NEW YORK CITY FIRE DEPARTMENT

Notice of Adoption of Final Rule

Amendment of Fire Department Rule
3 RCNY §4702-01, entitled
“National Fire Protection Association Referenced Standards”

NOTICE IS HEREBY GIVEN PURSUANT TO THE AUTHORITY VESTED in the Fire Commissioner of the City of New York pursuant to Section 102 of the New York City Fire Code, and in accordance with the requirements of Sections 489 and 1043 of the New York City Charter, that the New York City Fire Department has adopted an amendment to Fire Department rule 3 RCNY §4702-01, entitled “National Fire Protection Association Referenced Standards.”

A public hearing was held on October 15, 2015. No changes have been made to the text of the rule as originally proposed. The amendments to the rule shall take effect on January 1, 2016.

The Notice of Adoption, final rule and the Statement of Basis and Purpose of Final Rule, will be available on the Fire Department’s website (www.nyc.gov/fdny) and NYCRULES (www.nyc.gov/NYCRULES).

Statement of Basis and Purpose of Final Rule

The New York City Fire Code (FC) incorporates by reference a large number of industry standards, including dozens of standards developed and published by the National Fire Protection Association (NFPA). A list of Referenced Standards is included in FC Chapter 45.


The Fire Department adopts these modifications in response to a number of recent fires in school laboratories. The 2015 edition of NFPA 45 addresses a number of concerns associated with those fires. Among the changes made by these modifications are the following operational and maintenance requirements:

- Risk assessments for all experiments and demonstrations that use hazardous chemicals;
- Establishment of instructor responsibilities;
• Initial and refresher training on the laboratory’s emergency plan for instructors and students;

• Proper use of fire retardant clothing when pyrophoric reagents (chemicals that spontaneously ignite in air) are used outside the inert atmosphere of a glove box (a sealed enclosure);

• Proper handling and dispensing of pyrophoric reagents and water reactive materials;

• Restrictions on the use of Bunsen burners and other open flames;

• Prohibitions on the use of improperly functioning exhaust hoods; and

• Prohibitions on the handling and use of hazardous materials when laboratory exhaust ventilation is improperly functioning.

The adopted Reference Standard modifications relate solely to operational and maintenance provisions of NFPA 45. The Fire Department is not replacing the 2004 edition of NFPA 45 with the 2015 edition at this time because the New York City Building Code continues to reference the 2004 edition with respect to design and installation requirements, and it is important to coordinate the two codes.


New material is underlined. Deleted material is in [brackets].

Section 1. Subdivision (b) of §4702-01 of Title 3 of the Rules of the City of New York is amended to read as follows:

(b) Referenced Standard Modifications. [Reserved] FC B01.1 is amended to read as follows:

B01.1. National Fire Protection Association standards. The provisions of the following National Fire Protection Association (NFPA) standards shall be modified as follows:

NFPA 45-2004. The provisions of NFPA 45-2004, Standard on Fire Protection for Laboratories Using Chemicals, are modified as follows:

1. In Section 1.1.1, add “in this standard,” after “defined”. Add a new sentence to the end of the section, to read “This standard shall additionally apply to any non-production laboratory as defined in FC2702.1.”.

2. In Section 1.1.2(1)(b), delete “NFPA 54, National Fuel Gas Code” and replace with “the Fuel Gas Code”. Add an exception to the end of Section 1.1.2(1), to read “This
exception shall not apply to educational laboratory units and instructional laboratory units.”

3. Add a new Section, 1.1.4, to read “1.1.4 The provisions of this standard are adopted only with respect to operational and maintenance requirements. Pursuant to FC102.2, operational and maintenance provisions are applicable to new and existing facilities.”

4. Delete Section 1.4 in its entirety.

5. Delete Section 1.5 in its entirety.

6. In Section 2.2:


7. In Section 2.3.3, delete “ASME Boiler and Pressure Vessel Code, Section VIII, 2004” and replace with “ASME Boiler and Pressure Vessel Code, Section I, II, IV, V, VI and VIII, 2010”.
8. Delete Section 3.2.7 and replace with Section 3.2.7 of NFPA 45-2015.

