following: "and in accordance with the requirements of Section 905 of the *New York City Building Code*."

6.1.2.2 Delete the words "in accordance with Table 6.1.2.2" and replace with "in accordance with the requirements of Section 905 of the *New York City Building Code*."

6.1.2.2.4 Add the following at the end: "in accordance with the *New York City Building Code*."

Table 6.1.2.2 Delete.

6.1.2.3.1 Add at end the following: "All parts of the standpipe systems that may be exposed to frost shall be protected from freezing by any one of the following methods:"

"(1) The piping shall be frost proofed with insulation having a thermal conductance of 0.1 Btu/hr. per square foot of surface per degree F at a mean temperature of 70 to 75 degrees F (21°C to 24°C). Insulation shall be protected to prevent water infiltration, and when exposed to the weather the insulation shall be covered with a 45-pound (20 kg) roofing felt jacket or equivalent."

"(2) Steam or listed heat tracing may be used in conjunction with the insulation."

"(3) Tanks subject to freezing temperatures shall be protected."

6.2 Delete the words "NFPA 24" and replace with "the *New York City Building Code*".

6.3.1.1 Add at end the following: "Check valves other than those in Fire Department and fire pump line shall be provided with an O.S.&Y. or indicating shutoff valve (with indicator readily visible from the floor) that is flanged, mechanically coupled or wafer type and connected to the inlet and outlet of such check valves. The valves on the suction and discharge of the fire pump, in accordance with NFPA 20, shall be deemed to comply with this requirement when the discharge valve is placed on the discharge side of the check valve. One of the shutoff valves placed on each side of the tank check valve may be of the remote-control type, and when used, shall be on the downstream side of such check valve."

6.3.2 Add at end the following:

"(1) "Riser control valves. Riser control valves shall, where practical, be located within a required stair enclosure serving the entrance floor. Where the stair enclosure extends to the basement or cellar, the riser control valve may be located within the stair enclosure at or in the basement or cellar ceiling, providing that a sign indicating the valve location is installed within the stair enclosure at the entrance floor. The hose outlet valve for the entrance floor shall be located on the riser side of the riser control valve. Riser control valves shall not be required on a standpipe that supplies only one or two hose outlet valves."

"(2) Sectional valves. Sectional valves shall be provided in all standpipe risers at 100 foot (30.5 m) vertical intervals. This does not apply to FDC express risers."

"(3) Operation. Each valve shall be so designed and installed as to permit its manual operation at the valve location. Pressure ratings and the name of the manufacturer shall be cast raised or depressed on each valve used in the system."

"(4) Remotely Controlled Valves. Where riser control or section valves are located outside of a required stair enclosure, the valves shall be of such type and so installed so as to be remotely operated by either electric motors or hydraulic means. The remote control shall be from either the entrance floor or from a fire pump room. Operating devices shall be grouped, suitably housed, and kept locked with a Fire Department lock and key. The door of the housing shall be embossed to indicate the purpose of the device. Instructions for operating the remote valves by the control device shall be legible, detailed, and complete, and shall be permanently secured to the inner face of the door. The position of each remotely controlled valve, whether opened or closed, shall be indicated at its remote-control point and also at the valve."

"(5) Access. Valves shall be readily accessible for inspection, repair, and use. If the valve is placed so that its operating mechanism is more than 7 feet (2.1 m) above a floor or stair landing, a 12 inch (305 mm) wide wrought iron, steel or equivalent ladder securely fastened shall be provided for access to the valve. In lieu of a ladder, chain operated mechanisms are permissible and shall be padlocked securely in place."

"(6) Marking. Each control valve shall be conspicuously marked with the number assigned to it on the riser diagram for the standpipe system. Metal numbered tags at least 2 inches (51 mm) in diameter shall be securely

attached to the valve. Each valve shall have a metal sign stating "STANDPIPE CONTROL VALVE" securely hung from the valve."

"(7) Supervision. Each control valve not remotely controlled shall be electrically supervised in its normal position. If the normal position is the closed position, a metal placard stating such fact shall be conspicuously attached to the valve."

6.3.4 Add at end the following: "Wafer type control valves may not be used in pump suction piping."

6.3.7.1 Replace the words "isolation control valves'" with "sectional valves".

6.3.7.1(3) Add at end the following: "only permissible when no fire alarm system is present."

6.3.7.1(4) Delete.

Add **6.4.2.3** to read as follows: "In addition, each high zone FDC zone shall be provided with a swing-type check valve located at each connection between the high zone FDC express riser and the high zone standpipe system and located at the level of such connection."

‡‡‡ **6.4.5.2** Delete and replace with the following: "Marking. Each fire department connection shall be marked as follows:"

"(1) Each FDC shall be provided with caps painted red, and shall have the word "STANDPIPE" in letters 1 inch (25 mm) high and $^1/_8$ inch (3.2 mm) deep cast in the body or on a nonferrous metal plate secured to the connection or mounted on the wall in a visible location."

"(2) Caps of each FDC used for combination standpipe and sprinkler systems shall be painted yellow and the words shall read "COMBINATION STANDPIPE AND SPRINKLER SYSTEMS"."

"(3) Where FDCs serve other than the entire building, the connections shall be marked in accordance with the specifications of this section "LOW ZONE" or "HIGH ZONE" and indicate the floors served. If there are more than two FDC zones, the marking shall be approved by the Fire Department."

"(4) For manual systems, the sign shall also indicate that the system is manual and that it is either wet or dry."

6.4.5.2.1 Delete.

6.4.5.2.2 Delete.

6.4.6 Delete "48 in. (1219 mm)" and replace with "36 in. (914 mm)."

Chapter 7 Design

7.1.1 After the word "used," insert the following: "in accordance with Section‡ 7.9.3.1."

7.2.1 Add at the end the following: "Maximum height of each standpipe system zone is limited to 300 feet (91.4 m)."

7.2.2 Delete and replace with the following: "FDC express riser piping shall be permitted to be designed with pressures in excess of 350 psi (24 bar) in accordance with their materials listings or as approved."

7.2.2.1 Delete.

‡‡‡**7.2.3.1** Delete and replace with the following: "Where the residual pressure at the $1^1/_2$ in outlet of a Class III hose station exceeds 100 psi (6.9 bar), an approved pressure restricting device shall be provided to limit the residual pressure at the flow required by Section 7.10 to 100 psi (6.9 bar). This pressure-restricting device shall be installed on the $2^1/_2$ in. hose connection outlet between the connection and the hose."

7.2.3.1.1 Delete and replace with the following: "Section 7.2.3.1 shall not apply to Class I outlets without hose installed."

7.2.3.2 Delete and replace with: "Reserved."

7.2.3.3 Delete the words "pressure-regulating device" and replace with "pressure-restricting device".

7.2.4 Delete and replace with the following: "Hose connections shall not be located downstream of pressure-reducing valves, except when allowed by Section 7.9.3.1 or when approved by the commissioner."

7.3.2 Delete and replace with the following: **"Class I Systems.** Where required to be provided, hose connections shall be located in accordance with the requirements of Section 905 of the *New York City Building Code*. Class I standpipe hose connections shall be provided in all of the following locations:"

"(1) In every required stairway, a hose connection shall be provided for each floor level. Hose connections shall be readily accessible and located at the riser on each floor-level landing and on the entrance floor above the standpipe riser control valve. Nonrequired enclosed stairways that do not serve as a means of egress are not required to have hose connections. Stairways without hose connections shall have a sign on the door to the stairway stating, "No standpipe connections in stairway"."

"(2) On each side of the wall adjacent to the exit opening of a horizontal exit."

"Exception: Where floor areas adjacent to a horizontal exit are reachable from exit stairway hose connections by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the horizontal exit."

"(3) In every exit passageway at the entrance from the exit passageway to the other areas of a building."

"Exception: Where floor areas adjacent to an exit passageway are reachable from exit stairway hose connections by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the entrance from the exit passageway to other areas of the building."

"(4) In covered mall buildings, in accordance with Section 905.3.3.2."

"(5) Where the roof has a slope of less than four units vertical in 12 units horizontal (33.3-percent slope), each standpipe shall be provided with a hose connection located either on the roof or at the highest landing of stairways with stair access to the roof. An additional hose connection shall be provided at the top of the most hydraulically remote standpipe for testing purposes. This additional hose connection shall not be required when a roof manifold is installed in accordance with Section 7.3.2.1."‡

"(6) Where the most remote portion of a floor or story is more than 150 feet (45 720 mm) from a hose connection, additional hose connections shall be provided in approved locations. For the purposes of this section, a penthouse with an occupant load greater than 10 shall be considered a story."

"(7) In any staircase where the change in elevation between floor landings is more than 25 feet (7.6 m), in addition to the hose connections required by paragraph 1, a hose connection shall be installed at the first intermediate stair landing below the higher floor level."

7.3.2.1 Delete and replace with the following: "Roof Manifold. At the top of the highest riser there shall be provided, above the main roof level, a three-way manifold equipped with three $2^1/_2$ inch (63.5 mm) hose valves with hose valve caps. The lowest valve shall be located with the hose end at least 18 inches (457 mm) above the roof and the highest valve with the hose end not more than 60 inches (1524 mm) above the roof. The manifold may be set in a horizontal or vertical position, provided the hose outlets are set back between 18 inches (457 mm) and 60 inches (1524 mm) above the roof level. Where the manifold is located other than within a heated stair enclosure, the control valve shall be located in a horizontal run of piping below the roof, with a long stem extending through the roof and equipped with a wheel handle at its upper end at least 12 inches (304.8 mm) above the roof. Between the control valve and the manifold there shall be provided within the heated space a $^1/_2$ inch (12.7 mm) open drip or a $^3/_4$ inch (19 mm) automatic ball drip, with the drip pipe extended to spill over a plumbing fixture or drain."

7.3.2.1.1 Delete.

7.3.2.2 through **7.3.2.12** Delete.

7.3.3.1 Delete and replace with the following: "Class II systems are not permitted."

7.3.3.2 Delete.

7.3.4 Delete and replace with the following: "Class III Systems. Class III systems shall be provided with hose connections as required for Class I systems."

