Public Input No. 121-NFPA 58-2025 [Global Input]

Type your content here ...Revise the Intended Use and Notes to Table 17.1 (j) to read:

1. Revise the Intended Use to read:

INTENDED USE: ~~CSST Sizing Between Single- or Second-Stage (Low-Pressure) Regulator and Appliance Shutoff Valve~~Supplypressure between 11 in. w.c. and 14 in. w.c. with or without a line pressure regulatorINTENDEDUSE: ~~CSST Sizing Between Single- or Second-Stage (Low-Pressure) Regulator and Appliance Shutoff Valve~~Supplypressure between 11 in. w.c. and 14 in. w.c. with or without a line pressure regulator

2. Revise the Note to Table 17.1 (j) to read:

(1) Table does not include effect of pressure drop across the line regulator. Where regulator loss exceeds $^{1}/_{2}$ psi (based on 13 in. w.c. outlet pressure), do not use this table. Consult with regulator manufacturer for pressure drops and capacity factors. Pressure drops across a regulator might vary with flow rate.

(2) CAUTION: Capacities shown in table might exceed maximum capacity for a selected regulator. Consult with regulator or tubing manufacturer for guidance.

(3) Table includes losses for four 90 degree bends and two end fittings. Tubing runs with larger number of bends and/or fittings ~~shall~~ should be increased by an equivalent length of tubing according to the following equation: $L = 1.3n$, where L is additional length (ft) of tubing and n is the number of additional fittings and/or bends.

(4) All table entries are rounded to 3 significant digits

Statement of Problem and Substantiation for Public Input

The table is revised to mirror first draft revisions made by the National Fuel Gas Code Committee. As the table is copied from NFPA 54, the revisions are needed to prevent confusion among users of NFPA 54 and NPFA 58.

Submitter Information Verification

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Submittal Date: Fri May 30 04:04:37 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-73-NFPA 58-2025
Statement: The Intended Use is revise to be consistent with allowable practice. Note (1) is revised to eliminate shall as requirements cannot be in table notes.

Public Input No. 122-NFPA 58-2025 [Global Input]

Type your content here ...Revise the Notes to Table 17.1 (k) to read:

(1) Table includes losses for four 90 degree bends and two end fittings. Tubing runs with larger numbers of bends and/or fittings should l be increased by an equivalent length of tubing to the following equation: *L* = 1.3*n*, where *L* is additional length (ft) of tubing and *n* is the number of additional fittings and/or bends.

(2) All table entries are rounded to 3 significant digits.

Statement of Problem and Substantiation for Public Input

The table is revised to be consistent with the NFPA Manual of Style. Table notes are not mandatory, and can not include "shall". Should is appropriate. A similar revision was made to the comprable table in the NFPA 54 First Revisions.

Submitter Information Verification

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Submittal Date: Fri May 30 04:23:59 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-74-NFPA 58-2025
Statement: Note (3) is revised to eliminate shall as requirements cannot be in table notes.

Public Input No. 124-NFPA 58-2025 [Global Input]

Renumber lettered subdivisions (e.g. X.1.2(A), X.1.2.3(A),X.1.2.3.4(A), X.1.2.3.4.5(A)) to numbered sections where 6 numbers are not already used.

Statement of Problem and Substantiation for Public Input

The NFPA Manual of Style permits lettered subdivisions only where 6 numbered sections have already been used. (See 3.4.1of the NFPA Manual of Style.)

Submitter Information Verification

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Submittal Date: Fri May 30 17:19:26 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-65-NFPA 58-2025
Statement: The NFPA Manual of Style permits lettered subdivisions only where 6 numbered sections have already been used. (See 3.4.1of the NFPA Manual of Style.)

Public Input No. 21-NFPA 58-2025 [Global Input]

Type your content here ...Substitute "underground" for "under ground"

Statement of Problem and Substantiation for Public Input

The term "under ground" is used in A.7.4.3, D.3.1.2, F.2.3, and F.5.1.1. It is not used in the numbered chapters of the code, where "underground" is used. This proposal will remove this discrepancy.

Submitter Information Verification

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Submittal Date: Mon Jan 27 13:12:28 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-63-NFPA 58-2025
Statement: The code uses the term underground and this revision is to make all uses consistent throughout the code.

Public Input No. 41-NFPA 58-2025 [Global Input]

Type your content here ...

Substitute "on-road" for "over the road" and "onroad"

Statement of Problem and Substantiation for Public Input

Chapters 11 and 12 use the term "on-road" in referring to vehicle applications for propane vehicles. In Chapters 5 and 6 the term "over-the-road" is used and in Chapter 12 the word "on road" is used for propane vehicle applications. This PI intends to make the terminolgy consistent throughout NFPA 58.

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Submittal Date: Thu Jan 30 14:28:40 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-64-NFPA 58-2025

Statement: Chapters 11 and 12 use the term "on-road" in referring to vehicle applications for propane vehicles and the change is to make this consistent throughout the code.

Public Input No. 66-NFPA 58-2025 [Global Input]

Revise Note (1) to Table 17.1(i) to read:

(1) Table does not include effect of pressure drop across the line regulator. Where regulator loss exceeds ~~1/ 2 psi~~ 1 psi (based on 13 in. w.c. outlet pressure), do not use this table. Consult with regulator manufacturer for pressure drops and capacity factors. Pressure drops across a regulator might vary with flow rate.

Statement of Problem and Substantiation for Public Input

This change recognizes that a line pressure regulator can operate with a pressure drop of greater than ½ psig. The table allows a pressure drop of 3.5 psi in the piping system, so there is ample outlet pressure available to accommodate this operating condition of line pressure regulators.
This change will make the table consistent with NFPA 54 Tables 6.2.1(s) and 6.2.1 (r) which over sizing or piping using natural gas at similar pressures. The line pressure regulators are used for both natural gas and propane.

Submitter Information Verification

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Submittal Date: Tue Mar 11 11:43:27 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-75-NFPA 58-2025
Statement: The change is to correlate the regulator pressure drop with its corresponding propane table in NFPA 54 regulator pressure drop as the operating conditions are the same in terms of sizing.

Public Input No. 83-NFPA 58-2025 [Global Input]

4.10 Emergency Remote Shutdown Devices.

Where emergency remote shutdown devices are required to operate valves or electrical equipment, they shall comply with the following requirements:

(1) The devices shall be readily accessible.

(2) The devices shall be located along a path of egress.

(3) The devices shall be installed not less than 20 ft (6 m) or more than 100 ft (30 m) from the point of transfer controlled by the valve or electrical equipment.

(4) The devices shall be identified by a sign incorporating the words "[name of the LP-Gas] Emergency ~~Shutoff~~Shutdown" in block letters at least 2 in. (51 mm) in height on a background of contrasting color to the letters.

Table 5.9.4.2 Connection and Appurtenance Requirements for New and Existing Container

Installations in Bulk Plants and Industrial Plants

Service

>4000 gal w.c.

(>15.2 m3)a,b

Requirements for Containers of >4000 gal w.c.

(>15.2 m3) With and Without Internal Valvesc

Without Existing Internal

Valves

(by 7/1/11)

With Existing Internal

Valves

Vapor inlet Option A, Option B, or

Option C

See Note. See Note.

Vapor outlet Option B or Option C See Note. See Note.

Liquid inlet Option D or Option E Option D, Option E, Option F, or

Option G

RT

Liquid outlet Option E Option E or Option H RT

RT: Equipping an existing internal valve for remote closure and automatic shutoff using thermal (i.e., fire) actuation within 5 ft (1.5 m) of

the internal valve.

Option A: Positive shutoff valve installed as close as practical to a backflow check valve installed in the container.

Option B: Positive shutoff valve installed as close as practical to an excess-flow valve installed in the container and sized in accordance

with 5.15.2.4.

Option C: Internal valve installed in the container or an excess-flow valve in accordance with 5.9.4.2(I).

Option D: Positive shutoff valve installed as close as practical to a backflow check valve designed for the intended application and

installed in the container.

Option E: Internal valve installed in the container equipped for remote closure and automatic ~~shutoff~~shutdown using thermal (i.e., fire) activation

within 5 ft (1.5 m) of valve or an excess-flow valve in accordance with 5.9.4.2(I).

Option F: Emergency shutoff valve equipped for remote closure and automatic ~~shutoff~~shutdown using thermal (i.e., fire) activation installed in the

line upstream as close as practical to an existing positive shutoff valve/excess-flow valve combination.

Option G: Backflow check valve designed for the intended application and installed in the line upstream as close as practical to the

existing positive shutoff valve/excess-flow valve combination.

Option H: Emergency shutoff valve equipped for remote closure and automatic ~~shutoff~~shutdown using thermal (i.e., fire) activation, installed in the

line downstream as close as practical to an existing positive shutoff valve/excess-flow valve combination.

Note: Vapor connections on containers installed prior to the effective date of the 2001 edition of this code are not required to be

modified.

aApplicable to installations constructed on or after the effective date of the current edition of this code.

bApplicable to installations constructed prior to the effective date of the current edition of this code.

cSee also 5.9.4.2.

5.15.2.3 Emergency shutoff valves shall be approved and shall incorporate all of the following means of closing:

(1) Automatic ~~shutoffshutdown~~ through thermal (fire) actuation

(2) Manual ~~shutoffshutdown~~ from a remote location

(3) Manual ~~shutoff~~shutdown at the installed location

6.12 Remote ~~Shutoff~~Shutdown Actuation.

6.12.1 Where LP-Gas vapor is used as a pressure source for activating the remote ~~shutoff~~shutdown mechanisms of internal valves and emergency shutoff valves, the following shall apply:

6.15.12.2 Where an emergency shutoff valve is used in lieu of an internal valve in compliance with 5.9.4.2(D)(2), the remote ~~shutoff~~shutdown device shall be installed in accordance with 6.13.4.

6.27.7.4 Gas-fired heating appliances shall be equipped with ~~shutoffs~~shutdowns in accordance with 5.24.8(A), except for portable heaters used with cylinders having a maximum water capacity of 2.7 lb (1.2 kg), portable torches, melting pots, and tar kettles.

6.28.3.9 The container liquid withdrawal opening used with vehicle fuel dispensers and dispensing systems shall be equipped with one of the following:

(1) An internal valve fitted for remote closure and automatic ~~shutoff~~shutdown using thermal (fire) actuation

6.28.5.4 An emergency ~~shutoff~~shutdown switch that closes the internal or emergency shutoff valve and opens the electrical circuit serving the dispenser shall be located not less than 20 ft (6 m) and not more than 100 ft (30 m) from the dispenser.

6.30.3.5 The fire safety analysis shall be an evaluation of the total product control system, such as the emergency shutoff and internal valves equipped for remote closure and automatic ~~shutoff~~shutdown using thermal (fire) actuation, pullaway protection where installed, and the optional requirements of Section 6.31.

6.31.3.3 Internal valves shall be equipped for remote closure and automatic ~~shutoff~~shutdown through thermal (i.e., fire) actuation.

7.2.3.9 Where cargo tank vehicles are filled from other cargo tank vehicles or cargo tanks, the following requirements shall apply:

(1) Transfer between cargo tanks or cargo tank vehicles where one is used as a bulk plant shall be temporary installations that comply with 4.3.2, 6.22.1, 6.22.2, 6.22.4 through 6.22.6, and 7.2.3.1.

(2) Arrangements and operations of the transfer system shall be in accordance with the following:

(a) The point of transfer shall be in accordance with Table 6.7.2.1.

(b) Sources of ignition within the transfer area shall be controlled during the transfer operation as specified in 7.2.3.2.

(c) Fire extinguishers shall be provided in accordance with 9.4.7.

(3) Cargo tanks shall comply with the requirements of 7.2.2.9.

(4) Provisions designed either to prevent a pull-away during a transfer operation or to stop the flow of LP-Gas from both cargo tank vehicles or cargo tanks in the event of a pull-away shall be incorporated.

(5) Off-truck remote ~~shutoff~~shutdown devices that meet 49 CFR 173.315(n) requirements and are installed on the cargo tank vehicle unloading the LP-Gas shall satisfy the requirements of 7.2.3.9(4).

9.4.2.3 Liquid hose of 1 1/2 in. (38 mm) (nominal size) and larger and vapor hose of 1 1/4 in. (32 mm) (nominal size) and larger shall be protected with an internal valve that is fitted for remote closure and automatic ~~shutoff~~shutdown using thermal (fire) actuation.

11.4.1.7 Permanently mounted ASME containers shall be equipped with a valve or combination of valves in the liquid outlet connection that has manual ~~shutoff~~shutdown, excess-flow, and automatic closure features.

13.5.8.1 Sump Pumps.

(A) Where automatically controlled sump pumps are used, they shall be equipped with an automatic ~~shutoff~~shutdown device that prevents their operation when exposed to the flash temperature of liquid LP-Gas.

