

# Bulk Cooking Oil Storage/Supply Tank Permit Checklist

A permit is required for the installation of Bulk Cooking Oil Storage/Supply tanks. In order to issue a permit for this installation you will need to apply for a permit at the City of Gainesville Building Inspection Department at 306 NE 6<sup>th</sup> Ave., Building B, and provide a set of plans for the installation. These plans need to include;

1. The location, size and quantity of tanks at the location
2. You will need to specify which standard the tanks were constructed to.

**21.4.2.1.1\*** Atmospheric tanks shall be designed and constructed in accordance with recognized engineering standards. Atmospheric tanks that meet any of the following standards shall be deemed as meeting the requirements of [21.4.2.1](#):

(1)API Specification 12B, *Bolted Tanks for Storage of Production Liquids*

(2)API Specification 12D, *Field Welded Tanks for Storage of Production Liquids*

(3)API Specification 12F, *Shop Welded Tanks for Storage of Production Liquids*

(4)API Standard 650, *Welded Steel Tanks for Oil Storage*

(5)UL 58, *Standard for Steel Underground Tanks for Flammable and Combustible Liquids*

(6)ANSI/UL 80, *Standard for Steel Tanks for Oil-Burner Fuels and Other Combustible Liquids*

(7)ANSI/UL 142, *Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids*

(8)UL 1316, *Standard for Glass-Fiber Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and Alcohol-Gasoline Mixtures*

(9)ANSI/UL 1746, *Standard for External Corrosion Protection Systems for Steel Underground Storage Tanks*

(10)UL 2080, *Standard for Fire Resistant Tanks for Flammable and Combustible Liquids*

(11)ANSI/UL 2085, *Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids*

3. You will need to provide certification of the construction method
4. You will need to provide venting in accordance with the following section:

## **21.4.3 Normal Venting for Storage Tanks.**

**21.4.3.1** Storage tanks shall be vented to prevent the development of vacuum or pressure that can distort the tank or exceed the rated design pressure of the tank when the tank is filled or emptied or because of atmospheric temperature changes. Normal vents shall be located above the maximum normal liquid level.

**21.4.3.2\*** Normal venting shall be provided for primary tanks and each primary compartment of a compartmented tank.

**21.4.3.3** Normal vents shall be sized in accordance with API Standard 2000, *Venting Atmospheric and Low-Pressure Storage Tanks*, or another approved standard. Alternatively, the normal vent shall be at least as large as the largest filling or withdrawal connection, but in no case shall it be less than 1.25 in. (32 mm) nominal inside diameter.

**21.4.3.4** Atmospheric storage tanks shall be vented to prevent the development of vacuum or pressure above the 1.0 psi (6.9 kPa) maximum operating pressure.

5. The tanks need to be tested and provided with an approved listing mark.

## **21.5 Testing Requirements for Tanks**

**21.5.1 General.** All tanks, whether shop-built or field-erected, shall be tested before they are placed in service in accordance with the requirements of the code under which they were built.

**21.5.1.1** An approved listing mark on a tank shall be considered to be evidence of compliance with [21.5.1](#). Tanks not so marked shall be tested before they are placed in service in accordance with the applicable requirements for testing in the standards listed in [21.4.2.1.1](#), [21.4.2.2.1](#), or [21.4.2.3.1](#), or in accordance with recognized engineering standards. Upon satisfactory completion of testing, a permanent record of the test results shall be maintained by the owner.

**21.5.1.2** Where the vertical length of the fill and vent pipes is such that, when filled with liquid, the static head imposed on the bottom of the tank exceeds a gauge pressure of 10 psi (70 kPa), the tank and its related piping shall be tested hydrostatically to a pressure equal to the static head thus imposed by using recognized engineering standards.

6. The tanks need to be tightness tested in accordance with the following:

**21.5.2\* Tightness Testing.** In addition to the tests called for in [21.5.1](#), all tanks and connections shall be tested for tightness after installation and before being placed in service in accordance with [21.5.2.2](#) through [21.5.2.8](#), as applicable. Except for underground tanks, this test shall be made at operating pressure with air, inert gas, or water.

**21.5.2.5** Vertical shop-fabricated aboveground tanks shall be tested for tightness either hydrostatically or with air pressure at not less than a gauge pressure of 1.5 psi (10 kPa) and not more than a gauge pressure of 2.5 psi (17 kPa).

**21.5.2.7.2** The pressure or vacuum shall be held for not less than 1 hour or for the duration specified in the listing procedures for the tank.

**21.5.3\* Periodic Testing.** Each tank shall be tested when required by the manufacturer's instructions and applicable standards to ensure the integrity of the tank.

