

QUICK ENVIRONMENTAL'S

GUIDELINE FOR THE INSTALLATION OF ABOVE GROUND RESIDENTIAL OIL TANKS

INSTALLATION STANDARDS AND RECOMMENDATIONS

Introduction

The recommendations contained herein are considered standard industry practice for tanks constructed to NFPA 31, Standard for the Installation of Oil-Burning Equipment in the United States. Tank installations must also comply with the National Building and Fire Codes and any local codes that may apply.

Advantages of Indoor Installations

Domestic fuel oil tanks are recommended to be installed indoors whenever feasible for many reasons including the following:

- A poured concrete basement floor provides the best option for a strong, stable and solid base for the tank.
- There should be no odors from a properly installed inside tank. If the tank begins to weep from internal corrosion, early detection is more likely with an indoor tank than with one located outside. Early detection can save thousands of dollars in cleanup and environmental costs.
- An outside tank is subjected to the elements including extreme temperatures, rain, snow, ice, external corrosion, condensation (which leads to internal corrosion) as well as vandalism. All of these factors contribute to a reduced life expectancy, higher maintenance costs and a greater possibility of an oil leak occurring.
- Inside tanks are not subjected to frozen product lines.
- Inside tanks provide better performance and less maintenance for oil heating systems because the fuel is kept at a constant temperature.

Indoor Installations:

- Tanks shall be installed on the lowest floor of the building.
- Inside tank(s) shall be located not less than 5 feet (1.5 m) from any fuel-fired appliance.
- The tank shall be placed in an area where it is unlikely to be adversely affected by normal household activities.
- Tanks shall be placed in an area where they can be visually inspected from all sides. If feasible, maintain a minimum separation of 2 in (50 mm) from all walls.
- Tanks located in garage bays shall be provided with adequate protection from vehicular traffic.
- The supply line and filter shall be protected from damage.

Outdoor Installations:

Aboveground outside tanks shall be located in conformance with the following:

- Tanks must not block building entrances or windows including basement windows.
- A single tank can be placed next to a propane cylinder with a capacity of 125 gallon (475 l) or less. If the capacity of either tank exceeds these volumes, the separation shall be not less than 20 feet (6 m).

- Tank(s) with a 275 gallon (1,150 l) capacity or less shall be not less than 5 feet (1.5 m) from a property line. Variances may be requested from the authority having jurisdiction.
- Tank(s) over 275 gallon (1,150 l) capacity shall be not less than 10 feet (3 m) from a property line.
- The tank(s) should be located down grade from any domestic drinking water well if possible.
- If possible, tanks should not be located directly under house eaves where they may be subject to falling snow and icicles or increased external pitting from dripping water.
- Tanks should not be placed in intimate contact with the building since leaves and other organic matter can accumulate and cause external corrosion of the tank.

Protection from Vehicle Traffic

Tanks located in areas exposed to vehicular traffic (eg. driveways) shall be provided with adequate protection.

Tank Stability

- All outside tank(s) are at risk of movement, especially new installations placed on recently disturbed ground and shall be installed on a prepared bedding surface with all organic materials such as sod or bark removed.
- The tank(s) shall be properly supported and centered to prevent it from shifting, settling, or falling over. The aboveground outside tank support legs shall be installed on a concrete pad or reinforced patio stones (see Figure 1). Tanks cradles are not recommended. Note: A full tank of oil weighs about 2,000 lbf (4500 N).
- A well drained sub grade shall also be utilized to provide appropriate drainage. 4-6 in (100-150 mm) of crushed stone is recommended.

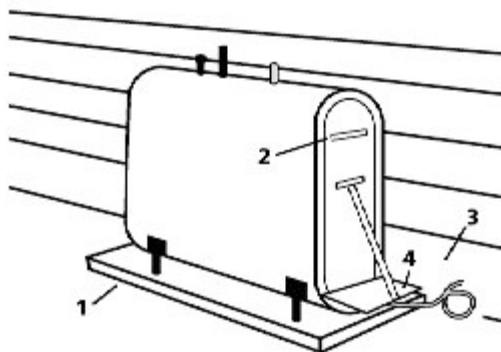
Flood Plains and High Wind Areas

Additional stability shall be considered in flood plain areas or areas of high wind. This will require some form of shelter or anchoring that does not adversely affect the operation of the tank (e.g. if using a strap attached to a support, ensure that the strap does not cause chafing or increased corrosion).