7.3.4.1 Delete and replace with the following: "Where a building is protected throughout by an approved automatic sprinkler system in accordance with NFPA 13 or NFPA 13R, hose stations shall not be required provided that the requirements of Section 905.3 of the *New York City Building Code* are complied with."

7.3.4.1.1 Delete.

7.3.4.1.2 Delete.

7.4 Replace the words "Separate standpipes" with "Separate standpipe risers".

‡‡‡ **7.5.1** Delete and replace with the following: "Where two or more standpipes are installed in the same building or section of building, they shall be interconnected as follows:"

"(1) Standpipe systems that include more than one riser shall have all risers cross-connected at, or below, the lowest level of fire department access, except as otherwise provided in this section.

risers supplied from each zone will be cross-connected below, or in, the story of the lowest hose outlets from the water source in each zone. Horizontal intermediate check valves shall be installed in the run of each riser con"(2) Standpipe systems that have one or more standpipe system zone shall be so designed and installed that the tinuing into a higher zone in such manner as to permit all upper zones of the system within each FDC zone provided in accordance with Section‡ 4.8.2.1 to be fed through one riser from the zone below and to prevent any lower zone of the system from being supplied from a zone above, except as otherwise required by this referenced standard. FDC zones shall be interconnected in accordance with Section‡ 4.8.2.1(l)."

"(3) Risers supplied by an upper level cross connection shall be provided with manual control valves or remote-control valves, so arranged that risers supplied by the upper level cross connections may independently be shut off from the tank supplies."

"(4) Cross connections shall be at least as large as the largest riser supplied by the cross connection. However, when supplying two, but not more than four 4-inch (102 mm) risers, the cross connection shall not be less than 5 inches (123 mm). The cross connection shall not be less than 6 inches (152 mm) for all other riser combinations."

"(5) Where there is no cellar, cross connections may be hung from the ceiling of the lowest story."

"(6) Each FDC shall be connected to a riser or to a cross connection connecting other Fire Department hose connections or risers within each Fire Department zone provided in accordance with Section‡ 4.8.2.1. The pipe from the FDC to the riser or cross connection shall be 5-inch (123 mm) I.P.S., except that a 4-inch (102 mm) pipe shall be sufficient when such pipe supplies a single 4-inch (102 mm) riser system. The pipe from the FDC shall be run as directly as practicable to the riser or cross connection."

"(7) When tanks are used for the primary water supply, the standpipe systems may use separate riser systems serving, respectively, low and high parts of the building. Separate gravity tanks or pressure tanks may supply each zone, but in every case the standpipe system shall be so designed that every hose outlet of the entire system can be supplied through the required cross connections from every FDC within each FDC zone provided in accordance with Section‡ 4.8.2.1."

7.5.3 Delete.

7.6.1 Delete and replace with the following: "Class I and Class III standpipes in buildings with floor heights less than 150 feet (45.7 m) above grade plane shall be at least 4 inches (100 mm) in size. All standpipes in buildings with floor heights greater than 150 (45.7 m) feet above grade plane shall be no less than 6 inches (150 mm) in diameter."

7.6.2.1 Delete and replace with the following: "In fully sprinklered buildings having a combined standpipe system that is hydraulically calculated, the minimum standpipe size in buildings with floor heights less than 150 feet (45.7 m) above the lowest level of Fire Department vehicle access shall be at least 4 inches (102 mm)."

7.7.2* Delete and replace with the following: "Where an automatic water supply is required for a Class I or Class III standpipe system by Section‡ 5.4, the standpipe system shall be designed so that the system demand can be independently supplied by the attached water supply and each fire department connection provided on the system."

7.7.4 Delete.

7.8.1 Replace the words "100 psi (6.9 bar)" with "65 psi (4.5 bar)".

‡‡‡ **7.9.1** Delete and replace with the following: "Maximum Standpipe System Zone Height. The maximum standpipe system zone height for any building shall be 300 feet (91.4 m). In the lowest zone in a building, such height shall be measured from grad plane, provided that the maximum FDC zone height for the FDC zone that includes the lowest zone is not exceeded. FDC zones shall be arranged in accordance with 4.8. Each standpipe system zone

requiring pumps or tanks, shall be provided with a separate pump or tank. The maximum hose connection outlet pressure in the lowest standpipe zone shall not exceed 210 pounds per square inch."

7.9.1.1 Delete.

7.9.1.2 Delete.

7.9.2 Delete and replace with the following: **"Building Height 300 Feet or Less.** In buildings with occupied floors less than 300 feet (91.4 m) in height above the lowest level of Fire Department vehicle access, water supplies shall be provided by a public waterworks system in accordance with Section‡ 9.1.4(1), by automatic fire pumps in accordance with Section‡ 9.1.4(2), or by gravity tanks in accordance with Section‡ 9.1.4(4)."

7.9.2.1 Delete.

7.9.3 Delete and replace with the following: "Building Height More Than 300 Feet (91.4 m). All standpipe system zones servicing occupied floors located higher than 300 feet (91.4 m) above the lowest level of Fire Department vehicle access shall be equipped with a water supply provided by gravity tanks supplemented by pumps where necessary in accordance with Section‡ 9.1.4."

Add **7.9.3.1** to read as follows: "Building Heights More Than 300 Feet (91.4 m) but No More Than 500 Feet (152.4 m). All standpipe system zones servicing occupied floors located higher than 300 feet (91.4 m) above the lowest level of Fire Department vehicle access but not higher than 500 feet (152.4 m) above grade plane, shall be supplied by a gravity tank equipped with a special service fire pump, in accordance with 9.1.4(4)(l), to boost supply to pressures as required by 7.8. This tank shall also be used to supplement the water supply in the lower standpipe system zone in the building. A pressure-reducing valve bypass shall be provided, where necessary, and arranged to provide water supply from the upper zone to the lower zone at the required pressures. Where a pressure-reducing valve is not necessary to provide required pressures, a normally open bypass shall be provided. Where a pressure-reducing valve is necessary, an additional pressure-reducing valve shall be provided, in parallel, with isolation valves located on the inlet and outlet of each pressure-reducing valve."

Add **7.9.3.2** to read as follows: "Building Heights More Than 500 Feet (152.4 m). Where portions of a standpipe system service floors located higher than 500 feet (152.4 m) above the lowest level of Fire Department vehicle access, each of the building's standpipe system zones shall be provided with dual water supplies consisting of a gravity supply down-feeding from above the highest outlet in the zone and an automatic fire pump up-feeding from below the lowest outlet in the zone. The gravity tanks and automatic fire pumps shall be in accordance with Section‡ 9.1.4 and the following:"

"(1) Gravity tanks shall serve as the gravity supply for one standpipe system zone only. The gravity tank supply for one standpipe system zone may be used as the automatic fire pump suction supply for no more than one other standpipe system zone."

"(2) Gravity tanks shall be located so as to provide the water supply for its standpipe system zone at the required pressures by gravity only. The pressure from this supply may exceed the minimum pressures required by Section‡ 7.8.1 at the top hose connection in the zone by up to 15 percent."

"(3) The gravity supply for the topmost standpipe system zone of the building shall be provided by a gravity tank in accordance with Section‡ 9.1.4(4) and shall be equipped with a special service fire pump, in accordance with Section‡ 9.1.4(4)(l), to boost supply to pressures as required by Section‡ 7.8."

"(4) The topmost standpipe system zone shall have a minimum height of 150 feet (45.7 m) so as to provide a water supply to the next lower standpipe system zone at the pressures required by Section‡ 7.8 by gravity only. Pressures provided by this supply may exceed the minimum pressures required by Section‡ 7.8.1 at the topmost hose connection in the next lower zone by up to 15 percent."

"(5) Gravity tanks may serve as the suction source for the automatic fire pumps serving the next higher standpipe system zone located above the standpipe system zone served by the gravity tank."

7.10.1.3.1.1 Delete the words "(including any hose stream demand)".

7.11.1 Delete.

7.11.2.4 Delete.

7.11.2.5(3) Delete.

7.12.1 Delete and replace with the following: "Fire department connections shall be installed in accordance with Section‡ 4.8."

7.12.1.1. Delete.

7.12.2 Delete.

7.12.2.1 Delete.

7.12.3 Delete entire section, including all subsections.

Chapter 8 Plans and Calculations. No changes.

Chapter 9 Water Supply

9.1.1 Delete the words "and semiautomatic."

9.1.2 Add at the end the following: "Where manual combination standpipe systems are provided in accordance with the provisions of Section‡ 5.4.1.1 of this referenced standard, an automatic water supply sufficient to provide the required sprinkler system demand shall be provided. Where such supply is provided by an automatic fire pump, the minimum pump capacity shall be as required by the sprinkler system demand in accordance with Section 903 of the *New York City Building Code* and NFPA 13. Where such water supply is provided by pressure or gravity tanks, the minimum water supply shall also be as required in accordance with the above."

9.1.3 Delete the words "and semiautomatic."

9.1.4 Delete and replace with the following: "Water supplies from the following sources shall be permitted:"

"(1) Public Water Connection. A public waterworks system where pressure and flow rate are adequate as confirmed by a statement by the Bureau of Water Supply of the Department of Environmental Protection."

"(a) Each service directly supplying a standpipe system, or a fire pump shall be equipped with a control valve located under the sidewalk in a flush sidewalk box located within two feet (610 mm) of the street line, or in such other locations as may be approved by the Department of Environmental Protection. The purpose of each such control valve shall be clearly indicated by the words. "Standpipe Supply Control" cast in the cover of such flush sidewalk box or, in lieu thereof, a metal sign with 1-inch lettering shall be located on the exterior building wall indicating the use and location of the valve."

