FIRE CODE INTERPRETATION

STANDATA

USED LUBRICATING OIL INDOOR STORAGE TANK(S) SUPPLYING USED OIL FUEL BURNING APPLIANCES

PURPOSE

This document serves as an update to FCI-12-02 "Used Oil Indoor Storage Tank(s) Supplying Used Oil Fuel Burning Appliances".

The purpose of this interpretation is to clarify the scope and application of the National Fire Code – 2019 Alberta Edition (NFC(AE)) and CAN/CSA-B139 Installation Code for Oil-Burning Equipment as it pertains to *storage tanks* for heating *appliances* which burn used lubricating oil (used oil) to provide primary or supplemental heating to industrial premises. Specifically, oil change shops, motor vehicle service and repair garages. It will also clarify whether the storage of used lubricating oil for heating is "incidental" to the primary activity under the NFC(AE).

Used lubricating oil will be referenced as used oil for the remainder of this document.

DISCUSSION

Oil change shops, motor vehicle service and repair garages are installing oil burning *appliances* that burn used oil (a Class IIIA *combustible liquid*), typically to provide supplementary heating to the shop area. The shops collect the oil from the servicing of vehicles, and are required to properly dispose of the used oil. Instead of arranging the transportation and proper disposal/recycling of used oil in another location, owners are investing in certified heating *appliances* for burning used oil. In turn, they are able to avoid some heating costs in the shop area where large overhead doors are frequently opened and closed, losing building heat. As well, the risk of spills and off-site environmental damage is reduced by retaining and burning the used oil on site in the certified *appliance*(s).

Concerns have been expressed that there is some confusion as to which document to follow for the installation of the used oil storage tank. While these *appliances* and their ancillary equipment fall within the scope of CAN/CSA-B139 Installation Code for Oil-Burning Equipment, the NFC(AE) speaks to storage tanks for used oil and the size and location of *flammable liquid* and *combustible liquid storage tanks* within buildings.

Issue of this STANDATA is authorized by
the Provincial Fire Administrator

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CODE REFERENCES

Clause 4.1.1.1.(1)(a)) states:

4.1.1.1. Application

1) Except as provided in Sentences (2) and (3), this Part applies to the storage, handling, use and processing of
   a) *flammable liquids* and *combustible liquids* in *buildings*, structures and open areas, and
   b) *dangerous goods* classified as flammable gases at *fuel-dispensing stations*. (See Note A-4.1.1.1.(1).)
2) Areas in *process plants*, where conditions must be addressed by design and operational details specific to the hazard, need not conform to this Part, where alternative protection is provided in conformance with Article 1.2.1.1. of Division A.
   (See Note A-4.1.1.1.(2).)
3) This Part shall not apply to
   a) the transportation of *flammable liquids* or *combustible liquids* under TC SOR/2016-95, "Transportation of Dangerous Goods Regulations (TDGR),"
   b) the storage of *flammable liquids* or *combustible liquids* on farms for individual farm use and on isolated construction projects (see Note A-4.1.1.1.(3)(b)),
   c) the storage of aerosol products covered under Subsection 3.2.5.,
   d) liquefied petroleum gas-burning *appliances* and equipment within the scope of the gas regulations made pursuant to the Safety Codes Act,
   e) the production, storage or handling of liquefied natural gas within the scope of the gas regulations made pursuant to the Safety Codes Act,
   f) liquids such as certain halogenated hydrocarbons and mixtures containing hydrocarbons which are without *flash points* but which may be flammable under certain conditions, or
   g) the storage and handling of raw production *flammable liquids* or *combustible liquids* and the incidental storage and handling of hydrocarbon-based chemicals resulting from or used during crude oil or natural gas exploration, production or transmission as mandated under the scope of AER Directive 055, "Storage Requirements for the Upstream Petroleum Industry."

A-4.1.1.1.(1) The all-inclusive phrase "buildings, structures and open areas" includes, but is not limited to, tank farms, bulk plants, fuel-dispensing stations, industrial plants, refineries, process plants, distilleries, and to piers, wharves and airports that are not subject to overriding federal control.

Part 4 applies wherever flammable or combustible liquids are used or stored, except as specifically exempted in Sentences 4.1.1.1.(2) and (3). In addition, Section 4.6. applies to dangerous goods classified as flammable gases at fuel-dispensing stations.

