

## **New York City Administrative Code -**

### **Title 29**

### **New York City Fire Code**

## **CHAPTER 27 HAZARDOUS MATERIALS—GENERAL PROVISIONS**

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### **SECTION FC 2701 GENERAL**

2701.1 **Scope.** This chapter shall govern the storage, handling, use and transportation of hazardous materials. Hazardous material storage, handling and use shall additionally comply with the requirements of the New York State Department of Environmental Conservation regulations, as set forth in 6 NYCRR Parts 595 through 614.

**Exceptions:**

1. The storage, handling and use in retail or wholesale sales occupancies of alcoholic beverages, medicines, foodstuffs, cosmetics, and consumer products containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, when packaged in individual containers not exceeding 1.3 gallons (5 L) in volume.
2. Storage, handling and use of hazardous materials for agricultural purposes as a pesticide, fertilizer or similar application, when approved for such use by the regulatory agency having jurisdiction and when such storage, handling and use is in accordance with the manufacturer's instructions.
3. Reserved.

4. Reserved.
5. Refrigerating systems when designed, installed, operated and maintained in accordance with the Mechanical Code and Section 606.
6. Stationary lead-acid batteries when in accordance with Section 608.
7. The storage, handling and use, including storage for sale, of fireworks, in accordance with Chapter 33.
8. The storage, handling and use of corrosives in Group M occupancies, including storage for sale, of personal and household products, when in the manufacturer's original consumer packaging.
9. The storage of distilled spirits and wines in wooden barrels and casks.
10. The use of wall-mounted dispensers containing alcohol-based hand rubs classified as Class I or Class II liquids when in accordance with Section 3405.5.

**2701.1.1 Relationship with other chapters.** This chapter shall apply to all hazardous materials, including those materials regulated elsewhere in this code, except that when specific requirements inconsistent with the provisions of this chapter are set forth elsewhere in this code, those specific requirements shall apply to the extent that they are inconsistent. Where a material is in multiple hazard categories, compliance with each hazard category shall be required. Where a material is both a physical hazard and a health hazard, compliance with the requirements for each hazard category shall be required.

**2701.2 Material classification.** Hazardous materials shall be classified by physical hazard, health hazard and/or other hazards associated with the properties of the material, or if the hazardous material is a mixture, with the hazards associated with the mixture as a whole. The commissioner may determine the appropriate hazard classification of a hazardous material, or may accept the classification set forth in nationally recognized standards, material safety data sheets, or other approved standard or method.

**2701.2.1 Reserved.**

**2701.2.2 Reserved.**

**2701.2.2.1 Physical hazards.** The material categories listed in this section are classified primarily as physical hazards.

1. Explosives and blasting agents.
2. Flammable and combustible liquids.
3. Flammable solids and gases.
4. Organic peroxide materials.

5. Oxidizer materials.
6. Pyrophoric materials.
7. Unstable (reactive) materials.
8. Water-reactive solids and liquids.
9. Cryogenic fluids.

2701.2.2.2 **Health hazards.** The material categories listed in this section are classified primarily as health hazards.

1. Highly toxic and toxic materials.
2. Corrosive materials.

### 2701.3 **Reserved.**

2701.4 **Retail and wholesale storage and display.** For retail and wholesale storage and display of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in Group M occupancies and storage in Group S occupancies, see Section 2703.11.

2701.5 **Permits.** Permits shall be required as set forth in Section 105.6.

2701.5.1 **Hazardous Materials Management Plan.** The commissioner may require each application for a permit to include a Hazardous Materials Management Plan (HMMP). Such plan shall be drawn approximately to scale. The HMMP shall contain the following:

1. Storage, handling and use areas.
2. Maximum amount of each material stored, handled or used in each area.
3. Type and size of containers to be used for storage.
4. Location of valves and devices used to control and mitigate the accidental or unauthorized release of hazardous materials, and where such valves are of the self-indicating type, an illustration of their on and off position.
5. Piping through which hazardous material liquids or gases are transferred, other than utility-owned natural gas lines and low-pressure natural gas lines subject to compliance with the requirements of the Plumbing Code.
6. Reserved.
7. Storage plan showing the storage arrangement, including the location and dimensions of aisles.
8. The location and type of emergency equipment.
9. Such other information and documentation as the commissioner may prescribe.

2701.5.2 **Hazardous materials reporting.** The storage of hazardous materials shall be reported as required by the New York State General Municipal Law Section 209-u. The commissioner may require an application for a permit pursuant to this code to include a copy of the current filing pursuant to such New York State General Municipal Law for the facility or premises for which a permit is sought.

2701.6 **Facility closure.** Facilities shall be placed permanently out of service in accordance with Sections 2701.6.2 and 2701.6.3 and, as applicable, with the New York State Department of Environmental Conservation regulations as set forth in 6 NYCRR Sections 598.10 and 613.9.

2701.6.1 **Reserved.**

2701.6.2 **Permanently out of service facilities.** Facilities that are not operated for a period of more than one year or for which a permit has lapsed for more than one year shall be deemed to be permanently out of service and shall be closed in an approved manner.

2701.6.3 **Facility closure plan.** The commissioner may require permittees to apply for approval to permanently close a facility that manufactures, stores, handles or uses hazardous materials. Such application shall be submitted at least 30 days prior to the planned closure of the facility. Such plan and/or such other requirements as the commissioner may prescribe shall demonstrate that hazardous materials that are manufactured, stored, handled or used in the facility will be lawfully disposed of in a manner that eliminates the need for further maintenance and any threat to public health and safety.