9. In Section 3.3.14, add “for students” after the word “purposes” and delete “by six or more persons for four or more hours per day or more than 12 hours per week”.

10. Add a new section, 3.3.24.1, by inserting Section 3.3.24 of NFPA 45-2015, which is renumbered for purposes of the Fire Code Referenced Standard as 3.3.24.1.

11. Delete Section 3.3.31 and replace with Section 3.3.31 of NFPA 45-2015, except delete “under the direct supervision of an instructor” and add a sentence to the end, to read “Laboratory units used for graduate or postgraduate research are not considered to be instructional laboratory units.”

12. Add a new section, 3.3.31.1, by inserting the text of Section 3.3.32 of NFPA 45-2015, which is renumbered for purposes of the Fire Code Referenced Standard as 3.3.31.1.

13. Delete Section 3.3.36 and replace with “3.3.36 Laboratory Unit. An enclosed space of a minimum one-hour fire-rated construction, designed or used as a non-production laboratory. Laboratory units may include one or more separate laboratory work areas, and accessory storage rooms or spaces within or contiguous with the laboratory unit, such as offices and lavatories.”

14. Add a new section, 3.3.51.1, by inserting the text of Section 3.3.53 of NFPA 45-2015, which is renumbered for purposes of the Fire Code Referenced Standard as 3.3.51.1.

15. In Section 3.3.57, delete “Section 6.3 of NFPA 30, Flammable and Combustible Liquids Code” and replace with “FC3404.3.2”.

16. Delete Section 4.3.1 and replace with Section 1.1.4 of NFPA 45-2015, which is renumbered for purposes of the Fire Code Referenced Standard as 4.3.1, except:

   16.1 In Section 1.1.4, insert “listed below” after the word “concentrations”, and delete “, the following” from the second sentence.

   16.2 Insert a semicolon to the end of Sections 1.1.4(1), 1.1.4(2) and 1.1.4(3).

   16.3 In Section 1.1.4(4), insert “; and” after “peroxides”.

   16.4 Insert a period to the end of Section 1.1.4(5).

   16.5 Delete the sentence after Section 1.1.4(5).

17. In Section 5.6, delete “NFPA 70, National Electrical Code” and replace with “the Electrical Code”.

5
18. In Section 5.6.2, delete “Article 500 of NFPA 70, National Electrical Code” and replace with “the Electrical Code”.

19. Delete Section 6.6.3.1 and replace with Section 6.5.3.1 of NFPA 45-2015, which is renumbered for purposes of the Fire Code Referenced Standard as 6.6.3.1, except:

19.1. In the section title, delete “Provisions Within the Emergency Action Plan” and replace with “Emergency Plan”.

19.2. Delete the first sentence and replace with “The owner of a chemical laboratory shall cause plans for laboratory emergencies to be prepared.”

19.3. In the second sentence, delete “action” between the words “emergency” and “plan”.

19.4 In Section 6.5.3.1(1), insert a semicolon after “alarm”.

19.5. In Section 6.5.3.1(2), delete “fire department, governmental agencies, or other emergency responders or contacts, as required” and replace with “Fire Department and other emergency response agencies;”.

19.6 In Section 6.5.3.1(3), before “as applicable” insert “including primary and secondary evacuation routes,” and insert a semicolon to the end of the section.

19.7 In Sections 6.5.3.1(4) and 6.5.3.1(7), insert a semicolon to the end of the section.

19.8. In Section 6.5.3.1(5), insert “regular emergency” between the words “conducting” and “drills”, and insert a semicolon to the end of the section.

19.9 In Section 6.5.3.1(6), delete “shutdown” and replace with “shut down”, and insert a semicolon to the end of the section.

