

NEBRASKA STATE FIRE MARSHAL  
FUELS SAFETY DIVISION



Installation & Use  
of  
**FARM TANKS**

As required by State Fire Marshal  
Fire Code NFPA 395

January 10, 2003

## Why Should You Read This Pamphlet?

This pamphlet contains information to help you make the correct decision for your storage of Class I flammable liquids (gasolines) and Class II (diesel fuel) and Class III (fuel oils and motor oils) combustible liquids on farms and remote construction sites as required by State fire code (NFPA pamphlet 395).

The Nebraska State Fire Marshal is required (by the State Law) to enforce codes and regulations relating to the installation and operation of both Underground Storage Tanks (UST) and Aboveground Storage Tanks (AST).

The State Fire Marshal's Office has adopted National Fire Protection Association (NFPA) Standards as the state's fire codes.

The purpose of the State Fire Marshal's Office and the various standards and codes is to provide guidelines for the protection of **PERSONS, PROPERTY, and THE ENVIRONMENT.**

**This guidance document focuses on installation and operation of aboveground storage tanks with a total capacity of 1,100 gallons or less, located on farms or in remote areas. Please refer to the actual code (NFPA 395) for complete information.**

## NFPA 395

The State Fire Code-- **NFPA 395** “*Storage of Flammable and Combustible Liquids on Farms and Isolated Construction Projects*” **applies to the storage of flammable liquids, (such as gasoline), and combustible liquids, (such as diesel fuel), in containers or tanks that DO NOT exceed 1,100 gallons individual capacity in the following areas:**

- ! On farms and in rural areas.
- ! At isolated construction sites and isolated earth-moving projects.
- ! At any private site where isolation or separation from other structures or where temporary use makes it unnecessary, in the opinion of the State Fire Marshal Deputy, to comply with the more restrictive requirements of NFPA 30 and 30A *Flammable and Combustible Liquids Code*. These codes (NFPA 30 and NFPA 30A) are for Automotive Service Stations.

This standard (NFPA 395) **DOES NOT APPLY** to a tank that is installed and/or operated under the following circumstances (**even if the tanks are located in farm or rural settings**):

- ! Tank(s) larger than 1,100 gallons individual capacity. (NFPA 30 and 30A)
- ! Tank(s) used to supply fuel for equipment such as water heaters, building heating plants, or grain dryers. (NFPA 31)
- ! Tank(s) used to supply fuel for “Stationary Combustion Engines.” **This includes fuel supply tanks connected to engines on IRRIGATION WELLS.** This type of installation must follow the more stringent requirements of fire codes NFPA 37 and NFPA 30.

# The Specific Requirements!

## What type of tank is acceptable?

Let's assume that you want to install a 1,000 gallon fuel tank. The following is a list of the basic tank requirements:

- , The tank shall be a single - compartment design and constructed in accordance with good engineering practice.
- , Joints shall be riveted and caulked, riveted and welded, or welded.
- , Tank heads that are greater than 6 feet in diameter shall be dished, stayed, braced, or reinforced.
- , Tanks of combustible construction such as fiberglass or plastic **CAN NOT** be used aboveground.
- , Tanks 60 to 560 gallons shall be constructed of at least 14 gauge steel.
- , Tanks 561 to 1,100 gallons shall be made of at least 12 gauge steel.
- , The tank shall be provided with a fill opening equipped with a closure that is designed to be locked. The fill opening shall be **separate** from the vent opening.
- , The tank shall be provided with a free-opening vent that shall relieve the vacuum or the pressure that might develop during normal operation or fire exposure.
  - The vent piping must be no less than **2 inches for 300 gallon tanks and 3 inches for 1,000 gallon tanks.**
  - Vents shall be arranged to discharge so as to prevent localized overheating of, or direct flame impingement on, any part of the tank in the event that vapors from the vent are ignited.

## Where can the Aboveground Tank be placed?

Now that you have obtained a proper tank for aboveground storage of flammable and/or combustible liquids. The next question is “**Where can you put the tank?**” This may not seem like a big problem. However, there are some very specific requirements.

**The tank(s) shall be located outside and at least 40 ft. from any buildings, haystacks, grain bins, or other combustible structures.**

The tank shall also be located so that any vehicle, equipment, or container that is being filled from the tank(s) is at least 40 ft. from any combustible structures.

**!!!Important Note!!!** Above ground tanks (regardless of size) that are closer than 40 ft. to the nearest combustible structure OR above ground tanks that are larger than 1,100 gallons **MUST** be installed in accordance with the more stringent Code for Automotive Service Stations (NFPA 30 and NFPA 30A).