#### **HISTORICAL NOTE**

Section added L.L. 26/2008 § 13, eff. July 1, 2008.

### **SECTION FC 2702 DEFINITIONS**

2702.1 **Definitions.** The following terms shall, for the purposes of this chapter, Chapters 28 through 44, and as used elsewhere in this code, have the meanings shown herein.

**BOILING POINT.** The temperature at which the vapor pressure of a

liquid equals the atmospheric pressure of 14.7 pounds per square inch (psia) (101 kPa) or 760 mm of mercury. Where a boiling point is unavailable for the material in question, or for mixtures which do not have a constant boiling point, for the purposes of this classification, the 20-percent evaporated point of a distillation performed in accordance with ASTM D 86 shall be used as the boiling point of the liquid.

**CARGO TANK.** A vehicle other than a railroad tank car or marine vessel, with a tank mounted thereon or built as an integral part thereof, used for the transportation of flammable or combustible liquids, LPG or other hazardous materials, including self-propelled vehicles and full trailers and semi-trailers, with or without motive power, and carrying part or all of the load.

**CEILING LIMIT.** The maximum concentration of an airborne contaminant to which one may be exposed shall be as established by the regulations of the United States Department of Labor, as set forth in 29 CFR Part 1910.1000, or if not listed therein, the ceiling Recommended Exposure Limit (REL-C) concentrations published by the U.S. National Institute for Occupational Safety and Health (NIOSH), the Threshold Limit Value—Ceiling (TLV-C) concentrations published by the American Conference of Governmental Industrial Hygienists (ACGIH), the ceiling Workplace Environmental Exposure Level (WEEL-Ceiling) Guides published by the American Industrial Hygiene Association (AIHA), or other approved standard.

**CHEMICAL.** An element, chemical compound or mixture of elements or compounds or both.

**CHEMICAL NAME.** The scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry, the Chemical Abstracts Service rules of nomenclature, or a name that will clearly identify a chemical for the purpose of conducting an evaluation.

**CLOSED CONTAINER.** A container sealed by means of a lid or other device capable of preventing the escape of liquid, vapor or dusts in the ordinary course of storage, handling or use.

**CONTAINER.** For solid and liquid hazardous materials, a vessel of 60 gallons (227 L) or less in capacity used for storage or transportation. For compressed gases, a cylinder, pressure vessel or tank designed for pressures greater than one atmosphere at 68°F (20°C). Pipes, piping systems, engines and engine fuel tanks associated with solid or liquid hazardous materials or compressed gases, shall not be deemed to be containers if in active use.

**CONTROL AREA.** Spaces within a building that are enclosed and bounded by exterior walls, fire walls, fire barriers and roofs, or a combination thereof, where quantities of hazardous materials not exceeding the maximum

allowable quantities per control area are stored, handled or used, including any dispensing.

**DEFLAGRATION.** An exothermic reaction, such as the extremely rapid oxidation of a flammable dust or vapor in air, in which the reaction progresses through the unburned material at a rate less than the velocity of sound. A deflagration can have an explosive effect.

**DESIGN PRESSURE.** The maximum gauge pressure that a pressure vessel, device, component or system is designed to withstand safely under the temperature and conditions of use.

**DETACHED BUILDING.** A separate single-story building, without a basement or crawl space, used for the storage, handling or use of hazardous materials and located an approved distance from other buildings or structures.

**DISPENSING.** The pouring or transferring by other means of any material from a container, tank or similar vessel, which would release dusts, fumes, mists, vapors or gases to the atmosphere, unless such release is prevented by a device, equipment or system designed for that purpose.

**EXCESS FLOW CONTROL.** A fail-safe system or other approved device, equipment or system designed to shut off flow caused by a rupture in a pressurized piping system.

**EXHAUSTED ENCLOSURE.** A device, typically consisting of a hood equipped with a fan that serves to capture and exhaust fumes, mist, vapors and gases generated at a workstation or other local environment. An exhausted enclosure does not include a room provided with general ventilation.

**EXPLOSION.** An effect produced by the sudden violent expansion of gases, whether or not accompanied by a shock wave or disruption, of enclosing materials, including the effects of the following sources of explosion:

1. Chemical changes such as rapid oxidation, deflagration or detonation, decomposition of molecules and runaway polymerization (usually detonations).
2. Physical changes such as pressure tank ruptures.
3. Atomic changes (nuclear fission or fusion).

**FLAMMABLE VAPORS OR FUMES.** The concentration of flammable constituents in air that exceeds 25 percent of their lower flammable limit (LFL).

**GAS CABINET.** A fully enclosed, noncombustible enclosure used to provide an isolated environment for compressed gas containers in storage or use, including any doors and access ports for exchanging containers and accessing pressure-regulating controls.

**GAS ROOM.** A separately ventilated, fully enclosed room in which only

compressed gases and associated equipment and supplies are stored or used.

**HANDLING.** The movement of a material in its container, the removal of the material from its container, or any other action or process that may affect the material, other than its storage or use.

**HAZARDOUS MATERIALS.** Those chemicals or substances that are physical hazards or health hazards as defined and classified in this chapter, whether the materials are in usable or waste condition.

**HEALTH HAZARD.** A classification of a chemical for which there is statistically significant evidence that acute or chronic health effects are capable of occurring in exposed persons. The term "health hazard" includes chemicals that are toxic, highly toxic and corrosive.

**IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH).** The concentration of air-borne contaminants that poses a threat of death, immediate or delayed permanent adverse health effects, or effects that could prevent escape from such an environment, as established by the National Institute of Occupational Safety and Health (NIOSH) based on both toxicity and flammability. It generally is expressed in parts per million by volume (ppm v/v) or milligrams per cubic meter (mg/m<sup>3</sup>). If adequate data do not exist for precise establishment of IDLH concentrations, an independent certified industrial hygienist, industrial toxicologist, appropriate regulatory agency or other source approved by the commissioner shall make such determination.

**INCOMPATIBLE MATERIALS.** Materials that, if mixed or combined, could explode, generate heat, gases or other byproducts, or react in a way hazardous to life or property.

**LABORATORY CHEMICAL.** A material with a health, flammability and/or instability hazard ranking of 2, 3 or 4 as defined in NFPA 704.

**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.

**LIQUID.** A material having a melting point that is equal to or less than 68°F (20°C) and a boiling point that is greater than 68°F (20°C) at 14.7 psia (101 kPa). When not otherwise identified, the term "liquid" includes both flammable and combustible liquids.

**LOWER EXPLOSIVE LIMIT (LEL).** See "Lower flammable limit."

**LOWER FLAMMABLE LIMIT (LFL).** The minimum concentration of vapor in air at which propagation of flame will occur in the presence of an ignition source. The LFL is sometimes referred to as LEL or lower explosive limit.

**MATERIAL SAFETY DATA SHEET (MSDS).** A document prepared in accordance with the regulations of the United States Department of Labor, as set forth in 29 CFR Part 1910.1200 or a federally approved state OSHA plan which sets forth information concerning a hazardous material.

**MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA.** The maximum amount of a hazardous material allowed to be stored or used within a control area inside a building or structure or an outdoor control area.

**NON-PRODUCTION LABORATORY.** A building or portion thereof wherein chemicals or gases are stored, handled or used on a non-production basis for testing, research, experimental, instructional or educational purposes.

**NORMAL TEMPERATURE AND PRESSURE (NTP).** A temperature of 70°F (21°C) and a pressure of 1 atmosphere.

**OUTDOOR CONTROL AREA.** An outdoor area that contains hazardous materials in amounts not exceeding the maximum allowable quantities of Table 2703.1.1(3) or 2703.1.1(4).

**PERMISSIBLE EXPOSURE LIMIT (PEL).** The maximum permitted 8-hour time-weighted average concentration of an air-borne contaminant as established by the regulations of the United States Department of Labor, as set forth in 29 CFR Part 1910.1000, the Recommended Exposure Limit (REL) concentrations published by the U.S. National Institute for Occupational Safety and Health (NIOSH), the Threshold Limit Value-Time Weighted Average (TLV-TWA) concentrations published by the American Conference of Governmental Industrial Hygienists (ACGIH), the Workplace Environmental Exposure Level (WEEL) Guides published by the American Industrial Hygiene Association (AIHA), or other approved standard.

**PESTICIDE.** A substance or mixture of substances, including fungicides, but excluding any product defined as a drug in the Federal Food, Drug and Cosmetic Act, intended for the purpose of preventing, repelling or killing pests or pest infestations, or for use as a plant regulator, defoliant or desiccant.

**PRESSURE VESSEL.** A closed vessel designed to operate at pressures above 15 psig (103 kPa).

**SAFETY CAN.** An approved container with a capacity of not more than 5-gallons (19 L) and equipped with a spring-closing lid and spout cover designed to relieve internal pressure when exposed to fire.

**SECONDARY CONTAINMENT.** A device, equipment or system designed to contain liquid or solid, that is external to and separate from the primary containment device, equipment or system.

**SOLID.** A material that has a melting point and decomposes or sublimates at a temperature greater than 68°F (20°C).

**STANDARD CUBIC FEET (SCF).** Cubic feet of gas at normal temperature and pressure (NTP).



**SYSTEM.** An assembly of devices, equipment, containers, appurtenances, pumps, compressors and connecting piping that is designed to perform a complex and/or complete function.

**TANK, ATMOSPHERIC.** A storage tank designed to operate at pressures from atmospheric through 1.0 pound per square inch gauge (760 mm Hg through 812 mm Hg) measured at the top of the tank.

**TANK, PORTABLE.** A container of more than 60-gallon (227 L) capacity, and designed to be loaded into or on or temporarily attached to a transport vehicle or marine vessel and equipped with skids, mountings or accessories to facilitate handling of the tank by mechanical means. It does not include any cargo tank or tank car.

**TANK, STATIONARY.** A container having not less than 1,000-pound (454 kg) water capacity, designed primarily for stationary installations, and not intended to be moved in the course of normal use.

**VAPOR PRESSURE.** The pressure exerted by a volatile fluid, as determined in accordance with ASTM D 323.

#### **HISTORICAL NOTE**

Section added L.L. 26/2008 § 13, eff. July 1, 2008.

### **SECTION FC 2703 GENERAL REQUIREMENTS**

2703.1 **General.** Hazardous materials shall be manufactured, stored, handled, used and transported in accordance with this chapter.

2703.1.1 **Maximum allowable quantity per control area.** The maximum allowable quantity per control area shall be as specified in Tables 2703.1.1(1) through 2703.1.1(4), and for retail and wholesale storage and display in Group M occupancies, and Group S storage, as specified in Section 2703.11.

2703.1.2 **Conversion.** A conversion factor of 10 pounds per gallon (1.2 kg/L) shall be used to ascertain the weight per gallon of liquid when such weight is not provided or otherwise available to the commissioner.