19.10. Delete Section 6.5.3.1(8).

19.11. Renumber Section 6.5.3.1(9) as 6.5.3.1(8), and insert a semicolon to the end of the section.

19.12 Renumber Section 6.5.3.1(10) as 6.5.3.1(9), and insert “; and” to the end of the section.

19.13 Renumber Section 6.5.3.1(11) as 6.5.3.1(10), and delete “to be taken”, and insert a period to the end of the section.

20. Add a new section, 6.6.3.3, by inserting the text of Section 6.5.3.3 of NFPA 45-2015, which is renumbered for purposes of the Fire Code Referenced Standard as 6.6.3.3, except move “on the emergency plan” from the end of the sentence to between the
words “trained” and “prior”, and add a sentence to the end, to read “Records for such training shall be maintained in accordance with FC107.7.”

21. Add new sections, 6.7 through 6.7.4, by inserting the text of Sections 6.6, and 6.6.2 through 6.6.5 of NFPA 45-2015. For purposes of the Fire Code Referenced Standard, Section 6.6 is renumbered as 6.7, and Sections 6.6.2, 6.6.3, 6.6.4 and 6.6.5 are renumbered as 6.7.1, 6.7.2, 6.7.3 and 6.7.4 respectively, except:

21.1. In Section 6.6.2, delete “where” and replace with “by any person that uses”, and delete “are used”.

21.2. In Section 6.6.3, insert a comma after the word “worn”, insert “by any person that uses” after the word “possible”, and delete “are used”.

21.3. In Section 6.6.4, delete “Natural-fiber” and replace with “Any person that uses pyrophoric reagents outside the inert atmosphere of a glovebox shall wear natural-fiber”, delete “shall be worn”, insert “their” after the word “under”, delete “the” after the word “on” and replace with “their”, and delete “where pyrophoric reagents are used outside the inert atmosphere of a glovebox” after the word “feet”.

22. Add a new section, 7.1.3, by inserting the text of Section 7.2.2.1 of NFPA 45-2015, which is renumbered for purposes of the Fire Code Referenced Standard as 7.1.3, except in the first sentence of such section, insert “involving the handling and use of hazardous materials” after the word “operations”, and in the second sentence of such section, delete “in a safe condition” and replace with “safely”, delete “during the time that” and replace with “until”, and delete the word “exists” and replace with “is corrected”.

23. Delete Section 8.13.2 and replace with “All activities inside the hood shall be suspended immediately following the discovery of deficiencies that cause the hood to perform outside of limits established by regulatory authority requirements and/or nationally recognized industry standards”.

24. Delete Section 9.2.3.4 and replace with Sections 8.2.4.4 and 13.4.2 of NFPA 45-2015, which are combined into a single section and renumbered for purposes of the Fire Code Referenced Standard as 9.2.3.4, except:

24.1. In Section 8.2.4.4, delete the words “might”, “(i.e., time sensitive)”, and “, and properly managed”.

24.2. In the first sentence of Section 13.4.2, insert “in unopened containers” after the word “storage”, insert “also” between the words “shall” and “be”, and delete “upon receipt and when first opened to facilitate hazard control” and replace with “when received into the laboratory chemical inventory”.
24.3. In the second sentence of Section 13.4.2, replace “Materials” with “Such materials”, insert “managed and” before the word “disposed”, insert a comma after the word “date”, and delete “(SDSs)(see 8.2.4.4 and A.8.2.4.4)”.

25. Delete Section 9.2.3.4.1 and replace with Section 8.2.4.4.1 of NFPA 45-2015, which is renumbered for purposes of the Fire Code Referenced Standard as 9.2.3.4.1, except

25.1 In Section 8.2.4.4.1 and (1), delete “shall consist of the following elements” and replace with the word “includes”, insert “-” between the words “time” and “sensitive”, and after the word “sensitive” insert “(materials that become hazardous during prolonged storage);”.

