Technical Requirements for Aboveground Storage Tanks (ASTs) Storing Class IIIB Liquids (other than used oil)

References:
Comm 10 2009 EDITION / NFPA 30 2008 EDITION

ITEM DESCRIPTION	Comm 10 / NFPA
General Class IIIB AST Requirements	
FLASH POINT	**Comm 10.050 (30) Combustible Liquid**, **(30)** "Combustible liquid" means a liquid having a flash point at or above 100□F. **Note:** Under NFPA 30 section 4.3.2, combustible liquids are further classified as being Class II, IIIA or IIIB liquids. **NFPA 30-4.3.2** Combustible liquids, as defined in 3.3.30.1 and 4.2.2, shall be classified in accordance with the following: (1) Class II Liquid — Any liquid that has a flash point at or above 100°F (37.8°C) and below 140°F (60°C) (2) Class III Liquid — Any liquid that has a flash point at or above 140°F (60°C) (a) Class IIIA Liquid — Any liquid that has a flash point at or above 140°F (60°C), but below 200°F (93°C) (b) Class IIIB Liquid — Any liquid that has a flash point at or above 200°F (93°C) Flash point identified on the Material Safety Data Sheet (MSDS) is the reference.
DEFINED AND REGULATED AS A COMM 10 TANK	Comm 10 effective July 2002 Exempt: ♦ UST less than 60 gal. ♦ AST less than 110 gal.
PLAN REVIEW REQUIREMENTS	Required for all USTs; and ASTs larger than 1,100 gallon capacity. Comm 10.100(1)(b)3 exemption: Aboveground tanks which have a capacity of less than 1,100 gallons and which store Class IIIB liquids other than used oil.
REGISTRATION REQUIREMENTS	Required for all USTs and ASTs larger than 1,100 gallon capacity. Comm 10.140(1)(a)3 exemption: ASTs used to store Class IIIB liquids other than used oil.
CONSTRUCTION STANDARD	Listing: Comm 10.400(1) (c) *Tanks for Class IIIB liquids*. Tanks of 1,100 gallon or more capacity used for aboveground storage of Class IIIB liquids shall be listed or shall be acceptable to the department. (Accepted listings in note below) [Therefore, tanks less than 1,100 gallon capacity do not have a listing requirement. "Acceptable to the department" are typically tanks that are manufactured (not owner fabricated) by a recognized tank manufacturer' for the intended storage purpose.] Comm 10.250(2) CONSTRUCTION. (a) Except as allowed under par. (b), tanks containing flammable or combustible liquids shall be constructed to one of the recognized design standards in NFPA 30 or a standard approved by the department. **Note:** Design standards recognized by NFPA 30 include API 12B, API 12D, API 12F, API 620, API 650, UL 58, UL 80, UL 142, UL 1316, UL 1746, UL 2080, UL 2085 and UL 2386. <u>IBCs</u> UL 2386 is the fire exposure test standard for IBC rated/approved for combustible liquid handling. The UL mark states specifically: "These requirements cover intermediate bulk containers (IBC's) intended for the storage of flammable and combustible liquids within warehouses and other storage areas protected with automatic wet-pipe sprinkler systems." NFPA 30 Chapter 4 addresses IBCs up to 800 gallon capacity..
INSTALL BY CERTIFIED CONTRACTOR	Tanks that do not require Comm 10 plan review are not required to be installed by a Comm 5 certified contractor.

