Second Revision No. 2-NFPA 31-2023 [Global Comment]

[PLEASE SEE THE FILE FOR UPDATES TO THE NFPA 211 EXTRACTS, WHICH WERE REVISED AT THAT COMMITTEE'S SECOND DRAFT MEETING].

Supplemental Information

File Name	Description	Approved
31_SR-2_Extracts.docx		
31_Global_SR-2_FINAL.docx	for ballot	

Submitter Information Verification

Committee: LPI-AAA

Submittal Date: Thu Mar 02 08:48:30 EST 2023

Committee Statement

Committee Statement: This revision updates extracted text in accordance with the Extract Policy. For substantiation on any changes, see the first and second draft reports for NFPA 211.

This Second Revision is tied to Committee Input No. 14.

Response Message: SR-2-NFPA 31-2023

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[SR-2]

3.3.10.2 Masonry Chimney.

A field-constructed chimney of solid masonry units, bricks, stones, listed masonry chimney units, or reinforced Portland cement concrete, lined with suitable chimney flue liners and built in accordance with the provisions of ~~Chapter 7 of~~ NFPA 211. ~~[**211,**2019]~~

3.3.29.5 Central Warm-Air, Gravity-Type Furnace with Integral Fan.
A central furnace equipped with a fan as an integral part of its construction and operable on gravity systems only~~, where the~~The fan is used only to overcome the internal resistance to airflow. [**211,**~~2019~~2024]

3.3.29.7 Floor Furnace.
A self-contained indirect-fired or electrically heated furnace designed to be suspended from the floor of the space to be heated. A fuel-burning floor furnace is designed to take air for combustion from outside the space being heated and is provided with means for observing the flame and lighting the appliance from such space. [**211,**~~2019~~2024]

~~**A.3.3.29.7 Floor Furnace.**~~
~~A fuel-burning floor furnace is designed to take air for combustion from outside the space being heated and is provided with means for observing the flame and lighting the appliance from such space.~~

3.3.53.1 Circulating Room Heater.
A room heater with an outer jacket surrounding the heat exchanger, arranged with openings at top and bottom so that air circulates between the heat exchanger and the outer jacket. Room heaters that have openings in an outer jacket to allow some direct radiation from the heat exchanger are classified as a radiant type. [**211,**~~2019~~2024]

~~**A.3.3.53.1 Circulating Room Heater.**~~
~~Room heaters that have openings in an outer jacket to allow some direct radiation from the heat exchanger are classified as a radiant type.~~

6.5.22
If two or more openings are provided into ~~a~~one chimney flue, ~~they shall be at different levels and the smaller connector shall enter at the higher level consistent with available head room or clearance to combustible material. [**211:**9.8.4]~~the following stipulations shall apply:

(1) ~~they~~They shall be at different levels.

(2) ~~the~~The smaller connector shall enter at the ~~higher~~highest level consistent with available head room or clearance to combustible material.

[**211:**9.8.4]

6.5.28
Gas ~~utilization~~ appliances and appliances burning liquid fuel shall be permitted to be connected to ~~the same~~one chimney flue through separate openings or to be connected through a single opening, provided ~~the appliances~~they are joined by a suitable fitting located as close as practicable to the chimney and provided ~~the following conditions are met:~~ both of the following apply:

(1) Sufficient draft is available for the safe combustion of each appliance and for the removal of all products of combustion. ~~[**211:**9.8.3(1)]~~

(2) The appliances so connected are equipped with primary safety controls and all appliances are located in the same room. ~~[**211:**9.8.3(2)]~~

[**211:**9.8.3]

Second Revision No. 5-NFPA 31-2023 [Section No. 2.3.5]

2.3.5 UL Publications.

Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

UL 30, *Metal Safety Cans*, 2019.

UL 58, *Steel Underground Tanks for Flammable and Combustible Liquids*, 2018.

UL 80, *Steel Tanks for Oil-Burner Fuels and Other Combustible Liquids*, 2007, revised 2019.

UL 103, *Factory-Built Chimneys for Residential Type and Building Heating Appliances*, 2010, revised 2021.