Part 4 contains both general and occupancy-specific provisions. While general provisions apply to all occupancies or operations identified within the scope of Subsection 4.1.1., occupancy-specific provisions apply only to the specific occupancy or operation stated.

To determine the provisions that apply to a given situation, the first step is to confirm which Section or Subsection corresponds to the operation or occupancy: this will help identify the occupancy-specific provisions that apply. The next step is to ensure that all general requirements that apply to the operation or occupancy are also identified.

Article 4.1.2.3. states:

4.1.2.3. Used Lubricating Oil
(See Note A-4.1.2.3.)
1) Except as provided in Sentence (2), used lubricating oil drained from motor vehicles shall be classified as a Class IIIA liquid.
2) When Class I or II liquids are added to the used oils described in Sentence (1), the resulting mixture shall be classified
   a) through tests conforming to Subsection 4.1.3., or
   b) in the absence of the tests referred to in Clause (a),
      i) as a Class IC liquid if Class I liquids are added, or
      ii) as a Class II liquid if only Class II liquids are added.

A-4.1.2.3. Used automotive lubricating oil may contain both oil and more volatile Class I liquids, such as gasoline. Tests of representative samples have demonstrated that the flash point of such used oil consistently exceeds 60°C, with an average above 93.3°C. When Class I or II liquids are added to such used oil, the flash point of the resulting mixture will vary with the percentage and flammability of the contaminating liquid and shall be determined by tests.

Sentence 4.1.8.1.(1) states:

4.1.8.1. Containers and Storage Tanks
1) Except as provided in Sentence 4.1.8.4.(1), *flammable liquids* and *combustible liquids* shall be kept in containers conforming to Subsection 4.2.3. or in *storage tanks* conforming to Subsection 4.3.1.

Sentence 4.2.8.1(1) state:

4.2.8.1. Application
1) Except as otherwise noted in this Part, this Subsection applies to industrial occupancies where the use, storage and handling of flammable liquids or combustible liquids is secondary to the principal activity. (See Note A-4.2.8.1.(1).)

A-4.2.8.1.(1) Subsection 4.2.8. applies to those portions of an industrial occupancy where the use, storage and handling of flammable and combustible liquids is only incidental, or secondary to the principal activity. The word “incidental” does not imply “small quantity” or “insignificant amount.” Manufacturers of electronic equipment, furniture and reinforced plastic boats, and automobile assembly plants are typical examples of locations where the use of flammable and combustible liquids is secondary to the principal activity of manufacturing consumer products. In storage areas otherwise governed by Part 3 of this Code, Subsection 4.2.8. applies to the “incidental” storage of flammable and combustible liquids that is deemed to be secondary to the principal activity of storing commodities covered in Part 3. This includes the storage of used lubricating oil in the warehouse portion (industrial occupancy) of a retail outlet. Subsection 4.2.8. also applies to the storage of used lubricating oil at motor vehicle repair and service garages because such storage is secondary to the principal activity of repairing and servicing motor vehicles.

Sentence 4.2.8.2.(1) states:

4.2.8.2. Maximum Quantities
1) Except as provided in Sentences (2) and (3) and in Article 4.2.8.4., the quantity of *flammable liquids* and *combustible liquids* permitted to be located outside of storage rooms conforming to Subsections 4.2.7., 4.2.9. or 4.3.14., or storage cabinets conforming to Subsection 4.2.10., in any one *fire compartment* of a *building*, shall not be more than

a) 600 L of *flammable liquids* and *combustible liquids* in *closed containers*, of which not more than 100 L shall be Class IA liquids, and
b) 5 000 L of Class IB, IC, II and IIIA liquids in *storage tanks* or portable tanks.

Sentences 4.3.1.2.(1) and (5) state:

4.3.1.2. Atmospheric Storage Tanks

1) Except as permitted in Sentence (3) and in Section 4.10., *atmospheric storage tanks* shall be built in conformance with the following:
   a) except as provided in Sentence (2), API 12B, "Bolted Tanks for Storage of Production Liquids,"
   b) except as provided in Sentence (2), API 12D, "Field Welded Tanks for Storage of Production Liquids,"
   c) except as provided in Sentence (2), API 12F, "Shop Welded Tanks for Storage of Production Liquids,"
   d) API 650, "Welded Tanks for Oil Storage,"
   e) CAN/ULC-S601, "Shop Fabricated Steel Aboveground Tanks for Flammable and Combustible Liquids,"
   f) CAN/ULC-S602, "Aboveground Steel Tanks for Fuel Oil and Lubricating Oil,"
   g) CAN/ULC-S603, "Steel Underground Tanks for Flammable and Combustible Liquids,"
   h) CAN/ULC-S603.1, "External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids,"
   i) CAN/ULC-S615, "Fibre Reinforced Plastic Underground Tanks for Flammable and Combustible Liquids,"
   j) CAN/ULC-S652, "Tank Assemblies for the Collection, Storage and Removal of Used Oil,"
   k) CAN/ULC-S653, "Aboveground Steel Contained Tank Assemblies for Flammable and Combustible Liquids,"
   l) ULC-S655, "Aboveground Protected Tank Assemblies for Flammable and Combustible Liquids,"
   m) CAN/ULC-S677, "Fire Tested Aboveground Tank Assemblies for Flammable and Combustible Liquids," or
   n) ULC/ORD-C80.1, "Non-metallic Tank for Oil Burner Fuels and Other Combustible Liquids."
5) Nonmetallic aboveground *storage tanks*, up to 2 500 L, intended for the storage of *combustible liquids*, including heating oil, diesel fuel and new or used oils, shall comply with CAN/ULC-S670, "Aboveground Nonmetallic Tanks for Fuel Oil and Other Combustible Liquids."

Article 4.3.13.1. states:

4.3.13. Installation of Storage Tanks inside Buildings

4.3.13.1. Occupancy

1) Except as provided in Article 4.3.13.2., *storage tanks* inside *buildings* shall
   a) conform to Subsections 4.3.13. to 4.3.15.,
   b) be permitted in *industrial occupancies*, and
   c) be permitted in all *occupancies* where *combustible liquids* are stored and used as fuel for oil-burning equipment, emergency generators and fire pumps.

Sentence 4.3.13.2.(1) states:

4.3.13.2. Stationary Combustion Engines

2) *Storage tank systems* for Class II and IIIA liquids inside *buildings* shall conform to this Part

when they are used to supply *appliances* installed in conformance with CSA B139, "Installation Code for Oil-Burning Equipment."

Article 4.3.13.9. states:

4.3.13.9. Storage Tanks outside Storage Rooms

1) Where *storage tanks* for *flammable liquids* or *combustible liquids* are located outside of storage rooms conforming to Subsection 4.3.14.,
   a) provision shall be made to contain a spill equal to at least 100% of the volume of the largest *storage tank*, or to drain away spilled *flammable liquids* or *combustible liquids*, and
   b) the area in which the *storage tanks* are located shall be ventilated (see Note A-4.3.13.9.(1)(b)).

A-4.3.13.9.(1)(b) The area that should be considered for ventilation is the space occupied by the tanks and extending to a distance that is classified electrically as Class I, Zone 2, when no ventilation is provided.

APPLICATION

This interpretation applies to oil change shops, motor vehicle service and repair garages that have indoor *storage tanks* for used oil supplying heating *appliances* installed in conformance with CAN/CSA-B139 Installation Code for Oil-Burning Equipment.

All other *occupancies* shall follow the NFC(AE) requirements for the installation of indoor *storage tanks*.

INTERPRETATION

Part 4 of the NFC(AE) regulates the storage, handling, use and processing of *flammable liquids* and *combustible liquids* in *buildings*, structures and open areas. Used oil is classified as a *combustible liquid* (Class IIIA liquid) and shall be stored in containers, portable tanks or *storage tanks.* Typically, the volume of used oil supplying used oil furnaces would require a *storage tank*.

As per the NBC(AE) used oil furnaces shall be installed in conformance with CSA B139, "Installation Code for Oil-Burning Equipment.", however used oil indoor *storage tanks systems* supplying used oil fuel burning furnaces shall meet the requirements of Part 4 of the NFC(AE).

The storage of used oil in *storage tanks* within an oil change shop, motor vehicle service and repair garage is considered incidental use and up to 5000 L of used oil is permitted to be in indoor *storage tanks* or portable tanks located outside of storage rooms conforming to Part 4 of the NFC(AE). Those *storage tanks* and portable tanks shall comply with Articles 4.3.1.2. and 4.2.3.1. respectively.

This INTERPRETATION replaces the following:

FCI-12-02 Used Oil Indoor Storage Tanks(s) Supplying Used Oil Fuel Burning Appliances

This INTERPRETATION is applicable throughout the province of Alberta.