2703.1.3 **Quantities not exceeding the maximum allowable quantity per control area.** The storage, handling and use of hazardous materials in quantities not exceeding the maximum allowable quantity per control area

indicated in Tables 2703.1.1(1) through 2703.1.1(4) shall be in accordance with Sections 2701 and 2703.

**2703.1.4 Quantities exceeding the maximum allowable quantity per control area.** The storage, handling and use of hazardous materials in quantities exceeding the maximum allowable quantity per control area indicated in Tables 2703.1.1(1) through 2703.1.1(4) shall be in accordance with this chapter.

**2703.1.5 Additional specific requirements.** The storage, handling and use of hazardous materials shall additionally comply with the specific requirements of Chapters 28 through 44, as applicable. [\[See Table 1\]](#)

[\[See Table 2\]](#)

[\[See Table 3\]](#)

[\[See Table 4\]](#)

[\[See Table 5\]](#)

[\[See Table 6\]](#)

[\[See Table 7\]](#)

**2703.2 Devices, equipment, systems and processes.** Devices, equipment, systems and processes utilized for storage, handling and use of hazardous materials shall be in accordance with Sections 2703.2.1 through 2703.2.8 and the regulations of the New York State Department of Environmental Conservation as set forth in 6 NYCRR Parts 596, 598, 599, 612, 613 and 614.

**2703.2.1 Design and construction of containers and tanks.** Containers and tanks shall be designed and constructed in accordance with approved standards. Containers, tanks and other means used for containment of hazardous materials shall be of an approved type.

**2703.2.2 Piping, tubing, valves and fittings.** Piping, tubing, valves and fittings conveying hazardous materials, except piping for inlet connections to prevent backflow or piping for pressure relief devices, shall be designed and installed in accordance with approved standards and Sections 2703.2.2.1 and 2703.2.2.2.

**2703.2.2.1 Design and construction.** Piping, tubing, valves, fittings and ancillary equipment used for hazardous materials shall be in accordance with the following:

1. Piping, tubing, valves, fittings and ancillary equipment shall be designed and fabricated from materials compatible with the material to be contained

and shall be of adequate strength and durability to withstand the pressure, structural and seismic stress, and exposure to which they are subjected.

2. Piping and tubing shall be identified in accordance with ANSI A13.1 to indicate the material conveyed.

3. Readily accessible manual valves, or automatic remotely-activated fail-safe emergency shutoff valves, shall be installed on supply piping and tubing at the point of use and at the tank, container or other source of supply.

4. Emergency shutoff valves shall be clearly visible and readily accessible. A durable sign shall be conspicuously posted immediately adjacent to such valves that identifies their location.

5. Backflow prevention or check valves shall be provided when the backflow of hazardous materials could create a hazardous condition or cause the unauthorized discharge of hazardous materials.

6. Where gases or liquids having a hazard ranking of health hazard Class 3 or 4, flammability Class 4, or reactivity Class 3 or 4 in accordance with NFPA 704 are conveyed in pressurized piping above 15 pounds per square inch gauge (psig) (103 kPa), an approved means of leak detection and emergency shutoff or excess flow control shall be provided. Where the piping originates from within a hazardous material storage room or area, the excess flow control shall be located within the storage room or area. Where the piping originates from any other source of supply, the excess flow control shall be located as close to the source of supply as practical.

**Exceptions:**

1. Piping for inlet connections designed to prevent backflow.
2. Piping for pressure relief devices.

**2703.2.2.2 Additional regulations for supply piping for health-hazard materials.** Supply piping and tubing for gases and liquids having a health-hazard ranking of 3 or 4 in accordance with NFPA704 shall be in accordance with ANSI B31.3 and the following:

1. Piping and tubing utilized for the transmission of highly toxic, toxic or highly volatile corrosive liquids and gases shall have welded, threaded or flanged connections throughout, except where connections are located within a ventilated enclosure if the material is a gas, or an approved method of drainage or containment is provided for connections if the material is a liquid.

2. Piping and tubing shall not be located within corridors, within any portion of a means of egress required to be enclosed in fire-resistance-rated construction or in concealed spaces in areas not classified as Group H occupancies.

**Exception:** Piping and tubing within the space defined by the walls of corridors and the floor or roof above or in concealed spaces above other

occupancies when installed in accordance with Section 415.9.6.3 of the Building Code for Group H5 occupancies.

**2703.2.3 Devices, equipment and systems.** Devices, equipment and systems, including required detection and alarm systems, installed or used in conjunction with the storage, handling and use of hazardous materials shall be listed or approved.

**2703.2.4 Installation of tanks.** Installation of tanks shall be in accordance with Sections 2703.2.4.1 through 2703.2.4.2.1 and with the regulations of the New York State Department of Environmental Conservation as set forth in 6 NYCRR Sections 599.6, 614.7 and 614.13.

**2703.2.4.1 Underground tanks.** Underground tanks used for the storage of liquid hazardous materials shall be provided with secondary containment.

**2703.2.4.2 Aboveground tanks.** Aboveground stationary tanks used for the storage of liquid hazardous materials shall be located and protected in compliance with the requirements for outdoor storage of the particular material involved.

**2703.2.4.2.1 Marking.** Aboveground stationary tanks shall be marked as required by Section 2703.5.

**2703.2.5 Empty containers and tanks.** Empty containers and tanks previously used for the storage of hazardous materials shall be free from residual material and vapor in compliance with the requirements of DOTn, the Resource Conservation and Recovery Act (RCRA) or other governmental agencies having jurisdiction, or shall be stored, handled and used in compliance with the requirements of this code.