UL 142, *Steel Aboveground Tanks for Flammable and Combustible Liquids*, 2019, revised 2021.

UL 142A, *Special Purpose Aboveground Tanks for Specific Flammable or Combustible Liquids*, 2018, revised 2021.

UL/ULC 180, *Combustible Liquid Tank Accessories*, 2019, revised ~~2021~~ 2023 .

UL 295, *Commercial-Industrial Gas Burners*, 2017, revised 2019.

UL 296, *Oil Burners*, 2017, revised 2020.

UL 296A, *Waste Oil-Burning Air-Heating Appliances*, 2018.

UL 443, *Steel Auxiliary Tanks for Oil Burner Fuel*, 2006, revised 2018.

UL 641, *Type L Low-Temperature Venting Systems*, 2010, revised 2018.

~~UL 896, *Oil-Burning Stoves* , 1993, revised 2016.~~

UL 842, *Valves for Flammable and Combustible Liquids* , 2020.

UL 842B, *Valves for Diesel Fuel, Biodiesel Fuel, Diesel/Biodiesel Blends with Nominal Biodiesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil* , 2022.

UL 971, *Nonmetallic Underground Piping for Flammable Liquids*, 2021.

UL971A, *Outline of Investigation for Metallic Underground Fuel Pipe*, 2006.

UL 1313, *Nonmetallic Safety Cans for Petroleum Products*, 2015.

UL 1316, ~~*Fiber*~~ *Fibre* *Reinforced Underground* ~~*Storage*~~ *Tanks for Flammable and Combustible Liquids*, 2018, revised 2019.

UL 1746, *External Corrosion Protection Systems for Steel Underground Storage Tanks*, 2007, revised 2014.

UL 2039, *Flexible Connector Piping for Fuels*, 2016.

UL 2080, *Fire Resistant Tanks for Flammable and Combustible Liquids*, 2000.

UL 2085, *Protected Aboveground Tanks for Flammable and Combustible Liquids*, 1997, revised 2010.

UL 2245, *Below-Grade Vaults for Flammable Liquid Storage Tanks*, 2006.

UL 2258, *Aboveground Nonmetallic Tanks for* ~~*Fuels*~~ *Fuel* *Oil and Other Combustible Liquids*, 2018, revised 2019.

Submitter Information Verification

Committee: LPI-AAA

Submittal Date: Thu Mar 02 12:34:42 EST 2023

Committee Statement

Committee Statement: This revision updates the references cited in SR-4 and SR-6 to comply with the NFPA Manual of Style. The new edition of UL/ULC 180 is the basis for SR-4.

Response Message: SR-5-NFPA 31-2023

Second Revision No. 1-NFPA 31-2023 [Section No. 2.4]

2.4 References for Extracts in Mandatory Sections.

NFPA 54, *National Fuel Gas Code,* ~~2021~~ 2024 edition.

NFPA 70®, National Electrical Code®, 2023 edition.

NFPA 86, *Standard for Ovens and Furnaces,* 2023 edition.

NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel–Burning Appliances,* ~~2019~~ 2024 edition.

NFPA 1451, *Standard for a Fire and Emergency Service Vehicle Operations Training Program,* 2018 edition.

Submitter Information Verification

Committee: LPI-AAA

Submittal Date: Thu Mar 02 08:40:26 EST 2023

Committee Statement

Committee Statement: This revision updates extracted references in accordance with the Extract Policy.

Response Message: SR-1-NFPA 31-2023

Second Revision No. 9-NFPA 31-2023 [Section No. 3.3.63]

3.3.63 Valve.

3.3.63.1 ~~Oil~~ Burner Control Valve.

An automatically or manually operated ~~device consisting essentially of an oil~~ valve for controlling the fuel supply to a burner.

3.3.63.2 Burner Metering (Regulating) Valve.

~~An oil~~ A fuel control valve for regulating burner input.

3.3.63.3* Fusible Link Valve.

Valves intended for use in fuel supply lines that close when the temperature in the vicinity of the valve exceeds the fusing temperature of the fusible element.