7. The area where the tank is installed needs to be kept clear of debris.

**21.6.6.3** Ground areas around tank storage facilities shall be kept free of weeds, trash, and other unnecessary combustible materials.

8. Need to provide information on overfill prevention methods.

**21.7.1\* Prevention of Overfilling of Storage Tanks.**

**21.7.1.6.1** An approved means shall be provided to notify the tank filling operator of the pending completion of the tank fill operation at the fill connection.

**21.7.1.6.2** An approved means shall be provided to stop delivery of liquid to the tank prior to the complete filling of the tank.

**21.7.1.6.3** In no case shall these provisions restrict or interfere with the functioning of the normal vent or emergency vent.

**21.7.1.6.4** The manufacturer of the tank shall be consulted to determine if reinforcement of the tank is required. If reinforcement is deemed necessary, it shall be done.

9. The tanks need to be spaced in accordance with the following:

**22.4.2 Shell-to-Shell Spacing of Adjacent Aboveground Storage Tanks.**

**22.4.2.1.2** Tanks used only for storing Class IIIB liquids shall not be required to be separated by more than 3 ft (0.9 m) provided they are not within the same diked area as, or within the drainage path of, a tank storing a Class I or Class II liquid. If located within the same diked area as, or within the drainage path of, a tank storing a Class I or Class II liquid, the tank storing Class IIIB liquid shall be spaced in accordance with the requirements for Class IIIA liquids in [Table 22.4.2.1](#).

10. Tank installation needs to meet the following provision:

**22.5 Installation of Aboveground Storage Tanks.**

**22.5.1 Tank Supports.**

- 22.5.1.1** Tank supports shall be designed and constructed in accordance with recognized engineering standards.
- 22.5.1.2** Tanks shall be supported in a manner that prevents excessive concentration of loads on the supported portion of the shell.

**22.5.2 Foundations for and Anchoring of Aboveground Storage Tanks.**

- 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.

**11. The tanks need to be provided with Emergency Relief Venting in accordance with the following provision:**

**22.7 Emergency Relief Venting for Fire Exposure for Aboveground Storage Tanks.**

- 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 fire.

**22.7.3 Pressure-Relieving Devices.**

- 22.7.3.1\*** Where entire dependence for emergency relief venting is placed upon pressure-relieving devices, the total venting capacity of both normal and emergency vents shall be sufficient to prevent rupture of the shell or bottom of a vertical tank or of the shell or heads of a horizontal tank.

- 22.7.3.4** The total emergency relief venting capacity for any specific stable liquid shall be permitted to be determined by the following formula:

$$CFH = V \frac{1337}{L\sqrt{M}}$$

where:

$CFH$  = venting capacity requirement (ft<sup>3</sup> of free air per hour)

$V$  = ft<sup>3</sup> of free air per hour (CFH) value from Table 22.7.3.2

$L$  = latent heat of vaporization of specific liquid (Btu/lb)

$M$  = molecular weight of specific liquids

- 22.7.3.9** The outlets of all vents and vent drains on tanks equipped with emergency relief venting that permits pressures to exceed a gauge pressure of 2.5 psi (17.2 kPa) shall be arranged to discharge so that localized overheating of or flame impingement on any part of the tank will not occur if vapors from the vents are ignited.

- 22.7.3.10** Each commercial tank venting device shall have the following information either stamped or cast into the metal body of the device or included on a metal nameplate permanently affixed to it.

(1) Start-to-open pressure

(2) Pressure at which the valve reaches the full open position

(3) Flow capacity at the pressure indicated by [22.7.3.10\(2\)](#)

- 22.7.3.10.1** If the start-to-open pressure is less than a gauge pressure of 2.5 psi (17.2 kPa) and the pressure at the full open position is greater than a gauge pressure of 2.5 psi (17.2 kPa), the flow capacity at a gauge pressure of 2.5 psi (17.2 kPa) shall also be stamped on the venting device.

**22.7.3.10.2** The flow capacity shall be expressed in cubic feet per hour of air at 60°F (15.6°C) and an absolute pressure of 14.7 psi (101 kPa).

**22.7.3.10.3** The flow capacity of tank venting devices less than 8 in. (200 mm) in nominal pipe size shall be determined by

actual test. These tests shall be permitted to be conducted by a qualified, impartial outside agency or by the manufacturer if certified by a qualified, impartial observer.

12. Control valves need to be installed in accordance with the following provision:

**22.13.1** Each connection to an aboveground tank through which liquid can normally flow shall be provided with an internal or an external valve located as close as practical to the shell of the tank.