"(2) Automatic Fire Pumps. Automatic fire pumps connected to an approved water source in accordance with NFPA 20 and the following:"

"(a) Water Supply. Any required automatic fire pump shall draw from two independent street water mains in different streets, except that:"

"(1) any automatic fire pump serving a building classified in occupancy group R-2 that is fully protected by a system of automatic sprinklers may draw from a single water main; and"

"(2) an automatic fire pump may draw from a single water main if augmented by a suction tank or tanks, and if the valves at the meter and pump are provided with tamper switches that are wired to an approved supervising station of an operating fire alarm company. Where two services are installed, one service from the street water main shall be run directly to the pump, and the other service may be used for domestic water supply. The connection from water to the mains to the pumps shall be at least 6-inch (152 mm) pipe size and shall be flushed before connection is made to the system. Connections shall be in accordance with the provisions of the *New York City Plumbing Code* and applicable referenced standards."

"(b) In the event that two separate and distinct water mains are not available as a supply or the street mains cannot produce the required supply, there shall be provided a suction tank, or tanks suitably located and of sufficient capacity to furnish the fire pump with at least a one-half hour supply at the rated capacity of such pump. Suction tanks shall be filled by a 6-inch (152 mm) connection to the water main, controlled by an automatic ball float valve in the suction tank. A 6-inch (152 mm) bypass shall be provided so that pumps may be fed directly from the street water main."

"(c) When a water service supplies both the domestic service and the fire pump, a remote-control valve shall be placed on the domestic service connection at the point where such connection is taken from the city supply or service main. Such remote-control valve shall be controlled from a point near the pump control panel. In lieu of a remote-control valve, a manually operated valve may be installed to shut off the entire domestic water supply to the building, provided such valve is located in the fire pump room and is properly tagged for identification."

"(d) Building Groups. Where a group of two or more buildings, whether connected or separated, are operated under a single ownership, one fire pump may be accepted as the water supply for the group. The pump shall be installed in the building where the maintenance personnel are located, and a metal sign with 1-inch (25 mm) lettering shall be installed in each building at all of the hose outlets on the entrance floor indicating the location of the fire pump."

"(3) Pressure Tanks. Pressure tanks installed in accordance with NFPA 22 and the following:"

"(a) Tank Size. The tank volume shall be the water storage quantity required and an additional air space volume equivalent to one-half of the required water storage space."

"(b) Air-To-Water Ratio. Air-to-water ratio shall be 1 to 2 by volume and may be maintained by automatic electrical controls."

"(c) Air Pressure. An air compressor is provided with suitable automatic control and of sufficient capacity to build up air pressure of at least 75 psig (517 kPa) in the tank within three hours and to maintain thereafter an air pressure between 70 and 80 psig (482 to 552 kPa) The automatic control shall also maintain the proper air-to-water ratio in the pressure tank."

"(d) Water Supply. Pressure tanks shall be supplied with water through a fixed pipe, independent of the standpipe riser and at least two inches (51 mm) in size. The water supply and connection shall be capable of supplying the tank at a rate of at least 75 gpm (5 L/s) without reducing the pressure in the tank. The tank shall have a fixed water level plate on the end opposite the gauge glass, or other equivalent indicating device."

"(e) Level Supervision. All pressure tanks used to provide the required primary water supply of a standpipe system shall be equipped with a high and low air pressure and a high and low water level electrical alarm system."

"(4) Gravity Tanks. Gravity tanks installed in accordance with NFPA 22 and the following:"

"(a) Construction and support of tanks. Tanks for the standpipe system supply shall be constructed and supported in accordance with the provisions of NFPA 22 and applicable provisions of the *New York City Building Code* for loads and structural work. Tanks with a total capacity of 15,000 gallons (56 775 L) or greater shall be multi-compartment type such that no compartment is larger than one half of the required standpipe water supply reserve plus the domestic water reserve in combination tanks. In the alternative, multiple tanks may be provided, provided that the above criteria are met."

"(b) Combination tanks. Gravity tanks may be used to provide the required primary water supply to the standpipe system and may also be used to supply automatic sprinkler and/or domestic water in a building provided all the following conditions are met:"

"(1) The connections to the tank are made in such a manner as to provide the required sprinkler and/or fire standpipe reserve. The domestic supply is above the sprinkler and/or standpipe reserve. Where a standpipe riser is used to supply water to a combination sprinkler and standpipe system as permitted, the connection to the tank shall be made in such a manner as to provide the required sprinkler or standpipe reserve, whichever is greater."

"(2) The connections to the system are made outside of the tank. When connections or piping are installed inside the tank, the piping shall be assembled without couplings and shall be of red brass or approved equivalent material in accordance with the *New York City Plumbing Code* and applicable referenced standards."

"(3) The tank is filled by means of an automatic pump at a rate of not less than 65 gpm (4 L/s)."

"(c) Filling of tanks."

"(1) Gravity tanks shall be filled at the rate of at least 65 gpm (4 L/s). Pipes used to fill the tanks shall not be used for any other purpose; nor shall required fire pumps be used for filling purposes."

"(2) Where there is sufficient pressure in the city water main to fill tanks at the required rate during all hours of each day, and a filling pump is not provided, the connection to the city water supply shall be made near the point where the city water service enters the building."

"(3) A combined fire standpipe reserve and domestic water tank shall only be filled by direct public water connection or separate fill pumps, or direct connection to equipment, or pumps used to supply domestic water systems in accordance with the *New York City Plumbing Code* and applicable referenced standards."

"(d) Emergency drains on tanks. Each tank shall be provided with a drain of at least 4 inches (102 mm). National Pipe Thread. Each drain pipe shall be controlled by a manually operated gate valve located so as to be readily accessible. The drain shall be installed in accordance with the *New York City Plumbing Code* and applicable referenced standards."

"(e) Heating of tanks."

"(1) Where the water in the tank is subject to freezing, the tank shall be equipped with a tank heater in accordance with the provisions of NFPA 22."

"(2) Where the standpipe supply and domestic water supply are combined in a single tank, heating of such tank shall not be required in hotels, multiple dwellings, hospitals, or other occupancies where the domestic supply is drawn upon during all hours of every day of the week."

"(f) Strainer."

"(1) Every standpipe gravity or suction tank shall be provided with a brass or bronze strainer at the discharge to risers or to pump supply lines."

"(2) Each strainer shall have clear openings with an aggregate area equal to, or more than, the required area of the pipe into which the tank discharges. Openings shall be not more than 1 in. (25 mm) nor less than $^1/_2$ in. (13 mm) in diameter."

"(g) Overflow pipe for tanks. Each gravity tank shall be provided with an overflow in accordance with the *New York City Plumbing Code* and applicable referenced standards."

"(h) Access to tanks. Access to the top of each gravity tank shall be by means of a steel, wrought iron or approved equivalent material gooseneck ladder, constructed of flat side bars at least 2 in. by $^3/_8$ in (51 mm by 10 mm), or equivalent, spaced at least 14 in. (356 mm) apart, with round or square rungs at least $^5/_8$ in. (16 mm) thick spaced not more than 12 in. (305 mm) on centers. The ladder shall be rigidly braced and shall not tip outward from the vertical at any point. When ladders exceed 25 ft. (6.1 m) in height, body irons spaced not more than 2 ft. (610 mm) on center and a metal platform at least 14 in. (356 mm) square, rigidly secured to the stringers of the ladder or other type of enclosed safe access, shall be provided near the top of the tank."

"(i) Level Supervision. Gravity tanks shall be equipped with a high and low water level electrical alarm system."

"(j) Where a group of two or more buildings, connected or separated, is operated under a single control, a single gravity tank may be accepted as the primary water supply for the several standpipe systems of such group, provided a dead riser is carried from the bottom of the tank to an underground header or cross connection system and provided each building unit has a post indicator type control valve outside or an O.S.&Y. control valve inside the building at a readily accessible location. The underground cross-connection may not cross any public street without the approval of the city departments having jurisdiction."

"(k) The bottom of the topmost zone gravity tanks shall be located above the highest hose outlet in the zone that such tank supplies, excepting the roof manifold and those hose outlets in a penthouse enclosing mechanical equipment. Pressures may be boosted by use of automatic special service or other fire pump(s) to provide the hose outlet pressures required by Section‡ 7.8 of this referenced standard. Tanks in intermediate zones may be sufficiently elevated to provide the pressures required by Section‡ 7.8 provided that they are also installed in accordance with Section‡ 7.9."

"(l) The special service pump, as required by this standard, may be located anywhere in the zone served, provided that an express piped suction supply is installed from the gravity tank(s) that supply such pump, and such pump is located at a lower elevation than the gravity tank. Special service pumps are to

be installed in accordance with the requirements of Sections‡ 9.1.4(2) - (d), (e), (f) and (h).”

9.1.4.1 Delete.

9.1.5 Delete.

9.2 Delete the words “Class II”.

9.3 Delete and replace with the following: “Minimum Supply for Group R-2 Occupancies. The water supply servicing standpipe systems in Group R-2 occupancies shall be 500 gpm (32 L/s) per zone. If provided with a stored water supply, any gravity tank or intermediate tank shall be a minimum of 15,000 gallons. Water supplies shall comply with the requirements of Section‡ 7.9.”

Chapter 10 Water Supply Testing No Changes.

Chapter 11 System Acceptance

11.4.1 Delete and replace with: “*General. All new systems, including yard piping and fire department connection piping, shall be tested hydrostatically at not less than 300 psi (20.7 bar) or 50 psi (3.5 bar) in excess of the system working pressure, whichever is greater, for 1 hour.”

Add **11.4.1.1** to read as follows: “Individual FDC zones shall be treated as a separate system in determining the hydrostatic test pressures. Standpipe systems being installed in buildings under construction shall be tested in sections up to 100 feet (31 m) in length provided a final test is conducted of the entirely completed system at 115 psi (7.9 bar) at the most remote hose connection.”

11.4.2 Delete and replace with: “The 115 psi (7.9 bar) hydrostatic test pressure shall be measured at the elevation of the highest hose valve in the section being tested.”

Exception: The 200 psi (13.8 bar) test pressure for the topmost 100 feet (31 m) standpipe section in each FDC zone may be measured at the lowest point of the topmost 100 feet (31 m) section.”

11.5.5.1 Delete and replace with the following: “Pressure regulating devices on sprinkler branch line shall be tested according to NFPA 13.”