A.3.3.63.3 Fusible Link Valve.

These valves are designed for an operating pressure of 18 psi (124 kPa) or less with the fusible element operating at 165°F (74°C) or less.

3.3.63.4 Manual ~~Oil~~ Fuel Shutoff Valve.

A manually operated valve in ~~an oil~~ a fuel line for the purpose of turning on or completely shutting off the ~~oil supply~~ fuel at any point in the burner supply line .

3.3.63.5 Safety Valve.

An automatic ~~oil~~ fuel control valve of the “on” and “off” type (without any bypass to the burner) that is actuated by a safety control or ~~by~~ an emergency device.

Submitter Information Verification

Committee: LPI-AAA

Submittal Date: Thu Apr 06 16:51:53 EDT 2023

Committee Statement

Committee Statement: The requirements for use of heat-actuated valves were not clear. The definitions lacked reference to heat-actuated valves, but these types of valves were cited in the requirements. These revisions clarify the usage of fusible link valves throughout the standard. A definition was added for fusible link valves.

This Second Revision is tied to Committee Input No. 11.

Response Message: SR-9-NFPA 31-2023

Second Revision No. 3-NFPA 31-2023 [New Section after 6.5.14]

6.5.15

Connectors shall be fastened to appliances using sheet metal screws, rivets, banding, strapping, or other approved means. [**211:** 9.7.10]

Submitter Information Verification

Committee: LPI-AAA

Submittal Date: Thu Mar 02 11:14:33 EST 2023

Committee Statement

Committee Statement: Connectors/chimney connectors should always be mechanically fastened to oil-fired and other heating appliances using sheet metal screws, rivets, banding, strapping or by other approved means in order to assure that the system to vent combustion (flue) gases does not loosen or become detached from the appliance, and thereby pose a threat of discharging carbon monoxide or other noxious gases into the structure(s) served by the appliance. Securing the connector/chimney connector by mechanical means in all cases is reasonable, cost-effective, and will serve to protect occupants of structures served by heating appliance from the dangers of noxious and potentially lethal gases resulting from fuel combustion. This language allows a variety of connections in case there are connection methods that cannot be used.

Response Message: SR-3-NFPA 31-2023

Public Comment No. 5-NFPA 31-2022 [New Section after 6.5.14]

Second Revision No. 8-NFPA 31-2023 [Section No. 7.3]

7.3 ~~Supports and~~ Tank Foundations.

7.3.1

Tanks and their supports shall rest on foundations made of solid concrete.

~~**A.7.3.1**~~

~~Appendix E of API Standard 650, *Welded Steel Tanks for Oil Storage* , provides information on tank foundations.~~

7.3.1.1

Installation of unenclosed UL 80 or UL 142 supply tanks not exceeding 330 gal (1250 L) inside buildings without finished cement floors shall be in accordance with the following:

(1) The tank is supported by four 4 in. x 8 in. x 16 in. (100 mm x 200 mm x 400 mm) solid concrete blocks or a reinforced concrete pad.

(2) The concrete pad is at least 3 in. (75 mm) thick and the pad's width and length extend to the full width and length of the tank.

(3) When a tank is equipped with integral leg brackets, the steel pipe legs do not exceed 12 in. (300 mm) in height with floor flanges at the base of the legs.

(4) The clearance under the tank is a minimum of 4 in. (100 mm) from any surface.

(5) No shims are utilized.

7.3.1.2

Horizontal UL 80 or UL 142 supply tanks not exceeding 330 gal (1250 L) located outside shall be in accordance with the following:

(1) The tank is supported by four 4 in. x 8 in. x 16 in. (100 mm x 200 mm x 400 mm) solid concrete blocks or a reinforced concrete pad consisting of one piece that is at least 3 in. (75 mm) thick and that is not smaller than the tank's length and width.

(2) The four blocks or the concrete pad rest on a firm subgrade consisting of a bed of compacted, well-draining gravel [6 in. (150 mm) minimum], crushed stone [6 in. (150 mm) minimum], or some other approved subgrade.

