NYC Fire Department Rules and Regulations for PBS & CBS Tanks

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Bill de Blasio, Mayor
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“PBS” & “CBS”

• The 2014 NYC Fire Code does not use the term “PBS” or “CBS” to describe tanks that are used for the storage of hazardous liquids but rather refers to these tanks as either aboveground storage tanks (AST) or underground storage tanks (UST) and breaks down the regulation of these tanks based on their intended use. As such I have broken down my presentation here to reflect the regulations of PBS & CBS tanks based on intended use as follows:
• PBS tanks for Oil Burning Equipment.

• PBS tanks for Motor Fuel Dispensing Facilities.

• PBS tanks at Bulk Oil Plants or Terminals.

• PBS & CBS tanks used for flammable and combustible liquid storage purposes only (not intended for use on site as a fuel) and not on the order of a bulk oil plant or terminal.
• **2014 NYC FIRE CODE DEFINITIONS**

• **FLAMMABLE LIQUID.** A liquid having a closed cup flash point below 100°F.

• **COMBUSTIBLE LIQUID.** A liquid having a closed cup flash point at or above 100°F.

• **CERTIFICATE OF FITNESS (COF).** A written statement issued by FDNY certifying that the person to whom it is issued to has passed an examination deeming them qualified to supervise a facility, conduct or supervise an operation or supervise the storage, handling and/or use of a material.
• **FDNY PERMITS**

• A permit is required to store, handle or use:

  • Flammable liquids in quantities exceeding 5 gallons.

  • Gasoline and other petroleum-based flammable liquids in quantities exceeding 2½ gallons.

  • Combustible liquids with a flash point of 300°F or less in quantities exceeding 10 gallons EXCEPT that a permit is not required for the storage of fuel oil in stationary storage tanks in one or two family residential occupancies for use in stationary fuel oil burning equipment.
• Any liquid having a flash point of 300°F or less that are commonly used for painting, varnishing, staining or other similar purposes in quantities exceeding 20 gallons.

• Petroleum-based combustible liquids with a flash point exceeding 300°F in quantities exceeding 70 gallons.

• A bulk plant or terminal where flammable and combustible liquids are blended, produced, processed, transported, stored, dispensed or used.

• A motor fuel-dispensing facility.
• **DESIGN & INSTALLATION DOCUMENTS**

• All applications for permit shall be accompanied by design and installation documents. Those documents shall first be filed with the NYC Department of Buildings (or in the case of waterfront property, the NYC Department of Small Business Services) prior to submission to FDNY for plan review by our Technology Management Unit.

• Additionally, installations that have a fire alarm system component will require a separate filing and plan review by our Department’s Fire Alarm Plan Examination Unit.

• **EXCEPTION:** Any installation of storage tanks and auxiliary storage tanks for oil-burning equipment.
• **PBS TANKS FOR OIL BURNING EQUIPMENT**

• The NYC Fire Department (FDNY) has no jurisdiction over fuel oil storage systems for oil burning equipment in one or two family (residential) homes – these installations are solely approved by the NYC Department of Buildings via their Mechanical Code.

• Additionally, while all other fuel oil storage systems for oil burning equipment are required to obtain a FDNY permit, design and installation documents are only reviewed by the NYC Department of Buildings.
• **CERTIFICATE OF FITNESS**

• A stationary fuel oil storage tank installed on the lowest floor of a building and that transfers fuel oil through piping to another stationary fuel oil storage tank, or to fuel-oil burning equipment, installed above such floor, shall be under the general supervision of a certificate of fitness holder.

• Every stationary oil-fired device, equipment or system that is not fully automatic or requires preheating of the oil shall be operated by or under the personal supervision of a person holding a certificate of fitness or a person holding a high-pressure boiler operating engineer’s license issued by the Department of Buildings.
• PBS TANKS FOR MOTOR FUEL-DISPENSING

• DEFINITION

• CERTIFICATE OF LICENSE. A written statement issued by FDNY authorizing the operation of a business to install, alter, test or repair liquid motor fuel storage and dispensing equipment and systems or flammable or combustible liquid storage systems.
CERTIFICATE OF FITNESS

The dispensing of motor fuel at all motor fuel-dispensing facilities shall be conducted by or under the personal supervision of a certified attendant who shall hold a Certificate of Fitness to supervise such dispensing.
• **TANK DESIGN & LIMITATIONS**

• Underground liquid motor fuel storage tanks shall be completely double-walled and constructed of steel, fiberglass-reinforced plastic or a combination of both materials. The secondary tank shall be capable of containing any leakage from the primary tank.

• The capacity of each individual tank shall not exceed 12,000 gallons of liquid motor fuel.

• Not more than 40,000 gallons of liquid motor fuel shall be stored at any facility, including liquid motor fuel stored in aboveground tanks.
• Aboveground tanks shall be protected atmospheric tanks listed in accordance with UL 2085.

• The capacity of each tank shall not exceed 4,000 gallons.

• Not more than a total of 4,000 gallons of motor fuel shall be stored aboveground at any facility.

• EXCEPTION: Individual tanks may exceed 4,000 gallons (up to 12,000 gallons) at fleet motor fueling facilities.