13. The piping system must meet the following provisions:

## Chapter 27 Piping Systems

**27.1.1** This chapter shall apply to the design, installation, testing, operation, and maintenance of piping systems for flammable and combustible liquids or vapors. Such piping systems shall include but not be limited to pipe, tubing, flanges, bolting, gaskets, valves, fittings, flexible connectors, the pressure-containing parts of other components including but not limited to expansion joints and strainers, and devices that serve such purposes as mixing, separating, snubbing, distributing, metering, control of flow, or secondary containment.

**27.3.1 Performance Standards.** The design, fabrication, assembly, test, and inspection of piping systems shall be suitable for the working pressures and structural stresses to be encountered by the piping system. Compliance with applicable sections of ASME B31, *Code for Pressure Piping*, and the provisions of this chapter shall be considered *prima facie* evidence of compliance with the foregoing provisions.

**27.3.2 Tightness of Piping.** Piping systems shall be maintained liquidtight. A piping system that has leaks that constitute a hazard shall be repaired in a manner acceptable to the authority having jurisdiction, or it shall be emptied of liquid, vapor freed, and no longer be used.

### 27.4 Materials of Construction for Piping Systems

**27.4.1 Materials Specifications.** Pipe, valves, faucets, couplings, flexible connectors, fittings, and other pressure-containing parts shall meet the material specifications and pressure and temperature limitations of ASME B31, *Code for Pressure Piping*, except as provided for in [27.4.2](#), [27.4.3](#), and [27.4.4](#).

**27.4.3 Materials of Construction for Valves.** Valves at storage tanks, as required by Sections [22.13](#) and [24.14](#), and their connections to the tank shall be of steel or ductile iron, except as provided for in [27.4.3.1](#), [27.4.3.2](#), or [27.4.4](#).

**27.4.3.2\*** Valves installed externally to the tank shall be permitted to be other than steel or ductile iron if the material of construction has a ductility and melting point comparable to steel or ductile iron and is capable of withstanding the stresses and temperatures involved in fire exposure or the valves are otherwise protected from fire exposures, such as by materials having a fire resistance rating of not less than 2 hours.

**27.4.3.3** Cast iron, brass, copper, aluminum, malleable iron, and similar materials shall be permitted to be used on tanks described in [22.4.2.1.1](#) or on tanks storing Class IIIB liquids where the tanks are located outdoors and not within a diked area or drainage path of a tank storing a Class I, Class II, or Class IIIA liquid.

**27.4.4.2** The piping materials chosen shall be compatible with the liquids being handled.

### 27.5 Pipe Joints.

#### 27.5.1 Tightness of Pipe Joints.

**27.5.1.1** Joints shall be made liquid-tight and shall be welded, flanged, threaded, or mechanically attached.

**27.5.1.2\*** Joints shall be designed and installed so that the mechanical strength of the joint will not be impaired if exposed to a fire.

**27.5.1.3** Threaded joints shall be made with a suitable thread sealant or lubricant.

### 27.6 Installation of Piping Systems.

**27.6.1 General Requirements.** Piping systems shall be supported and protected against physical damage, including damage from stresses arising from settlement, vibration, expansion, or contraction. The installation of nonmetallic piping shall be in accordance with the manufacturer's instructions.

**27.6.3 Pipe Penetrations.** Piping that passes through or pierces a dike wall or the wall of a structure shall be designed to prevent damaging stresses and leakage due to settlement or fire exposure.

**27.6.4\* Corrosion Protection.** Aboveground piping systems that are subject to external corrosion shall be suitably protected. Underground piping systems shall be protected against corrosion in accordance with Section [23.3.5](#).

**27.6.6 Valves.**

**27.6.6.1** Piping systems shall contain valves to operate the system properly and to isolate the equipment in the event of an emergency.

**27.6.6.2** Piping systems in connection with pumps shall contain valves to properly control the flow of liquid both in normal operation and in the event of an emergency.

**27.7 Testing of Piping Systems.**

**27.7.1 Initial Testing.** Unless tested in accordance with the applicable sections of ASME B31, *Code for Pressure Piping*, all piping shall be tested before being covered, enclosed, or placed in use.

**27.7.1.1** Testing shall be done hydrostatically to 150 percent of the maximum anticipated pressure of the system or pneumatically to 110 percent of the maximum anticipated pressure of the system, and the test pressure shall be maintained while a complete visual inspection of all joints and connections is conducted.

**27.7.1.2** In no case shall the test pressure be less than a gauge pressure of 5 psi (35 kPa) measured at the highest point of the system, and in no case shall the test pressure be maintained for less than 10 minutes.