(3) When a tank is equipped with integral leg brackets, the steel pipe legs do not exceed 12 in. (300 mm) in height with floor flanges at the base of the legs.

(4) The clearance under the tank is a minimum of 4 in. (100 mm) from any surface.

(5) No shims are utilized.

7.3.1.3

UL 80 or UL 142 vertical supply tanks not exceeding 330 gal (1250 L) located outside shall be in accordance with the following:

(1) The tank is supported by a reinforced concrete pad at least 3 in. (75 mm) thick.

(2) The concrete pad width and length is not smaller than the tank's width and length.

(3) The concrete pad consists of only one piece.

(4) The concrete pad rests on a bed of compacted, well-draining gravel [6 in. (150 mm) minimum], crushed stone [6 in. (150 mm) minimum], or some other approved subgrade.

(5) When a tank is equipped with integral leg brackets, the steel pipe legs shall not exceed a height of 12 in. (300 mm) with floor flanges at the base of the leg.

(6) The clearance under the tank is a minimum of 4 in. (100 mm) from any surface.

(7) No shims are utilized.

7.3.2

Oil supply tanks other than UL 80 and UL 142 tanks shall be installed in accordance with the manufacturer's instructions.

7.3.3

The ~~tank~~ tank's foundation shall be designed to minimize uneven settling and ~~to minimize~~ corrosion in any part of the tank resting on the foundation.

7.3.4

The tank supports shall be integral to the tank or ~~shall~~ be of concrete, solid masonry, or steel. ~~For outside aboveground tanks, the supports shall be firmly anchored to the foundation.~~

7.3.4.1

For outside aboveground tanks, the tank supports shall be firmly anchored to the foundation.

7.4 Tank Supports.

7.4.1

Steel supports for any outside aboveground tank whose capacity exceeds 660 gal (2500 L) shall be considered protected if they meet one of the following methods and are approved by the authority having jurisdiction:

(1) They are protected by materials having a fire resistance rating of not less than 2 hours.

(2) They are not otherwise protected~~,~~ but are less than 12 in. (~~0.3 m~~ 300 mm) high at their lowest point.

(3) They are protected by a water spray system that meets the requirements of NFPA 15 or NFPA 13.

7.4.2

Every tank shall be supported in such a manner ~~that~~ to prevent the excessive ~~concentrations~~ concentration of loads on the supporting portion of the shell ~~are prevented~~ .

7.4.3

The tank legs of an unenclosed supply tank located inside a building with a finished cement floor shall not exceed 12 in. (300 mm) in height with floor flanges at the base of the steel legs.

7.4.4

UL 80 and UL 142 oil supply tanks with pipe legs or other supports greater than 12 in. (300 mm) shall be installed in accordance with the manufacturer's instructions.

7.4.5

In areas subject to ~~earthquake~~ earthquakes , tank supports and connections shall be designed to resist damage as a result of such shocks.

Supplemental Information

File Name	Description	Approved
31_SR-8_7.3.docx		

Submitter Information Verification

Committee: LPI-AAA

Submittal Date: Thu Mar 09 16:27:14 EST 2023

Committee Statement

Committee Statement: There can be different interpretations of what constitutes "solid concrete." These regulations, which are partially based on State of Maine code, provide clear direction to installers, and facilitate simple foundation installation rather than requiring a poured concrete pad if it is not necessary. These regulations have been effective for over 27 years in providing stable foundations for oil tanks. Exceptions for tanks with evaluated supports were also added.

This Second Revision is tied to Committee Input No. 12.

Response Message: SR-8-NFPA 31-2023

Second Revision No. 10-NFPA 31-2023 [Section No. 7.5.8]

7.6.8

A tank of a capacity between 10 gal and 330 gal (38 L and 1250 L) that is provided with an opening in the bottom for use as a fuel supply connection to an appliance or as a drain shall be arranged as follows:

(1) The tank shall be pitched toward the opening with a slope of not less than ¼ in./ft (20 mm/m).

(2) Each supply line shall be provided with a readily accessible, ~~thermally actuated automatic shutoff~~ fusible link valve installed as close as practical to the tank. *(See also 8.7.3)*.