11.5.5.1.1 Delete.

11.5.5.2 Delete.

Chapter 12 Buildings Under Construction

12.1 Add at end the following: “During construction, alteration or demolition operations, standpipe systems shall comply with this section and Chapter 33 of the *New York City Building Code*.”

12.2 Delete and replace with the following: “Fire Department Connections. FDCs shall be provided as per Section‡ 4.8. The location of the FDC(s) shall be placarded, kept free from obstruction, and identified by a red light.”

Add **12.2.1** to read as follows: “Fire Department Connection Zones. FDCs shall be arranged in maximum FDC zone heights of 600 feet (183 m). FDC express risers shall be provided when necessary.”

12.3 Delete and replace with the following: “Other System Features. The pipe sizes, hose valves, hose, water supply, and other details for new construction shall be in accordance with this standard and Chapter 33 of the *New York City Building Code*. Temporary risers shall be at least 4 inches in (102 mm) diameter for structures less than 450 feet high (137 m) and at least 6 inches (152 mm) in diameter for structures 450 feet (137 m) high or more. There shall be as many risers as will be, or were, required for the permanent system. Each such riser shall be connected to a cross connection that is supplied through FDC(s) at the street level and shall be equipped on each floor with a $2^1/_2$ inch (64 mm) hose outlet valve. The installations shall be made so that each riser, cross connection, and branch line can be plugged or capped when work is not being done on the system.”

12.5.1 Delete and replace with the following: “At least one approved $2^1/_2$ inch (64 mm) hose connection for attaching Fire Department hose shall be provided at each floor level in the exit stairways. In any stairway where the length of travel between floor landings is more than 25 feet (7.6 m), a $2^1/_2$ inch (64 mm) hose connection shall be installed at the first intermediate stair landing below the higher floor level.”

12.5.2 Add at the end the following: "and provided with caps according to Section‡ 4.7.3."

12.8 Delete entire section, including all subsections.

Chapter 13 System Testing, Inspection, and Maintenance No changes.

ANNEXES

The annexes are not a part of the requirements of this Referenced Standard but are included for informational purposes only. These annexes contain explanatory material, numbered to correspond with the applicable text paragraphs. In the event of any conflict between the Annexes and the body of the Referenced Standard, particularly where modifications have been made for New York City, the body of the Referenced Standard will govern.

Annex A Explanatory Material No changes.

Annex B Informational References No changes.

SECTION BC Q106
INSTALLATION OF STATIONARY FIRE PUMPS

Q106.1 General. Fire pump systems, where required by this code, shall be installed in accordance with NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*, 2016 edition, modified for New York City as follows. Refer to the rules of the department for any subsequent additions, modifications or deletions that may have been made to this standard in accordance with Section 28-103.19 of the *Administrative Code*.

Chapter 1 Administration No changes.

Chapter 2 Referenced Publications

2.1 Add at end the following: "Where a referenced publication has been modified for the City of New York by the *New York City Building Code* or the rules of the Department of Buildings, every reference to such publication shall be deemed to include all such modifications. Where the edition of a publication referenced within this standard differs from the edition provided for the same standard in Chapter 35 of the *New York City Building Code*, the edition provided for in Chapter 35 of the *New York City Building Code* shall govern."

Chapter 3 Definitions

3.3.40 Delete and replace with the following: "'On-Site Standby Generator' as per the *New York City Electrical Code*."

3.3.44.5 Add the following sentence at the end: "This definition is for use with this referenced standard only."

3.3.44.11 Add the following sentence at the end: "Multistage, Multiport (fire) Pumps are prohibited in the City of New York."

Chapter 4 General Requirements

4.5.1.2 Delete.

Add **4.6.2.1.1** to read as follows: "Number of sources shall be as required by the *New York City Building Code*."

Add **4.6.2.1.2** to read as follows: "Water drained and/or supplied from fire pump shall not discharge into a potable water source."

4.8 Delete.

4.8.1 Delete.

4.8.2 Delete.

4.12.1.3.1 Delete.

4.13.1.1.2 Delete "fire-rated construction in accordance with Table 4.13.1.1.2" and replace with the following: "a minimum of 2-hour fire-rated construction unless otherwise noted in the *New York City Building Code*."

Table 4.13.1.1.2 Delete.

Add **4.13.1.1.8** to read as follows: "Fire pumps shall be placed on concrete pads at least 12 inches (305 mm) above the pump room floor with a clearance of at least 3 feet (914 mm) maintained on all sides from walls or from other equipment in the pump room. In the event of the use of a vertical shaft centrifugal fire pump, the 12 inches (305 mm) high concrete pad may be omitted, provided the bottom of the electric driving motor and all electrical appurtenances are raised at least 12 inches (305 mm) above the pump room floor."

Add **4.13.1.1.9** to read as follows: "Each automatic fire pump shall be equipped with a 3 inches (76 mm) National Pipe Thread pressure relief valve installed in the pump discharge. Such relief valve shall be set to relieve below the shutoff head of the pump, but above the pressure required to maintain the operating pressure at the highest hose valve. The discharge from the relief valve may be piped back into the suction side of the pump on the pump side of the suction valve provided a visual sight glass is installed in the discharge of the relief valve."

4.13.2.1.2 Delete "not less than the fire-resistance rating of the fire pump room." and replace with the following: "of 2 hours unless otherwise noted in the *New York City Building Code*."

4.13.5.2 Delete.

4.13.7.2 Add at the end the following "Floor drain shall have a minimum outlet size of 4 inches (102 mm)."

4.14.1.2 Delete "or painted on the inside prior to installation with a paint recommended for submerged surfaces."

4.14.2.2 Delete.

4.14.6 Add at the end the following "and the *New York City Fire Code*."

4.15.4.2 Delete.

4.15.6.5 Delete.

4.16.2 Delete.

4.16.5 Delete.

4.16.7 Delete and replace with the following: "A listed swing- or spring loaded-type check valve shall be installed in the pump discharge assembly."

4.16.10 Delete.

4.17.1 Delete "by one of the following methods" and replace with the following: "in accordance with the requirements of Sections 903, 905 and 907 of the *New York City Building Code*. Delete Items (1) through (4)."

Add 4.19.8.1 to read as follows: "The drainage shall not discharge into a potable water supply."

4.20.2.10 Delete.

4.30.2 Delete "applicable NFPA 70 articles" and replace with "*New York City Electrical Code*."

4.31.1.1 Delete.

4.31.1.1.1 Delete.

Chapter 5 Fire Pumps for High-Rise Buildings

5.3.1 Add at the end following "the *New York City Building Code* and the *New York City Plumbing Code*."

5.4 Delete the phrase "or a test header discharging back into the tank with a calibrated nozzle(s) arranged for the attachment of a pressure gauge to determine pitot pressure" and add the following after "shall be required.": "See Section 14.2.1.5 for additional fire pump testing arrangements."

5.6.1.1 Delete and replace with the following: "Water supplies for buildings over 300 feet (91 m) above the lowest level of Fire Department vehicle access shall comply with Section Q105 of the *New York City Building Code*."

5.6.1.1.1 Delete.

5.6.1.1.2 Delete.

5.6.1.1.3 Delete.

5.6.1.2 Delete.

5.6.1.3 Delete.

5.6.1.4 Delete.

5.6.1.5 Delete.

5.6.1.5.1 Delete.

5.6.2 Delete.

Chapter 6 Centrifugal Pumps

6.2.1.1 Delete.

6.2.2.1 Delete.

Chapter 7 Vertical Shaft Turbine-Type Pumps No changes.

Chapter 8 Positive Displacement Pumps No changes.

Chapter 9 Electric Drive for Pumps

9.1.3 Delete: "NFPA 70, Article 695, and all other applicable articles" and add the following sentence at the end: "and the requirements of the *New York City Electrical Code*."

9.2.2*(5) Delete "of Article 695 of NFPA 70" and add the following sentence at the end: "and the requirements of the *New York City Electrical Code*."

9.2.3 Add the following sentence at the end: "Overcurrent protection shall comply with the requirements of the *New York City Electrical Code*."

9.2.3.1 Delete all words after and including "all the following requirements:" and replace with the following: "the requirements of the *New York City Electrical Code*."

9.3.1 Delete and replace with the following: "Where required by the *New York City Building Code*, an alternate power source shall be provided in accordance with the requirements of the *New York City Electrical Code*."

9.6.1.1 Delete and replace with the following: "As per the *New York City Electrical Code* and Chapter 27 of the *New York City Building Code*."

9.6.1.2 Delete.

9.6.2.1 Delete and replace with the following: "As per the *New York City Electrical Code* and Chapter 27 of the *New York City Building Code*."

9.6.2.2 Delete.

9.6.2.3 Delete.

9.6.5.1 Delete and replace with the following: "As per the *New York City Electrical Code* and Chapter 27 of the *New York City Building Code*."

9.6.5.2 Delete.

9.6.5.3 Delete.

9.7 Delete and replace with the following: "Junction Boxes. Where fire pump wiring to or from a fire pump controller is routed through a junction box, such wiring shall be installed as per the *New York City Electrical Code* and Chapter 27 of the *New York City Building Code*."

9.8.1 Delete and replace with the following: "As per the *New York City Electrical Code* and Chapter 27 of the *New York City Building Code*."

9.8.1.1 Delete.

9.8.1.2 Delete.

9.8.2 Delete.

9.8.3 Delete.

9.9 Delete and replace with the following: "As per the *New York City Electrical Code* and Chapter 27 of the *New York City Building Code*."

9.9.1 Delete.

9.9.2 Delete.

9.9.3 Delete.

9.9.4 Delete.

Chapter 10 Electric-Drive Controllers and Accessories

10.1.2.2.2 Add the following sentence at the end: "A placard shall be placed adjacent to the fire pump controller in accordance with the *New York City Electrical Code*."

10.5.2.1.1.2 Delete.

10.5.2.1.1.3 Delete.

10.5.2.5 Delete.

10.5.2.7 Delete.

10.5.3 Delete.

10.5.4 Delete and replace with the following: "Shutdown shall be accomplished by the method in Section‡ 10.5.4.1."

10.5.4.2 Delete.

10.5.4.2.1 Delete.

10.5.4.2.2 Delete.

Chapter 11 Diesel Engine Drive

11.4.1 Add the following sentence at the end: "Fuel supply shall comply with applicable sections of the *New York City Building Code*, the *New York City Mechanical Code* and the *New York City Fire Code*."