A.6.11.1.2 This section addresses the numerous industrial applications that require pressures higher than 20 psig (138 kPag), which are historically above the upper limit for LP-Gas fixed piping systems in buildings. Such processes could include flame cutting, heat treating, and fuel for microturbines used to generate electricity.

Any installation with design pressures of 20 psig through 50 psig (138 kPag through 345 kPag) must first receive the approval of the authority having jurisdiction. Such approval need not be based on buildings or separate areas of buildings that are constructed in accordance with Chapter 10, because the low-temperature ~~shutoff~~shutdown control system precludes the reliquefaction of the LP-Gas vapor.

In designing the systems permitted by this section, it is necessary for one to be knowledgeable of, and experienced with, the properties and behavior of LP-Gases, especially with respect to reliquefaction of vapor in closed fixed piping systems. For this reason, the text requires a low-temperature ~~shutoff~~shutdown control system if low temperatures are anticipated. The most appropriate location for the low temperature sensor is determined by the system designer.

Statement of Problem and Substantiation for Public Input

Valves are the components that shut off flow of a liquid or vapor in a piping system. Many of these devices are controlled either locally or remotely by a device intended to shut down or stop the operation. This change is intended to make a clear differentiation between the shutoff valves and the shutdown devices that cause them to actuate.

Submitter Information Verification

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Submittal Date: Fri Apr 11 15:29:56 EDT 2025

Committee: LPG-AAA

Committee Statement

Resolution: The term shutoff has been used for many editions and it satisfactorily identifies the sign and device it operates.

Public Input No. 103-NFPA 58-2025 [Section No. 1.2]

1.2 Purpose.- ~~(Reserved)~~ - This code establishes minimum requirements for safety for design, installation, and operation of a variety of installations where LP-Gases are stored, transferred, or otherwise handled.

Statement of Problem and Substantiation for Public Input

An editorial review of NFPA 58 determined that section 1.2, Purpose, must not be Reserved and must be a purpose statement. The NFPA Manual of Style has requirements about this in chapter 5, Administrative Information:
5.2 Chapter 1: Administration. Chapter 1 shall include the following sections in the order listed:
(1) Scope (required)
(2) Purpose (required)
…
5.2.3* Purpose. Chapter 1 of every NFPA document shall contain a purpose section that describes the goal(s) of the document.
A.5.2.3* The following is an example of a purpose section:
1.2 Purpose. The purpose of this standard is to provide a reasonable degree of protection for life and property from fire through installation requirements for private fire service main systems based on sound engineering principles, test data, and field experience.

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Submittal Date: Wed May 28 14:07:28 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-61-NFPA 58-2025
Statement: A purpose statement is required of all NFPA documents in accordance with the NFPA Manual of Style.

Public Input No. 125-NFPA 58-2025 [Section No. 2.3.10]

2.3.10 UL Publications.

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

UL 21, *LP-Gas Hose*, 2014, revised ~~2017~~ 2022 .

~~UL 125~~ CAN/ULULC 125 , *Flow Control Valves for Anhydrous Ammonia and LP-Gas*, 2020, revised 2021 .

CAN/ UL 132, *Safety Relief Valves for Anhydrous Ammonia and LP-Gas*, 2021.

CAN/ UL 144, *LP-Gas Regulators*, 2021, revised 2024 .

UL 147A, *Nonrefillable (Disposable) Type Fuel Gas Cylinder Assemblies*, ~~2019~~ 2018, revised 2024 .

UL 147B, *Nonrefillable (Disposable) Type Metal Container Assemblies for Butane*, ~~2019~~ 2024 .

UL 495, *Power-Operated Dispensing Devices for LP-Gas*, ~~2016~~ 2022 .

UL 514B, *Conduit, Tubing, and Cable Fittings*, ~~2020~~ 2012, revised 2024 .

~~UL 567~~ CAN/UL/ULC 567 , *Emergency Breakaway Fittings, Swivel Connectors, and Pipe-Connection Fittings for Petroleum Products and LP-Gas*, 2021, revised 2024 .

UL 569, *Pigtails and Flexible Hose Connectors for LP-Gas*, ~~2017~~ 2013, revised 2022 .

UL 651, *Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings*, 2011, revised ~~2020~~ 2022 .

UL 723, *Test for Surface Burning Characteristics of Building Materials*, 2018.

~~UL 1337~~ CAN/UL/ULC 1337 , *Outline of Investigation for LP-Gas, Natural Gas, and Manufactured Gas Devices for Engine Fuel Systems*, ~~2020~~ 2022 .

UL 1660, *Liquid-Tight Flexible Nonmetallic Conduit*, 2019, revised 2024 .

UL 1769, *Cylinder Valves*, 2015, revised ~~2016~~ 2025 .

UL 2061, *Adapters and Cylinder Connection Devices for Portable LP-Gas Cylinder Assemblies*, 2015, revised ~~2020~~ 2024 .

UL 2227, *Overfilling Prevention Devices*, ~~2007, revised 2019~~ 2024 .

Statement of Problem and Substantiation for Public Input

Update of UL references to the document and add Bi National designations where applicable.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 126-NFPA 58-2025 [Section No. N.1.2.16]	
Public Input No. 127-NFPA 58-2025 [Section No. N.1.2.17]	

Submitter Information Verification

Submitter Full Name: Kelly Nicolello
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Submittal Date: Sat May 31 16:03:23 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-1-NFPA 58-2025

Statement: Reference standards are being updated to the latest edition year.

Public Input No. 22-NFPA 58-2025 [Section No. 3.3.5]

~~**3.3.5** – API-ASME Container (or Tank).~~

~~A container constructed in accordance with the pressure vessel code jointly developed by the American Petroleum Institute and the American Society of Mechanical Engineers.~~

Statement of Problem and Substantiation for Public Input

The API-ASME Code was last published in 1951, and is currently inactive. construction of pressure vessels using this Code has not been permitted since July 1, 1961 (see A.5.2.1.1 and D.2.2.2).
Deletion of the reference to the API-ASME Code will not affect any pressure vessels built to the Code, as the edition of NFPA 58 in effect at the time of installation remains in effect for these older pressure vessels. As these pressure vessels are very large, relocation is not likely.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 23-NFPA 58-2025 [Section No. 5.2.1.1]	
Public Input No. 24-NFPA 58-2025 [Section No. 5.2.4.3]	

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
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Street Address:
City:
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Submittal Date: Mon Jan 27 15:49:53 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: The definition is still needed as the term is still used throughout the requirements and is needed to explain what these containers are.

Public Input No. 6-NFPA 58-2024 [Section No. 3.3.11]

3.3.11 ~~Cabinet~~ Gas fired room Heater.

A portable unvented heater with a self-contained propane supply complying with ANSI Z21 .11.3.

Statement of Problem and Substantiation for Public Input

Rational: 'Cabinet ' refers to a common feature of gas heaters that are not manufactured to ANSI Z21.11.3. Examples of this are heaters made and certified to the Gas-fired construction heater standard, ANSI Z83.7 or Unvented Portable Type Gas Camp Heaters ANSI Z21.103.

This proposed change is intended to reduce confusion regarding part 6.23.3 that would interpret heaters manufactured and certified to standards, other than ANSI Z21.11.3; requiring them to comply with the Z21.11.3 standard.

Submitter Information Verification

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Submittal Date: Fri Feb 23 10:27:32 EST 2024
Committee: LPG-AAA

Committee Statement

Resolution: The term cabinet heater is more correct for these requirements as that is the commonly used commercial term for this type of heater. Units manufactured to ANSI Z83.7b as well as ANSI Z21 .11.3. are regularly referred to as cabinet heater and are portable space heaters with a small capacity cylinder, not part of a fixed piping system.

Public Input No. 17-NFPA 58-2025 [Section No. 3.3.60]

3.3.60 Piping Systems.

~~Pipe, tubing, hose, and flexible rubber or metallic hose connectors with valves and fittings made into complete systems for conveying LP-Gas from one point to another in either the liquid or the vapor state at various pressures~~ A network of pipes, valves, fittings, and other components used to convey liquids or gases .

Statement of Problem and Substantiation for Public Input

Restated to be simple and direct.

Submitter Information Verification

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Submittal Date: Thu Jan 23 11:22:55 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-62-NFPA 58-2025
Statement: The definition has been revised to remove an incomplete list of components and other descriptors and simplified the definition.

Public Input No. 84-NFPA 58-2025 [New Section after 3.3.81.10]

Shutoff valve – A valve that stops flow of liquid or vapor in one or more directions.

Statement of Problem and Substantiation for Public Input

Define “shutoff valve.” It is used in the definitions for emergency shutoff valve and positive shutoff valve.

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Submittal Date: Fri Apr 11 16:36:04 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: The term shutoff valve does not need definition because its use matches the common understanding of the term and would change the terms use in several other definitions.

Public Input No. 86-NFPA 58-2025 [New Section after 4.10]

Add a new 4.10(4) The devices shall be installed not less than 20 ft (6 m) from the internal valve or emergency shutoff valve controlled by the remote shutdown device.

Statement of Problem and Substantiation for Public Input

This requirement was part of the 2020 and earlier editions and was not included in the wholesale revision that resulted in section 4.10. Some of the incidents that would initiate use of the remote shutdown device could be a discharge at or near the valve controlled by the remote device. As with separation from the point of transfer, separation of the remote device from the valve it is controlling is important for the safety of the person attempting to control the incident. The proponent could find no discussion in the first or second revision documentation about the removal of this requirement.

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Submittal Date: Wed Apr 30 13:14:26 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: The important separation is from the point of transfer to the emergency shutdown device to facilitate evacuation from the point of transfer and activation during the evacuation. Individuals are not stationed at valves normally when an incident occurs. This requirement intent is already included in 4.10(3).

Public Input No. 71-NFPA 58-2025 [Section No. 4.10]

4.10 Emergency Remote Shutdown Devices.

Where emergency remote shutdown devices are required to operate valves or electrical equipment, they shall comply with the following requirements:

(1) The devices shall be readily accessible.

(2) The devices shall be located along a path of egress.

(3) The devices shall be installed not less than 20 ft (6 m) or more than 100 ft (30 m) from the point of transfer controlled by the valve or electrical equipment.

(4) The devices shall be identified by a sign incorporating the words “[name of the LP-Gas] Emergency Shutoff” in block letters at least 2 in. (51 mm) in height on a background of contrasting color to the letters.

(5) Where the facility provides a single product or a single emergency shutoff controlling multiple products, the "[name of the LP-Gas]" designation in accordance with 4.10(4) shall not be required.

(6) The sign required by 4.10(4) shall be located at the device.

(7) The sign required by 4.10(4) shall be visible from the point of transfer.

(8) The devices shall be installed outside of buildings except as in 4.10(~~8~~ 9).

(9) The devices shall be permitted to be installed within the structure where the point of transfer is located within a structure complying with Chapter 10.

Statement of Problem and Substantiation for Public Input

The requirement for the remote emergency shutdown sign to be visible from the point of transfer has been present since the 2001 edition of the LP-Gas Code (3.2.18.4), when internal valves were added to the installation requirements. It goes back at least six years farther for the sign for the electrical shutdown for a dispenser pump. Bulk and industrial plants are each unique, with the installation of various features changing slightly or greatly from other plants. A transport or bobtail driver unloading or loading at an unfamiliar plant may need to access the remote shutdown quickly during an unintended release. During the panic or excitement of an unintended release at a familiar plant could cause confusion about the location of the remote device. It would be worse at an unfamiliar site. Not having the sign visible from the point of transfer can cause the driver to spend extra time trying to find it.

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Submittal Date: Wed Mar 19 13:12:22 EDT 2025

Committee: LPG-AAA

Committee Statement

Resolution: Visibility of the sign from the point of transfer is not applicable as operators are already qualified to operate the facility. As part of their qualification they are required to be educated of the locations of emergency equipment within the facility. The marking for visibility from the point of transfer is not the intent and the marking is for incoming responders which are not coming from the point of transfer generally.

Public Input No. 23-NFPA 58-2025 [Section No. 5.2.1.1]

5.2.1.1*

Containers shall be designed, fabricated, tested, and marked or stamped in accordance with the regulations of the US Department of Transportation (DOT 49 CFR); the Federal Aviation Administration (FAA 14 CFR); Section VIII, "Rules for the Construction of Unfired Pressure Vessels," of ASME's *Boiler and Pressure Vessel Code*~~; or the *API-ASME Code for Unfired Pressure Vessels for Petroleum Liquids and Gases*~~ , except for UG-125 through UG-136.

(A)

Used containers constructed to specifications of the Association of American Railroads shall not be installed.

(B)

Adherence to the case interpretations and addenda of the applicable ASME Code that has been adopted and published within 180 calendar days prior to the effective date of this code shall be considered compliance with the ASME Code.