(3) If the ~~oil~~ fuel filter or strainer is installed at the tank, it shall be within 6 in. (150 mm) of the ~~thermally actuated automatic shutoff~~ fusible link valve required by 7.6.8(2).

(4) A properly sized and rated fuel filter or strainer shall be installed in the fuel supply line to the appliance downstream and within 6 in. (150 mm) of the ~~thermally actuated automatic shutoff~~ fusible link valve required by 7.6.8(2).

(5) Where three or more tanks are installed as part of a fuel storage system, each appliance supply line shall be provided with its own readily accessible ~~safety shutoff~~ fusible link valve.

Submitter Information Verification

Committee: LPI-AAA

Submittal Date: Thu Apr 06 16:57:15 EDT 2023

Committee Statement

Committee Statement: The requirements for use of heat-actuated valves were not clear. These revisions clarify the usage of fusible link valves and correlate with the revised definitions.

This Second Revision is tied to Committee Input No. 11.

Response Message: SR-10-NFPA 31-2023

Second Revision No. 4-NFPA 31-2023 [Section No. 8.6.4]

8.6.4

Vent caps shall ~~have a minimum free open area equal to the cross-sectional area of the vent pipe and shall have screens No. 4 mesh or coarser~~ be listed in accordance with UL/ULC 180, *Combustible Liquid Tank Accessories* .

Submitter Information Verification

Committee: LPI-AAA

Submittal Date: Thu Mar 02 12:06:19 EST 2023

Committee Statement

Committee Statement: The revision refers to a standard that is based on recent test data. The UL/ULC 180 construction reflects current vent caps and focuses on open area, or alternately, evaluation by test to ensure the vent cap does not over pressurize the tank during fill operations.

This Second Revision is tied to Committee Input No. 4.

Response Message: SR-4-NFPA 31-2023

Second Revision No. 15-NFPA 31-2023 [Section No. 8.7]

8.7 Fuel Supply ~~Piping~~ and Return Piping.

8.7.1

The fuel supply piping between the supply tank and the appliance shall be:

(1) At least nominal ⅜ in. (10 mm) pipe or tubing

(2) Large enough to meet the fuel consumption rate of the appliance

(3) Provided with a manual shutoff valve or a fusible link valve at the outlet~~,~~ for an aboveground tank

(4) Provided with a ~~shutoff valve where an oil~~ fusible link valve at the outlet of an indoor tank or inside a building where a fuel line enters a building~~, for an underground tank~~

8.7.2*

The fuel supply piping from the supply tank shall be connected to the top of the tank, except in the following cases:

(1) Tanks of 330 gal (1250 L) or less

(2) Tanks with cross-connections

8.7.3

A readily accessible fusible link ~~safety shutoff~~ valve shall be installed in the following locations :

(1) As close as practical to the burner(s) supply connection

(2) Immediately upstream of the filter and inside the building~~,~~ if the piping passes through ~~a~~ the foundation

8.7.4

The pressure at the fuel supply inlet to an appliance shall not exceed a gauge pressure of 3 psi (~~gauge pressure of~~ 21 kPa)~~,~~ unless the appliance is approved for a higher inlet pressure.

8.7.5

Threaded pipe or valve ends installed in a tank bottom opening for gravity feed shall not penetrate above the bottom of the tank shell.

8.7.5.1

Use of stem pieces or other modifications to valves shall not circumvent the requirement of 8.7.5 to prevent water in the tank from draining out the bottom opening.

8.7.6

Unions or fittings that require gaskets or packings used in fuel lines shall be listed to ~~UL 180~~ UL/ULC 180 , *Combustible Liquid Tank Accessories*.

8.7.7 Fuel Return Piping.

A return line from a burner or a pump back to a supply tank shall have no valves or obstructions except for a hard-seat or ball valve that ~~shall be~~ is left in the open position, with the handle removed, and ~~shall~~ enter the top of the same tank.

