



In many regions across Canada — particularly in Québec and the Atlantic provinces — above ground oil tanks are still being used to heat institutional and commercial properties, in addition to private homes.

While mostly a safe and effective heating method, above ground oil tanks present a number of risks, among them:

- fire
- theft
- tank, line, or fitting failures
- oil leaks or spills due to wear and tear or overfill

Over time, oil tanks can deteriorate due to water damage that causes internal corrosion, resulting in oil leaks and spills that pose potential pollution and environmental risks. A leaking tank can contaminate wells and drinking water, soil and groundwater, storm water drains, sewers, and drainage ditches, as well as streams, rivers, and lakes. It can also cause unpleasant odours and lead to health problems in neighbouring homes and businesses.

A full 275-gallon tank weighs over 2,000 pounds... one litre of leaked oil can contaminate up to 1,000,000 litres of drinking water.

When a leakage occurs, oil remediation is not only difficult, it is expensive. To help prevent oil leaks and spills, protect the environment and avoid unnecessary costs, it is important to understand the risks associated with oil tanks, ensure installations are done correctly, and take the appropriate steps to monitor and maintain the tanks.

The following are best practices for the care, maintenance and replacement of above ground heating oil tanks.

Inspection and Maintenance

To prevent costly and environmentally damaging leaks or spills, be sure you follow local regulations and codes of practice. Schedule a maintenance check-up by a Certified Oil Burner Technician in the fall before the peak heating season. Check the tanks in the spring to ensure there was no damage from the harsh winter weather, and inspect the tank throughout the year.

Inspection and maintenance steps include:

- Check the bottom of the tank for holes or rough areas that may indicate holes are forming — pinholes can cause a slow leak resulting in a significant loss of oil. Also check the fuel delivery line, valves, piping and fittings.
- Check for water in the tank by applying a water-finding paste to a clean stick (minimum 4 ft long) and dipping it into the tank through the filler pipe. The outside bottom corner of the tank beside the oil supply line will slowly turn black if there is water corrosion.
- Remove snow from beneath outdoor tanks following a storm and carefully clean off the fittings and oil line to prevent a build-up of snow or ice.
- Protect exposed oil lines with a durable hard plastic cover (PVC or similar) over the line between the tank and the building to prevent damage by falling ice, snow or vandalism.
- Check the vent whistle which increases in pitch as the oil level nears the top to warn that the fuel is approaching capacity, a common source of spills.
- Install an oil safety valve/anti-siphon valve to automatically shut-off the flow of oil from a tank if the line between the valve and oil burner is broken or severed, and prevent oil from being siphoned out of the tank.
- Check the stability of the tank — this can be done by your oil company. If the metal legs become loose or the pad they are sitting on cracks, the tank can topple and potentially rupture.
- Have the oil tank cleaned out at least every 10 years. Water and sludge can lead to internal corrosion and cause leaks.



Tank Replacement and Installation

Choose an interior tank if possible to avoid exposure to external elements. It is also easier to detect leaks or early warnings of a leak on interior tanks.

Outdoor oil tanks are exposed to extreme temperatures, ice, snow, rain, condensation, vandalism, and can be damaged by severe weather if not properly protected. Snow storms, ice falling from roofs and eaves, and freezing rain that can bring down tree limbs can puncture tanks and sever supply line connections, causing a spill or leak. When installing an outdoor tank, be sure it is not positioned under the building eaves, and that there is room around the tank for a full inspection. Here are additional best practices for tank replacement and installation.

Oil tank purchase

Look for a label on the top or side of the new oil tank, providing information on the manufacturer, date of manufacture, and that it meets Underwriters' Laboratories of Canada (ULC) or Canadian Standards Association (CSA) standards of construction and/or the National Standard of Canada (CAN4-S602-M81).

Longer lasting tanks

Choose from double walled tanks, fibreglass tanks, composite plastic/metal tanks, lined tanks, and heavier-walled 2.5 mm (12 gauge) steel tanks. Double wall tanks with 110 % containment volume and an alarm if the inner wall is perforated are recommended.

Tank installation

Hire a professional contractor to install the tank in accordance with installation standards (CAN/CSA-B139) and the National Fire Code. Installation by a trained installer will also validate any warranty.

CAN/CSA-B139 applies to above ground storage tanks that have a maximum individual capacity of 2,500 litres (550 gallons) and a maximum aggregate

capacity of 5,000 litres (1,100 gallons). Above ground installations over 2,500 litres are covered by the National Fire Code of Canada and Canadian Council of Ministers of the Environment Environmental Code. Storage tank installation may also be governed by the authority having jurisdiction.

DO

- Install bottom outlet tanks with a decline of 1/4" per foot of tank length to ensure water is removed and the feed line does not freeze.
- Install exterior tanks downgrade of domestic drinking water.
- Position exterior tanks so a spill will drain away from the building foundation.
- Position all tanks to allow room for visual inspection of the top, bottom, sides and ends, and the application of protective coatings to all areas of the tank.

DO NOT

- Install a used or refurbished tank.
- Drop or drag a tank.
- Install exterior tanks directly under eaves to protect from falling snow, ice, and drips.

Interior tanks

In addition to the points above, follow these guidelines for interior tanks :

- Place on a concrete floor to provide a stable, level base.
- Locate the tank on the lowest floor of the building, or if in a garage, protected from possible impact.
- Install interior tanks at least 12 inches from the wall.
- Install tanks at least 5 ft (1.5 m) from fuel fired appliances (check with local municipal building code authorities for variances in this requirement).
- If there are multiple tanks, ensure they are at least 12 inches from each other.

Oil transfer

Avoid transferring product from an old tank to a new tank.

Locks

Install padlocks fitted to the filler pipe on exterior and interior oil tanks with exposed filler pipes to avoid theft of oil from the tank.

Life Span

Ecclesiastical Insurance recommends the following life spans for oil tanks

Type of Tank	Replacement (INDOOR)	Replacement (OUTDOOR)
Steel 14 gauge (2.0 mm): Single wall, end or top outlet	15 years	10 years
Steel 14 gauge (2.0 mm): Single wall, bottom outlet	20 years	15 years
Steel 12 gauge (2.3 mm): Single wall, end or top outlet	20 years	15 years
Steel 12 gauge (2.3 mm): Single wall, bottom outlet	20 years	20 years
Steel: Double walled, 110% containment	25 years	25 years
Fibreglass: Single or double wall	30 years	30 years
Galvanized Steel with liner (e.g. Roth)	30 years	30 years

Some provinces and territories have their own guidelines and these should be consulted before replacing any tank.

Valve protectors

Prevent exterior access with valve protectors bolted on to cover the fittings/valves.

Fencing

Use a locked fence of wire mesh or heavy timber fabric to protect the oil tank from flying objects and malicious damage.

Drip Trays/Catch-pits

Reduce the risks of fire and pollution with a catch-pit, or place a drip tray under the tank. The catch-pit or drip tray should be constructed of an impermeable material such as concrete, non-porous engineering bricks on a concrete base, or solid steel, and have the capacity to hold the contents of the tanks plus 10%.

Fusible links

Install a fusible link to automatically close the oil supply in case of fire.

Summary

If a leak occurs, immediately take all reasonable steps to stop the leak and prevent further damage. Report any leaks to your fuel supplier or burner service company. Spills over a specific number of litres have to be reported to the department of environment having jurisdiction in the province. When in doubt, always report a spill to your local authority or environmental department.

By understanding the risks and taking the appropriate steps to manage them, we can help reduce the potential of an oil spill and the significant losses that result — monetary, environmental, and the hardship that results from a disruption to your services and your communities of interest.

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