(C)

The requirements of Section 1.4 shall apply where containers are fabricated to earlier editions of regulations, rules, or codes listed in 5.2.1.1, or to the Interstate Commerce Commission (ICC) *Rules for Construction of Unfired Pressure Vessels* prior to April 1, 1967, and to the API-ASME Code for Unfired Pressure Vessels for Petroleum Liquids and Gases .

Statement of Problem and Substantiation for Public Input

The API-ASME Code was last published in 1951, and is currently inactive. construction of pressure vessels using this Code has not been permitted since July 1, 1961 (see A.5.2.1.1 and D.2.2.2).
Paragraph 5.2.1.2 (C) covering retroactivity is revised by adding reference to the API-ASME to allow pressure vessels constructed to the API-ASME Code to be reinstalled.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 22-NFPA 58-2025 [Section No. 3.3.5]	
Public Input No. 24-NFPA 58-2025 [Section No. 5.2.4.3]	
Public Input No. 53-NFPA 58-2025 [Section No. A.5.2.8.3]	

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Mon Jan 27 15:53:04 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: API-ASME containers are still in use today and can be repurposed, reinstalled, and placed back into service and requirements related to those containers are still need. The annex material on the history is necessary to help those that may encounter these older containers.

Public Input No. 106-NFPA 58-2025 [Section No. 5.2.1.1 [Excluding any Sub-Sections]]

Containers shall be designed, fabricated, tested, and marked or stamped in accordance with the regulations of the ~~US~~ U.S. Department of Transportation (DOT ~~49 CFR~~ 49 CFR); ~~the~~ Federal Aviation Administration (FAA ~~14 CFR~~ 14 CFR); ~~Section VIII,~~ ~~of~~ the ASME *Boiler and Pressure Vessel Code* ~~:~~ , Section VIII, "Rules for the Construction of Unfired Pressure ~~Vessels," of ASME's~~ Vessels"; or the ASME *Boiler and Pressure Vessel Code* , Section X "Fiber-Reinforced Plastic Pressure Vessels" ; or the API-ASME *Code for Unfired Pressure Vessels for Petroleum Liquids and Gases* , except for UG-125 through UG-136.

Statement of Problem and Substantiation for Public Input

Steel ASME Containers are fabricated in accordance with the Boiler and Pressure Vessel Code, Section VIII. In the BPVC, Section X addresses Fiber-Reinforced Plastic containers and this material may be suitable for fabricating containers in propane service. Fiber-Reinforced Plastic containers currently constructed to European standards are reportedly being utilized for LP Gases in certain parts of Europe and therefore should be considered as an option within North America to supplement supply, as well as to remove the need for cathodically protecting the container.

Submitter Information Verification

Submitter Full Name: Zachary Ware
Organization: NPGA
Street Address:
City:
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Zip:

Submittal Date: Wed May 28 14:18:28 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-6-NFPA 58-2025

Statement: Steel ASME Containers are fabricated in accordance with the Boiler and Pressure Vessel Code, Section VIII. In the BPVC, Section X addresses Fiber-Reinforced Plastic containers and this material can be suitable for fabricating containers in propane service. Fiber-Reinforced Plastic containers are permitted in European LP-gas standards. These containers can also remove the need for cathodically protecting the container.

Public Input No. 18-NFPA 58-2025 [Section No. 5.2.1.8]

~~5.2.1.8~~ –

~~Containers for general use shall not have individual water capacities greater than 120,000 gal (454 m^3).~~

Statement of Problem and Substantiation for Public Input

1. The term “general use” is not defined making the intent of the requirement less than clear, and not easily enforceable.
2. The basis of the threshold capacity of 120,000 gallons for a single container is not documented. This maximum volume has been in the Code since the 1974 edition. The new text is documented in the 1974 Committee’s report however reasons for changes were not published at that time.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
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Zip:
Submittal Date: Thu Jan 23 11:26:17 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-7-NFPA 58-2025
Statement: The term "end use" is clearer because it specifies consumption at the end of the LP-Gas chain which are typically consumer sites. This permits bulk plants, midstream, and producer operations to have containers larger than 120,000 gallons water capacity.

Public Input No. 19-NFPA 58-2025 [Sections 5.2.2.1, 5.2.2.2]

Sections 5.2.2.1, 5.2.2.2

5.2.2.1*

Cylinders shall be containers designed, constructed, tested, marked and ~~marked~~ continued in service in accordance with 49 CFR, "Transportation," ~~or in accordance with a valid DOT special permit~~ .

~~**5.2.2.2** * –~~

~~Cylinders shall be continued in service and transported in accordance with DOT regulations.~~

Statement of Problem and Substantiation for Public Input

5.2.1.1. and 5.2.1.2 are combined and reference to special permits is deleted. Special permits are part of the DOT regulations in 49 CFR.
If it is necessary to maintain reference to special permits, retained in 5.2.2.1 or added in Annex A.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 20-NFPA 58-2025 [Section No. A.5.2.2.2]	

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: Nonw
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 23 11:50:14 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: While special provisions are defined in 49 CFR, they are not enumerated in 49 CFR and the specific call out for a DOT special permit is need here. A special permit must be independently issued, and often requires party status. Each special permit is independent to the standards contained in 49 CFR and limited to the parties identified within the permit.

Public Input No. 108-NFPA 58-2025 [Section No. 5.2.3.1]

5.2.3.1

Cylinders in stationary service that are filled at the point of use and ; therefore , ~~are~~ not under the jurisdiction of DOT , shall not be filled unless they comply with one of the following ~~criteria~~ :

(1) ~~They shall be~~

(2) Cylinders are requalified in accordance with DOT requirements.

(3) ~~They shall be~~ Cylinders are visually inspected ~~within 12 years of the~~ after the 12th year from the date of manufacture or the expiration of the most recent requalification period; and ~~within every 5 years~~ subsequently, each 5th year thereafter

;

(4) in accordance with 5.2.3.2 through 5.2.3.4 .

Statement of Problem and Substantiation for Public Input

NFPA 58 requirements for the continued qualification of packages is inconsistent with the current DOT regulations on the requalification of packages. This conflict creates a risk of additional obligations to the consumer and owner of the container.

As written today cylinders in stationary service may not remain in service 12 years after the initial date of manufacture and 5 years after each requalification unless visually inspected. The DOT standard, however, places the restriction on filling, not use. This appears to be an oversight by the technical committee in its authorship of the code. The purpose of this modification is to rectify an issue that will align with the DOT cylinder qualification regulations and interpretations supplied by PHMSA.

Submitter Information Verification

Submitter Full Name: Zachary Ware
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Street Address:
City:
State:
Zip:

Submittal Date: Wed May 28 14:22:50 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-8-NFPA 58-2025

Statement: NFPA 58 requirements for the continued qualification of packages is inconsistent with the current DOT regulations on the requalification of packages. This conflict creates a risk of additional obligations to the consumer and owner of the container.

As written today cylinders in stationary service may not remain in service 12 years after the initial date of manufacture and 5 years after each requalification or inspection unless visually inspected. The DOT standard, however, places the restriction on filling, not use. The purpose of this modification is to rectify an issue that will align with the DOT cylinder qualification regulations and interpretations supplied by PHMSA.

Public Input No. 131-NFPA 58-2025 [Section No. 5.2.3.4]

5.2.3.4

Visual inspection shall be performed in accordance with the following:

(1) The cylinder is checked for exposure to fire, dents, cuts, digs, gouges, and corrosion according to CGA C-6, *Standard for Visual Inspection of Steel Compressed Gas Cylinders*, except that 5.2.1.1(1) of that standard (which requires tare weight verification) shall not be part of the required inspection criteria.

(2) The cylinder protective collar (where utilized) and the foot ring are intact and are firmly attached.

(3) The cylinder is painted or coated to minimize corrosion.

(4) The cylinder pressure relief valve indicates no visible damage, corrosion of operating components, or obstructions.

(5) There is no leakage from the cylinder or its appurtenances that is detectable without the use of instruments.

(6) The cylinder is installed on a firm foundation and is not in contact with the soil.

(7) A cylinder that passes the visual examination is marked with the month and year of the examination followed by the letter E (e.g., "10-01E," indicating ~~requalification~~ inspection in October 2001 by the external inspection method).

(8) The results of the visual inspection are documented, and a record of the inspection is retained for a 5-year period.

Statement of Problem and Substantiation for Public Input

As stated in 5.2.3.1, this option to keep using a cylinder filled at the point of use is a visual inspection and not a requalification in accordance with DOT requirements. This is under the requirements for visual inspection, section 5.2.3.4, so using the word requalification is not appropriate.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: North Carolina Department of A
Street Address:
City:
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Submittal Date: Wed Jun 04 11:23:48 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-10-NFPA 58-2025
Statement: As stated in 5.2.3.1, this option to keep using a cylinder filled at the point of use is a visual inspection and not a requalification in accordance with DOT requirements. This is under the requirements for visual inspection, section 5.2.3.4, so using the word requalification is not appropriate.

Public Input No. 24-NFPA 58-2025 [Section No. 5.2.4.3]

5.2.4.3

The maximum allowable working pressure (MAWP) for ASME containers shall be in accordance with Table 5.2.4.3.

Table 5.2.4.3 Maximum Vapor Pressure and Maximum Allowable Working Pressure (MAWP)

Maximum Vapor Pressure		MAWP							
		Current ASME Code[a]		Earlier Codes					
						~~API-~~ ASME		~~ASME~~ [b]	
At 100°F (psig)	At 37.8°C (MPag)	psig	MPag			psig	MPag	~~psig~~	~~MPag~~
80	0.6	100	0.7		~~100~~	~~0.7~~		80	0.6
100	0.7	125	0.9		~~125~~	~~0.9~~		100	0.7
125	0.9	156	1.1		~~156~~	~~1.1~~		125	0.9
150	1.0	187	1.3		~~187~~	~~1.3~~		150	1.0
175	1.2	219	1.5		~~219~~	~~1.5~~		175	1.2
215	1.5	250	1.7[c]		~~250~~	~~1.7~~ [e]		200	1.4
215	1.5	312	2.2[c]		~~312~~	~~2.2~~ [e]		—	—

Note: See Annex D for information on earlier ASME ~~or API-ASME~~ codes.

[a]ASME Code, 1949 edition, paragraphs U-200 and U-201, and all later editions. *(See D.2.1.5.)*

[b]All ASME codes up to the 1946 edition and paragraphs U-68 and U-69 of the 1949 edition. *(See D.2.1.5.)*

[c]See 5.2.4.4 and 5.2.4.5 for required MAWP for ASME engine fuel and mobile containers.

Statement of Problem and Substantiation for Public Input

The table and note are revised to delete reference to the AP-ASME Code which was last published in 1951, and is currently inactive. construction of pressure vessels using this Code has not been permitted since July 1, 1961.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 22-NFPA 58-2025 [Section No. 3.3.5]	
Public Input No. 23-NFPA 58-2025 [Section No. 5.2.1.1]	

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Mon Jan 27 16:02:03 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: API-ASME containers are still in use today and can be repurposed, reinstalled, and placed back into service and requirements related to those containers are still need. The annex material on the history is necessary to help those that may encounter these older containers.

Public Input No. 16-NFPA 58-2024 [Section No. 5.2.8.2]

5.2.8.2*

Cylinders shall be marked with the following information:

(1) Water capacity of the cylinder in pounds or liters

(2) Tare weight of the cylinder in pounds or kilograms, fitted for service

Additional Proposed Changes

File Name	Description	Approved
TIA_58_24_2.pdf	NFPA 58 TIA 24-2 Log No. 1774	

Statement of Problem and Substantiation for Public Input

NOTE: This public input originates from Tentative Interim Amendment No. 24-2 (Log No. 1774) issued by the Standards Council on August 29, 2024 and per the NFPA Regs., needs to be reconsidered by the Technical Committee for the next edition of the Document.

Substantiation: Cylinders are currently required by NFPA 58 (5.2.8.2) to be marked with the tare weight in pounds. However, the U.S. Department of Transportation allows Transport Canada cylinders, which are marked in metric units, to be filled and transported in the U.S. In order for TC cylinders to be “legally” filled in accordance with NFPA 58, metric markings must be added to NFPA 58. Additionally, adding TC marking requirements to NFPA 58 will prevent non-tariff barriers to international trade between the U.S. and Canada.

Emergency Nature: The proposed TIA intends to correct a previously unknown existing hazard. The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.