Submitter Information Verification

Committee: LPI-AAA

Submittal Date: Thu Apr 06 17:32:58 EDT 2023

Committee Statement

Committee Statement: The requirements for use of heat-actuated valves were not clear. These revisions clarify the usage of fusible link valves and correlate with the revised definitions.

This Second Revision is tied to Committee Input No. 11.

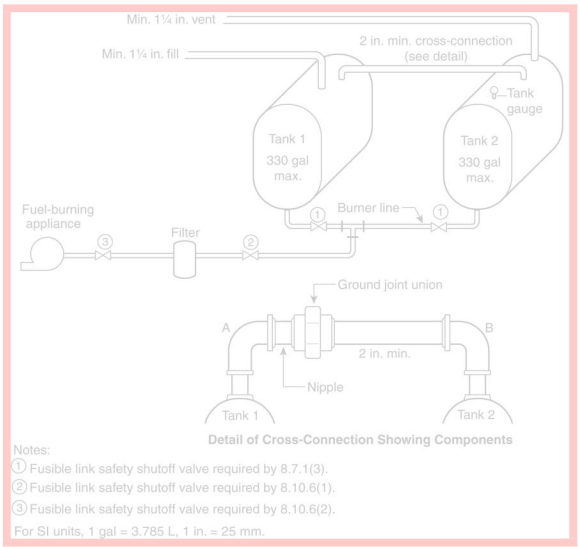
Response Message: SR-15-NFPA 31-2023

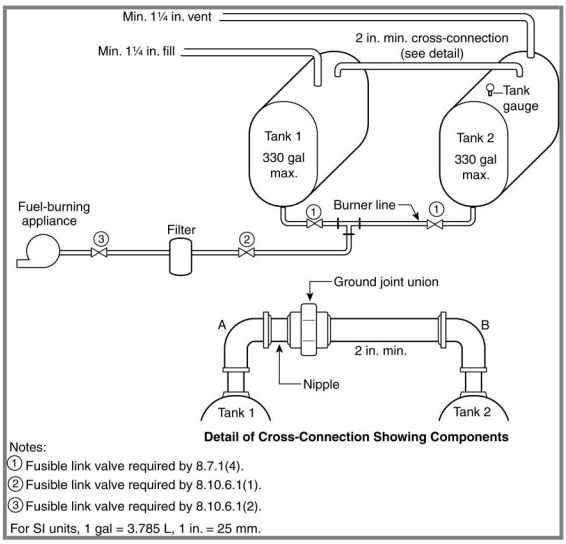
Second Revision No. 13-NFPA 31-2023 [Sections 8.9.1, 8.9.2, 8.9.3]

8.9.1

Cross-connection of two tanks of not more than 660 gal (2500 L) aggregate capacity to the same fuel-burning appliance(s) shall be permitted if piped in accordance with Figure 8.9.1.

Figure 8.9.1 Cross-Connection of Two Fuel Tanks of Not More Than 660 gal (2500 L) Aggregate Capacity.

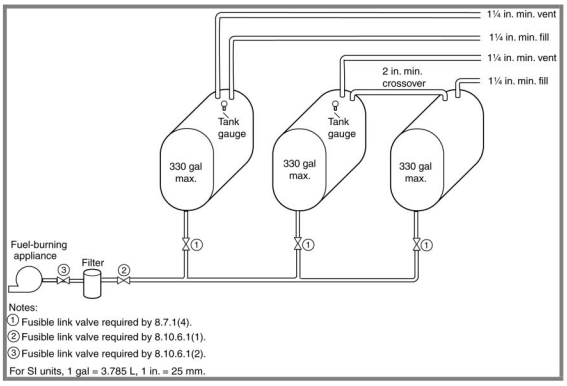




8.9.2

Cross-connection of three tanks of not more than 990 gal (3750 L) aggregate capacity to the same fuel-burning appliance(s) shall be permitted if piped in accordance with Figure 8.9.2.