25.2 In Section 8.2.4.4.1(2), insert a semi-colon after the word “frequency”.

25.3 In Section 8.2.4.4.1(3), insert “; and” after the word “material”.

25.4 In Section 8.2.4.4.1($), insert a period after the word “results”.

26. Add a new section, 9.2.3.7, by inserting the text of Section 8.2.4.7 of NFPA 45-2015, which is renumbered for purposes of the Fire Code Referenced Standard as 9.2.3.7, except delete “shall be” and replace with “is”, and add a new sentence to the end, to read “This prohibition does not apply to the storage of chemicals used in a long term experiment or research, chemicals for which special ventilation requirements are recommended based on the unusually hazardous nature of the chemicals, and any other chemical storage approved by the Fire Department.”

27. Delete Sections 9.3, 9.4 and 9.5 in their entirety.

28. Add a new section, 9.3, to read “9.3 Chemicals.” and two new sections, 9.3.1 and 9.3.2, by inserting the text of Sections 8.2.3.6 and 8.2.3.7 of NFPA 45-2015, which are renumbered for purposes of the Fire Code Referenced Standard as 9.3.1 and 9.3.2 respectively, except in Section 8.2.3.7, delete “(SDS)”.

29. Add new sections, 9.4 through 9.4.5, by inserting the text of Sections 8.3, 8.3.2, 8.3.3, 8.3.5, 8.3.4 and 8.3.6 of NFPA 45-2015, which are renumbered for purposes of the Fire Code Referenced Standard as 9.4, 9.4.1, 9.4.2, 9.4.3, 9.4.4 and 9.4.5 respectively, except:

29.1. In Section 8.3.3, replace “with the hazards of the waste chemicals” with “in accordance with the regulations of the New York State Department of Environmental Conservation”.

29.2. In Section 8.3.5, replace “Waste” with “Flammable and combustible liquid waste”, replace “type” with “types”, and replace “9.1.2” with “10.1.4”.

8
29.3. In Section 8.3.4, replace “not exceed 20 l (5 gal)” with “that are not required to comply with the requirements of Section 9.4.3 shall be subject to the maximum container sizes and types in accordance with Class II combustible liquids set forth in Table 10.1.4”.

29.4. In Section 8.3.6, replace “subject to” with “included in”.

30. In Section 10.5.1, replace “NFPA 30, Flammable and Combustible Liquids Code” with “FC3404.3.2”.

31. Add new sections, 12.1.7 through 12.1.7.11, by inserting the text of Sections 11.2.6 through 11.2.6.11 of NFPA 45-2015, which are renumbered for purposes of the Fire Code Referenced Standard as 12.1.7 through 12.1.7.11 respectively, except in Section 11.2.6.3, replace “6.6” with “6.7”.

32. Add new sections, 12.1.8 and 12.1.8.1, by inserting the text of Sections 11.2.7 and 11.2.7.1 of NFPA 45-2015, which are renumbered for purposes of the Fire Code Referenced Standard as 12.1.8 and 12.1.8.1 respectively, except:

32.1. In the second sentence of Section 11.2.7.1(2), replace “Tubing” with “Hose/tubing”, replace “clamped” with “gas-tight”, and add a sentence at the end, to read “Prior to each use, all connections shall be verified for tightness.”.

32.2. Add a new Section 11.2.7.1(5), to read “(5) Combustible materials shall be kept at least 0.610 m (2 ft) away from the open flame.”.

33. Add a new section, 12.1.8.2, by inserting the text of Section 11.2.7.2 of NFPA 45-2015, which is renumbered for purposes of the Fire Code Referenced Standard as 12.1.8.2, except:

33.1. In Section 11.2.7.2, replace “11.2.7.1” with “12.1.8.1”.

33.2. In Section 11.2.7.2(1), insert “(0.1 pt)” after “50 ml”.

34. In Section 12.2.1.1, delete “, including NFPA 70, National Electrical Code” and replace with “and the Electrical Code”.

35. In Section 12.2.2.2, delete “Article 501 of NFPA 70, National Electrical Code” and replace with “the Electrical Code”.

36. In Section 12.2.2.2.1(1), delete “Article 501 of NFPA 70, National Electrical Code” and replace with “the Electrical Code”.