11.4.3.1 Delete and replace with the following: "Diesel fuel supplies shall be located in accordance with applicable sections of the *New York City Building Code*, the *New York City Mechanical Code* and the *New York City Fire Code*."

11.5 Add the following sentence at the end: "Exhaust system shall comply with applicable sections of the *New York City Mechanical Code*."

Chapter 12 Engine Drive Controllers

12.1.1 Delete "nonautomatic".

12.7.2.1.1.2 Delete.

12.7.2.1.1.3 Delete.

12.7.2.1.1.4 Delete.

12.7.2.3 Delete.

12.7.2.4 Delete.

12.7.2.5 Delete.

12.7.2.7 Delete

12.7.5.2 Delete.

12.7.5.2.1 Delete.

12.7.5.2.2 Delete.

Chapter 13 Steam Turbine Drive No changes.

Chapter 14 Acceptance Testing, Performance, and Maintenance

Add **14.2.1.1** to read as follows: "Testing shall comply with the manufacturer's requirements."

Add **14.2.1.2** to read as follows: "Testing shall also comply with the *New York City Fire Code*, where applicable."

Add **14.2.1.3** to read as follows: "Fire pump shall be equipped with a listed flowmeter."

Add **14.2.1.4** to read as follows: "Water used in fire pump testing shall not discharge into any source containing potable water."

Add **14.2.1.5** to read as follows: "Acceptance flow testing shall be performed by one of the following four methods:"

"(1) Use of pump discharge via hose streams"

"(2) Use of pump discharge via bypass flowmeter to drain line or suction reservoir. The flowmeter shall be sized per Section‡ 4.21.2 and the drain line shall be sized at a minimum as per Section‡ 4.21.3.4."

"(3) Use of pump discharge via bypass flowmeter to pump suction (closed-loop metering)"

"(4) Use of pump discharge to a suction reservoir with a calibrated nozzle(s) arranged for attachment of a pressure gauge to determine pitot pressure."

14.2.4.1.2 Delete.

14.2.6.4 Delete.

14.2.6.4.1 Delete.

ANNEXES

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Annex A Explanatory Material No changes.

Annex B Possible Causes of Pump Troubles No changes.

Annex C Fire Pump Controller Connectivity No changes.

Annex D Informational Resources Delete.

Annex E Material Extracted by NFPA 70, Article 695 Delete.

SECTION BC Q107
INSTALLATION OF FIRE ALARMS

Q107.1 General. Fire alarm system design, installation, testing, and maintenance, where required by this code, shall be conducted and documented in accordance with NFPA 72, *National Fire Alarm and Signaling Code*, 2016 edition, modified for New York City as follows. Refer to the rules of the department for any subsequent additions, modifications or deletions that may have been made to this standard in accordance with Section 28-103.19 of the *Administrative Code*.

Chapter 1 Administration No changes.

Chapter 2 Referenced Publications

2.1 Add at end the following: "Where a referenced publication has been modified for the City of New York by the *New York City Building Code* or the rules of the Department of Buildings, every reference to such publication shall be deemed to include all such modifications. Where the edition of a publication referenced within this standard differs from the edition provided for the same standard in Chapter 35 of the *New York City Building Code*, the edition provided for in Chapter 35 of the *New York City Building Code* shall govern."

Chapter 3 Definitions No changes.

Chapter 4 Reserved

Chapter 5 Reserved

Chapter 6 Reserved

Chapter 7 Documentation No changes.

Chapter 8 Reserved

Chapter 9 Reserved

Chapter 10 Fundamentals

10.5.1.1 Delete and replace with the following: "Fire alarm system and emergency communication system plans and specifications shall be developed in accordance with the *New York City Building Code* by persons licensed and registered to practice the profession of engineering under the Education Law of the State of New York, who are also experienced in the proper design, application, installation, and testing of the system."

10.5.1.2 Delete.

10.5.2.1 Add at beginning the following: "Fire alarm installations shall be performed by a New York City licensed electrical contractor."

10.5.3.1 Add at beginning the following: "Fire alarm inspection, testing and maintenance shall be performed by a New York City licensed electrical contractor holding a New York State registration for 'Business of Installing, Servicing or Maintaining Security or Fire Alarm Systems' or those fire alarm companies holding a New York State registration for 'Business of Installing, Servicing or Maintaining Security or Fire Alarm Systems,' and in accordance with rules and regulations promulgated by the Fire Commissioner."

10.6.3.1 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.3.2 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.3.3 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.3.4 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.4.1 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.4.2 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.4.3 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.5.1 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.5.2 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.5.3 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.5.4 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.6.1 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.6.2 Delete and replace with the following: "Refer to the *New York City Electrical Code* for requirements."

10.6.7.2.1 Delete and replace with the following: "The secondary power supply for fire alarm systems and supervising station facilities shall have sufficient capacity to operate the system in accordance with the *New York City Electrical Code*. The secondary power supply for other systems shall have sufficient capacity to operate the system under quiescent load (system operating in a nonalarm condition) for a minimum of 24 hours and, at the end of that period, shall be capable of operating all alarm notification appliances used for evacuation or to direct aid to the location of an emergency for 5 minutes, unless otherwise permitted or required by Sections‡ 10.6.7.2.1.1 through 10.6.7.2.2.

10.6.7.2.1.2 Reserved.

10.6.7.2.1.3 Reserved.

10.6.7.2.1.4 Delete and replace with the following: "The secondary power supply for high-power speaker arrays used for wide-area mass notification systems shall be in accordance with Section‡ 24.6.5.2."

Add **10.6.7.2.1.8** to read as follows: "The secondary power supply for two-way voice radio communication enhancement system shall be in accordance with Section‡ 24.9.5.3.1."

Chapter 11 Reserved

Chapter 12 Circuits and Pathways

Add **12.3.6.1** to read as follows: "Class-N circuits shall not be installed unless approved by the Fire Department."

Chapter 13 Reserved

Chapter 14 Inspection, Testing, and Maintenance

14.1.1 Delete and replace with the following: "The inspection, testing and maintenance of systems, their initiating devices, and notification appliances shall comply with the requirements of this chapter and the *New York City Fire Code*."

14.1.2 Delete and replace with the following: "The inspection, testing and maintenance of single- and multiple-station smoke and heat alarms and household fire alarm systems shall comply with the requirements of this chapter and the *New York City Fire Code*."

14.4.9 Delete and replace with the following: "In-building auxiliary radio communication systems (ARCS) shall be inspected and operationally tested in accordance with the requirements of the *New York City Fire Code* and rules promulgated by the Fire Department."

14.6.3 Delete and replace with the following: "Supervising Station Records. For supervising station alarm systems, records pertaining to signals received at the supervising station that result from maintenance, inspection, and testing shall be maintained in accordance with the *New York City Fire Code*."

14.6.3.1 Delete.

14.6.3.2 Delete.

14.6.4 Delete.

Chapter 15 Reserved

Chapter 16 Reserved

Chapter 17 Initiating Devices

Add **17.5.3.2.1** to read as follows: "Partial coverage smoke detection shall be located in common areas and work spaces such as corridors, lobbies, storage rooms, equipment rooms, and other tenantless spaces, where required."

Add **17.5.3.2.2** to read as follows: "Selective coverage smoke detection shall be located as follows:"

"(1) In each mechanical equipment, electrical, transformer, telephone equipment or similar room, in elevator machine rooms, and in elevator lobbies."

"(2) In air distribution systems in accordance with Section 606 of the *New York City Mechanical Code*."

17.10.2.4 Delete and replace with the following: "The selection and placement of the gas detectors shall be based on an engineering evaluation including, but not limited to, the following:

(1) Structural features, size, and shape of the rooms and bays
(2) Occupancy and uses of areas
(3) Ceiling heights
(4) Ceiling shape, surface, and obstructions
(5) Ventilation
(6) Ambient environment
(7) Gas characteristics of the gases present
(8) Configuration of the contents in the area to be protected
(9) Response time(s)"

Chapter 18 Notification Appliances No changes.

Chapter 19 Reserved

Chapter 20 Reserved

Chapter 21 Emergency Control Function Interfaces

21.3.3 Delete and replace with the following: "Unless otherwise required by the authority having jurisdiction, only the elevator lobby, elevator hoistway, and elevator machine room smoke detectors, sprinkler waterflow alarm-initiating devices, or other automatic fire detection as permitted by Section‡ 21.3.9, and initiating devices used to initiate shutdown of elevator power in accordance with Section‡ 21.4 shall be used to recall elevators for fire fighters' service."

21.3.13 Delete and replace with the following: "Separate outputs from the fire alarm systems to the elevator controller(s) shall be provided to implement elevator Phase 1 Emergency Recall Operation in accordance with ANSI/ASME A17.1a/CSA B44a, Safety Code for Elevators and Escalators."

21.3.13.1 Delete and replace with the following: "See ANSI/ASME A17.1a/CSA B44a, Safety Code for Elevators and Escalators, for designated and alternate levels of elevator recall."

21.3.13.2 Delete and replace with the following: "See ANSI/ASME A17.1a/CSA B44a, Safety Code for Elevators and Escalators, for designated and alternate levels of elevator recall."

21.3.13.3 Delete and replace with the following: "See ANSI/ASME A17.1a/CSA B44a, Safety Code for Elevators and Escalators, for designated and alternate levels of elevator recall."

21.4.2 Delete and replace with the following: "If heat detectors are used to shut down elevator power prior to sprinkler operation, they shall be placed within 24 in. (610 mm) of each sprinkler head and be installed in accordance with the requirements of Chapter 17. Upon activation of the heat detector used for elevator power shutdown, there shall be permitted to be a delay in the activation of the power shunt trip. This delay should be the time that it takes the elevator cab to travel from the top of the hoist way to the lowest recall level. Alternatively, engineering methods, such as those specified in Annex B, shall be permitted to be used to select and place heat detectors to ensure response prior to any sprinkler head operation under a variety of the growth rate scenarios."