• Each tank shall have a separate fill line and a separate vent line that are separate from the fill and vent lines of other tanks.
LEAK DETECTION SYSTEMS

Underground motor fuel storage and dispensing systems shall be provided with a leak detection system.

Leak detection systems monitoring motor fuel storage systems shall be tested at least once every 2 years by a person holding a FDNY certificate of license.

FDNY may require a tank and piping system to be precision tested, pressure tested or tested by other approved method to determine the condition of the tank or piping or when we have good cause to believe that a leak exists.
• Storage systems that may contain motor fuel or combustible vapor shall not be tested pneumatically.

• Any existing underground single-walled motor fuel storage tanks previously approved by the department or any existing underground tanks that is not provided with a leak detection system shall be precision tested at least once every 5 years.

• All testing shall be witnessed by a representative of FDNY.
• **SECONDARY CONTAINMENT**

• Aboveground tanks shall be provided with diking EXCEPT that diking is not required for listed secondary containment tanks.

• The secondary containment system shall be monitored either visually or automatically. Enclosed secondary containment systems shall be provided with emergency venting.

• **NOTE:** Aboveground storage tanks provided with a leak detection system shall also be tested once every 2 years.
OVERFILL PROTECTION

All motor fuel storage tanks shall be provided with an approved overfill alarm designed to activate a local audible and visual alarm in an area supervised by the cargo tank delivery operator.

Such alarms shall activate when the quantity of fuel in the tank exceeds a designated level, which shall not be more than 95 percent of capacity.

Additionally, overfill protection shall be provided for aboveground storage tanks with devices designed to withstand the pressure generated by the cargo tank discharge pump and shall automatically shut off the flow into the tank when the tank is not more than 95 percent full.
FIRE PROTECTION SYSTEMS

Where flammable liquid motor fuel is dispensed at an automotive liquid motor fuel-dispensing facility, the dispensing area shall be provided with a dry chemical fire extinguishing system.

Additionally, fire extinguishing systems at fleet automotive liquid motor fuel-dispensing facilities shall be monitored by an approved central station company.

Fire extinguishing systems shall be tested at least once every 5 years and witnessed by a representative of FDNY.
• PROHIBITIONS

• It shall be unlawful to store:

• Flammable liquid motor fuel in aboveground tanks.

• Combustible liquid motor fuel in aboveground tanks, EXCEPT outdoors at fleet motor fuel-dispensing facilities.

• Any motor fuel in aboveground tanks indoors.
• **BULK PLANT OR TERMINAL**

• **DEFINITION**

• **BULK PLANT OR TERMINAL.** Any premises upon which flammable or combustible liquids are received from marine vessel, watercraft, pipeline, tank car or cargo tank and are stored or blended in bulk for the purpose of distributing such liquids by marine vessel, watercraft, pipeline, tank car, cargo tank or container.
• CERTIFICATE OF FITNESS

• Bulk plants and terminals, including transfer operations, and fire protection systems at the facility shall be continuously under the personal supervision of a person holding a certificate of fitness for such facility.
TANK DESIGN & LIMITATIONS

- Newly constructed tanks shall be in accordance with API 650.

- Newly installed aboveground, underground and mounded-over tanks shall be filled to capacity with water and maintained for no less than 24 hours.

- Piping shall be hydrostatically tested to a pressure of 100 pounds per square inch (psig) or 150 percent of the maximum operating pressure, whichever is greater, for 30 minutes.
• The maximum capacity of any aboveground tank used for storage of a flammable liquid shall not exceed 500,000 gallons.

• The maximum capacity of any aboveground tank used for storage of combustible liquid shall not exceed 6,000,000 gallons.
• Underground storage tanks used for storage of a flammable liquid shall not exceed 500,000 gallons, EXCEPT that FDNY may approve tanks with a capacity not to exceed 6,000,000 gallons where such greater capacity is determined to be necessary because of the capacity of the supplier delivering such liquid and where such increased capacity does not endanger the public safety.

• Underground storage tanks used for storage of a combustible liquid shall not exceed 6,000,000 gallons. Such tanks may be compartmented; however, in no case shall any compartment exceed 4,000,000 gallons.

• NOTE: Mounded-over tanks shall be considered underground tanks.
• **SECONDARY CONTAINMENT**

• Single dike wall enclosures shall have a capacity equal to 110 percent of the tank’s capacity.

• Tanks arranged in groups with a total capacity not exceeding 500,000 gallons may be enclosed in a single dike wall enclosure.

• Each group tank dike area shall have a net capacity not less than that of the largest tank plus 10 percent of the aggregate capacity of all other tanks served by the dike enclosure. That portion of the surface occupied by tank or tanks shall be included when computing the diked area.
• OVERFILL PROTECTION

• To prevent an overfill during the transfer of flammable or combustible liquid from a marine vessel, watercraft, pipeline, tank car, cargo tank or storage tank, each tank shall be equipped with an approved electrically operated overfill protection system.