37. In Section 12.2.2.3, delete “Article 501 of NFPA 70, National Electrical Code” and replace with “the Electrical Code”.
38. Add a new chapter, 14, by inserting the text of Chapter 12 of NFPA 45-2015, except:

38.1. Chapter 12 is renumbered as 14.

38.2. Section 12.1 is renumbered as 14.1, except delete “new and existing”.

38.3. Add a new section, 14.2, to read “**14.2 Supervision.** Educational laboratory units and instructional laboratory units shall be under the direct supervision of an instructor while the laboratory is in operation.”

38.4. Add a new section, 14.3, to read “**14.3 Hazard Risk Assessment.** Prior to instructors performing demonstrations or students conducting experiments using hazardous chemicals, a documented hazard risk assessment shall be performed. A hazard risk assessment is a written document prepared by a qualified person, and shall include all of the following:

(1) An evaluation of the hazards of the demonstration or experiment;

(2) Appropriate personal protective equipment required;

(3) Safe work procedures;

(4) Emergency procedures; and

(5) Waste disposal procedures.”

38.5. Section 12.2 is renumbered as 14.4 and in such section, replace “Where” with “Whenever”, and replace “required to perform a documented hazard risk assessment, provide a safety briefing to students, provide adequate personal protective equipment (PPE), and place a safety barrier (as required)” with “fully familiar with the hazard risk assessment, provide a safety briefing to students, ensure that adequate personal protective equipment has been provided and is being properly used, and ensure that safety barriers, when required by 14.5.2.1.3, are in place”.

38.6. Section 12.2.1 is renumbered as 14.4.1, except replace “PPE” with “personal protective equipment”.

38.7. Section 12.3 is renumbered as 14.5.

38.8. Section 12.3.1 is renumbered as 14.5.1 and in the first sentence of such section, replace “labs” with “laboratories”, in the second sentence of such section, replace “lab classroom” with “laboratory” and replace “one day’s use, preapportioned to the amount needed for each class session” with “daily use in the laboratory”, and in the last sentence of such section, replace “amount of chemical that is not in use during an individual class session” with “chemicals stored in an educational
laboratory” and add at the end “, except for the amounts actually in use during an
individual class session”.

38.9. Section 12.3.1.1 is renumbered as 14.5.1.1, except replace “9.1.1” with “10.1.1”
and replace “fire or building codes” with “the Fire Code and the Building Code”.

38.10. Section 12.3.1.2 is renumbered as 14.5.1.2.

38.11. Section 12.3.1.3 is renumbered as 14.5.1.3.

38.12. Section 12.3.1.4 is renumbered as 14.5.1.4.

38.13. Section 12.3.1.5 is renumbered as 14.5.1.5, except replace “only when” with
“while”.

38.14. Section 12.3.2 is renumbered as 14.5.2.

38.15. Section 12.3.2.1 is renumbered as 14.5.2.1, except replace “12.3.2.1.1”,
“12.3.2.1.2”, “12.3.2.1.3” and “12.3.2.1.4” with “14.5.2.1.1”, “14.5.2.1.2”,
“14.5.2.1.3” and “14.5.2.1.4” respectively.

38.16. Section 12.3.2.1.1 is renumbered as 14.5.2.1.1, except delete “primary”.

38.17. Section 12.3.2.1.2 is renumbered as 14.5.2.1.2, except delete “being evolved”
at the end of the first sentence, and delete the last sentence.

38.18. Section 12.3.2.1.3 is renumbered as 14.5.2.1.3, except replace “12.3.2.1.4”
with “14.5.2.1.4”.

38.19. Section 12.3.2.1.4 is renumbered as 14.5.2.1.4.

38.20. Section 12.3.2.2 is renumbered as 14.5.2.2.

38.21. Section 12.3.2.3 is renumbered as 14.5.2.3, except replace “In educational and
instructional laboratories where experiments are conducted by students, the”
with “The”, replace “be responsible for conducting” with “conduct”, and insert
“conducted by students” between the words “experiment” and “to”.

4702-01 (NFPA 45 referenced standard modifications) (10/29/15)