

4101:8-22-01 Special piping and storage systems.

[Comment: When a reference is made within this rule to a federal statutory provision, an industry consensus standard, or any other technical publication, the specific date and title of the publication as well as the name and address of the promulgating agency are listed in rule 4101:8-44-01 of the Administrative Code. The application of the referenced standards shall be limited and as prescribed in section 102.5 of rule 4101:8-1-01 of the Administrative Code.]

SECTION 2200
SCOPE

2200.1 Scope. *This chapter shall govern the design, installation, construction and repair of fuel oil and diesel oil storage and piping systems supplying and piped to building service equipment. The storage of fuel oil and flammable and combustible liquids not associated with building services equipment shall be in accordance with Chapters 6 and 34 of the fire code and enforced by the fire official.*

SECTION 2201
OIL TANKS

2201.1 Materials. *Supply tanks shall be listed and labeled and shall conform to UL 58 for underground tanks and UL 80 for indoor tanks.*

2201.2 Above-ground tanks. *The maximum amount of fuel oil or diesel oil stored above ground or inside of a building shall be 660 gallons (2498 L). The supply tank shall be supported on rigid noncombustible supports to prevent settling or shifting.*

Exceptions:

- 1. The storage of fuel oil, used for space or water heating, above ground or inside buildings in quantities exceeding 660 gallons (2498 L) shall comply with NFPA 31.*
- 2. The storage of diesel oil supplying and piped to engine-driven building services equipment, including emergency and standby generators, above ground or inside buildings in quantities exceeding 660 gallons shall comply with NFPA 37.*

2201.2.1 Tanks within buildings. *Supply tanks for use inside of buildings shall be of such size and shape to permit installation and removal from dwellings as whole units. Supply tanks larger than 10 gallons (38 L) shall be placed not less than 5 feet (1524 mm) from any fire or flame either within or external to any fuel-burning appliance.*

2201.2.2 Outdoor above-ground tanks. Tanks installed outdoors, above ground shall be not less than 5 feet (1524 mm) from an adjoining property line. Such tanks shall be suitably protected from the weather and from physical damage.

2201.3 Underground tanks. Excavations for underground tanks shall not undermine the foundations of existing structures. The clearance from the tank to the nearest wall of a basement, pit or property line shall be not less than 1 foot (305 mm). Tanks shall be set on and surrounded with noncorrosive inert materials such as clean earth, sand or gravel well-tamped in place. Tanks shall be covered with not less than 1 foot (305 mm) of earth. Corrosion protection shall be provided in accordance with Section 2203.7.

2201.3.1 Regulated underground storage of fuel oil. *The design, installation, registration, and inspection of regulated underground storage tanks shall be in accordance with the fire code and rules adopted by the state fire marshal and enforced by the fire official, in accordance with sections 3737.87 to 3737.89 of the Revised Code. Underground storage tanks not regulated by the state fire marshal's Bureau of Underground Storage tanks shall comply with the applicable requirements of Chapter 23 of NFPA 30.*

2201.4 Multiple tanks. Cross connection of two supply tanks shall be permitted in accordance with Section 2203.6.

2201.5 Oil gauges. Inside tanks shall be provided with a device to indicate when the oil in the tank has reached a predetermined safe level. Glass gauges or a gauge subject to breakage that could result in the escape of oil from the tank shall not be used. Liquid-level indicating gauges shall comply with UL 180.

2201.6 Flood-resistant installation. In flood hazard areas as established by Table 301.2(1), tanks shall be installed in accordance with Section 322.2.4 or 322.3.10.

2201.7 Tanks abandoned or removed. Outdoor above-grade fill piping shall be removed when tanks are abandoned or removed. Tank abandonment and removal shall be in accordance with the *fire code*.

SECTION 2202 **OIL PIPING, FITTING AND CONNECTIONS**

2202.1 Materials. Piping shall consist of steel pipe, copper and copper-alloy pipe

and tubing or steel tubing conforming to ASTM A539. Aluminum tubing shall not be used between the fuel-oil tank and the burner units.

2202.2 Joints and fittings. Piping shall be connected with standard fittings compatible with the piping material. Cast-iron fittings shall not be used for oil piping. Unions requiring gaskets or packings, right or left couplings, and sweat fittings employing solder having a melting point less than 1,000°F (538°C) shall not be used for oil piping. Threaded joints and connections shall be made tight with a lubricant or pipe thread compound.

2202.3 Flexible connectors. Flexible metallic hoses shall be listed and labeled in accordance with UL 536 and shall be installed in accordance with their listing and labeling and the manufacturer's installation instructions. Connectors made from combustible materials shall not be used inside of buildings or above ground outside of buildings.

SECTION 2203 **INSTALLATION**

2203.1 General. Piping shall be installed in a manner to avoid placing stresses on the piping, and to accommodate expansion and contraction of the piping system.

2203.2 Supply piping. Supply piping used in the installation of oil burners and appliances shall be not smaller than $\frac{3}{8}$ -inch (9 mm) pipe or $\frac{3}{8}$ -inch (9 mm) outside diameter tubing. Copper tubing and fittings shall be Type L or heavier.

2203.3 Fill piping. Fill piping shall terminate outside of buildings at a point not less than 2 feet (610 mm) from any building opening at the same or lower level. Fill openings shall be equipped with a tight metal cover.

2203.4 Vent piping. Vent piping shall be not smaller than $1\frac{1}{4}$ -inch (32 mm) pipe. Vent piping shall be laid to drain toward the tank without sags or traps in which the liquid can collect. Vent pipes shall not be cross connected with fill pipes, lines from burners or overflow lines from auxiliary tanks. The lower end of a vent pipe shall enter the tank through the top and shall extend into the tank not more than 1 inch (25 mm).

2203.5 Vent termination. Vent piping shall terminate outside of buildings at a point not less than 2 feet (610 mm), measured vertically or horizontally, from any building opening. Outer ends of vent piping shall terminate in a weather-proof cap or fitting having an unobstructed area equal to or greater than the cross-sectional

area of the vent pipe, and shall be located sufficiently above the ground to avoid being obstructed by snow and ice.

2203.6 Cross connection of tanks. Cross connection of two supply tanks, not exceeding 660 gallons (2498 L) aggregate capacity, with gravity flow from one tank to another, shall be acceptable providing that the two tanks are on the same horizontal plane.

2203.7 Corrosion protection. Underground tanks and buried piping shall be protected by corrosion-resistant coatings or special alloys or fiberglass-reinforced plastic.

SECTION 2204 **OIL PUMPS AND VALVES**

2204.1 Pumps. Oil pumps shall be positive displacement types that automatically shut off the oil supply when stopped. Automatic pumps shall be listed and labeled in accordance with UL 343 and shall be installed in accordance with their listing.

2204.2 Shutoff valves. A manual shutoff valve shall be installed between the oil supply tank and the burner. Such valve shall be provided with ready access. Where the shutoff valve is installed in the discharge line of an oil pump, a pressure relief valve shall be incorporated to bypass or return surplus oil. Valves shall comply with UL 842.

2204.3 Maximum pressure. Pressure at the oil supply inlet to an appliance shall be not greater than 3 pounds per square inch (20.7 kPa).

2204.4 Relief valves. Fuel-oil lines incorporating heaters shall be provided with relief valves that will discharge to a return line when excess pressure exists.

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