• Audible and visible alarms shall be activated automatically when the liquid level in the tank approaches 95 percent of tank capacity and again when it attains a level of 98 percent of tank capacity. This alarm shall be connected to both the marine vessel, watercraft, pipeline, tank car or cargo tank receiving point, as applicable, and to the facility dispatcher's office.
• Tanks filled by pipelines shall be provided with a shutoff valve in the fill line that will automatically shut off the flow to the tank when the liquid level in the tank approaches 95 percent.

• Tank overfill protection systems shall be tested once every 2 years. All testing shall be witnessed by a representative of FDNY.
**FIRE PROTECTION SYSTEMS**

- All tanks, loading and unloading racks, marine vessel and watercraft loading and unloading areas and all other portions of a bulk plant or terminal shall be provided with fire extinguishing systems. Such systems shall include an approved yard hydrant system and tank monitor nozzles.

- Manual pull stations shall be provided at one or more approved locations that will automatically transmit a signal to the department via an approved central station.

- Fire extinguishing systems and fire protection systems shall be tested once every 2 years. All testing shall be witnessed by a representative of FDNY.
• **OTHER TESTING REQUIREMENTS**

• Underground piping shall be tested once every 10 years.

• Such test shall be made at 100 pounds per square inch (psig) or 150 percent of the maximum operating pressure, whichever is greater, for 30 minutes.

• All testing shall be witnessed by a representative of FDNY.
• OTHER PBS & CBS TANKS USED FOR THE STORAGE OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

• CERTIFICATE OF FITNESS

• The storage of flammable liquids, and combustible liquids with a flash point of 300°F or less, shall be under the general supervision of a certificate of fitness holder when the quantity of such stored liquids exceeds 2½ gallons of gasoline OR 275 gallons of any other liquid in a closed system.
• **TANK DESIGN & LIMITATIONS**

• Individual underground flammable liquid storage tanks shall not exceed a capacity of 4,000 gallons with aggregate capacity at a premises not to exceed 20,000 gallons.

• Individual underground combustible liquid storage tanks shall not exceed a capacity of 12,000 gallons with aggregate capacity not to exceed 40,000 gallons.

• The individual or aggregate capacity of aboveground combustible liquid tanks installed outdoors shall not exceed 30,000 gallons while the individual or aggregate capacity of aboveground combustible liquid tanks installed indoors shall not exceed 20,000 gallons.
• **LEAK DETECTION SYSTEM**

• Underground storage tank systems shall be provided with an approved method of leak detection.

• Any underground single-walled flammable or combustible liquid storage tank existing prior to the effective date of this code that is not provided with a leak detection system shall be precision tested at least once every 5 years.
• FDNY may require a tank and piping system to be precision tested, pressure tested or tested by other approved method to determine the condition of the tank or piping or when we have good cause to believe that a leak exists.

• Storage systems that may contain flammable or combustible liquid vapor shall not be tested pneumatically. All testing shall be witnessed by a representative of FDNY.
• SECONDARY CONTAINMENT

• The area surrounding a tank or group of tanks shall be provided with drainage control or shall be diked to prevent accidental discharge of liquid from endangering adjacent tanks, adjoining property or reaching waterways.

• EXCEPTIONS: Drainage control and diking is not required for listed secondary containment tanks.
• **OVERFILL PROTECTION**

• An approved overfill prevention system shall be provided for each tank. During tank-filling operations, the system shall automatically shut off the flow of liquid to the tank when the quantity of liquid in the tank reaches 95 percent of tank capacity.

• Additionally, for underground storage tanks the person filling the tank shall determine the number of gallons required to fill it to 90 percent of capacity before commencing the fill operation.
• FIRE PROTECTION

• Outdoor storage tanks do not require fire protection systems.

• Indoor storage tanks would require fire protection systems if the maximum allowable storage quantity for that liquid is exceeded.
• PROHIBITIONS

• It shall be unlawful to:

  • Manufacture, refine or distill petroleum or coal tar, or the liquid products thereof.

  • Operate a refinery.

  • Install an aboveground flammable liquid storage tank indoors.

  • Install an aboveground flammable liquid storage tank outdoors EXCEPT at a bulk plant or terminal.
• **OUT OF SERVICE TANKS**

• **Temporarily Out-of-Service storage system** – tanks not used for a period of 30 calendar days or more but less than 1 year can be safeguarded in place as per procedures set forth in the NYC Fire Code.

• **Permanently Out-of-Service storage system** – tanks not used for a period of one year or more shall be removed from the premises or sealed in place as per procedures set forth in the NYC Fire Code.

• **EXCEPTIONS:**

• Tanks within operating facilities at bulk plants and terminals or tanks used seasonally.
• The safeguarding, sealing or removal of any storage system shall be performed by personnel holding specific licenses as follows:

• For fuel oil storage systems with a total capacity of 330 gallons or less – a DOB licensed plumber, DOB licensed oil-burning equipment installer or a person holding a FDNY certificate of license.

• For fuel oil storage systems with a total capacity exceeding 330 gallons – a DOB licensed oil-burning equipment installer or a person holding a FDNY certificate of license.

• For motor fuel or other flammable or combustible liquid storage systems – a person holding a certificate of license.
QUESTIONS?

THANK YOU!

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