This proposed change to NFPA 58 constitutes an emergency because the propane industry is faced with an increasing number of cylinders in circulation that are marked according to Transport Canada requirements. The specific emergency nature criteria that this proposal addresses would be to correct a previously unknown existing hazard (misinterpreting the markings on certain cylinders) and the lessening of a potential hazard (the unsafe filling of cylinders). Beginning a few years ago, the U.S. DOT began allowing cylinders marked with TC markings to be filled and transported in the U.S. There are many cylinders that are marked in both English and Metric units. But there are also many in circulation that have only TC markings and that is where the safety issues arise. Most cylinders that are transported “in commerce” as defined by the U.S. DOT, must be filled using the weight method. In order to do so, the water capacity and tare weight of the cylinder must be utilized and currently, 5.2.8.2 requires the cylinder water capacity and tare weight to be marked in “pounds.” This TIA will broaden that requirement to allow cylinders to be marked in “kilograms.” This change will then recognize cylinders with TC markings to be in compliance with NFPA 58 and more importantly, will help ensure that the cylinder is being filled to the proper level for the safety of the consumer. Metric markings of weight differ from the English markings by a factor of 2.2, so cylinder refillers will be trained to accept TC cylinders and to fill them safely. By ensuring that cylinder markings are consistent and universally understood, this amendment will not only enhance public safety, but it will also facilitate smoother international trade. The clarity in markings reduces risks associated with the handling and transportation of cylinders, as it ensures that all personnel, regardless of their location, can be prepared to accurately interpret and comply with the cylinder markings. In summary, the adoption of this amendment is essential to resolving operational challenges caused by discrepancies between federal regulations and NFPA 58, promoting international trade efficiency and importantly, enhance safety standards for cylinder handling and usage.

Submitter Information Verification

Submitter Full Name: NFPA TIA
Organization: Technical Committee on Liquefied Petroleum Gases
Street Address:
City:
State:

Zip:

Submittal Date: Fri Nov 08 15:18:28 EST 2024

Committee: LPG-AAA

Committee Statement

Resolution: FR-11-NFPA 58-2025

Statement: Cylinders can be marked with both units and this language would allow for dual marking without excluding single marked cylinders.

Tentative Interim Amendment

NFPA® 58

Liquefied Petroleum Gas Code

2024 Edition

Reference: 5.2.8.2, and A.5.2.8.2
TIA 24-2
(SC 24-8-18/ TIA Log #1774)

Pursuant to Section 5 of the NFPA *Regulations Governing the Development of NFPA Standards*, the National Fire Protection Association has issued the following Tentative Interim Amendment to NFPA 58, *Liquefied Petroleum Gas Code*, 2024 edition. The TIA was processed by the Technical Committee on Liquefied Petroleum Gases, and was issued by the Standards Council on August 29, 2024, with an effective date of September 18, 2024.

1. Revise paragraph 5.2.8.2 to read as follows:

5.2.8.2* Cylinders shall be marked with the following information:
(1) Water capacity of the cylinder in pounds or liters
(2) Tare weight of the cylinder in pounds or kilograms, fitted for service

2. Revise Annex A.5.2.8.2 to read as follows:

A.5.2.8.2 The water capacity of the cylinder is the determination of the cylinder volume with water at approximately 60°F (16°C). Cylinders with DOT markings have water capacity marked in pounds (lb); however, Transport Canada cylinders have water capacity marked in liters (L). The tare weight is the cylinder weight plus the weight of all permanently attached valves and other fittings but does not include the weight of protecting devices that are removed ~~in order~~ to load the cylinder. DOT markings utilize "TW" to indicate tare weight, followed by the weight in pounds (lb), whereas Transport Canada cylinders utilize "T" to indicate tare weight, followed by the weight in kilograms (kg).

Issue Date: August 29, 2024

Effective Date: September 18, 2024

(Note: For further information on NFPA Codes and Standards, please see www.nfpa.org/docinfo**)**

Public Input No. 26-NFPA 58-2025 [Section No. 5.2.8.4]

5.2.8.4

Warning labels shall meet the following requirements:

(1) Warning labels shall be applied to all cylinders of 100 lb (45.4 kg) propane capacity or less that are not filled ~~on-site.~~ at the point of use

(2) Warning labels shall include information on the potential hazards of LP-Gas.

Statement of Problem and Substantiation for Public Input

The term "on site" is no longer used in the Code. It has been replaced by "at the point of use" in other paragraphs.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jan 28 11:24:48 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-12-NFPA 58-2025
Statement: The term "on site" is no longer used in the Code and it has been replaced by "at the point of use".

Public Input No. 56-NFPA 58-2025 [Section No. 5.9.1.3]

5.9.1.3

Container appurtenances shall have a service pressure ~~of at least~~ of 250 psig (1.7 MPag) or the MAWP of the contanier, whichever is greater .

Statement of Problem and Substantiation for Public Input

Some ASME containers are required to have a MAWP of 312 psig. The appurtenance requirements should address this higher pressure.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
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City:
State:
Zip:

Submittal Date: Thu Feb 20 11:30:17 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-13-NFPA 58-2025
Statement: Some ASME containers are required to have a MAWP of 312 psig and the language is changing to match this higher pressure for those container appurtenances.

Public Input No. 98-NFPA 58-2025 [Section No. 5.9.2.5]

5.9.2.5

ASME containers for LP-Gas shall be equipped with ~~direct spring-loaded~~ pressure relief valves conforming with the applicable requirements of ~~UL 132~~ UL 132 , Standard for Safety Relief Valves for Anhydrous Ammonia and LP-Gas, or other equivalent pressure relief valve standards.

(A)

The start-to-leak setting of the pressure relief valves specified in 5.9.2.5, in relation to the pressure rating of the container, shall be in accordance with Table 5.9.2.5(A).

Table 5.9.2.5(A) Start-to-Leak Pressure Settings of Pressure Relief Valves in Relation to Container Pressure Rating

Containers	Minimum (%)	Maximum (%)
All ASME codes prior to the 1949 edition, and the 1949 edition, paragraphs U-68 and U-69	110	125*
ASME Code, 1949 edition, paragraphs U-200 and U-201, and all ASME codes later than 1949	100	100*

*Manufacturers of pressure relief valves are allowed a plus tolerance not exceeding 10 percent of the set pressure marked on the valve.

(B)

Containers of ~~40,000 gal (151 m~~ ^{3} ~~000~~ 4,000 gal (15.2 m3) or more water capacity shall be equipped with either a spring-loaded pressure relief valve or a pilot-operated pressure relief valve, as follows:

(1) Pilot-operated relief valves shall be combined with, and controlled by, self-actuated, direct, spring-loaded pilot valves that comply with Table 5.9.2.5(A) .

(2) Pilot-operated pressure relief valves shall be inspected and maintained ~~by persons with training and experience~~ in accordance with manufacturer's instructions .

~~(3) Pilot-operated pressure relief valves shall be inspected and maintained by persons with training and experience and shall be tested for operation at intervals not exceeding 5 years.~~

Statement of Problem and Substantiation for Public Input

Requirements for pilot operated pressure relief valves were added in the 1983 edition of NFPA 58. No technical substantiation was provided to limit the use to containers of only 40,000-gallon water capacity or larger. The size limit was changed to 4,000-gallon water capacity to expand the use to all containers of this size which are not normally installed in residential applications. Pilot operated pressure relief valves listed to UL 132 are currently available from at least 2 manufacturers.

Striking “training and experience” is necessary because first, the code requires persons whose duties fall within the scope of NFPA 58 (4.4.1) to be trained to perform the jobs that they will be assigned. Secondly, “experience” is a vague and subjective term and there are no criteria provided for determining what qualifies as experience.

Submitter Information Verification

Submitter Full Name: Christopher Wagner
Organization: National Propane Gas Associati
Street Address:
City:
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Zip:

Submittal Date: Wed May 28 13:35:01 EDT 2025

Committee: LPG-AAA

Committee Statement

Resolution: FR-14-NFPA 58-2025

Statement: Requirements for pilot operated pressure relief valves were added in the 1983 edition of NFPA 58. No technical substantiation was provided to limit the use to containers of only 40,000-gallon water capacity or larger. The size limit was changed to 4,000-gallon water capacity to expand the use to all containers of this size which are not normally installed in residential applications and that is a common container size break point elsewhere in the code.

Striking “training and experience” is necessary because first, the code requires persons whose duties fall within the scope of NFPA 58 (4.4.1) to be trained to perform the jobs that they will be assigned. Secondly, “experience” is a vague and subjective term and there are no criteria provided for determining what qualifies as experience. The 5 year interval is unnecessary as the manufacturer's instructions would cover the maintenance cycle, and would then be covered under the second list item.

Public Input No. 111-NFPA 58-2025 [Section No. 5.9.2.14]

5.9.2.14

All cylinders used in industrial truck service (including forklift truck cylinders) shall not be refilled until ~~have~~ the cylinder's pressure relief valve has been replaced by a new or unused valve ~~within~~ following the twelfth (12 th) year from ~~12 years of~~ the cylinder's date of manufacture . ~~and within every 12 years thereafter and if either of the following apply:~~

~~If the~~

5.9.2.14.1 Subsequent replacements must occur prior to filling of cylinders based on the following:

(1) If the cylinder was requalified by a pressure test method with determination of expansion properties as defined in

~~49 CFR~~

(1) 49 CFR 180, Continuing Qualification of Maintenance of Packaging , and CGA Publication C-1, Methods For Pressure Testing Compressed Gas Cylinders And Tubes , ~~within every~~ after the 12

~~years~~

(1) th year ~~s~~ ~~thereafter~~

(2) If the cylinder was requalified by the proof pressure test or visual requalification methods as defined in

~~49 CFR~~

(1) 49 CFR 180, Continuing Qualification of Maintenance of Packaging , and CGA Publications C-1, Methods For Pressure Testing Compressed Gas Cylinders And Tubes , or C-6, Standard for Visual Inspection of Steel Compressed Gas Cylinders, ~~within~~

~~each 10 years thereafter~~

(1) ~~every~~ after the 10 th year ~~s thereafter.~~

Statement of Problem and Substantiation for Public Input

NFPA 58 requirements surrounding the replacement of relief valves on motor fuel cylinders is inconsistent with the current DOT regulations on the requalification of packages. This conflict creates a risk of additional obligations to the consumer and owner of the container.

As written today motor fuel cylinders may not remain in service 12 years after the initial date of manufacture and 12 or 10 years thereafter unless the relief valve is replaced. The DOT standard, however, places the restriction on filling, not use. The wording of the current code poses the risk of preventing consumers from using the product currently contained within cylinders that were filled within the allowable period. This prohibition from use would force the evacuation of this product from a container and loss of purchased propane by the consumer. This appears to be an oversight by the technical committee in its authorship of the code. The purpose of this modification is to rectify an issue that will align with the DOT cylinder qualification regulations and interpretations supplied by PHMSA.

Submitter Information Verification

Submitter Full Name: Zachary Ware
Organization: NPGA
Street Address:
City:
State:
Zip:

Submittal Date: Wed May 28 14:28:57 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-15-NFPA 58-2025

Statement: NFPA 58 requirements surrounding the replacement of relief valves on motor fuel cylinders is inconsistent with the current DOT regulations on the requalification of packages. This conflict creates a risk of additional obligations to the consumer and owner of the container.

As written today motor fuel cylinders may not remain in service 12 years after the initial date of manufacture and 12 or 10 years thereafter unless the relief valve is replaced. The DOT standard, however, places the restriction on filling, not use. The wording of the current code poses the risk of preventing consumers from using the product currently contained within cylinders that were filled within the allowable period. This prohibition from use would force the evacuation of this product from a container and loss of purchased propane by the consumer. The purpose of this modification is to rectify an issue that will align with the DOT cylinder qualification regulations and interpretations supplied by PHMSA.

Public Input No. 27-NFPA 58-2025 [Sections 5.9.3.1, 5.9.3.2]

Sections 5.9.3.1, 5.9.3.2

5.9.3.1

Cylinders with 4 lb through 40 lb (1.8 kg through 18 kg) propane ~~capacity for vapor service~~ capacity shall be equipped ~~or fitted with a listed overfilling prevention device that complies with UL 2227, *Overfilling Prevention Devices* , and a fixed maximum liquid level gauge.~~ with appurtenances in accordance with Table 5.9.4.1 . These devices shall be either separate components or combined in the container valve assembly.

5.9.3.2*

Cylinders ~~requalified~~ 4 through 40 lbs requalified after September 30, 1998, shall be equipped with ~~a listed overfilling prevention device and a fixed maximum liquid level gauge sized in~~ appurtenances in accordance with 7.4.3.2(A).

Statement of Problem and Substantiation for Public Input

The current requirements are in conflict with Table 5.9.4.1 (B), which requires an OPD for cylinders in vapor and liquid 4 lb. through 40 lb. only.
This conflict can be resolved by:
1. Deleting the vapor service only requirement here, and
2. Referencing to Table 5.9.4.1 (B), or
3. Deleting the requirement in 5.9.3.1. It is over 20 years since the OPD requirement was added, and to my knowledge all 50 states adopt editions of NFPA 58 later than 2000.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Tue Jan 28 11:42:12 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: The proposed changes would require forklift cylinders and other engine fuel applications in liquid service to have an OPD in conflict with 5.9.3.4. These types of containers are filled and used horizontally which defeats the protection provided by the OPD.