ANNUAL INSPECTION	No
TANK DESIGN & CONSTRUCTION REQUIREMENTS (CONSTRUCTION MATERIAL)	**Comm 10.250 Tank construction and marking. (2)** CONSTRUCTION. Tanks containing flammable or combustible liquids shall be constructed to one of the recognized design standards in NFPA 30 section 21.4.2, or to another standard or design approved by the department, . . . NFPA 30- 21.4.1 Materials of Construction. Tanks shall be of steel or other approved noncombustible material and shall meet the applicable requirements of 21.4.1.1 through 21.4.1.5 21.4.1.1 The materials of construction for tanks and their appurtenances shall be compatible with the liquid to be stored. In case of doubt about the properties of the liquid to be stored, the supplier, producer of the liquid, or other competent authority shall be consulted. 21-4.1.2 Tanks shall be permitted to be constructed of combustible materials only when approved by the authority having jurisdiction. Tanks constructed of combustible materials shall be limited to the following: (1) Underground installation (2) Use where required by the properties of the liquid stored (3) Aboveground storage of Class IIIB liquids in areas not exposed to a spill or leak of Class I or Class II liquid (4) Storage of Class IIIB liquids inside a building protected by an approved automatic fire-extinguishing system. 21.4.1.3 Unlined concrete tanks shall be permitted to be used for storing liquids that have a gravity of 40° API or heavier. Concrete tanks with special linings shall be permitted to be used for other liquids, provided they are designed and constructed in accordance with recognized engineering standards. NFPA 30-21.4.2.1 Design Standards for Atmospheric Tanks. 21.4.2.1 Atmospheric tanks, including those incorporating secondary containment, shall be designed and constructed in accordance with recognized standards or approved equivalents. Atmospheric tanks that meet any of the following standards shall be deemed as meeting the requirements of 21.4.2.1 API 12B, API 12D, API 12F, API 650, UL 80, UL 142, UL 2080 and UL 2085 *Comm 10.400(1)(c) Tanks for Class IIIB liquids. Tanks of 1,100 gallon or more capacity used for aboveground storage of Class IIIB liquids shall be listed or shall be acceptable to the department*
TANKS IN BUILDINGS	**NFPA 30-24** shall apply to installations of tanks storing Class I, Class II, and Class IIIA liquids in storage tank buildings. This subsection shall not specifically apply to such tanks in process areas. (See Chapter 7**.) NFPA 30-24.1.1-Tanks storing Class IIIB liquids are not be required to comply with the provisions of this subsection**. However, adequate space must be provided for both tank and building maintenance. A tank installation that has a canopy or roof that does not limit the dissipation of heat or dispersion of flammable vapors and does not restrict fire-fighting access and control shall be treated as an outside aboveground tank.
TANK SPACING TANK-TO-TANK	**NFPA 30-22.4.2 Shell to shell spacing between any two adjacent aboveground tanks.** Tanks storing Class I, II, III stable liquids shall be separated by the distances given in Table 22.4.2.1. [Table at end of document.] *Exception*: Tanks used only for storing Class IIIB Liquids need not be separated by more than 3 feet provided they are not within the same diked area as or drainage path of a tank storing a Class I or II liquid.
TANK TO PROPERTY LINE THAT CAN BE BUILT UPON AND TANK FROM IMPORTANT	NFPA 30-22.4.1.6 Tanks storing Class IIIB stable liquids shall be located in accordance with Table 22.4.1.6. Exception: If located within the same diked area as or the drainage path of a tank

BUILDING	storing a Class I or Class II liquid, the tank storing Class IIIB liquid shall be located in accordance with 22.4.1.2. NFPA 30 TABLE 22.1.1.6 CLASS IIIB LIQUIDS. [Table at end of document.] **NOTE**: For tanks used for vehicle fueling refer to NFPA 30A.
COLLISION PROTECTION	Yes - NFPA 30-22.15
OVERFILL PROTECTION	Refer to NFPA 30-21.7.1.6 A sight gauge is acceptable for Class IIIB liquid storage.
SECONDARY CONTAINMENT – SPILL PREVENTION	No - **Not required for Class IIIB liquids** - **NFPA 30- 22.11 Control of spills from aboveground tanks**. Every tank that contains a Class I, Class II, or Class IIIA liquid shall be provided with means to prevent an accidental release of liquid from endangering important facilities and adjoining property or from reaching waterways. **NOTE**: Federal EPA SPCC regulations require containment if the tank is within the scope of SPCC. The current scope of SPCC includes oils that originate from vegetable and animal sources, as well as petroleum oils.
FOUNDATION SUPPORTS AND PROTECTION	**NFPA 30-22.5.2.1** Tanks shall rest on the ground or on foundations made of concrete, masonry, piling, or steel. **22.5.2.2** Tank foundations shall be designed to minimize the possibility of uneven settling of the tank and to minimize corrosion in any part of the tank resting on the foundation. **22.5.2.3** Where tanks storing Class I, Class II, or Class IIIA liquids are supported above their foundations, tank supports shall be of concrete, masonry, or protected steel.
PIPING SYSTEMS	**NFPA 30-Chapter 3 – Piping Systems.** 30-27.1.1 This chapter shall apply to piping systems consisting of pipe, tubing, flanges, bolting, gaskets, valves, fittings, flexible connectors, the pressure-containing parts of other components such as expansion joints and strainers, and devices that serve such purposes as mixing, separating, snubbing, distributing, metering, controlling flow, or secondary containment of liquids and associated vapors.
ANTI SYPHON	**NFPA 30-22.11.4.3** Means shall be provided to prevent the release of liquid from the tank by siphon flow.
NORMAL VENTING (ATMOSPHERIC)	Yes **NFPA 30 21.4.3.**1. Atmospheric storage tanks shall be adequately vented to prevent the development of vacuum or pressure that can distort the roof of a cone roof tank or that exceeds the design pressure of other atmospheric tanks when filling or emptying the tank or because of atmospheric temperature changes. **NFPA 30 24.13.5** Vents shall terminate outside the building. ent Piping For Aboveground Tanks. **Note**: Class IIIB excluded from chapter 24 requirements. Therefore Class IIIB v*ent may terminate inside the building*
EMERGENCY VENTING	**Yes** **NFPA 22.7 Emergency relief venting for fire exposure for aboveground tanks**. NFPA 22.7.1.1 Every aboveground storage tank shall have emergency relief venting in the form of construction or a device or devices that will relieve excessive internal pressure caused by an exposure to fire. This requirement shall also apply to each compartment of a compartmented tank, the interstitial space of a secondary containment-type tank, and the enclosed space of tanks of closed-top dike construction. This requirement shall also apply to spaces or enclosed volumes, such as those intended for insulation, membranes, or weather shields that can contain liquid because of a leak from the primary vessel and can inhibit venting during fire exposure. The insulation, membrane, or weather shield shall not interfere with emergency venting. 22.7.1.1.3 Exception: Tanks storing Class IIIB liquids that are larger than 285 bbl capacity (a barrel or bbl is 42 US gallons) and are not within the diked area or the drainage path of tanks storing class I or Class II liquids do not need to meet this