**2703.2.6 Maintenance.** In addition to the requirements of Section 2703.2.3, all devices, equipment and systems used in conjunction with hazardous materials, including tanks, and detection and alarm systems, shall be maintained in good working order. Defective devices, equipment and systems shall be removed from service and repaired or replaced, or disposed of lawfully.

**2703.2.6.1 Tanks out of service for 30 days.** Stationary tanks not used for a period of 30 days or more shall be properly safeguarded or removed in an approved manner. Such tanks shall have the fill line, gauge opening and pump

connection secured against tampering. Vent lines shall be properly maintained. Stationary tanks containing flammable and combustible liquid out of service for a period of 30 days or more shall additionally comply with the requirements of Section 3404.2.13.

2703.2.6.1.1 **Return to service.** Tanks that are returned to service shall be tested in an approved manner prior to use.

2703.2.7 **Liquid-level limit control.** Atmospheric tanks that contain hazardous material liquids shall be equipped with a liquid-level limit control or other approved means to prevent overfilling of the tank.

**Exception:** Tanks with a capacity not exceeding 500 gallons (1893 L) that are filled from a source other than a cargo tank or tank car.

2703.2.8 **Seismic protection.** Machinery and equipment utilizing hazardous materials shall be braced and anchored in accordance with the seismic design requirements of the Building Code for the seismic design category in which the machinery or equipment is classified.

2703.3 **Release and disposal of hazardous materials.** It shall be unlawful to release or dispose of any amount of hazardous material, including pesticides and fertilizers used for domestic, agricultural or horticultural purposes, into a sewer, storm drain, ditch, drainage canal, creek, stream, river, lake or tidal waterway or on the ground, sidewalk, street, highway or into the atmosphere, except when allowed by federal, state or local regulations or permits, including the regulations of the New York State Department of Environmental Conservation, as set forth in 6 NYCRR Parts 595 and 611.

2703.3.1 **Reporting of discharges.** When hazardous materials are released in quantities reportable under federal, state or local regulations, the commissioner shall be notified and the following procedures required in accordance with Sections 2703.3.1.1 through 2703.3.1.4.

2703.3.1.1 **Records.** Accurate records shall be kept of the discharge of hazardous materials.

2703.3.1.2 **Preparation.** Provisions shall be made for controlling and mitigating accidental discharges.

2703.3.1.3 **Control.** When a discharge is caused by a container failure, the container shall be repaired or removed from service.

2703.3.1.4 **Responsibility for cleanup.** The owner of a facility or other person responsible for an accidental discharge shall undertake all actions necessary to remediate such discharge. When deemed necessary by the commissioner, cleanup may be initiated by the department or other city agency. Costs associated with such cleanup shall be borne by the owner or other person responsible for the discharge. The department shall give such owner or other person written notice of such costs and an opportunity to be heard. Payment of such costs shall be recoverable in any manner authorized by law, rule or regulation. Failure to pay such costs shall cause a lien to be placed upon the premises pursuant to the provisions of Section 117.4 of this code, as applicable, or against vehicles or other personal property in accordance with the provisions applicable thereto. Nothing in this section shall be construed to preclude the implementation of response measures, or the recovery of the costs of such measures, by any other city agency, either prior or subsequent to any response measure implemented pursuant to this section.

2703.4 **Material Safety Data Sheets.** Material Safety Data Sheets (MSDS) shall be readily available on the premises for hazardous materials regulated by this chapter.

2703.5 **Hazard identification signs.** Unless otherwise exempted by the commissioner, hazard identification signs as set forth in NFPA 704 for the specific material contained shall be conspicuously affixed on stationary containers and aboveground tanks and at entrances to locations where hazardous materials are stored, handled or used, including dispensing, in quantities requiring a permit, including locations where such materials are dispensed, and at such other locations as may be designated by the commissioner.

2703.5.1 **Markings.** Individual containers, cartons or packages shall be conspicuously marked or labeled in an approved manner. Signs reading "COMPRESSED GAS" shall be conspicuously posted at the entrance to rooms or on cabinets containing compressed gases.

2703.6 **Signs.** Signs and markings required by Sections 2703.5 and 2703.5.1 shall not be obscured or removed, shall be in English as a primary language or in symbols allowed by this code, shall be durable, and the size, color and lettering shall be acceptable to the commissioner.

2703.7 **Sources of ignition.** Sources of ignition shall comply with the requirements of Sections 2703.7.1 through 2703.7.3.

2703.7.1 **Smoking.** It shall be unlawful to smoke in the following locations, and "No Smoking" signs shall be provided in English as a primary language and in symbols complying with the requirements of Section 310:

1. In rooms or areas where hazardous materials are stored or used in open systems in amounts requiring a permit.

2. Within 25 feet (7620 mm) of outdoor hazardous material storage, handling and use areas, including dispensing areas.

3. Facilities or areas within facilities in which smoking has been entirely prohibited shall have "No Smoking" signs conspicuously placed at all entrances to the facility or area. Facilities or areas within facilities in which smoking is permitted in designated areas shall have signs indicating that smoking is permitted in designated areas only.

4. In rooms or areas where flammable or combustible hazardous materials are stored, handled or used.

2703.7.2 **Open flames.** Open flames and devices that generate or operate at a high temperature shall be kept a safe distance from hazardous material in storage or use.

2703.7.3 **Industrial trucks.** Powered industrial trucks used in areas designated as hazardous (classified) locations in accordance with the Electrical Code shall be listed and labeled in accordance with NFPA 505.