Public Input No. 11-NFPA 58-2024 [Section No. 5.9.4.1]

5.9.4.1

Containers of 4000 gal (15.2 m^3) water capacity or less shall comply with 5.9.4.1(A) through 5.9.4.1(E).

(A)

The following containers shall be permitted to be equipped with external pressure relief valves:

(1) Underground ASME containers

(2) ASME containers originally equipped with external pressure relief valves

(3) ASME containers with 125 gal (0.5 m^3) water capacity or less, having a pressure relief valve integrated as part of a multiple function valve

(B)

Cylinders of less than 2 lb water capacity shall comply with Table 5.9.4.1(B).

Table 5.9.4.1(B) Container Connection and Appurtenance Requirements for Containers Used in Other Than Bulk Plants and Industrial Plants

Part	Appurtenance	1	2	3
		≤420 lb propane capacity (except DOT Spec. 39)	Stationary ASME containers ≤4000 gal water capacity[a]	DOT and ASME engine fuel and mobile containers installed on vehicles
A	Vapor shutoff valve[b]	R (CGA 555 outlet prohibited)	R	R With internal excess-flow valve
B	Liquid shutoff valve[b]	R With CGA 555 outlet and internal excess-flow valve	R With internal excess flow valve	R With internal excess-flow valve
C	Pressure relief valve	R *(See 5.9.2.2.)*	R[c] *[See 5.9.4.1(A).]*	R With full internal or flush-type full internal pressure relief valve
D	Fixed maximum liquid level gauge	R (filled by volume & 5.9.3.1 cylinders)	R *[See 5.9.4.1(C)(10).]*	R (ASME only)
E	Overfilling prevention device	R (4 lb through 40 lb) *(See 5.9.3.)*	NR	R (ASME only) *[See 5.9.4.1(C)(6).]*
F	Actuated liquid withdrawal excess-flow valve	NR	R (≥125 gal) *[See 5.9.4.1(C)(3), (4), and (5).]*	NR
G	Float gauge	NR	R (>124 gal only)	NR
H	Filler valve *[See 5.9.4.1(C)(7).]*	R (≥100 lb cylinders that are filled at the point of use)	R	R (ASME containers only)

For SI units, 1 lb = 0.454 kg; 1 gal = 0.0045 m^3.

R: Required. NR: Not required.

[a]All ASME container capacities are water capacity.

[b]Where installed.

[c]Aboveground ASME containers, internal spring-type pressure relief valves can be used. See 5.9.4.1(A), 5.9.4.1(B), and 5.9.4.1(C).

(C)

Containers 2 lb through 4000 gal water capacity shall be fitted with valves and other appurtenances in accordance with 5.9.8.1, Table 5.9.4.1(B), and the following:

(1) Shutoff, filler, check, and excess-flow valves for ASME containers shall comply with UL 125, *Flow Control Valves for Anhydrous Ammonia and LP-Gas*.

(2) Shutoff valves used on cylinders shall comply with UL 1769, *Cylinder Valves.*

(3) Containers greater than 125 gal through 4000 gal (0.5 m^3 through 15.2 m^3) water capacity shall be provided with an actuated liquid withdrawal excess-flow valve with a connection not smaller than ¾ in. NPT (19 mm), and the container connection shall not be smaller than ¾ in. NPT (19 mm).

(4) An actuated liquid withdrawal excess-flow valve shall not be required on container connections equipped for liquid withdrawal with a positive shutoff valve that is located as close to the container as practical and an excess-flow valve installed in the container connection.

(5) The actuated liquid withdrawal excess-flow valve shall not be connected for continuous use unless the valve is recommended by the manufacturer for such service.

(6) An overfilling prevention device shall not be required for engine fuel cylinders used on industrial (and forklift) trucks powered by LP-Gas or for engine fuel cylinders used on vehicles (including floor maintenance machines) having LP-Gas–powered engines.

(7) A filler valve shall incorporate one of the following:

(8) Double backflow check valves of the spring-loaded type

(9) Manual shutoff valve with an internal backflow check valve of the spring-loaded type

(10) Combination single backflow check valve of the spring-loaded type and an overfilling prevention device designed for containers

(11) Manual shutoff valves in vapor service shall be equipped with one of the following:

(12) An orifice between the container contents and the shutoff valve outlet, not exceeding **5**⁄**16** in. (8 mm) in diameter, and an approved regulator directly attached, or attached with a flexible connector, to the manual shutoff valve outlet

(13) An excess-flow valve

(14) Overfilling prevention devices shall be required on cylinders having 4 lb through 40 lb (1.8 kg through 18 kg) propane capacity for vapor service. *(See 5.9.3.)*

(15) Cylinders greater than 40 lb through 100 lb (18 kg through 45 kg) propane capacity filled by volume shall have a fixed maximum liquid level gauge.

(D)

Containers used in stationary service having water capacities greater than 1000 gal (3.8 m^3) but equal to or less than 4000 gal (15.2 m^3) and using a liquid withdrawal opening for liquid service shall be equipped with one of the following:

(1) An internal valve fitted for remote closure and automatic shutoff equipped with thermal activation

(2) An emergency shutoff valve fitted for remote closure and automatic shutoff, equipped with thermal activation, and installed in a line downstream close to a positive shutoff valve and an excess-flow valve installed in the container

(3) Both an excess-flow valve installed at the container and a valve complying with the following requirements:

(4) The valve shall comply with API 607, *Fire Test for Quarter-turn Valves and Valves Equipped with Nonmetallic Seats* .

(5) The valve shall be designed to fail in the closed position.

(6) The valve shall be fitted for remote closure and equipped with thermal actuation with a thermal element located within 5 ft (1.5 m) of the valve.

(7) At least one remote emergency shutdown device in accordance with Section 4.10 shall be installed.

(E)

Existing installations shall comply with the requirements of 5.9.4.1(D) within 3 years of the first adoption of the 2023 or later edition of this code.

Statement of Problem and Substantiation for Public Input

All cylinders that are covered in 5.9.3.1 (4 lb. through 40 lb.) propane capacity for vapor service are required to be equipped or fitted with a listed OPD and a fixed maximum liquid level gauge. The current table requirement only is for cylinders filled by volume. The 4 lb. through 40 lb. is required to be fitted with the fixed maximum liquid level gauge whether filled by weight or volume.

Submitter Information Verification

Submitter Full Name: Thomas Dunn

Organization: Iowa Propane Gas Association

Street Address:

City:

State:

Zip:

Submittal Date: Tue Apr 02 15:20:47 EDT 2024

Committee: LPG-AAA

Committee Statement

Resolution: FR-16-NFPA 58-2025

Statement: Table is currently incomplete and expectations are defined in the code text. Table leads to confusion and addition of missing information will further lead to the ineffectiveness and deplete usability. Additionally, DOT Spec. 39 cylinders design, manufacture or appurtenances are not currently covered or governed by this standard.

Public Input No. 102-NFPA 58-2025 [Section No. 5.9.4.1(B)]

(B)

Cylinders of less than 2 lb water capacity shall comply with Table 5.9.4.1(B).

Table 5.9.4.1(B) Container Connection and Appurtenance Requirements for Containers Used in Other Than Bulk Plants and Industrial Plants

Part	Appurtenance	1	2	3
		≤420 lb propane capacity (except DOT Spec. 39)	Stationary ASME containers ≤4000 gal water capacity[a]	DOT and ASME engine fuel and mobile containers installed on vehicles
A	Vapor shutoff valve[b]	R (CGA 555 outlet prohibited)	R	R With internal excess-flow valve
B	Liquid shutoff valve[b]	R With CGA 555 outlet and internal excess-flow valve	R With internal excess flow valve	R With internal excess-flow valve
C	Pressure relief valve	R *(See 5.9.2.2.)*	R ~~e~~ ~~. [See~~ UG: 5.9.4.1(A)(1) AG and AG/UG: 5.9.4.1 (A) (2) and (3) ~~.]~~	R With full internal or flush-type full internal pressure relief valve
D	Fixed maximum liquid level gauge	R (filled by volume)	R *[See 5.9.4.1(C)(10).]*	R (ASME only)
E	Overfilling prevention device	R (4 lb through 40 lb) *(See 5.9.3.)*	NR	R (ASME only) *[See 5.9.4.1(C)(6).]*
F	Actuated liquid withdrawal excess-flow valve	NR	R (≥125 gal) *[See 5.9.4.1(C)(3), (4), and (5).]*	NR
G	Float gauge	NR	R (>124 gal only)	NR
H	Filler valve *[See 5.9.4.1(C)(7).]*	R (≥100 lb cylinders that are filled at the point of use)	R	R (ASME containers only)

For SI units, 1 lb = 0.454 kg; 1 gal = 0.0045 m^3.

R: Required. NR: Not required.

[a]All ASME container capacities are water capacity.

[b]Where installed.

~~e~~ ~~Aboveground ASME containers, internal spring-type pressure relief valves can be used. See 5.9.4.1(A), 5.9.4.1(B), and 5.9.4.1(C).~~

Statement of Problem and Substantiation for Public Input

This proposal is intended to simplify the code and be more specific by striking Note c, which eliminates an unneeded reference. The information in Note c is being incorporated into the table to make it easier for the user to access the indicated sections.

Submitter Information Verification

Submitter Full Name: Christopher Wagner
Organization: National Propane Gas Associati
Street Address:
City:
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Submittal Date: Wed May 28 14:03:17 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-16-NFPA 58-2025

Statement: Table is currently incomplete and expectations are defined in the code text. Table leads to confusion and addition of missing information will further lead to the ineffectiveness and deplete usability. Additionally, DOT Spec. 39 cylinders design, manufacture or appurtenances are not currently covered or governed by this standard.

Public Input No. 128-NFPA 58-2025 [Section No. 5.9.4.1(B)]

(B)

Cylinders of less than 2 lb water capacity shall comply with Table 5.9.4.1(B).

Table 5.9.4.1(B) Container Connection and Appurtenance Requirements for Containers Used in Other Than Bulk Plants and Industrial Plants

Part	Appurtenance	1	2	3
		≤420 lb propane capacity (except DOT Spec. 39)	Stationary ASME containers ≤4000 gal water capacity[a]	DOT and ASME engine fuel and mobile containers installed on vehicles
A	Vapor shutoff valve[b]	R (CGA 555 outlet prohibited)	R	R With internal excess-flow valve
B	Liquid shutoff valve[b]	R With CGA 555 outlet and internal excess-flow valve	R With internal excess flow valve	R With internal excess-flow valve
C	Pressure relief valve	R *(See 5.9.2.2.)*	R[c] *[See 5.9.4.1(A).]*	R With full internal or flush-type full internal pressure relief valve
D	Fixed maximum liquid level gauge	R (filled by volume)	R *[See 5.9.4.1(C)(10).]*	R (ASME only)
E	Overfilling prevention device	R (4 lb through 40 lb) *(See 5.9.3.)*	NR	R (ASME only) *[See 5.9.4.1(C)(6).]*
F	Actuated liquid withdrawal excess-flow valve	NR	R (~~≥125 gal~~ >125 gal) *[See 5.9.4.1(C)(3), (4), and (5).]*	NR
G	Float gauge	NR	R (>124 gal only)	NR
H	Filler valve *[See 5.9.4.1(C)(7).]*	R (≥100 lb cylinders that are filled at the point of use)	R	R (ASME containers only)

For SI units, 1 lb = 0.454 kg; 1 gal = 0.0045 m^3.

R: Required. NR: Not required.

[a]All ASME container capacities are water capacity.

[b]Where installed.

[c]Aboveground ASME containers, internal spring-type pressure relief valves can be used. See 5.9.4.1(A), 5.9.4.1(B), and 5.9.4.1(C).

Statement of Problem and Substantiation for Public Input

The requirements in Table 5.9.4.1(B) and section 5.9.4.1(C)(3) do not agree (row “F” of the table applies A.L.W.E.F.V. requirements to containers greater than OR EQUAL TO 125 gallons, whereas the text applies such requirements to containers GREATER THAN 125 gallons). This public input proposes revising the Table to match the text. After the revision, the table would read “(>125 gal),” consistent with the text.

Submitter Information Verification

Submitter Full Name: Kevin Dowling

Organization: The CT Public Utilities Regulatory Authority

Affiliation: The National Association of Pipeline Safety Representatives

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City:

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Zip:

Submittal Date: Wed Jun 04 10:56:19 EDT 2025

Committee: LPG-AAA

Committee Statement

Resolution: FR-17-NFPA 58-2025

Statement: The change aligns the requirement in 5.9.4.1(C) with the corresponding box in Table 5.9.4.1(B) (Column 2 Row F). Larger propane storage plants sometimes have pressure vessels use to remove impurities (such as water). As these vessels do not store LP-Gas they do not need many of the appurtenances required in Table 5.9.4.1 (B). 5.9.4.1(C) (11) is being added to incorporate the information that is also in Table 5.9.4.1(B)

Public Input No. 10-NFPA 58-2024 [Section No. 5.9.4.1(C)]

(C)

Containers 2 lb through 4000 gal water capacity used to store or transport LP-Gas shall be fitted with valves and other appurtenances in accordance with 5.9.8.1, Table 5.9.4.1(B), and the following:

(1) Shutoff, filler, check, and excess-flow valves for ASME containers shall comply with UL 125, *Flow Control Valves for Anhydrous Ammonia and LP-Gas*.

