

Waste oil heaters are heating appliances designed to burn used oil-based fluids as a fuel source for space heating in commercial, industrial, and agricultural operations, particularly those that generate used oil through routine vehicle, equipment, or machinery servicing. These systems can provide a practical means of recovering value from used oil while supplementing building heating requirements. However, they also require an added level of oversight that differs from conventional heating systems.

This guide outlines common applications, key risk factors, and practical measures to help manage exposures associated with waste oil heating systems.

Understanding the Risk

Waste oil heaters typically draw used oil-based fluids from a storage tank and pass them through filters to help remove contaminants. The oil is typically then pre-heated to reduce viscosity before being mixed with air and atomized for combustion. Once ignited inside the combustion chamber, the system produces heat that is transferred through a heat exchanger while combustion gases are vented outdoors.

When a waste oil heater is improperly selected, installed, operated, or maintained, it can increase the potential for fire, smoke, and carbon monoxide exposure. Common contributors to loss include unapproved or contaminated fuel, poor combustion, inadequate venting, non-approved equipment modifications, fuel leaks, and deferred inspection or maintenance.

Risk Mitigation Practices

Waste oil heaters should be managed through a combination of proper selection, installation, fuel management, and ongoing inspection and maintenance. These controls help support safe operation and reduce the likelihood of equipment failure, fire, environmental impacts, or business interruption.

Selection

Before installing or using a waste oil heater, property owners should confirm that the appliance is appropriate for the building, occupancy, intended use, and installation location.

Key selection considerations include (but are not limited to) the following:

- Selecting equipment that is certified for use in Canada by a recognized testing or certification organization, such as the Canadian Standards Association (CSA) or Underwriters Laboratories of Canada (ULC/cUL).
- Confirming what permits, inspections, or approvals are required by the local authority having jurisdiction.
- Notifying the insurer before a waste oil heater is installed to verify how this could affect the policy.

Installation

Waste oil heater installations should be performed by a certified Oil Burner Technician in accordance with manufacturer guidelines and the requirements of CSA B139 – *Installation Code for Oil Burning Equipment*, in addition to any applicable local building code, fire code, or environmental regulations.

Important reminder: Regulatory considerations

The use of waste oil heaters may be subject to building, fire, and environmental regulations governing how used oils are stored, handled, and burned for space heating. These requirements may address equipment certification, installation standards, allowable fuel sources, and operating conditions. Because regulatory requirements can vary by province (or municipality), facilities operating waste oil heaters should ensure their equipment and practices comply with applicable codes, standards, and environmental requirements.

Key installation requirements include (but are not limited to) the following:

- Maintaining all manufacturer-recommended clearances between the heater, venting system, fuel storage components, and nearby building elements or combustible materials.
- Locating the appliance where it is protected from physical damage and does not obstruct operations, access routes, or emergency egress.
- Ensuring adequate access is provided for inspection, servicing, cleaning, and maintenance activities.
- Installing fuel storage tanks, fuel lines, pumps, filters, and associated components in accordance with manufacturer requirements and applicable regulations.
- Protecting fuel lines and storage components from impact, abrasion, corrosion, excessive heat, and other sources of damage.
- Ensuring venting systems are properly supported, free from damage or deterioration, and terminate in an approved location.
- Verifying that electrical connections, controls, and safety devices are installed and functioning as intended.

Fuel management

Fuel management is an important consideration because waste oil heaters rely on a fuel source that can vary in composition and condition.

Key fuel management practices include (but are not limited to) the following:

- Using only oil-based fluids that are approved by the manufacturer for the specific appliance.
- Establishing controls to prevent gasoline, solvents, antifreeze, water, debris, or other contaminants from entering the fuel supply.
- Collecting and storing used oil in dedicated tanks or containers that are clearly labelled for waste oil heater use.
- Using dedicated transfer equipment, such as funnels, pumps, hoses, or containers, to reduce the chance of cross-contamination.
- Protecting fuel storage tanks, supply lines, and transfer points from impact, leakage, corrosion, and unauthorized access.

FAQ: What types of fluids are commonly used?

Common examples include used engine oil, transmission fluid, hydraulic oil, gear oil, and differential oil. The types of fluids that may be used can vary between appliances, making it important to verify approved fuel specifications for the specific equipment being operated.

Inspection and maintenance

Waste oil heaters require both routine observation and periodic professional servicing to support safe and reliable operation. Property owners should clearly define what can be checked by on-site personnel and what must be inspected, cleaned, adjusted, or repaired by a qualified professional.

Key inspection and maintenance practices include (but are not limited to) the following:

- Completing routine visual checks of the heater, fuel storage area, fuel lines, and venting components for leakage, damage, obstruction, corrosion, soot, unusual odours, smoke, or abnormal operation.
- Keeping the heater, fuel storage area, venting system, and service access points clear and accessible.
- Removing the heater from service and arranging qualified service where unsafe conditions, damaged components, operating concerns, or repeated service interruptions are identified.
- Having a certified Oil Burner Technician complete manufacturer-recommended inspection and servicing of burners, fuel system components, ignition components, safety controls, heat exchangers, fans, motors, and venting systems.
- Maintaining records of routine checks, professional inspections, cleaning, maintenance, repairs, service calls, replacement parts, and corrective actions.

In Summary

Waste oil heaters can be a valuable asset when properly managed. While the exposures associated with these systems differ from those of conventional heating equipment, they are often predictable and controllable. A proactive approach to fuel management, equipment condition, and system oversight can help reduce the likelihood of loss and support safe, reliable operation.

References

NFPA 31 | Standard for the Installation of Oil-Burning Equipment

NFPA Fire Protection Handbook | Heating Systems and Appliances

UL 296A | Standard for Waste Oil-Burning Air-Heating Appliances

CSA B139 | Installation Code for Oil-Burning Equipment

Government of Saskatchewan | Waste Oil Burning Equipment Guideline
publications.saskatchewan.ca/api/v1/products/77030/formats/86322/download