Product Supply Lines

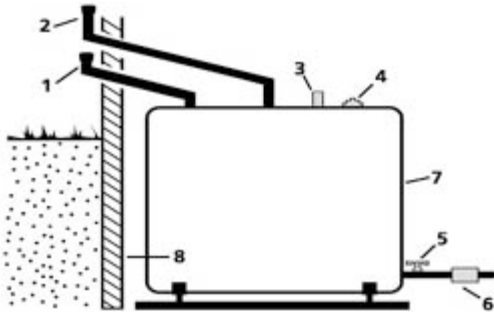
- The product supply line(s) leading from the tank to the building shall be protected from physical damage including the weight of snow, ice or other objects which could cause the line to pinch or break and release product. Heaving frost or an application of force can snap the supply line. A supply line cover can also deter vandalism. Additionally covers for the valve and filter are available.
- The product supply lines shall be installed on a decline (downward slope) from the tank to the building to prevent the accumulation of water and possible freezing of the product line.
- To allow for frost heaving and movement, the supply line shall have a horizontal loop before entering the building.
- Product supply lines shall not be less than 3/8 in (10mm) outside diameter copper tubing. 1/2 in (13mm) tubing is recommended to reduce the potential for freezing.

Figure 1: Typical Outside Tank Installation



1. Stable base (ex. poured concrete slab or reinforced patio stones).
2. Manufacturer's label, with UL standard or code.
3. Horizontal loop (sloped down) in oil feed line to allow minor tank movement.
4. Install a guard to protect oil feed line.

Figure 2: Typical Inside Tank Installation



1. 2 inch Fill pipe; install above snow line.
2. 2 inch Air vent pipe with whistle alarm; install 2ft (600 mm) above fill pipe.
3. Level gauge, protect from impact.
4. Plug (not on all tanks).
5. Isolation valve at tank.
6. Oil filter - check regularly for water or sludge.
7. Manufacturer's label, with UL standard or code.
8. Maintain an inspection space on all sides, minimum 2 in (50 mm).

Venting Domestic Oil Storage Tanks:

Material Specifications

- The vent pipe material shall be schedule 40 black steel pipe.
- Threaded joints in the vent piping shall be made fuel oil-tight using joint compound conforming to CAN/ULC-S642-M, Compounds and Tapes for Threaded Pipe Joint approved for this purpose.
- Vent pipe shall be 2 inch nominal diameter.

Installation Details

- All tank(s) shall be connected to a vent alarm or whistle which is an effective means of preventing overfilling.
- The fill pipe shall be 3 feet (900 mm) above the grade. The vent pipe shall be 6 inches (150 mm) above the fill.

Fill and Product Piping Connections to Domestic Storage Tanks:

- The fill pipe material shall be 2 in (50 mm) schedule 40 black steel pipe.
- Threaded joints in the fill piping shall be made fuel oil-tight using joint compound conforming to CAN/ULC-S642-M, Compounds and Tapes for Threaded Pipe Joints, or equivalent, approved for this use.
- All connections in copper piping and tubing should be made fuel oil-tight using a flared joint.
- Product piping connections at any level below the highest level to which the liquid in the tank will rise should be provided with a shut-off valve (ideally a steel ball valve or gate valve) located as close as practicable to the tank shell. This will allow the fuel supply to the heating appliance to be shut off without excessive draining of fuel.
- Product filters should:
 - be installed inside the building.
 - have sufficient clearance to allow for replacement or repair.
- Burying product piping is not recommended since concrete can corrode copper lines, allowing fuel to leak and unnoticed. When burying is necessary for line safety from traffic, copper tubing should be placed in a continuous run of corrosion-resistant tubing when buried under or otherwise placed in direct contact with a concrete floor or wall. The ends of the flexible corrosion-resistant tubing should protrude at least 2 in (50 mm) above the concrete floor.
- The supply line(s) should be run as directly as practicable.
- Cross-connected tanks provided with a single fill pipe, shall have the fill pipe connected to the tanks in accordance with B139 or NFPA 31.

Tank Movement and Levelling

- Bottom outlet tanks must be installed with the appropriate slope (1 _ in) toward the outlet.
- Any tank(s) that has settled should have the elevation adjusted by a burner technician as soon as possible.
- The tank(s) must never be moved without completely emptying the tank.