2703.8 **Construction requirements.** Buildings, structures, control areas, enclosures and cabinets for hazardous materials shall be designed and constructed in accordance with Sections 2703.8.1 through 2703.8.6.2.

2703.8.1 **Buildings.** Buildings, structures, or portions thereof, in which hazardous materials are stored, handled or used shall be constructed in accordance with the construction codes, including the Building Code.

2703.8.2 **Required detached buildings.** Group H occupancies containing quantities of hazardous materials in excess of those set forth in Table 2703.8.2 shall be in detached buildings. [\[See Table 1\]](#)  
[\[See Table 2\]](#)

2703.8.3 **Control areas.** Control areas shall be those spaces within a building or structure and outdoor areas where quantities of hazardous

materials not exceeding the maximum quantities allowed by this code are stored, handled or used.

2703.8.3.1 **Construction requirements.** Control areas shall be separated from each other by not less than a 1-hour fire barrier constructed in accordance with the construction codes, including the Building Code.

2703.8.3.2 **Number.** The maximum number of control areas within a building or structure shall be in accordance with Table 2703.8.3.2. [\[See Table 1\]](#)

2703.8.3.3 **Separation.** The required fire-resistance rating for fire barrier assemblies shall be in accordance with Table 2703.8.3.2. The floor construction of the control area and construction supporting the floor of the control area shall have a minimum 2-hour fire-resistance rating.

2703.8.3.4 **Hazardous materials in Group M and S occupancies.** The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials allowed within a single control area of a Group M or S occupancy is allowed to exceed the maximum allowable quantities specified in Tables 2703.1.1(1) and 2703.1.1(2) without classifying the building or use as a Group H occupancy, provided that the materials are stored in accordance with Section 2703.11.

2703.8.4 **Gas rooms.** Where a gas room is provided to comply with the requirements of Chapter 37, the gas room shall be in accordance with Sections 2703.8.4.1 and 2703.8.4.2.

2703.8.4.1 **Construction.** Gas rooms shall be protected with a sprinkler system. Gas rooms shall be separated from the remainder of the building in accordance with the construction codes, including the Building Code, based on the occupancy group into which the building has been classified.

2703.8.4.2 **Ventilation system.** The ventilation system for gas rooms shall be designed to operate at a negative pressure relative to the surrounding area. Highly toxic and toxic gases shall additionally comply with the requirements of Section 3704.2.2.6. The ventilation system shall be installed in accordance with the construction codes, including the Mechanical Code.

2703.8.5 **Exhausted enclosures.** Where an exhausted enclosure is used to increase maximum allowable quantity per control area or when the location of



hazardous materials in exhausted enclosures is provided to comply with the requirements of Chapter 37, the exhausted enclosure shall be in accordance with Sections 2703.8.5.1 through 2703.8.5.3.

**2703.8.5.1 Construction.** Exhausted enclosures shall be of noncombustible construction.

**2703.8.5.2 Ventilation.** The ventilation system for exhausted enclosures shall be designed to operate at a negative pressure relative to the surrounding area. Ventilation systems used for highly toxic and toxic gases shall additionally comply with the requirements of Sections 3704.1.2(1), 3704.1.2(2) and 3704.1.2(3). The ventilation system shall be installed in accordance with the construction codes, including the Mechanical Code.

**2703.8.5.3 Fire extinguishing system.** Exhausted enclosures where flammable materials are used shall be protected by a fire extinguishing system in accordance with Chapter 9 and the construction codes, including the Building Code.

**2703.8.6 Gas cabinets.** Where a gas cabinet is used to increase the maximum allowable quantity per control area or when the location of compressed gases in gas cabinets is provided to comply with the requirements of Chapter 37, the gas cabinet shall be in accordance with Sections 2703.8.6.1 through 2703.8.6.3.

**2703.8.6.1 Construction.** Gas cabinets shall be constructed of not less than 0.097-inch (2.5 mm) (No. 12 gauge) steel; provided with self-closing limited access ports or noncombustible windows to give access to equipment controls; and have all interior surfaces treated, coated or constructed of materials that are compatible with the hazardous materials stored.

**2703.8.6.2 Ventilation.** The ventilation system for gas cabinets shall be designed to operate at a negative pressure relative to the surrounding area. Ventilation systems used for highly toxic and toxic gases shall additionally comply with the requirements of Sections 3704.1.2(1), 3704.1.2(2) and 3704.1.2(3). The ventilation system shall be installed in accordance with the construction codes, including the Mechanical Code.

**2703.8.6.3 Maximum number of containers per gas cabinet.** The number of containers stored in a single gas cabinet shall not exceed three.

**2703.8.7 Hazardous materials storage cabinets.** Where storage cabinets are used to increase maximum allowable quantity per control area or to comply with the requirements of this chapter, such cabinets shall be in accordance with Sections 2703.8.7.1 and 2703.8.7.2.

**2703.8.7.1 Construction.** All interior surfaces of such cabinets shall be treated, coated or constructed of materials that are nonreactive with the hazardous material stored. Cabinets shall either be listed in accordance with UL 1275 as suitable for the intended storage or constructed in accordance with the following:

1. Cabinets shall be of steel having a thickness of not less than 0.0478 inch (1.2 mm) (No. 18 gage). The cabinet, including the door, shall be double walled with a 1.5inch (38 mm) airspace between the walls. Joints shall be riveted or welded and shall be tight fitting. Doors shall be well fitted, self-closing and equipped with a selflatching device.

