



Kerrville Fire Marshal

87 Coronado Drive Kerrville, Texas 78028
Office: (830) 257-8449 Fax: (830) 257-8455



Installation Checklist for Aboveground Combustible / Flammable Liquid Storage Tanks

KERRVILLE FIRE MARSHAL
(830) 257-8449

Business Name: _____
Address: _____

INSTALLING CONTRACTOR

Business Name: _____
Address: _____
Phone Number: _____
Job Forman: _____
Installing Contractor License Number: _____

TANKS

1. Capacity _____ Product _____ UL# _____
2. Capacity _____ Product _____ UL# _____

- TCEQ provided with 30-day notice for tanks over 1,100 gallons.
- Installation plans and specifications are approved by KFMO.
- Foam fire protection shall be provided for above-ground tanks over 500 gallons unless UL Listed 2080/2085 tanks. Confirm foam system has approved plans.

THE FOLLOWING SHALL BE INSPECTED PRIOR TO USE:

- Tanks located as indicated on approved plans from lot lines and buildings.
- Tanks are marked with UL identification.
- Tank serial number(s) and U.L. listing number(s) are recorded for each tank.
- Tank diameter(s) checked and recorded.
- Tank tightness Air test, 3-5 psi for minimum of 1-hr, witnessed prior to tank(s) being placed in service.
- The interstitial space (annulus) of double-wall or secondary containment tanks shall be tested either:
 - hydrostatically or with air pressure at a gauge pressure of 3 to 5 psi (20 to 35 kPa) **or**
 - by vacuum at 2.6 psi (18 kPa) **or**
 - in accordance with the tank's listing or the manufacturer's instructions.
- 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.

THE FOLLOWING SHALL BE INSPECTED ON ANY PIPING:

- All piping and valves are U.L. listed or of approved type.
- Underground piping shall be installed on at least 6 in. (150 mm) of well-compacted bedding material.
- In areas subject to vehicle traffic, the pipe trench shall be deep enough to permit a cover of at least 18 in. (450 mm) of well-compacted backfill material and pavement.
- In paved areas where a minimum 2 in. (50 mm) of asphalt is used, backfill between the pipe and the asphalt shall be permitted to be reduced to 8 in. (200 mm) minimum.

- In paved areas where a minimum 4 in. (100 mm) of reinforced concrete is used, backfill between the pipe and the asphalt shall be permitted to be reduced to 4 in. (100 mm) minimum.
- In areas not subject to vehicle traffic, the pipe trench shall be deep enough to permit a cover of at least 6 in. (150 mm) of well-compacted backfill material.
- Piping within the same trench shall be separated horizontally by at least two pipe diameters. Separation need not exceed 9 in. (230 mm).
- Two or more levels of piping within the same trench shall be separated vertically by a minimum 6 in. (150 mm) of well-compacted bedding material.
- Piping is supported and separated to prevent damage and vibration.
- Tank piping is supported and protected from mechanical damage or fire exposure.
- Pipe joints are liquid tight, welded, threaded or flanged. Class 1 liquid joints are welded if the joints are located inside the building.
- Unless tested in accordance with the applicable section of ASME B31.9, all piping shall be tested before being covered, enclosed or placed in use.
 - 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.
 - 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
 - the test pressure is maintained for not less than 10 minutes.
 - Care shall be exercised to ensure that these pressures are not applied to vented storage tanks. Such storage tanks shall be tested independently from the piping.
- The interstitial (annular) space of secondary containment-type piping shall be tested:
 - hydrostatically at a gauge pressure of 5 psi (35 kPa) **or**
 - air pressure at a gauge pressure of 5 psi (35 kPa) **or**
 - shall be tested in accordance with its listing or with the manufacturer's instructions.
 - The pressure source shall be disconnected from the interstitial space to ensure that the test is being conducted on a closed system.
 - The pressure shall be maintained for a minimum of 1 hour.
- All metal pipes is properly wrapped (with 50% overlap), properly coated, or cathodically protected to prevent galvanic action or corrosion.

OPENINGS OTHER THAN VENTS

- Filling, emptying, and vapor recovery openings are located outside the building, not less than 5 ft. from building openings or lot lines.
- For top load tanks, a metallic fill pipe is installed to minimize static electricity by terminating within 6 inches of the tank bottom, IFC 2018 Section 5704.2.7.5.5.
- Tank openings are on the top only.

SPILL/OVERFILL PREVENTION

- An overfill prevention system is provided for each tank that operates as follows:
 - Automatically shut off the flow of fuel to the tank when the quantity reaches 95 percent of tank capacity **and**
 - Alert the transfer operator when the tank is no more than 90 percent full by restricting the flow of liquid into the tank or triggering the high-level alarm
- A spill container with a capacity of not less than 5 gallons is provided for each fill connection. Top fill containers are noncombustible, fixed to the tank and equipped with a manual drain valve that drains into the main tank.

VENTS

- Vent pipes from underground tanks storing Class I liquids are located so that the discharge point is outside of buildings, higher than the fill pipe opening, and not less than 12 ft (3.6 m) above the adjacent ground level.
- Vent pipe outlets are located and directed so that vapors will not accumulate or travel to an unsafe location, enter building openings, or be trapped under eaves and shall be at least 5 ft (1.5 m) from building openings and at least 15 ft (4.5 m) from powered ventilation air intake devices.
- Vent pipes from tanks storing Class II or Class IIIA liquids terminate outside of the building and higher than the fill pipe opening.
- Vent outlets on atmospheric tanks storing Class IIIB liquids are allowed to discharge inside a building if the vent is a normally closed vent.
- Vent pipes are not be obstructed by devices provided for vapor recovery or other purposes unless the tank and associated piping and equipment are otherwise protected to limit back-pressure development to less than the maximum working pressure of the tank and equipment by the provision of pressure-vacuum vents, rupture discs, or other tank-venting devices installed in the tank vent lines.
- Vent outlets and devices are protected to minimize the possibility of blockage from weather, dirt, or insect nests.
- Vent pipes are fitted with return bends, coarse screens, or other devices to minimize ingress of foreign material.
- Vent pipes and vapor return piping are installed without sags or traps in which liquid can collect.
- Where tank vent piping is manifolded, pipe sizes are such as to discharge, within the pressure limitations of the system, the vapors they could be required to handle when manifolded tanks are filled simultaneously.
- Piping systems are bonded and grounded.
- Each loading and unloading riser is marked to identify the product for which it is to be used.
- The use of a flame arrester or venting device in a vent line complies with their listing also compliant with API 2028 for a flame arrestor.
- Tank emergency vent does not vent inside a building.

TANK SUPPORT

- Tank foundation, support, and anchorages are designed in accordance with NFPA 30:4.2.4 and the IBC, IFC 2018 Section 5704.2.9.3.
- Tanks containing Class I, II, IIIA liquids that are elevated more than 12 inches above grade shall have a fire-resistance rating of not less than 2-hours in accordance with ASTM E 1529 unless one of the three exceptions to IFC 2018 Section 5704.2.9.2.3 is applicable.

MISCELLANEOUS

- Location and signs prohibiting open flames and smoking are in accordance with approved plans.
- Tanks exceeding 100 gallons have NFPA 704 placard.
- Tank and piping subject to vehicular damage is protected by guard posts designed in accordance with IFC.
- Drainage control and diking are provided in accordance with approved plans, or the tank is a listed tank with secondary containment.