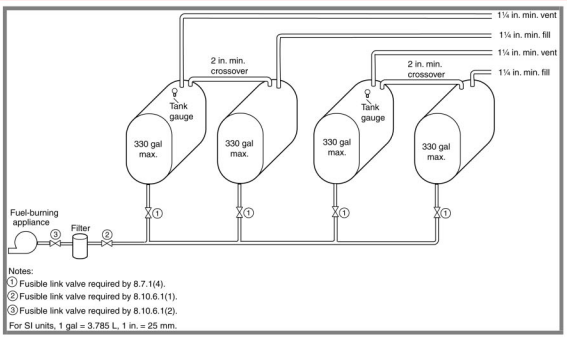
Figure 8.9.2 Cross-Connection of Three Fuel Tanks of Not More Than 990 gal (3750 L) Aggregate Capacity.



8.9.3

Cross-connection of four tanks of not more than 1320 gal (5000 L) aggregate capacity to the same fuel-burning appliance(s) shall be permitted if piped in accordance with Figure 8.9.3.

Figure 8.9.3 Cross-Connection of Four Fuel Tanks of Not More Than 1320 gal (5000 L) Aggregate Capacity.



Submitter Information Verification

Committee: LPI-AAA

Submittal Date: Thu Apr 06 17:13:39 EDT 2023

Committee Statement

Committee Statement: The requirements for use of heat-actuated valves were not clear. These revisions clarify the usage of fusible link valves and correlate with the revised definitions. The notes are also corrected to the proper requirements for each.

This Second Revision is tied to Committee Input No. 11.

Response Message: SR-13-NFPA 31-2023

Second Revision No. 14-NFPA 31-2023 [Section No. 8.10.6]

8.10.6 Fusible Link ~~Safety Shutoff~~ Valve.

8.10.6.1

A readily accessible fusible link ~~safety shutoff~~ valve that closes against the supply pressure shall be installed at each of the following points, except as provided in 8.10.6.2:

(1) As close as is practical ~~to~~ but within 6 in. (150 mm) of the filter on the tank side of the filter

(2) As close as is practical ~~to~~ but within 18 in. (450 mm) of the inlet connection to the burner

(3) Where flexible lines are used, upstream of flexible lines

8.10.6.2

Where the filter and inlet connection to a burner are within 18 in. (~~457~~ 450 mm) of each other, only one fusible link ~~safety shutoff~~ valve shall be required to be installed on the tank side of the filter.

8.10.6.3

Fusible link valves used in piping systems shall be listed to UL 842, *Valves for Flammable and Combustible Liquids* , or UL 842B, *Valves for Diesel Fuel, Biodiesel Fuel, Diesel/Biodiesel Blends with Nominal Biodiesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil.*

Submitter Information Verification

Committee: LPI-AAA

Submittal Date: Thu Apr 06 17:18:41 EDT 2023

Committee Statement

Committee Statement: The requirements for use of heat-actuated valves were not clear. The definitions lacked reference to heat-actuated valves, but these types of valves were cited in the requirements. These revisions clarify the usage of fusible link valves.

Distances in 8.10.6.1 were added to provide guidance to installers and AHJs. The addition of 6 inches in item 1 is to be consistent 7.5.8.3. The requirement for 18 inches within the burner is required because flexible lines are up to 36 inches long and this distance will give flexibility to the installer. 8.10.6.3 was added to this section to be consistent the UL 842 for flexible lines.

This Second Revision is tied to Committee Input No. 11.

Response Message: SR-14-NFPA 31-2023

Second Revision No. 7-NFPA 31-2023 [Section No. 10.2.7]

10.2.7

~~The~~ Unless the appliance is approved by the manufacturer for use without a combustion chamber, the oil-burning appliance shall have a suitable combustion chamber furnished by the manufacturer or specified in the manufacturers' installation instructions.

Submitter Information Verification

Committee: LPI-AAA

Submittal Date: Thu Mar 09 16:00:19 EST 2023

Committee Statement

Committee Statement: Some manufacturers construct appliances intended to be used without combustion chambers. The manufacturer's instructions should be followed if a combustion chamber is provided.

This Second Revision is tied to FR-7 and was revised to better reflect the intent of the committee.

Response Message: SR-7-NFPA 31-2023