

Suffolk County
Department of Health Services

Division of Environmental Quality

Aboveground Indoor Tank Design Guidelines

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Suffolk County Department of Health Services  
Aboveground Indoor Tank Design  
Guidelines

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1.0 General

- 1.1 An indoor storage facility, as defined by Article 12 of the Suffolk County Sanitary Code, shall include all portable containers and vessels with an individual nominal volume greater than 80 gallons and a combination of smaller vessels with a cumulative nominal volume in excess of 250 gallons stored or located indoors and used to contain toxic or hazardous materials.
- 1.2 Exemptions ~ all aboveground, indoor storage facilities, except those meeting the following criteria, must comply with the applicable provisions of Article 12 and the requirements as set forth in these guidelines.
- the facility is located in a non-Article 7 regulated area, the product stored is #2 fuel oil, #4 fuel oil, #6 fuel oil, kerosene, or diesel, the purpose of which is solely for on-site heating or intermittent stationary power production and whose total on-site storage capacity of this same material is less than 1,100 gallons.
 - the facility is on a residential parcel storing #2 fuel oil, #4 fuel oil, #6 fuel oil, kerosene, or diesel, the purpose of which is solely for on-site heating or intermittent stationary power production and whose total on-site storage capacity of this same material is less than 1,100 gallons.
 - the indoor storage facility consists of vessels with individual, nominal volumes less than 80 gallons and a total on-site cumulative volume less than 250 gallons.
- 1.3 Approval of design by the Suffolk County Department of Health Services, Environmental Engineering Bureau, is required before installation. It shall be unlawful for any person to install, use, put into service, or maintain the existence of any new or existing aboveground indoor toxic/hazardous material storage facility, or part thereof, subject to these guidelines if said facility, or part thereof, does not conform to all applicable regulations.

2.0 Definitions

- 2.1 Aboveground ~ when referring to tanks and vessels, means less than 10% below the finished floor elevation.
- 2.2 Article 7 Regulated Area ~ any of the areas delineated in Suffolk County by the Long Island

Comprehensive Waste Treatment Plan 9 L.I. 208 Study, as revised by the Long Island Groundwater Management Plan, and subsequent revisions adopted by the board identifying differences in regional hydrogeologic and groundwater quality conditions. The boundaries of the Groundwater Management Zones are set forth on a map adopted by the Commissioner of Health Services in Hauppauge, NY.

- 2.3 Board ~ Suffolk County Board of Health.
- 2.4 Commissioner ~ Commissioner of Suffolk County Department of Health Services.
- 2.5 Containment Structure ~ an enclosure or other system designed to contain any spillage that may occur from a toxic/hazardous material storage facility.
- 2.6 Double-Walled ~ constructed with more than one containment layer with space between the layers sufficient to allow monitoring of any leakage into or out of the space.
- 2.7 Residential Parcel ~ a single body of land or single building plot zoned for single-family residential use.
- 2.8 Storage Facility ~ tanks, pipes, vaults, buildings, yards, pavements or fixed containers used, or designed to be used, either singly or in any combination thereof, for the storage and/or transmission of toxic/hazardous materials.
- 2.9 Substantial Modification ~ the construction of any additions to an existing storage facility, or restoration, refurbishment or renovation which:
- a. increases or decreases the in-place storage capacity of the facility.
 - b. alters or affects the physical configuration.
 - c. impairs or affects the physical integrity of the facility or monitoring systems.
- 2.10 Toxic or Hazardous Materials - any substance, solution or mixture which, because of its quality, quantity, concentration, physical, chemical or infectious characteristics, or any combination of the foregoing, presents, or may present, an actual, or potential, hazard to human health or to the drinking water supply if such substance, solution, mixture or combination thereof is discharged to the land or waters of Suffolk County. Toxic or hazardous materials shall include:
- a. each and every substance, material, waste found in either or both Part 116 and Part 261, Title 40 of the Code of Federal Regulations; or Title 6, Part 371 of the New York State Codes, Rules and Regulations.
 - b. acids and alkalies beyond the pH range of 4 to 10.