(2) Shutoff valves used on cylinders shall comply with UL 1769, *Cylinder Valves.*

(3) Containers greater than 125 gal through 4000 gal (0.5 m^3 through 15.2 m^3) water capacity shall be provided with an actuated liquid withdrawal excess-flow valve with a connection not smaller than ¾ in. NPT (19 mm), and the container connection shall not be smaller than ¾ in. NPT (19 mm).

(4) An actuated liquid withdrawal excess-flow valve shall not be required on container connections equipped for liquid withdrawal with a positive shutoff valve that is located as close to the container as practical and an excess-flow valve installed in the container connection.

(5) The actuated liquid withdrawal excess-flow valve shall not be connected for continuous use unless the valve is recommended by the manufacturer for such service.

(6) An overfilling prevention device shall not be required for engine fuel cylinders used on industrial (and forklift) trucks powered by LP-Gas or for engine fuel cylinders used on vehicles (including floor maintenance machines) having LP-Gas–powered engines.

(7) A filler valve shall incorporate one of the following:

(8) Double backflow check valves of the spring-loaded type

(9) Manual shutoff valve with an internal backflow check valve of the spring-loaded type

(10) Combination single backflow check valve of the spring-loaded type and an overfilling prevention device designed for containers

(11) Manual shutoff valves in vapor service shall be equipped with one of the following:

(12) An orifice between the container contents and the shutoff valve outlet, not exceeding **5**⁄**16** in. (8 mm) in diameter, and an approved regulator directly attached, or attached with a flexible connector, to the manual shutoff valve outlet

(13) An excess-flow valve

(14) Overfilling prevention devices shall be required on cylinders having 4 lb through 40 lb (1.8 kg through 18 kg) propane capacity for vapor service. *(See 5.9.3.)*

(15) Cylinders greater than 40 lb through 100 lb (18 kg through 45 kg) propane capacity filled by volume shall have a fixed maximum liquid level gauge.

Statement of Problem and Substantiation for Public Input

Larger propane storage plants sometimes have pressure vessels use to remove impurities (such as water). As these vessels do not store LP-Gas they do not need many of the appurtenances required in Table 5.9.4.1 (B).

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:

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Submittal Date: Thu Feb 29 13:24:47 EST 2024

Committee: LPG-AAA

Committee Statement

Resolution: FR-17-NFPA 58-2025

Statement: The change aligns the requirement in 5.9.4.1(C) with the corresponding box in Table 5.9.4.1(B) (Column 2 Row F). Larger propane storage plants sometimes have pressure vessels use to remove impurities (such as water). As these vessels do not store LP-Gas they do not need many of the appurtenances required in Table 5.9.4.1 (B). 5.9.4.1(C) (11) is being added to incorporate the information that is also in Table 5.9.4.1(B)

Public Input No. 101-NFPA 58-2025 [Section No. 5.9.8.5]

5.9.8.5

* Container inlet and outlet transfer or process connections on ASME containers of more than

~~2000 gal~~
2000-gal (7.

~~6 m 3~~
6 m3) water capacity shall be ~~labeled~~ identified either on the container ~~service~~ liquid or vapor valve or on the container , adjacent to the valve, to designate whether they communicate with the vapor or liquid space.

A.5.9.8.5 These markings inform persons involved with operation of container inlet and outlet connections of the phase with which the opening communicates. Examples are to directly mark using words, color codes, or symbols with which employees are familiar.

Statement of Problem and Substantiation for Public Input

The current requirement is difficult to enforce because of the lack of clarity of purpose and directions for methods to comply. The proposal and annex material will help to clarify the intent of this requirement.

Submitter Information Verification

Submitter Full Name: Christopher Wagner
Organization: National Propane Gas Associati
Street Address:
City:
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Zip:

Submittal Date: Wed May 28 13:54:56 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-18-NFPA 58-2025
Statement: There are more ways to mark the container to specify what service the valve is in and this change allows for other methods to identify the service is in that are not specifically labeling.

Public Input No. 91-NFPA 58-2025 [Section No. 5.11.3]

5.11.3 Pipe and Tubing.

5.11.3.1*

Pipe shall be steel (black or galvanized), brass (only brasses with less than 15 wt% zinc or DZR brasses) , copper, copper alloy, polyamide, polyethylene, reinforced thermoplastic pipe, or austenitic stainless steel.

5.11.3.1.1

Pipe shall comply with the applicable standard as follows:

(1) Steel pipe shall comply with ASTM A53/A53M, *Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless*.

(2) Steel pipe shall comply with ASTM A106/A106M, *Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service*.

(3) Brass pipe shall comply with ASTM B43, *Standard Specification for Seamless Red Brass Pipe, Standard Sizes*.

(4) Copper pipe shall comply with ASTM B42, *Standard Specification for Seamless Copper Pipe, Standard Sizes*.

(5) Polyamide pipe shall comply with ASTM F2945, *Standard Specification for Polyamide 11 Gas Pressure Pipe, Tubing, and Fittings*, and be recommended by the manufacturer for use with LP-Gas.

(6) Polyethylene pipe shall comply with ASTM D2513, *Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings*, and be recommended by the manufacturer for use with LP-Gas.

(7) Reinforced thermoplastic pipe shall comply with API Specification 15S, *Spoolable Reinforced Plastic Line Pipe*, have a polyamide liner, and be recommended by the manufacturer for use with LP-Gas.

(8) Stainless pipe shall comply with ASTM A312/A312M, *Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes*.

5.11.3.1.2

Furnace buttwelded piping shall not be used for piping that meets ASTM A53/A53M, *Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless*.

5.11.3.2

Tubing shall be steel, stainless steel, brass (only brasses with less than 15 wt% zinc or DZR brasses) , copper, copper alloy, polyamide, polyethylene, or reinforced thermoplastic.

5.11.3.2.1

Tubing shall comply with the applicable standard as follows:

(1) Brass tubing shall comply with ASTM B135/B135M, *Standard Specification for Seamless Brass Tube*.

(2) Copper tubing shall comply with one of the following:

(3) For Type K or Type L, ASTM B88, *Standard Specification for Seamless Copper Water Tube*

(4) ASTM B280, *Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service*

(5) ASTM B837, *Standard Specification for Seamless Copper Tube for Natural Gas and Liquefied Petroleum (LP) Gas Fuel Distribution Systems*

(6) Polyamide tubing shall comply with ASTM F2945, *Standard Specification for Polyamide 11 Gas Pressure Pipe, Tubing, and Fittings*, and be recommended by the manufacturer for use with LP-Gas.

(7) Polyethylene tubing shall comply with ASTM D2513, *Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings*, and be recommended by the manufacturer for use with LP-Gas.

(8) Reinforced thermoplastic tubing shall comply with API Specification 15S, *Spoolable Reinforced Plastic Line Pipe*, have a polyamide liner, and be recommended by the manufacturer for use with LP-Gas.

(9) Corrugated stainless steel tubing shall comply with ANSI LC 1/CSA 6.26, *Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing*.

(10) Stainless steel tubing shall comply with one of the following:

(11) ASTM A213/A213M, *Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes*

(12) ASTM A249/A249M, *Standard Specification for Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes*

(13) ASTM A269/A269M, *Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service*

(14) Steel tubing shall comply with one of the following:

(15) SAE J356, *Welded, Flash-Controlled, Low-Carbon Steel Tubing Normalized for Bending, Double Flaring, Beading, Forming, and Brazing*

(16) ASTM A822/A822M, *Standard Specification for Seamless Cold-Drawn Carbon Steel Tubing for Hydraulic System Service*

Statement of Problem and Substantiation for Public Input

I recommend disallowing the use of non-dezincification-resistant brass. This can be accomplished by stating only brasses with less than 15 wt% of zinc or specific brasses known as DZR brasses are allowed. Research has shown that that non-dezincification-resistant brass is prone to a specific type of corrosion known as dezincification, resulting in leaks, failures, explosions, injuries, and deaths. By mandating the use of dezincification-resistant brass, we can significantly enhance the longevity and safety of propane infrastructure. This adjustment aligns with best practices in materials engineering and will help prevent costly and dangerous failures, ensuring better protection for consumers and environment.

Submitter Information Verification

Submitter Full Name: Shari Howard
Organization: Safe Labs
Street Address:
City:
State:
Zip:
Submittal Date: Mon May 19 13:12:24 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: Dezincification is not a problem with LP-Gas systems as it is not a concern from a leak perspective and is a water plumbing issue. This type of brass is harder to machine which also then affects the tolerances of the flare fittings which can then cause leaks within those fittings.

Public Input No. 92-NFPA 58-2025 [Section No. 5.11.4.1]

5.11.4.1*

Fittings shall be steel, austenitic stainless steel, brass (only brasses with less than 15 wt% zinc or DZR brasses) , copper, malleable iron, or ductile (nodular) iron.

Statement of Problem and Substantiation for Public Input

I recommend disallowing the use of non-dezincification-resistant brass. This can be accomplished by stating only brasses with less than 15 wt% of zinc or specific brasses known as DZR brasses are allowed. Research has shown that that non-dezincification-resistant brass is prone to a specific type of corrosion known as dezincification, resulting in leaks, failures, explosions, injuries, and deaths. By mandating the use of dezincification-resistant brass, we can significantly enhance the longevity and safety of propane infrastructure. This adjustment aligns with best practices in materials engineering and will help prevent costly and dangerous failures, ensuring better protection for consumers and environment.

Submitter Information Verification

Submitter Full Name: Shari Howard
Organization: Safe Labs
Street Address:
City:
State:
Zip:

Submittal Date: Mon May 19 13:24:58 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: Dezincification is not a problem with LP-Gas systems as it is not a concern from a leak perspective and is a water plumbing issue. This type of brass is harder to machine which also then affects the tolerances of the flare fittings which can then cause leaks within those fittings.

Public Input No. 29-NFPA 58-2025 [Section No. 5.11.4.3]

5.11.4.3

Pipe fittings shall comply with the following:

(1) Gray cast-iron pipe fittings shall not be used.

(2) Brazing filler material shall have a melting point that exceeds 1000°F (538°C).

(3) Brass flare fittings ~~shall~~ shall be forged or stress relieved and meet the specifications of SAE J512, *Automotive Tube Fitting*, or SAE J513, *Refrigeration Tube Fittings — General Specifications*.

Statement of Problem and Substantiation for Public Input

Revision to add “forged or stress relieved”, which is required for brass flare fittings in 16.6.5.2. The SAE standards allow both forged and stress relieved.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
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Submittal Date: Tue Jan 28 13:29:07 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: The forging or stress relieving specified in 16.6.5.2 is in relation to the brass flare fitting nuts and not all of the flare fittings. For stationary installations this is unnecessary because there are no vibrations like those seen in mobile installations.

Public Input No. 96-NFPA 58-2025 [Section No. 5.16.1]

5.16.1

* Hydrostatic relief valves designed to relieve the hydrostatic pressure that can develop within ~~in~~ sections of liquid piping ~~between closed shutoff valves~~ shall have pressure settings not less than ~~400 psig~~ 400 psig (2.8 MPag) or more than ~~500 psig~~ 500 psig (3.5 MPag), unless installed in systems designed to operate above ~~350 psig~~ 350 psig (2.4 MPag).

A.5.15.1 An example of this requirement is when a closed shutoff valve isolates piping segments.

Statement of Problem and Substantiation for Public Input

The changes to text proposed in 5.16.1 and 6.16 will satisfy a need because NFPA 58 does not specifically address situations where liquid can be trapped between flanges, plugs or caps at a pipe termination. This proposal will provide an exemption to the requirement in 6.16 to address those common situations where a hydrostatic relief valve would not be required. The proposed text in 6.16.1 clarifies that hydrostatic relief valves must be designed for liquid service.

The text changes proposed in 6.16.2 and 6.16.3 is currently in the code but is being renumbered to accommodate the new text in 6.16.1.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 97-NFPA 58-2025 [Section No. 6.16]	

Submitter Information Verification

Submitter Full Name: Christopher Wagner
Organization: National Propane Gas Associati
Street Address:
City:
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Zip:

Submittal Date: Wed May 28 13:21:15 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-24-NFPA 58-2025

Statement: NFPA 58 does not specifically address situations where liquid can be trapped between flanges, plugs or caps at a pipe termination. This change will provide an exemption to the requirement in 6.16 to address those common situations where a hydrostatic relief valve would not be required as they do not create hazardous pressure conditions. The text in 6.16.1 clarifies that hydrostatic relief valves or other devices that relieve vapor pressure that are not a relief valve are acceptable.