21.4.3 Delete and replace with the following: "Pressure or water flow switches shall not be used to shut down elevator power."

21.6 Delete section, including all subsections, and replace with the following:

"**21.6** Occupant Evacuation Elevators."

"**21.6.1** Elevator Status. Any elevator specifically designated and marked for use by occupants for evacuation during fires shall comply with all of the provisions of Sections‡ 21.5 and 21.6."

"**21.6.2** Elevator Occupant Evacuation Operation (OEO). Outputs from the fire alarm system to the elevator controller(s) shall be provided to implement elevator occupant evacuation operation in accordance with section 2.27 of ASME A17.1/CSA B44 as modified by Chapter K1 of Appendix K of the *New York City Building Code*, as required in Sections‡ 21.6.2.1 and 21.6.2.2."

"**21.6.2.1** Partial Evacuation. Where an elevator or group of elevators is designed for use by occupants for evacuation, the provisions of Sections‡ 21.6.2.1.1 through 21.6.2.1.4 shall apply for partial evacuation."

"**21.6.2.1.1** Initiation. Output signal(s) shall be provided to initiate elevator occupant evacuation operation upon automatic or manual detection of a fire on a specific floor or floors as a result of either or both of the following:

(1) Activation of any automatic fire alarm initiating device in the building, other than an initiating device used for elevator Phase I Emergency Recall Operation in accordance with Chapter K1 of Appendix K of the *New York City Building Code*.

(2)* Activation of manual means at the fire command center by authorized or emergency personnel."

"**21.6.2.1.2*** Floor Identification.

(A) The output signal(s) shall identify each floor to be evacuated.

(B) The identified floors shall be a contiguous block of floors including the following:

(1) The floor with the first activated automatic initiating device.

(2) Floors with any subsequently activated automatic initiating device(s).

(3) Floors identified by manual means from the fire command center.

(4) One floor above the highest floor identified by Sections‡ 21.6.2.1.2(B)(1) through 21.6.2.1.2(B)(3).

(5) One floor below the lowest floor identified by Sections‡ 21.6.2.1.2(B)(1) through 21.6.2.1.2(B)(3).

(C) The identified floors shall be displayed on a standard emergency services interface along with the other elevator status information required by Section‡ 21.6.1."

"**21.6.2.1.3** Manual Floor Selection.

(A) A means shall be provided at the fire command center to allow the manual selection of floors.

(B) The floors shall be selected on the basis of information from authorized or emergency personnel."

"**21.6.2.1.4*** Occupant Notification. The in-building fire emergency voice/alarm communications system shall transmit coordinated messages throughout the building.

(A) Live voice evacuation messages shall be transmitted to the floors identified in Section‡ 21.6.2.1.2 to indicate the need to evacuate and that elevator service is available.

(B) Live voice messages shall be transmitted to the floors not being evacuated to inform occupants of evacuation status and shall include an indication that elevator service is not available.

(C)* Live voice messages shall be transmitted to the floors identified in Section‡ 21.6.2.1.2 to indicate that elevator service is not available when all elevators have been recalled on Phase I Emergency Recall Operation.

(D) All live voice messages shall be coordinated with the text displays provided separately by the elevator management system."

"**21.6.2.2** Total Evacuation. Where an elevator or group of elevators is designated for use by occupants for evacuation, the provisions of Sections‡ 21.6.2.2.1 through 21.6.2.2.3 shall apply for total evacuation."

"**21.6.2.2.1** Output(s) to signal elevator occupant evacuation operation for total evacuation shall be manually activated from the fire command center by a means labeled "ELEVATOR TOTAL BUILDING EVACUATION.""

"**21.6.2.2.2** The output(s) shall identify that all floors are to be evacuated."

"**21.6.2.2.3** A live voice evacuation message shall be transmitted from the in-building fire emergency voice/alarm communication system throughout the entire building to indicate the need to evacuate."

21.7.3* Delete and replace with the following: "Fan Shutdown and Restart."

Add **21.7.3.1** to read as follows: "Connections between fire alarm systems and the HVAC systems for the purpose of monitoring and control shall be arranged such that primary control (the control that all other controls are secondary or subservient to) capability rests with the fire alarm control unit(s) under all circumstances and in addition shall operate and be monitored in accordance with the *New York City Building Code*.

Exception: Primary control of HVAC systems may rest with approved smoke control systems."

Add **21.7.3.2** to read as follows: "HVAC fans or fan systems which have been automatically shut down by the activation of any fire alarm control unit or device shall be arranged and equipped not to automatically restart when the fire alarm control unit or device is reset. At least two manual means of restarting the fans or fan systems shall be required, such as manually resetting the fire alarm control unit or device and subsequently manually resetting the fan or fan system controls."

Add **21.7.3.3** to read as follows: "Fans or fan systems that were automatically shut down by the fire alarm control unit or device in high rise fire alarm systems shall be manually enabled to start by means of overriding the fan shut down through the use of city-wide standard key (#2642) located at the Fire Command Center and/or Fire Fighters' Smoke Control Station. The actual start of the fans shall be accomplished manually through HVAC controls at the Fire Command Center, Fire Fighters' Smoke Control Station and locally at the fan rooms."

Add **21.7.3.4** to read as follows: "Smoke Exhaust control means shall be enabled through the use of city-wide standard key (#2642) located at the Fire Command Center, Fire Fighters' Smoke Control Station, fire alarm control unit or, in the entrance lobby of the building adjacent to the fire alarm remote annunciator, when provided."

21.9.1 Delete and replace with the following: "Where permitted by the *New York City Building Code*, any device or system intended to electrically lock a required means of egress door in the direction of egress shall be connected to the fire alarm system serving the protected premises and shall automatically unlock upon any activation from the fire alarm system."

21.9.3 Delete and replace with the following: "Where permission is obtained from the commissioner, for all means of egress doors connected in accordance with Section‡ 21.9.1, and where batteries are used in accordance with Section‡ 10.6.7 as the secondary power supply, the batteries shall not be utilized to maintain these doors in the locked condition, unless the fire alarm control unit is arranged with circuitry and sufficient secondary power to ensure the exits will unlock within 10 minutes of loss of primary power."

Chapter 22 Reserved

Chapter 23 Protected Premises Fire Alarm Systems

23.3.2 Delete and replace with the following: "Nonrequired (Voluntary Systems) and Components. The features for a nonrequired system shall be established by the system designer on the basis of the goals and objectives intended by the system owner and subject to the approval of the Fire Department."

23.8.1.1.2(3) Delete and replace with the following: "(3) Subsequent system operation shall be subject to approval of the Fire Department."

Add **23.8.1.1.3** to read as follows: "Group A Occupancies. Presignal systems in Group A occupancies required by Section 907.2.1.1 of the *New York City Building Code* shall operate in the "Event/Non-Event Mode," as follows:

"(1) For the purposes of this section, Event Mode is defined when an assembly space and is occupied by public members with an occupant load in accordance with Section 907.2.1.1 of the *New York City Building Code*. Each assembly space within a structure that meets the occupant load as required in the Section 907.2.1.1 of the *New York City Building Code* shall be equipped with a separate In-Building Fire Emergency Voice/Alarm Communications System."

"(2) The In-Building Fire Emergency Voice/Alarm Communications System shall consist of the following:"

- One-way voice communication"
- Event/Non-Event #2642 Key switch"
- Remote Annunciator if the building fire alarm control panel is not installed in the assembly space"

- "Warden phone to communicate to the base building Fire Alarm Control Panel or Fire Command Center"

"(3) The Event Mode and Non-Event Mode shall be selectable positions in a two-position key switch at the In-Building Fire Emergency Voice/Alarm Communications System operated by city wide standard key (#2642) with visual indication of mode status at the fire alarm control panel or Fire Command Center. A log record shall be maintained for all mode operations identifying the operator, time and date of each such operation of mode and the selected duration of time for Event Mode."

"(4) In the Event Mode, no automatic alarm audible or visual notification signals shall be transmitted to the public or occupants of the place of assembly only. Manual live voice announcements shall be made by the designated Certificate of Fitness holder (F-53) for manual live voice announcements supervising the In-Building Fire Emergency Voice/Alarm Communications System to direct and implement emergency procedures including evacuation."

"(5) The Event Mode shall be adjustable up to a maximum time period duration of eight hours, and shall automatically revert to Non-Event Mode at the expiration of the time period unless manually switched to Non-Event Mode prior to such expiration time. A supervisory signal in addition to the foregoing is not prohibited."

"(6) In the Non-Event Mode, all speakers, horns and visual appliances shall emit alarm notification signals for public notification purposes – the audible signal shall comply with the base building approved fire alarm sequence of operation."

"(7) In the Event Mode, an unacknowledged alarm actuation shall, after the expiration of 180 seconds (3 minutes), automatically revert to Non-Event Mode and cause all alarm appliances to emit notification signals throughout the entire premises without exception, including publicly occupied assembly and support areas. Prerecorded or synthesized voice messages are prohibited."

"(8) The In-Building Fire Emergency Voice/Alarm Communications System shall be accessible within the assembly space to permit the assigned Certificate of Fitness holder (F-53) for manual live voice announcements to assess conditions and effectively direct evacuation of the admitted public."

"(9) The In-Building Fire Emergency Voice/Alarm Communications System shall be manned by a Certificate of Fitness holder (F-53) for manual live voice announcements issued by the Fire Department, during all times that the fire alarm system is in Event Mode."

"(10) A central station connection for manual, automatic and waterflow valve alarm and trouble shall be provided for the fire alarm system, activated automatically in either Event or Non-event Mode."

"(11) The Certificate of Fitness holder (F-53) for manual live voice announcements shall have the ability at the In-Building Fire Emergency Voice/Alarm Communications System to stop any conflicting or confusing sounds and visual distractions, and to illuminate the assembly space."

"(12) In buildings that are not required to have a Fire and Life Safety Director person, a Certificate of Fitness holder (F-01) shall be assigned at the main fire alarm control panel to investigate any alarm conditions and report back to the Certificate of Fitness Holder (F-53) supervising the In-Building Fire Emergency Voice/Alarm Communications System."