- c. heavy metal sludge, mixtures, and solutions in excess of the allowable concentrations listed in Title 6, Part 703.6 of the New York State Codes, Rules and Regulations.
- d. petroleum products, including fuels and waste oils.
- e. organic solvents, including petroleum solvents, halogenated and nonhalogenated hydrocarbons.
- f. any material listed in Schedule I, Part 703.6 of the Official Compilation of New York Codes, Rules and Regulations, in excess of the concentration standards thereof, except for iron, manganese, foaming agents and pH, unless otherwise provided in Article 12 of the Suffolk County Sanitary Code.
- g. any substance not included within subdivisions *a through f* above subsequently declared to be a toxic or hazardous material by the commissioner.
- h. any solid or semi-solid material which, if left to stand or exposed to water, will leach out or wholly or partially dissolve, forming a toxic or hazardous material as defined in subdivisions *a through g* above.

2.11 Toxic or Hazardous Wastes mean:

- a. toxic or hazardous materials as defined in subdivision 2.10, generated by, or as a result of operations in, or the existence of, any manufacturing or other industrial or commercial establishment, which toxic or hazardous materials are not actually used in a final product for sale, and shall include those toxic or hazardous materials retained as by-products of the operations within such manufacturing or commercial establishment for the purpose of recouping salvage value.
- b. toxic or hazardous materials generated by one in possession or control of any residential premises, for which materials= disposal is intended, and which waste is not domestic wastewater without the admixture of nonsewage wastewater from any industrial process.
- c. all toxic and hazardous wastes are toxic and hazardous materials.

3.0 Submittals

- 3.1 A Permit to Construct, issued by the Office of Pollution Control, is required prior to installation of a new storage facility or substantial modification to an existing or new storage facility.
- 3.2 Submittal Requirements --
 - 3.2.1 An Application for a Permit to Construct a Toxic/Hazardous Material Storage Facility, signed by the owner or owner=s representative.
 - 3.2.2 A completed Toxic/Hazardous Materials Registration form.
 - 3.2.3 A filing fee, as specified in the Fee Schedule for Services Related to Article 12, made payable to Suffolk County Department of Health Services (municipalities are fee exempt).

3.2.4 Plans, prepared and signed by a registered professional engineer or architect, licensed by the state of New York, submitted in quadruplicate.

3.3 Plan Requirements -- each plan submittal for construction approval must include the following:

3.3.1 Key map highlighting the site location.

3.3.2 Site plan, of suitable scale, illustrating the following:

- a. existing and proposed buildings.
- b. property lines.
- c. all existing and proposed locations for the storage of toxic/hazardous materials.
- d. north arrow.
- e. piping routes.
- f. overfill and leak alarm panels (leak alarm is not always required).

3.3.3 Title block listing the following:

- a. facility name and address.
- b. architect/engineer name, address, telephone number, signature and seal.
- c. Suffolk County tax map numbers (district/section/block/lot)
- d. scale of drawing.
- e. 3"x5" block for Suffolk County Department of Health Services= approval stamp.

3.3.4 Construction drawings shall illustrate all proposed tankage and piping, including partial plan view, cross-section of installation, and necessary details.

The following items must be included in the partial plan view:

- a. tank and containment area (including dimensions).
- b. piping routes, including location of fill port.
- c. alarm panel location.

The following items must be included in the cross-section detail:

- a. tank and containment area (including dimensions).
- b. piping.

The following must be included in the details:

- a. containment area construction, including construction joints and coating system.
- b. remote fill containment.

3.4 Design Requirements - the following information must be illustrated on the design or drawing, or be included within the design specifications:

3.4.1 Compatibility

a.the storage and containment facilities must be impervious to the material which is, or could be, contained within. A signed statement from the tank manufacturer certifying compatibility of the tank with the stored materials is required.

3.4.2 Tank Design

a.all new tanks used for the storage of flammable or combustible materials must meet or exceed the design manufacturing standards of UL #142, API 650, API 620 and carry the appropriate label.

b.tanks storing material other than those specified in the guidelines referred to in 3.4.2.a will be considered on an individual basis.

c.all new steel tanks must be externally coated. The coating must, at the least, consist of a primer coat, a bond coat, and two or more final coats of paint, or have an equivalent surface coating system designed to prevent corrosion and deterioration.