	requirement. *Vent may terminate inside the building*
TEMPORARY OR PERMANENT REMOVAL	**NFPA 30-21.7.4.1 Closure of Storage Tanks.** Aboveground tanks taken out of service or abandoned shall be emptied of liquid, rendered vapor-free, and safeguarded against trespassing. Comm 10.460 Closure requirements. Comm 10.465 Closure assessment requirements.
RE-USE	**NFPA 30-21.7.4.2 Reuse of Aboveground Storage Tanks.** Only those used tanks that comply with the applicable sections of this code and are approved by the authority having jurisdiction shall be installed for flammable or combustible liquids service.
CLASS IIIB MOTOR FUEL DISPENSING	
	Tank design standard Yes Listed tank Yes Tank capacity limitation No NFPA 30- no limitation Registration Yes If 1,100 or larger Permit No Secondary containment Yes Leak detection No Corrosion protection Yes Spill & overfill protection Yes Tank / Dispenser setback Yes Comm 10.615

Revised February 2011

NFPA 30 Table 22.4.1.6 Class IIIB Liquids

Tank Capacity (gal)	Minimum Distance from Property Line that Is or Can Be Built Upon, Including the Opposite Side of a Public Way (ft)	Minimum Distance from Nearest Side of Any Public Way or from Nearest Important Building on the Same Property (ft)
12,000 or less	5	5
12,001 to 30,000	10	5
30,001 to 50,000	10	10
50,001 to 100,000	15	10
100,001 or more	15	15

NFPA 30 Table 22.4.1.1(b) Reference Table

Tank Capacity (gal)	Minimum Distance from Property Line that Is or Can Be Built Upon, Including the Opposite Side of a Public Way (ft)	Minimum Distance from Nearest Side of Any Public Way or from Nearest Important Building on the Same Property (ft)
275 or less	5	5
276 to 750	10	5
751 to 12,000	15	5
12,001 to 30,000	20	5
30,001 to 50,000	30	10
50,001 to 100,000	50	15
100,001 to 500,000	80	25
500,001 to 1,000,000	100	35
1,000,001 to 2,000,000	135	45
2,000,001 to 3,000,000	165	55
3,000,001 or more	175	60

NFPA 30 Table 22.4.1.3

Type of Tank	Protection	Minimum Distance in Feet from Property Line that Is or Can Be Built Upon, Including the Opposite Side of a Public Way	Minimum Distance in Feet from Nearest Side of Any Public Way or from Nearest Important Building on the Same Property
Any type	Protection for exposures*	11/2 times Table 2.3.2.1.1(b) but shall not be less than 25 ft	11/2 times Table 2.3.2.1.1(b) but shall not be less than 25 ft
	None	3 times Table 2.3.2.1.1(b) but shall not be less than 50 ft	11/2 times Table 2.3.2.1.1(b) but shall not be less than 25 ft