Public Input No. 4-NFPA 58-2024 [Section No. 5.24.3]

5.24.3

~~Cabinet~~ Gas fired room heaters shall be listed and meet the requirements of 5.24.3.1 through 5.24.3.8.

5.24.3.1

~~Cabinet~~ Gas fired room heaters shall have a maximum propane input rating of 15,000 Btu/hr (4,396 W) and be listed in accordance with ANSI Z21.11.3, *Gas-Fired Room Heaters, Volume III, Propane-Fired Portable Emergency Use Heater Systems*.

5.24.3.2

~~Cabinet~~ Gas fired room heaters shall be supplied with propane only from listed composite cylinders.

5.24.3.2.1

~~Cabinet~~ Gas fired heaters shall use a cylinder valve that complies with UL 1769, *Cylinder Valves*.

5.24.3.3

Composite cylinders used with cabinet heaters shall have a maximum weight capacity of 19 lb (8.7 kg) of propane [nominal 43 lb (19 kg) water capacity].

5.24.3.4

The composite cylinder shall be located in a separate compartment from the heating element.

5.24.3.5

~~Cabinet~~ Gas fired room heaters shall use a listed integral two-stage regulator that complies with UL 144, *LP-Gas Regulators*, and operates with a maximum outlet pressure setting that does not exceed a nominal gauge pressure of 2 psig (14 kPag).

5.24.3.6

~~Cabinet~~ Gas fired room heater integral two-stage regulators shall not be equipped with a pressure relief valve in either stage.

5.24.3.7

~~Cabinet~~ Gas fired room heater integral two-stage regulators shall use separate vent-limiting features on each stage that comply with ANSI Z21.18/CSA 6.3, *Gas Appliance Pressure Regulators*.

5.24.3.8

~~Cabinet~~ Gas fired room heaters shall use a CGA 793 appliance-side connection that complies with CGA V-1, *Standard for Compressed Gas Cylinder Valve Outlet and Inlet Connections*, and is listed to UL 2061, *Adapters and Cylinder Connection Devices for Portable LP-Gas Cylinder Assemblies*, or ANSI Z21.81/CSA 6.25, *Cylinder Connection Devices*.

Statement of Problem and Substantiation for Public Input

Rational: ‘Cabinet ’ refers to a common feature of gas heaters that are not manufactured to ANSI Z21.11.3. Examples of this are heaters made and certified to the Gas-fired construction heater standard, ANSI Z83.7 or Unvented Portable Type Gas Camp Heaters ANSI Z21.103.

This proposed change is intended to reduce confusion regarding part 6.23.3 that would interpret heaters manufactured and certified to standards, other than ANSI Z21.11.3; requiring them to comply with the Z21.11.3 standard.

Submitter Information Verification

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Submittal Date: Fri Feb 23 10:19:28 EST 2024

Committee: LPG-AAA

Committee Statement

Resolution: The term cabinet heater is more correct for these requirements as that is the commonly used commercial term for this type of heater. Units manufactured to ANSI Z83.7b as well as ANSI Z21 .11.3. are regularly referred to as cabinet heater and are portable space heaters with a small capacity cylinder, not part of a fixed piping system.

Public Input No. 5-NFPA 58-2024 [Section No. 5.24.3 [Excluding any Sub-Sections]]

~~Cabinet~~ Gas fired room heaters shall be listed and meet the requirements of 5.24.3.1 through 5.24.3.8.

Statement of Problem and Substantiation for Public Input

Rational: ‘Cabinet ’ refers to a common feature of gas heaters that are not manufactured to ANSI Z21.11.3. Examples of this are heaters made and certified to the Gas-fired construction heater standard, ANSI Z83.7 or Unvented Portable Type Gas Camp Heaters ANSI Z21.103.

This proposed change is intended to reduce confusion regarding part 6.23.3 that would interpret heaters manufactured and certified to standards, other than ANSI Z21.11.3; requiring them to comply with the Z21.11.3 standard.

Submitter Information Verification

Submitter Full Name: James Petersen
Organization: Petersen Engineering
Street Address:
City:
State:
Zip:

Submittal Date: Fri Feb 23 10:25:52 EST 2024
Committee: LPG-AAA

Committee Statement

Resolution: The term cabinet heater is more correct for these requirements as that is the commonly used commercial term for this type of heater. Units manufactured to ANSI Z83.7b as well as ANSI Z21 .11.3. are regularly referred to as cabinet heater and are portable space heaters with a small capacity cylinder, not part of a fixed piping system.

Public Input No. 7-NFPA 58-2024 [Sections 5.24.3.1, 5.24.3.2, 5.24.3.3]

Sections 5.24.3.1, 5.24.3.2, 5.24.3.3

5.24.3.1

~~Cabinet~~ Gas fired room heaters shall have a maximum propane input rating of 15,000 Btu/hr (4,396 W) and be listed in accordance with ANSI Z21.11.3, *Gas-Fired Room Heaters, Volume III, Propane-Fired Portable Emergency Use Heater Systems*.

5.24.3.2

~~Cabinet~~ Gas fired room heaters shall be supplied with propane only from listed composite cylinders.

5.24.3.2.1

~~Cabinet~~ Gas fired room heaters shall use a cylinder valve that complies with UL 1769, *Cylinder Valves*.

5.24.3.3

Composite cylinders used with ~~cabinet~~ gas fired room heaters shall have a maximum weight capacity of 19 lb (8.7 kg) of propane [nominal 43 lb (19 kg) water capacity].

Statement of Problem and Substantiation for Public Input

Rational: 'Cabinet ' refers to a common feature of gas heaters that are not manufactured to ANSI Z21.11.3. Examples of this are heaters made and certified to the Gas-fired construction heater standard, ANSI Z83.7 or Unvented Portable Type Gas Camp Heaters ANSI Z21.103.

This proposed change is intended to reduce confusion regarding part 6.23.3 that would interpret heaters manufactured and certified to standards, other than ANSI Z21.11.3; requiring them to comply with the Z21.11.3 standard.

Submitter Information Verification

Submitter Full Name: James Petersen
Organization: Petersen Engineering
Street Address:
City:
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Submittal Date: Fri Feb 23 10:32:04 EST 2024
Committee: LPG-AAA

Committee Statement

Resolution: The term cabinet heater is more correct for these requirements as that is the commonly used commercial term for this type of heater. Units manufactured to ANSI Z83.7b as well as ANSI Z21 .11.3. are regularly referred to as cabinet heater and are portable space heaters with a small capacity cylinder, not part of a fixed piping system.

Public Input No. 8-NFPA 58-2024 [Sections 5.24.3.1, 5.24.3.2, 5.24.3.3, 5.24.3.4, 5.24.3.5, ...]

Sections 5.24.3.1, 5.24.3.2, 5.24.3.3, 5.24.3.4, 5.24.3.5, 5.24.3.6, 5.24.3.7, 5.24.3.8

5.24.3.1

~~Cabinet~~ Gas fired room heaters shall have a maximum propane input rating of 15,000 Btu/hr (4,396 W) and be listed in accordance with ANSI Z21.11.3, *Gas-Fired Room Heaters, Volume III, Propane-Fired Portable Emergency Use Heater Systems*.

5.24.3.2

~~Cabinet heaters~~ Gas fired room heaters shall be supplied with propane only from listed composite cylinders.

5.24.3.2.1

~~Cabinet heaters~~ Gas fired room heaters shall use a cylinder valve that complies with UL 1769, *Cylinder Valves*.

5.24.3.3

Composite cylinders used with ~~cabinet~~ gas fired room heaters shall have a maximum weight capacity of 19 lb (8.7 kg) of propane [nominal 43 lb (19 kg) water capacity].

5.24.3.4

The composite cylinder shall be located in a separate compartment from the heating element.

5.24.3.5

~~Cabinet heaters~~ Gas fired room heaters shall use a listed integral two-stage regulator that complies with UL 144, *LP-Gas Regulators*, and operates with a maximum outlet pressure setting that does not exceed a nominal gauge pressure of 2 psig (14 kPag).

5.24.3.6

~~Cabinet heater~~ Gas fired room heater integral two-stage regulators shall not be equipped with a pressure relief valve in either stage.

5.24.3.7

~~Cabinet heater~~ Gas fired room heater integral two-stage regulators shall use separate vent-limiting features on each stage that comply with ANSI Z21.18/CSA 6.3, *Gas Appliance Pressure Regulators*.

5.24.3.8

~~Cabinet heaters~~ Gas fired room heaters shall use a CGA 793 appliance-side connection that complies with CGA V-1, *Standard for Compressed Gas Cylinder Valve Outlet and Inlet Connections*, and is listed to UL 2061, *Adapters and Cylinder Connection Devices for Portable LP-Gas Cylinder Assemblies*, or ANSI Z21.81/CSA 6.25, *Cylinder Connection Devices*.

Statement of Problem and Substantiation for Public Input

Rational: ‘Cabinet ’ refers to a common feature of gas heaters that are not manufactured to ANSI Z21.11.3. Examples of this are heaters made and certified to the Gas-fired construction heater standard, ANSI Z83.7 or Unvented Portable Type Gas Camp Heaters ANSI Z21.103.

This proposed change is intended to reduce confusion regarding part 6.23.3 that would interpret heaters manufactured and certified to standards, other than ANSI Z21.11.3; requiring them to comply with the Z21.11.3 standard.

Submitter Information Verification

Submitter Full Name: James Petersen
Organization: Petersen Engineering
Street Address:

City:
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Zip:
Submittal Date: Fri Feb 23 10:34:38 EST 2024
Committee: LPG-AAA

Committee Statement

Resolution: The term cabinet heater is more correct for these requirements as that is the commonly used commercial term for this type of heater. Units manufactured to ANSI Z83.7b as well as ANSI Z21 .11.3. are regularly referred to as cabinet heater and are portable space heaters with a small capacity cylinder, not part of a fixed piping system.

Public Input No. 99-NFPA 58-2025 [Section No. 6.4.1.1]

6.4.1.1*

Containers installed outside of buildings, whether of the portable type replaced on a cylinder exchange basis or permanently installed and refilled at the installation, shall be located with respect to the adjacent containers, important building, group of buildings, or line of adjoining property that can be built upon, in accordance with Table 6.4.1.1 , ~~Table 6.5.1.2~~ , 6.4.1.2 through 6.4.1.3 , 6.4.3 , 6.4.4.1 through 6.4.4.4 , and 6.5.3.6 through 6.5.3.11 .

Table 6.4.1.1 Separation Distances Between Containers, Important Buildings, and Line of Adjoining Property That Can Be Built Upon

		Minimum Distances					
Water Capacity per Container		Mounded or Underground Containers[a]		Aboveground Containers		Between Containers[b]	
gal	m^3	ft	m	ft	m	ft	m
<125[c]	<0.5[c]	10	3	0[d]	0[d]	0	0
125–250	0.5–1.0	10	3	10	3	0	0
251–500	>1.0–1.9	10	3	10	3	3	1
501–2,000	>1.9–7.6	10	3	25[e]	7.6[e]	3	1
2,001–30,000	>7.6–114	50	15	50	15	5	1.5
30,001–70,000	>114–265	50	15	75	23	¼ of sum of diameters of adjacent containers	
70,001–90,000	>265–341	50	15	100	30		
90,001–120,000	>341–454	50	15	125	38		
120,001–200,000	>454–757	50	15	200	61		
200,001–1,000,000	>757–3,785	50	15	300	91		
>1,000,000	>3,785	50	15	400	122		

[a] See 6.4.2.1.

[b] See 6.4.4.5.

[c] See 6.4.4.4.

[d] See 6.4.4.1, 6.4.4.2, 6.4.4.3, and 6.4.4.4.

[e] See 6.4.1.3.

Statement of Problem and Substantiation for Public Input

Prior to the 1989 edition of NFPA 58 there were no limitations on the number of propane storage containers larger than 2,000 gallons that could be installed at one location. In the 1989 edition a requirement was added that limited the number of propane containers in a group to 6 with no fire protection other than hose streams or fixed monitor nozzles, and 9 in a group with fixed water sprays covering the container surfaces or insulation. The spacing of groups was a minimum of 50 ft where the only form of fire protection was hose streams, and 25 ft with fixed monitor nozzles, fixed water spray, or insulation.

The committee's substantiation for this limitation was:

The current spacing requirements provide adequate access to fire Fighters to cool all affected surfaces pf tanks to prevent BLEVE, and therefore no maximum is needed. [Fall 1998 Technical Committee Documentation] At that time, there were concerns of the possibility of BLEVEs and the memory of the serious BLEVE incidents of the 1960s and 1970 was fresh in everyone's mind.

There is no known significant incident in bulk storage facilities relative to proximity of tanks in any groups of more than 6. In facilities designed and constructed pre-1989 there is no evidence of incidents either occurring or increased exposure being present in facilities built in conformance with the standards that predated 1989 including banks of containers that far exceeded the current limitation of 6 containers.