3.4.3 Containment Structure General Design Criteria

a.an impervious containment structure, sized to contain 110% of the total volume of toxic/hazardous materials stored, must be constructed in a manner which will, in the opinion of the commissioner, provide the maximum reasonable protection against discharge to the ground, groundwaters or surface waters of Suffolk County.

b.the containment structure must not have any penetrations below the elevation required for the containment volume.

c.the containment structure must be designed and constructed in a manner consistent with the requirements of NFPA 30, where applicable.

d.the containment structure may be constructed of concrete, concrete block (cinder block is not acceptable), steel, or other material suitable for creating a permanent, impervious containment structure.

e.if the containment structure is not readily visible to the facility operator, a leak detection system meeting Suffolk County Department of Health Services= ALeak Detection Alarm System Requirements for Toxic/Hazardous Materials Storage Facilities@ guideline must be installed.

3.4.4 Concrete Containment Structure

a.all concrete must be designed and installed in a manner which provides an impervious containment structure. The containment structure must be sealed, using a coating certified by the manufacturer to be impervious to

the materials being stored.

- b.the containment structure should be designed and constructed utilizing a monolithic pour whenever possible.
- c.all construction and expansion joints must incorporate water stops. The water stop must be constructed of a material which is impermeable to and will not degrade when exposed to the materials that are, or could be, stored within the containment structure.
- d.containment structures utilizing concrete block (cinder block is not acceptable) must be anchored to the floor slab. The anchoring must, at the minimum, consist of #3 rebar that has been cast into the new slab, and be installed in alternate blocks. The block core containing the rebar must be filled solid with concrete or grout.
- e.all concrete must be a minimum 3000 psi, 28-day strength.
- f.all concrete must be reinforced.
- g.all concrete must be air entrained.
- h.all concrete must be moist cured for a minimum of seven days.

3.4.5 Metallic Containment Structures

- a.containment structure must utilize welded seams.
- b.containment structure must be a minimum 14 gauge.
- c.stiffeners must be permanently attached to the structure and located as required.
- d.the interior and exterior surfaces of the containment structure must be coated using a material resistant to corrosion and compatible with the product being stored within the storage vessel.
- e.any metal used in constructing the containment must not degrade when exposed to the product being stored within the storage vessel.

3.4.6 Overfill Detection

- a.all storage facilities must have a positive means of preventing overfilling.
- b.overfill detection, in the form of audible and visual indication, is required on all vessels, except open top, translucent or transparent vessels whose level is clearly visible to the operator filling the vessel. Overfill alarm systems must comply with Suffolk County Department of Health Services= ALevel Alarm System Requirements for Overfill Protection of

Toxic/Hazardous Material Storage Tanks.@ Submittals must include proposed manufacturer, model number and location of probes and alarm panel. Overfill probes must be rigidly mounted. **Field substitution is prohibited without prior written approval from the Environmental Engineering Bureau.**

c.vent line must be unobstructed.

d.the overfill annunciation must be audible at the fill location.

3.4.7 Piping

a.all piping must be corrosion resistant and compatible with the product being conveyed.

b.all aboveground piping must be adequately supported, using pipe hangers or other suitable means to prevent damage to the piping.

c.all underground piping must be of double-walled construction. The containment pipe must be noncorrodible and compatible with the product being conveyed in the primary pipe. All metallic piping in contact with the soil must be coated or wrapped with a corrosion protective system and cathodically protected. A Protection Prover Test Station must be accessible at grade.

d.containment pipe, unable to pitch and drain directly into the containment structure, must be sloped, minimum 1/8 inch per foot, to a low point containing a leak detection probe accessible from grade. The leak detection system must meet the requirements of Suffolk County Department of Health Services= ALeak Detection Alarm System Requirements for Toxic/Hazardous Material Storage Facilities.@

3.4.8. Trench Drains

a.floor trenches, in contact with the soil, used to convey or contain spillage, must be double-walled with leak detection. The containment system in contact with the soil must be noncorrodible (i.e., nonmetallic or coated and cathodically protected metallic systems).

3.4.9 Underground Spill Containment Tanks

a.in situations, acceptable to the commissioner, where spill containment at the storage vessels is not possible, or would create the potential for a more dangerous situation, a floor drain system, leading to an underground tank, may be substituted as spill containment.

b.the underground piping and tank must, as a minimum, comply with the Standards for Administration of Article 12, ASingle-Walled Underground Tank Design Standards.@

c.the tank must be maintained empty.

d.the tank must be equipped with a low-level indication system to clearly show that the storage vessel is empty. This system must comply with Suffolk County Department of Health Services= ΔOverfill Alarm System Requirements for Toxic/Hazardous Material Storage Facilities.@