2. The bottoms of cabinets utilized for the storage of liquids shall be liquid tight to a minimum height of 2 inches (51 mm).

**2703.8.7.1.1 Electrical equipment.** Electrical equipment and devices within cabinets used for the storage of hazardous gases or liquids shall be in accordance with the Electrical Code.

**2703.8.7.2 Warning markings.** Cabinets shall be clearly identified in an approved manner with red letters on a contrasting background to read: HAZARDOUS—KEEP FIRE AWAY.

**2703.9 General safety precautions.** General precautions for the safe storage, handling and use of hazardous materials shall be in accordance with Sections 2703.9.1 through 2703.9.9.

**2703.9.1 Personnel training and written procedures.** Persons responsible for the operation of areas in which hazardous materials are stored, handled or used, including dispensing, shall be familiar with the chemical nature of the materials and the appropriate mitigating actions necessary in the event of fire, leak or spill. A certificate of fitness shall be required when specified by this code or the rules or as a condition of a permit.

**2703.9.1.1 Fire department liaison.** One or more responsible persons shall be designated to serve as a liaison to the department in connection with any emergency response to the premises, for purposes of providing access to the location where hazardous materials are stored on the premises, providing

access to Material Safety Data Sheets, and otherwise assisting in the development and implementation of emergency procedures. The names and telephone numbers of such responsible persons shall be included on the annual inventory required by New York State General Municipal Law Section 209-u and on a hazardous materials management plan when such plan is required. Telephone numbers shall include a 24-hour contact number for such responsible persons.

2703.9.2 **Security.** Storage, handling and use areas, including dispensing areas, shall be secured against unauthorized entry and safeguarded in a manner approved by the commissioner.

2703.9.3 **Protection from vehicles.** Posts or other approved means shall be provided to protect storage tanks and connected piping, valves and fittings; use areas; and dispensing areas subject to vehicular damage in accordance with Section 312.

2703.9.4 **Electrical wiring and equipment.** Electrical wiring and equipment shall be installed and maintained in accordance with the Electrical Code.

2703.9.5 **Static accumulation.** When conditions exist that could cause a flammable mixture to be ignited by static electricity, equipment shall be grounded and all other necessary and appropriate actions taken to prevent the accumulation of a static charge.

2703.9.6 **Protection from light.** Materials that are sensitive to light shall be stored in containers designed to protect them from such exposure.

2703.9.7 **Shock protection.** Materials that are sensitive to shock shall be padded, suspended or otherwise protected against jarring, seismic activity or other movement.

2703.9.8 **Separation of incompatible materials.** Incompatible materials shall be separated while in storage or use except for stored materials in containers having a capacity of not more than 5 pounds (2 kg) or 0.5 gallon (2 L). Separation shall be accomplished by:

1. Segregating incompatible materials in storage by a distance of not less than 20 feet (6096 mm).
2. Isolating incompatible materials in storage by a noncombustible partition extending not less than 18 inches (457 mm) above and to the sides of the

stored material.

3. Storing liquid and solid materials in hazardous material storage cabinets. Materials that are incompatible shall not be stored in the same cabinet.

4. Storing compressed gases in gas cabinets or exhausted enclosures in accordance with Sections 2703.8.5 and 2703.8.6. Materials that are incompatible shall not be stored within the same cabinet or exhausted enclosure.

**2703.9.9 Shelf storage.** Shelving shall be of substantial construction, and shall be braced and anchored in accordance with the seismic design requirements of the construction codes, including the Building Code, for the seismic zone in which the material is located. Shelving shall be treated, coated or constructed of materials that are compatible with the hazardous materials stored. Shelves shall be provided with a lip or guard when used for the storage of individual containers.

**Exceptions:**

1. Storage in hazardous material storage cabinets or laboratory furniture specifically designed for such use.

2. Storage of hazardous materials in amounts not requiring a permit in accordance with Section 105.6.

Shelf storage of hazardous materials shall be maintained in an orderly manner.

**2703.10 Handling.** In addition to the requirements of Section 2703.2, the handling of hazardous materials in corridors or exit enclosures shall be in accordance with Sections 2703.10.1 through 2703.10.3.6.

**2703.10.1 Valve protection.** Hazardous material gas containers and tanks moved during handling shall have their protective caps in place. Containers and tanks of highly toxic or toxic compressed gases shall have their valve outlets capped or plugged with an approved closure device in accordance with Chapter 30.

**2703.10.2 Carts and trucks required.** Containers of hazardous materials having a hazard ranking of 3 or 4 pursuant to NFPA 704, and liquids in containers exceeding 5 gallons (19 L), shall be moved during handling on a cart or truck meeting the requirements of Section 2703.10.3, when moved through any corridor or exit enclosure.

**Exceptions:**

1. Two hazardous material liquid containers, which are hand carried in acceptable safety carriers.

2. Not more than four drums not exceeding 55 gallons (208 L) each, which are moved by suitable drum trucks.

3. Containers of compressed gases, which are moved by approved hand trucks, and containers not exceeding 25 pounds (11 kg), which are hand carried.

4. Solid hazardous materials not exceeding 100 pounds (45 kg), which are moved by approved hand trucks, and a single container not exceeding 50 pounds (23 kg), which is hand carried.

**2703.10.3 Carts and trucks.** Carts and trucks required by Section 2703.10.2 to be used to move hazardous materials shall be designed and constructed in accordance with Sections 2703.10.3.1 through 2703.10.3.6.