## Getting Ready to Dispense Fuel from the Tank.

Now that you have found a location for your tank, the next question that needs to be answered is “**HOW DO YOU GET THE FUEL OUT OF THE TANK?**” There are basically two different ways to remove fuel from the tank.

- The fuel can be pumped out of the tank, **or**
- The fuel can be dispensed by gravity flow.

### **First, let’s look at the basic requirements for PUMPING fuel out of the top of the tank.**

A stationary tank, with top openings only, shall be mounted on timbers or blocks 6 inches high. This is to protect the bottom of the tank from corrosion due to contact with the ground and to maintain the tank in a stable position.

- ❑ Movable (**not portable**) tanks shall be equipped with attached metal legs that rest on shoes or runners so that the tank is supported in a stable position. Movable tanks shall be designed so that the tank and its supports can be moved as a single unit.
- ❑ The tank shall be equipped with a tightly and permanently attached

**APPROVED** pumping device. The pumping device shall be equipped with an approved hose of sufficient length for filling the vehicles, equipment, or containers to be filled from the tank.

- ❑ The dispenser (pump) nozzle and hose shall be equipped so that it can be padlocked to its hanger to prevent tampering.
- ❑ The pump discharge shall be equipped with an effective anti-siphoning device **OR** the hose shall be equipped with self-closing nozzle.
- ❑ Siphons or internal pressure discharge devices are prohibited.

### **Now let's look at dispensing the fuel by GRAVITY FLOW.**

- ❑ A tank(s) elevated for gravity discharge shall be supported on steel or wood supports that have adequate strength and design to provide stability.
- ❑ Tanks may also be permitted to be placed on a pile of earth or near the edge of a cut bank to provide the necessary elevation.
- ❑ A tank placed in this manner shall be supported on timbers or blocks for stability and to prevent corrosion from contact with the ground.
- ❑ The discharge connection shall be made to the bottom or to the end of the tank.
  - The discharge connection shall be equipped with a valve that shall automatically close in the event of a fire by means of operation of an effective heat-actuated device. **In other words, the discharge connection (where the hose attaches to the tank) needs to be equipped with a "Fire Valve." The "Fire Valve" shall be located adjacent to the tank shell.**
  - If the valve cannot be operated manually, an additional valve that can be manually operated shall be provided.
  - The discharge connection shall be provided with an approved hose of sufficient length for filling vehicles, equipment, and containers to be filled from the tank.
  - This hose shall be equipped with a self-closing nozzle.
  - The hose shall be equipped so that it can be padlocked to its hanger to prevent tampering.

## Finally, the project is complete--or is it?

You've got an appropriately equipped tank and it's located in a safe spot!

You now think you're now ready to start dispensing fuel into your equipment and vehicles.

Well.....almost, but not quite. There are some additional requirements that may seem minor but they are **VERY IMPORTANT!**

- ❑ First, each tank shall be **conspicuously marked** with the **name of the product it contains** (GASOLINE, #2 DIESEL, #1 DIESEL, etc.)
- ❑ The tank must also be **marked with the following language:**

**“FLAMMABLE - KEEP FIRE AND FLAME AWAY”**

*and*

**“KEEP 40 FEET FROM BUILDINGS”**

- ❑ There are some “housekeeping” requirements for fire safety. **The storage area shall be kept free of weeds and other extraneous combustible materials.**
- ❑ Also, open flames and smoking material are not permitted in areas where flammable and combustible liquids are stored. This area should extend to at least 25 feet around the tanks.

## Is there anything else that you need or to do?

As noted on page two, the Nebraska State Fire Marshal's Office and the Flammable Liquid Storage Tank (FLST) Deputy has been charged with regulating the installation and operation of both Underground Storage Tanks and Aboveground Storage Tanks.

One part of the regulation includes **reviewing plans** for new installations and **issuing installation permits**. Normally, the FLST Deputy in your area will visit the tank site to inspect your new installation and answer any questions you may have about this process.

**At this time, the Nebraska State Fire Marshal DOES NOT require an "Installation Permit" for farm tanks that are LESS THAN 1,100 GALLONS CAPACITY.**

**You WILL need to obtain an installation permit for the following UNDERGROUND or ABOVEGROUND storage tank systems:**

- Any storage system used for supplying fuel to engine connected to an irrigation well
- Any farm tank larger than 1,100 gallons capacity
- Any farm tank (regardless of size) that will be located closer than 40 feet to the nearest combustible structure or important building
- Any tank used to supply fuel to an electrical generator
- Any **ABOVEGROUND** tank used for heating purposes
- Any **UNDERGROUND** tank larger than 1,100 gal. used for heating purposes

A "Nebraska State Fire Marshal - FLST Section - Deputy Area Map" is included in this pamphlet. If you have any questions regarding your planned or existing fuels storage system please call the Deputy for your area.