"(13) A Certificate of Fitness for Place of Assembly Safety Personnel (F-03/F-04) shall be provided as per the *New York City Fire Code*."

"(14) All Certificate of Fitness holders on duty during Event Mode shall be equipped with a personal communication device that will allow for two-way voice‡ communications."

23.8.5.1.2* Delete and replace with the following: "Where connected to a supervising station, fire alarm systems employing automatic fire detectors or waterflow detection devices shall include a manual fire alarm box to initiate a signal to the supervising station."

Chapter 24 Emergency Communication Systems (ECS)

Add **24.4.10** to read as follows: "One-Way Emergency Voice Communication System."

Add **24.4.10.1** to read as follows: "One-way emergency voice communications equipment shall be installed in accordance with Section‡ 24.4.10."

Add **24.4.10.2** to read as follows: "Fire Department Use. One-way emergency voice communications service, where provided, shall be for use only by the Fire Department or by building personnel authorized to use such service who have obtained a Certificate of Fitness from the Fire Department."

Add **24.4.10.2.1** to read as follows: "Activation. The voice communication panel at the annunciator panel shall be operated only by the Fire Department with activation of city wide standard key (#2642)."

Add **24.4.10.2.2** to read as follows: "Building Personnel Use. If requested by a building owner, building personnel who have obtained a FDNY Certificate of Fitness shall be permitted to utilize the system from a panel at the concierge or security desk."

Add **24.4.10.2.3** to read as follows: "Permitted Variation. Any variation of equipment and system operation, if permitted by the Fire Commissioner, provided in order to facilitate additional uses of any one-way emergency voice communications service shall not adversely affect performance when used by those authorized pursuant to Section‡ 24.4.1.10.2."

Add **24.4.10.2.4** to read as follows: "Speaker Stations. Speaker stations shall be installed in each dwelling unit and on at least every other story in every required vertical exit enclosure."

‡‡‡ Add **24.4.11** to read as follows: "One-way Emergency Voice Communications Circuits in Group R-2 Occupancies. Where a one-way voice communications circuit is provided, such system shall comply with provisions for notification appliance integrity monitoring including Sections 10.19, 12.6, 23.4 and 23.7 and the notification appliance circuits serving the apartments and stairway speakers shall meet the classifications for Class "A" or "X" Pathway Designation per 12.3.1 or 12.3.7. Additionally, outgoing and return conductors feeding the same circuit may not be run in the same stairwell."

Add the following at the end of **24.5**: "In-building mass notification systems shall not be installed unless approved by the Fire Department."

Add **24.6** to read as follows: "Wide-Area Mass Notification Systems."

Add **24.6.1** to read as follows: "Wide-area mass notification systems shall not be installed unless approved by the Fire Department."

24.8.11 Delete and replace with the following: "In buildings provided with a two-way telephone communications system, at least one telephone station shall be provided where required by the *New York City Building Code*."

24.8.15 Delete and replace with the following: "Telephone jacks are prohibited in new buildings and new fire alarm systems in existing buildings."

24.9* Delete and replace with the following: "Two-way Radio Communications Enhancement Systems (In-Building Auxiliary Radio Communication System (ARCS))."

Add **24.9.1.3** to read as follows: "Definitions. The following definitions are applicable to this section only."

Delivered Audio Quality (DAQ). A measure of audio quality over a transmission medium as defined in standards published in TIA/TSB-88C. The following table shows the DAQ descriptions as published in the document:

Delivered Audio Quality (DAQ)	Faded Subjective Performance Description
1	Unusable, speech present but unreadable.
2	Understandable with considerable effort. Frequent repetition due to noise/distortion.
3	Speech understandable with slight effort. Occasional repetition required due to noise/distortion.
3.4	Speech understandable with repetition only rarely required. Some noise/distortion.

4	Speech easily understood. Occasional noise/distortion.
4.5	Speech easily understood. Infrequent noise/distortion.
5	Speech easily understood.

Dedicated Radio Console (DRC). A fixed location console that contains at least the following components:

(1) A handset or headset to broadcast and/or receive voice communications from/to ARCS.

(2) A visual display to identify all signals transmitted from the Firefighter handheld units and supervisory signals.

(3) Fire Department city wide standard key (#2642) to enable/disable radio transmission.

In-Building Auxiliary Radio Communication System (ARCS). Wireless two-way radio communication enhancement system installed in buildings to propagate Fire Department wireless frequencies for the use of the Fire Department in case of an emergency.

Repeater Channel System. A repeater system utilizing channels with paired receive and transmit frequencies. When a user within the building transmits on a repeater channel, the repeater system rebroadcasts the users' signal to the DRC and all users within the building on that channel. This transmission increases the distance from which users can directly talk with each other. A user at the DRC must enable repeater channel for users to communicate.

Simplex Channel System. A simplex system utilizing channels with the same frequencies for transmit and receive. Users communicate on simplex channels radio-to-radio without going through infrastructure. However, their radios need to be within a certain distance to be picked up by one another. A simplex system allows a user at the DRC to communicate with a user on a simplex channel anywhere in the building, even though the distance between the DRC and the user would typically be prohibitive. A simplex system only extends the transmission's reach for the DRC. It does not improve coverage between individual user radios.

Add **24.9.2.1** to read as follows: "Critical Areas. Critical areas, such as the fire/emergency command center(s), the fire pump room(s), exit stairs, exit passageways, elevator lobbies, standpipe cabinets, sprinkler sectional valve locations, and other areas deemed critical by the authority having jurisdiction at the time of plan examination, shall be provided with 100 percent floor area radio coverage."

Add **24.9.2.2** to read as follows: "General Building Areas. General building areas shall be provided with 95 percent floor area radio coverage in accordance with rules promulgated by the Fire Department."

Add **24.9.2.3** to read as follows: "System Types. Buildings and structures that cannot support the required level of radio coverage shall be equipped with either a repeater channel system or a simplex channel system."

Add **24.9.3** to read as follows: "Signal Strength."

Add **24.9.3.1** to read as follows: "Inbound. A minimum inbound signal strength of -95 dBm, or other signal strength as required by the authority having jurisdiction, shall be provided throughout the coverage area and provide a minimum intelligible DAQ of 3.4."

Add **24.9.3.2** to read as follows: "Outbound. A minimum outbound signal strength of -95 dBm at the donor site, or other signal strength as required by the authority having jurisdiction, shall be provided from the coverage area and provide a minimum intelligible DAQ of 3.4."

Add **24.9.4** to read as follows: "System Radio Frequencies. The ARCS shall be capable of transmitting all public safety radio frequencies assigned by the Fire Department and be capable of using any modulation technology."

Add **24.9.4.1** to read as follows: "List of Assigned Frequencies. The Fire Department shall maintain a list of all inbound/outbound frequency pairs for distribution to system designers and installers."

Add **24.9.4.2** to read as follows: "Frequency Changes. Systems shall be capable of upgrade, to allow for instances where the Fire Department changes or adds system frequencies, in order to maintain radio system coverage as originally designed."

Add **24.9.4.3** to read as follows: "Perimeter Coverage. The design of the ARCS shall minimize RF radiation beyond the intended building's limits so as to avoid interference, in compliance with FCC regulations."

Add **24.9.5** to read as follows: "Components and Equipment."

Add **24.9.5.1** to read as follows: "Component Approval. Components utilized in the installation of the public safety radio enhancement system, such as repeaters, transmitters, receivers, signal boosters, cabling, and fiber-distributed antenna systems, shall be FCC compliant, listed by a Nationally Recognized Testing Laboratory (NRTL) and shall be compatible with the Fire Department radio system."

Add **24.9.5.2** to read as follows: "Component Enclosures. All active components including but not limited to repeater, transmitter, receiver, and signal booster components remotely located from the Fire Command Center shall be contained in a listed UL 50E enclosure(s)."

Add **24.9.5.2.1** to read as follows: "The enclosure shall be painted Fire Department Red."

Add **24.9.5.2.2** to read as follows: "A tamper switch shall monitor all active components in non-secure locations located remotely from the Fire Command Center such as amplifiers and repeaters. The notification for the tamper switch shall be monitored at the DRC."

Add **24.9.5.3** to read as follows: "Power Supply. Power supply to the ARCS shall be in accordance with Section 760.41 of the *New York City Electrical Code*.

Exception: Where power supply for the building fire alarm system has adequate capacity to support the ARCS power requirements, connection to the fire alarm system power supply via dedicated branch circuits with appropriate overcurrent protection is permitted."

Add **24.9.5.3.1** to read as follows: "Battery Backup. The ARCS shall be provided with supervisory operations for 24 hours followed by full load operation for 6 hours."

Add **24.9.5.4** to read as follows: "External filters. Permanent external filters and attachments shall not be permitted."

Add **24.9.5.5** to read as follows: "Labeling."

Add **24.9.5.5.1** to read as follows: "Cables."

Add **24.9.5.5.1.1** to read as follows: "Cables utilized in the ARCS shall be labeled as "FDNY Communications Use"."

Add **24.9.5.5.1.2** to read as follows: "Where continuously accessible, the cable shall be marked every 8 feet (2438 mm)."

Add **24.9.5.5.1.3** to read as follows: "Wherever the cable is intermittently accessible, each accessible point shall be labeled."

Add **24.9.5.5.1.4** to read as follows: "Field labeling of the cables shall be acceptable."

Add **24.9.5.5.2** to read as follows: "Dedicated Radio Console Enclosure. The DRC shall be enclosed and the outside of the enclosure shall be labeled the following in white lettering contrasted against a Fire Department Red background:

AUXILIARY RADIO COMMUNICATIONS

Add **24.9.5.5.3** to read as follows: "Cable Rating. All ARCS cables shall be protected such that the circuit shall maintain its electrical function during fire conditions for at least a 2-hour period and the protection shall not interfere with the normal operation of the system as a whole.

Exception: Radiating ARCS cables running horizontally that are not part of the main trunk connecting to a vertical riser shall have a plenum rating with a minimum temperature of 125°C (257 °F)."