**2703.10.3.1 Design.** Carts and trucks used to move hazardous materials shall be designed to provide a stable base for such movement during handling and shall have a means of restraining containers to prevent accidental dislodgement. Compressed gas containers placed on carts and trucks shall be individually restrained.

**2703.10.3.2 Speed-control devices.** Carts and trucks shall be provided with a device that will enable the operator to safely control movement by providing stops or speedreduction devices.

**2703.10.3.3 Construction.** The cart or truck shall be sturdily constructed of materials compatible with the material being moved.

**2703.10.3.4 Spill control.** Carts and trucks used to move liquids shall be capable of containing a spill from the largest single container being moved.

**2703.10.3.5 Attendance.** Carts and trucks used to move materials shall not obstruct or be left unattended in any corridor, exit enclosure, or other means of egress.

**2703.10.3.6 Incompatible materials.** Incompatible materials shall not be moved during handling on the same cart or truck.

**2703.10.4 Emergency alarm.** Where hazardous materials having a hazard ranking of 3 or 4 pursuant to NFPA 704 are handled through corridors or exit enclosures, there shall be an emergency telephone system, a local manual alarm station or an approved alarm-initiating device at not more than 150-foot (45 720 mm) intervals throughout the handling route, and at each exit

doorway throughout the handling route. The signal shall be relayed to an approved central station or remote supervising station or a constantly attended on-site location and shall also initiate a local audible alarm.

**2703.11 Group M storage and display and Group S storage.** The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials stored and displayed within a single control area of a Group M occupancy, or an outdoor control area, or stored in a single control area of a Group S occupancy, may exceed the maximum allowable quantity per control area indicated in Section 2703.1 when stored and displayed in accordance with Sections 2703.11.1 through 2703.11.3.10.

**2703.11.1 Maximum allowable quantity per control area in Group M or S occupancies.** The aggregate amount of nonflammable solid and nonflammable or noncombustible liquid hazardous materials stored and displayed within a single control area of a Group M occupancy or stored in a single control area of a Group S occupancy shall not exceed the amounts set forth in Table 2703.11.1. [\[See Table 1\]](#)  
[\[See Table 2\]](#)

**2703.11.2 Maximum allowable quantity per outdoor control area in Group M or S occupancies.** The aggregate amount of nonflammable solid and nonflammable or noncombustible liquid hazardous materials stored and displayed within a single outdoor control area of a Group M occupancy shall not exceed the amounts set forth in Table 2703.11.1.

**2703.11.3 Storage and display.** Storage and display shall be in accordance with Sections 2703.11.3.1 through 2703.11.3.10.

**2703.11.3.1 Density.** Storage and display of solids shall not exceed 200 pounds per square foot (976 kg/m<sup>2</sup>) of floor area actually occupied by solid merchandise. Storage and display of liquids shall not exceed 20 gallons per square foot (0.50 L/m<sup>2</sup>) of floor area actually occupied by liquid merchandise.

**2703.11.3.2 Storage and display height.** Display height shall not exceed 6 feet (1829 mm) above the finished floor in display areas of Group M occupancies. Storage height shall not exceed 8 feet (2438 mm) above the finished floor in storage areas of Group M and Group S occupancies.

2703.11.3.3 **Container location.** Individual containers less than 5 gallons (19 L) or less than 25 pounds (11 kg) shall be stored or displayed on pallets, racks or shelves.

2703.11.3.4 **Racks and shelves.** Racks and shelves used for storage or display shall be in accordance with Section 2703.9.9.

2703.11.3.5 **Container type.** Containers shall be approved for the intended use and identified as to their content.

2703.11.3.6 **Container size.** Individual containers shall not exceed 100 pounds (45 kg) for solids or 10 gallons (38 L) for liquids in storage and display areas.

2703.11.3.7 **Incompatible materials.** Incompatible materials shall be separated in accordance with Section 2703.9.8.

2703.11.3.8 **Floors.** Floors shall be in accordance with Section 2704.12.

2703.11.3.9 **Aisles.** Aisles 4 feet (1219 mm) in width shall be maintained on three sides of the storage or display area.

2703.11.3.10 **Signs.** Hazard identification signs shall be provided in accordance with Section 2703.5.

2703.12 **Outdoor control areas.** Outdoor control areas for hazardous materials in amounts not exceeding the maximum allowable quantity per outdoor control area shall be in compliance with the following requirements:

1. Outdoor control area shall be kept free from vegetation, rubbish and other combustible waste, and combustible materials not necessary to the storage. The area surrounding an outdoor control area shall be kept clear of such materials for a minimum of 15 feet (4572 mm).

2. Outdoor control areas shall be located at least 5 feet (1524 mm) from a building opening and at least 15 feet (4572 mm) from Group A occupancies. Outdoor control areas shall be located at least 20 feet (6096 mm) from a lot line, public street or private road.

**Exception:** A 2-hour fire-resistance-rated wall without openings extending not less than 30 inches (762 mm) above and to the sides of the storage area is allowed in lieu of such distances required from a building opening, lot line, public street or private road.

3. Where a property exceeds 10,000 square feet (929 m<sup>2</sup>), there may be two

outdoor control areas separated by a minimum distance of 50 feet (15 240 mm), when approved.

4. Where a property exceeds 35,000 square feet (3252 m<sup>2</sup>), there may be multiple outdoor control areas, separated a minimum distance of 50 feet (15 240 mm), when approved.

#### **HISTORICAL NOTE**

Section added L.L. 26/2008 § 13, eff. July 1, 2008.