Add **24.9.5.5.4** to read as follows: "Cable Installation and Rating."

Add **24.9.5.5.4.1** to read as follows: "All ARCS vertical and horizontal risers, and all cabling from the dedicated radio console and from radio amplification units up to such risers, shall be installed to withstand fire conditions for at least a 2-hour period.

Exception: Where such risers are installed in 2-hour rated exit stairway, 2-hour rated elevator shafts or 2-hour rated inaccessible shafts that contain only non-combustible materials."

Add **24.9.5.5.4.1.1** to read as follows: "All ARCS vertical and horizontal risers shall be plenum rated with a minimum temperature rating of 85°C (185°F)."

Add **24.9.5.5.4.2** to read as follows: "If horizontal non-riser ARCS cables are not installed in a 2-hour rated enclosure, antennas shall be installed on every floor as to allow RF (radio frequency) propagation to overlap from floors above or below, and design criteria that all antennae on any one floor would fail, and that the DAQ and RSSI meet the requirements of Sections‡ 24.9.3.1 and 24.9.3.2 within a building fully protected by an automatic sprinkler system."

Add **24.9.6** to read as follows: "Supervisory Signals."

Add **24.9.6.1** to read as follows: "Supervisory signals shall be provided in the form of visual indications (e.g., LED, alpha-numeric display) at the DRC with at minimum for the following system functions:

(1) The integrity of the circuit monitoring signal booster(s) and power supply(ies) shall comply with Section‡ 10.17.1.
(2) Base Station Failure.
    (a) Low transmit power
    (b) Over temperature
    (c) High Voltage Standing Wave Ratios (VSWR)
(3) Supervisory Signals.
    (a) Loss of alternating-current power source
    (b) Overall base-station failure
    (c) Low battery capacity, alarming at 70 percent of battery capacity
    (d) Antenna malfunction, where applicable
    (e) Signal amplification failure, where applicable
    (f) Tamper switch as required."

Add **24.9.7** to read as follows: "Technical Criteria. The Fire Department shall maintain a document of technical information specific to its requirements. This document shall contain, at a minimum, the following:

(1) Frequencies required
(2) Maximum time domain interference
(3) Unit ID and emergency alert signaling
(4) DRC specifications
(5) Installation specifications
(6) Test equipment specifications
(7) Other supporting technical information necessary to direct system design."

Add **24.9.8** to read as follows: "Inspection and Testing. Inspection and testing shall be performed in accordance with testing frequencies and methods set forth in the rules of the Fire Department."

Chapter 25 Reserved

Chapter 26 Supervising Station Alarm Systems

26.3.9.2 Delete and replace with the following: "Testing and maintenance records shall be retained as required by the *New York City Fire Code*."

26.3.10 Delete and replace with the following: "Testing and maintenance for central station service shall be performed in accordance with the *New York City Fire Code* and the Rules of the City of New York."

26.4.1 Delete and replace with the following: "Application. Where permitted by the Fire Department, supervising facilities of proprietary alarm systems shall comply with the operating procedures of Section‡ 26.4. The facilities, equipment, personnel, operation, testing, and maintenance of the proprietary supervising station shall also comply with Section‡ 26.4."

26.6.7 Delete and replace with the following: "Testing and maintenance of communication methods shall be in accordance with the requirements of the *New York City Fire Code*."

26.6.3.3 Delete and replace with the following: "A single transmission path shall not be permitted."

26.6.4.1.4 Delete and replace with the following: "Transmission Channels. A system employing a DACT may employ any two of the following transmission means:

(1) A cellular telephone connection
(2) A one-way radio system
(3) A one-way private radio alarm system
(4) A private microwave radio system
(5) A two-way RF multiplex system
(6) An IP connection
(7) A telephone line
(8) A transmission means complying with Section‡ 26.6.3.1.

Exception: Where access to two technologies in the preceding list is not available at the protected premises, with the approval of the Fire Department, a telephone line (number) shall be permitted to be used as the second transmission means. Each DACT shall be programmed to call a second DACR line (number) when the signal transmission sequence to the first called line (number) is unsuccessful. The DACT shall be capable of selecting the operable means of transmission in the event of failure of the other means. Where two telephone lines (numbers) are used, it shall be permitted to test each telephone line (number) at alternating 6-hour intervals."

Chapter 27 Public Emergency Alarm Reporting Systems No changes.

Chapter 28 Reserved

Chapter 29 Single- and Multiple-Station Alarms and Household Fire Alarm Systems

29.1.4 Delete and replace with the following: "The requirements of this chapter shall not apply to one- and two-family manufactured homes."

29.5 Delete section, including all subsections, and replace with the following: "Smoke alarm detection and notification requirements shall be in accordance with Section 907 of the *New York City Building Code*."

29.6.3, Item 2 Delete Item 2 of Section‡ 29.6.3 and replace with the following: "(2) All electrical systems shall be installed by a New York City licensed electrical contractor."

ANNEXES

The annexes are not a part of the requirements of this Referenced Standard but are included for informational purposes only. These annexes contain explanatory material, numbered to correspond with the applicable text paragraphs. In the event of any conflict between the Annexes and the body of the Referenced Standard, particularly where modifications have been made for New York City, the body of the Referenced Standard will govern.

Annex A Explanatory Material No changes.

Annex B Engineering Guide for Automatic Fire Detector Spacing No changes.

Annex C System Performance and Design Guide No changes.

Annex D Speech Intelligibility No changes.

Annex E Sample Ordinance Adopting NFPA 72 No changes.

Annex F Wiring Diagrams and Guide for Testing Fire Alarm Circuits No changes.

Annex G Guidelines for Emergency Communication Strategies for Buildings and Campuses No changes.

Annex H Informational References No changes.

SECTION BC Q108
INSTALLATION OF SMOKE CONTROL SYSTEMS

Q108.1 General. Smoke control systems, where required by this code, shall be installed in accordance with NFPA 92, *Standard for Smoke Control Systems*, 2018 edition, modified for New York City as follows. Refer to the rules of the department for any subsequent additions, modifications or deletions that may have been made to this standard in accordance with Section 28-103.19 of the *Administrative Code*.

Chapter 1 Administration

1.1* Delete and replace with the following: "This standard shall apply to the design of smoke control systems."

1.2.1 Delete and replace with the following: "The purpose of this standard shall be to establish requirements for smoke control systems using either the airflow design method or the exhaust method to accomplish one of more of the following:"

"(1) Inhibit smoke from entering stairwells, means of egress, smoke refuge areas, elevator shafts, or similar areas"

"(2) Maintain a tenable environment in smoke refuge areas and means of egress during the time required for evacuation"

"(3) Inhibit the migration of smoke from the smoke zone"

"(4) Provide conditions outside the smoke zone that enable emergency response personnel to conduct search and rescue operations and to locate and control the fire"

"(5) Contribute to the protection of life and to the reduction of property loss"

1.2.2 Delete the words "other codes and standards".

1.2.3 Delete the words "other codes and standards".

Add **1.2.4** to read as follo ‡‡‡ ws: "The requirements for pressurization systems are provided in the *New York City Building Code*."

1.3 Delete entire sections, including subsections.

1.4 Delete entire sections, including subsections.

Chapter 2 Referenced Publications

2.1 Add at end the following: "Where a referenced publication has been modified for the City of New York by the *New York City Building Code* or the rules of the Department of Buildings, every reference to such publication shall be deemed to include all such modifications. Where the edition of a publication referenced within this standard differs from the edition provided for the same standard in Chapter 35 of the *New York City Building Code*, the edition provided for in Chapter 35 of the *New York City Building Code* shall govern."

Chapter 3 Definitions

3.3.1 Delete definition of Atrium and replace with the following: "See the *New York City Building Code*."

3.3.12 Delete definition of Smoke and replace with the following: "See the *New York City Building Code*."

3.3.13* Delete definition of Smoke Barrier and replace with the following: "See the *New York City Building Code* definition of 'Smoke Partition'. Where the term 'Smoke Barrier' is utilized throughout this referenced standard, it shall be amended to read 'Smoke Partition.'"

3.3.15* Delete definition of Smoke Control Mode and replace with the following: "See the *New York City Building Code*."

3.3.16* Delete definition of Smoke Damper and replace with the following: "See the *New York City Building Code*."

3.3.22 Delete definition of Stack Effect and replace with the following: "See the *New York City Building Code*."

3.3.24* Delete definition of Tenable Environment and replace with the following: "See the *New York City Building Code*."

3.3.25 Delete definition of Smoke Control Zone and replace with the following: "See the *New York City Building Code*."

Chapter 4 Design Fundamentals

4.1.1* Delete Item (1).

4.2.3 Delete entire sections, including subsections.

4.4.2 Delete entire sections, including subsections.

Table 4.4.2.1.1 Delete.

4.6 Delete entire sections, including subsections.

4.7 Delete.

4.8.1.2 Delete.

4.8.3 Delete entire sections, including subsections.

Chapter 5 Smoke Management Calculation Procedures No changes.

Chapter 6 Building Equipment and Controls Delete entire chapter including all sections and subsections.

Chapter 7 Smoke Control System Documentation

7.1 Delete the words "by the designer during the design process".

7.3.1 Delete the words "(see Chapter 8)" from Item (2).

Chapter 8 Testing Delete entire chapter including all sections and subsections.

ANNEXES

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Annex A Explanatory Material No changes.

Annex B Predicting the Rate of Heat Release of Fires No changes.

Annex C Computer-Based Models for Atria and Malls No changes.

Annex D Additional Design Objectives No changes.

Annex E Stratification of Smoke No changes.

Annex F Types of Stairwell Pressurization Systems No changes.

Annex G HVAC Air-Handling System Types No changes.

Annex H Fire Fighters' Smoke Control Station (FSCS) Considerations Delete entire Annex including all sections and subsections.

Annex I Information on Testing for Leakage Between Smoke Zones No changes.

Annex J Advisory Information on Acceptance Testing No changes.

Annex K Example Problems Illustrating the Use of Equations No changes.

Annex L Comparison of Equations No changes.

Annex N Information References No changes.