Today, experience in the last 25 years has shown that BLEVE's are not occurring at propane storage locations. The last BLEVE incident involving a propane storage container larger than 2,000 gallons occurred in 1998 at a turkey farm in Iowa. It was a tragic incident in which two firefighters lost their lives. The incident was investigated by the U. S. Chemical Safety Board, which found several factors that led to the tragedy, including inadequate training of firefighters in the state, and recommended that the State Fire Marshal institute training for firefighters.

Significant safety features are now incorporated into propane storage containers larger than 4,000 gallons, specifically:

- Internal valves, shutoff valves located within the storage container which are operated by a thermal sensor and from a remote station. They contain an excess flow device which closes the valve in the event of pipe breakage. Internal valves were required to be installed on all containers larger than 4,000 gallons by July 1, 2003.
- Emergency shutoff valves, which allow rapid shutoff in the event of truck pull-away with hoses connected. These were required to be installed in all containers larger than 4,000 gallons by December 31, 1980.
- Pressure relief valves, which open to prevent excess container pressure and container failure.

Baker Engineering and Risk Consultants, Inc. conducted and published a study in 2020 evaluating the potential risks associated with bulk storage container releases, fires, and explosions. The evaluation also included a comparison of calculation results between the effects of a propane Vapor Cloud Explosion (VCE) modeled using the Baker-Strehlow-Tang1,2 methodology for predefined scenarios and the effects of a propane release using a TNT-equivalency method. Some federal agencies such as the Environmental Protection Agency (EPA) and the Department of Homeland Security (DHS) may use the older TNT-equivalency method in their analyses of propane release incidents. The goal of these calculations was to assess the difference in distance at which a 1 psi overpressure would occur based on a comparison of the two methodologies and the potential damage that would follow.

The study analyzed offsite consequences and determined that regardless of single container size from 18,000 to 120,000 gallons or groupings of containers within those volumes, a 1- psi over pressure condition would not extend beyond 420 feet from the source of the release.

Blast overpressure damage

Overpressure	Damage
1 psi	Glass breakage
2 psi	Partial collapse of walls and roofs of houses
5 psi	Wood telephone poles snapped
10 psi	Probable total building destruction

BakerRisk performed VCE calculations for the following two scenarios:

- Release from the rupture of a pipe or tank assuming a likely outcome from such a release would be a jet fire (a flame fed by the pressure of the tank contents, similar to a torch), but the potential for a VCE was modeled for determination of potential blast effects.
- Catastrophic failure of a tank. The consequences of the catastrophic failure of the tank would be an immediate release of the liquid in the tank and the transition of this liquid to a flammable vapor cloud that is subsequently ignited. Once the flammable cloud ignites, the remaining liquid would burn as a standing pool fire.

The calculations were run for sites in three types of settings: rural sites with no significant sources of congestion or confinement in the immediate area; sites with significant natural vegetation in the immediate area; and sites in a suburban or light industrial setting.

The results of these calculations were that the distance to a peak blast overpressure of 1 psi was about 400 feet for the worst-case event. The impulse at this distance varied from 20 psi-ms to 32 psi-ms depending on the setting. Given the relatively low impulse of the blast wave, the primary damage to buildings beyond the 1 psi range would be broken window glass.

Further to this, the catastrophic release of the contents of propane bulk storage tank has the potential of producing a vapor cloud that results in a 1 psi overpressure out to a distance of approximately 400 feet, depending on site conditions. The release of the propane at a rural site will reduce the distance to the 1 psi contour to approximately

135 feet. The potential building damage resulting from a 1 psi overpressure and the impulses calculated is between 0.1 and 0.5 percent depending on the site properties and building construction. The range of damage has a minimal potential for causing serious injuries to building occupants.

The Baker Risk report does not demonstrate an increased risk potential being created by multi-container installations regardless of the number of containers involved in a release or fire. A propane vapor cloud explosion (VCE) is incapable of generating sufficient energy (regardless of distance) to dislodge or damage neighboring containers. Based on the observed history of incidents that have occurred since the product control measures were introduced in the 2001 edition of NFPA 58 there is no reason to require a limitation on the number of containers in a single group.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 100-NFPA 58-2025 [Sections 6.5.1.2, 6.5.1.3]	

Submitter Information Verification

Submitter Full Name: Christopher Wagner
Organization: National Propane Gas Associati
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 28 13:47:28 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-19-NFPA 58-2025

Statement: Prior to the 1989 edition of NFPA 58 there were no limitations on the number of propane storage containers larger than 2,000 gallons that could be installed at one location. In the 1989 edition a requirement was added that limited the number of propane containers in a group to 6 with no fire protection other than hose streams or fixed monitor nozzles, and 9 in a group with fixed water sprays covering the container surfaces or insulation. The spacing of groups was a minimum of 50 ft where the only form of fire protection was hose streams, and 25 ft with fixed monitor nozzles, fixed water spray, or insulation.

There is no known significant incident in bulk storage facilities relative to proximity of tanks in any groups of more than 6. In facilities designed and constructed pre-1989 there is no evidence of incidents either occurring or increased exposure being present in facilities built in conformance with the standards that predated 1989 including banks of containers that far exceeded the current limitation of 6 containers.

Today, experience in the last 25 years has shown that BLEVE’s are not occurring at propane storage locations. The last BLEVE incident involving a propane storage container larger than 2,000 gallons occurred in 1998 at a turkey farm in Iowa.

Significant safety features are now incorporated into propane storage containers larger than 4,000 gallons, specifically:

1. Internal valves, shutoff valves located within the storage container which are operated by a thermal sensor and from a remote station. They contain an excess flow device which closes the valve in the event of pipe breakage. Internal valves were required to be installed on all containers larger than 4,000 gallons by July 1, 2003.

2. Emergency shutoff valves, which allow rapid shutoff in the event of truck pull-away with hoses connected. These were required to be installed in all containers larger than 4,000 gallons by December 31, 1980.

3. Pressure relief valves, which open to prevent excess container pressure and container failure.

Baker Engineering and Risk Consultants, Inc. conducted and published a study (see attached) in 2020 evaluating the potential risks associated with bulk storage container releases, fires, and explosions.

The evaluation also included a comparison of calculation results between the effects of a propane Vapor Cloud Explosion (VCE) modeled using the Baker-Strehlow-Tang1,2 methodology for predefined scenarios and the effects of a propane release using a TNT-equivalency method. Some federal agencies such as the Environmental Protection Agency (EPA) and the Department of Homeland Security (DHS) may use the older TNT-equivalency method in their analyses of propane release incidents. The goal of these calculations was to assess the difference in distance at which a 1 psi overpressure would occur based on a comparison of the two methodologies and the potential damage that would follow.

The study analyzed offsite consequences and determined that regardless of single container size from 18,000 to 120,000 gallons or groupings of containers within those volumes, a 1- psi over pressure condition would not extend beyond 420 feet from the source of the release.

The calculations were run for sites in three types of settings: rural sites with no significant sources of congestion or confinement in the immediate area; sites with significant natural vegetation in the immediate area; and sites in a suburban or light industrial setting.

The results of these calculations were that the distance to a peak blast overpressure of 1 psi was about 400 feet for the worst-case event. The impulse at this distance varied from 20 psi-ms to 32 psi-ms depending on the setting. Given the relatively low impulse of the blast wave, the primary damage to buildings beyond the 1 psi range would be broken window glass.

Further to this, the catastrophic release of the contents of propane bulk storage tank has the potential of producing a vapor cloud that results in a 1 psi overpressure out to a distance of approximately 400 feet, depending on site conditions. The release of the propane at a rural site will reduce the distance to the 1 psi contour to approximately 135 feet. The potential building damage resulting from a 1 psi overpressure and the impulses calculated is between 0.1 and 0.5 percent depending on the site properties and building construction. The range of damage has a minimal potential for causing serious injuries to building occupants.

The Baker Risk report does not demonstrate an increased risk potential being created by multi-container installations regardless of the number of containers involved in a release or fire. A propane vapor cloud explosion (VCE) is incapable of generating sufficient energy (regardless of distance) to dislodge or damage neighboring containers.

Public Input No. 118-NFPA 58-2025 [Section No. 6.4.4.3]

6.4.4.3*

The distance measured horizontally from the point of discharge of a container pressure relief valve to any building opening below the level of such discharge or to any space communicating with a building opening located below ground level, shall be in accordance with Table 6.4.4.3 .

Table 6.4.4.3 Separation Distance Between Container Pressure Relief Valve and Building Openings

Container Type	Exchange or Filled at Point of Use	Distance Horizontally from Relief Valve Discharge to Opening Below Discharge		-	Discharge from Relief Valve, Vent Discharge, and Filling Connection to Exterior Source of Ignition, Openings into Direct-Vent Appliances, and Mechanical Ventilation Air Intakes	
		ft	m	-	ft	m
Cylinder	Exchange	3	0.9	-	5	1.5
Cylinder	Filled at the point of use	3	0.9	-	10	3.0
ASME	Filled at the point of use	5	1.5	-	10	3.0

Statement of Problem and Substantiation for Public Input

There is no provision in NFPA 58 that directly addresses the situation where a propane installation may be made within proximity of a below-grade stairwell that is adjacent to a building. An example of such is when a below-grade dwelling unit or occupiable basement has an exterior egress pathway that ascends to grade level. This new provision will address those occurrences.

The choice was made to modify the similar section (6.4.4.3) instead of 6.4.4.4 because the latter section involves separation from sources of ignition, which is of a more immediate safety concern, and separation from openings that are drawing air into the building through mechanical means, which again are a level of concern that is different from that reflected in 6.4.4.3.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 117-NFPA 58-2025 [Section No. A.6.4.4.3]	

Submitter Information Verification

Submitter Full Name: Zachary Ware
Organization: NPGA
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 28 15:06:32 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-20-NFPA 58-2025
Statement: The term vent discharge is changing to the defined term in the standard rather than its slang terminology. The intent of this addition is to resolve the issue where containers were installed directly

adjacent to a subgrade stairwell leading to a building opening. The subgrade stairwell had no means of evacuating any collected vapor creating a potentially hazardous situation, but the opening into the basement was a distance of at least 10' from that of the container.

Public Input No. 67-NFPA 58-2025 [Section No. 6.4.4.3]

6.4.4.3*

The distance measured horizontally from the point of discharge of a container pressure relief valve to any building opening below the level of such discharge shall be in accordance with Table 6.4.4.3.

Table 6.4.4.3 Separation Distance Between Container Pressure Relief Valve, Filler Valve, and Vent Discharge and Building Openings

Container	Exchange or Filled at Point of Use	Distance Horizontally from Relief Valve Discharge to Opening Below Discharge		-	Discharge from Relief Valve, Vent Discharge, and Filling Connection to Exterior Source of Ignition, Openings into Direct-Vent Appliances, and Mechanical Ventilation Air Intakes	
Type		ft	m	-	ft	m
Cylinder	Exchange	3	0.9	-	5	1.5
Cylinder	Filled at the point of use	3	0.9	-	10	3.0
ASME	Filled at the point of use	5	1.5	-	10	3.0

Statement of Problem and Substantiation for Public Input

To make it easier to find these requirements and accurately show the content of the table.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
Street Address:
City:
State:
Zip:

Submittal Date: Tue Mar 18 15:25:05 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-20-NFPA 58-2025

Statement: The term vent discharge is changing to the defined term in the standard rather than its slang terminology. The intent of this addition is to resolve the issue where containers were installed directly adjacent to a subgrade stairwell leading to a building opening. The subgrade stairwell had no means of evacuating any collected vapor creating a potentially hazardous situation, but the opening into the basement was a distance of at least 10' from that of the container.

Public Input No. 100-NFPA 58-2025 [Sections 6.5.1.2, 6.5.1.3]

Sections 6.5.1.2, 6.5.1.3

~~**6.5.1.2** –~~

~~Aboveground multicontainer installations comprised of ASME containers having an individual water capacity of 12,000 gal (45 m ^{3}) or more and installed for use in a single location shall be limited to the number of containers in one group, with each group separated from the next group in accordance with the degree of fire protection provided in Table 6.5.1.2 .~~

~~Table 6.5.1.2 Maximum Number of Containers in a Group and Their Separation Distances~~

~~Fire Protection~~

~~Provided by~~ ~~Maximum~~

~~Number of~~

~~Containers in~~

~~One Group~~ ~~Minimum~~

~~Separation~~

~~Between Groups~~ ~~ft~~ ~~m~~ ~~Hose streams only~~ ~~*(see 6.5.1.2 and 6.30.3.1)*~~ ~~6~~ ~~50~~ ~~15~~ ~~Fixed monitor nozzles per 6.30.6.3~~ ~~6~~ ~~25~~ ~~7.6~~ ~~Fixed water spray per 6.30.6.1~~ ~~9~~ ~~25~~ ~~7.6~~ ~~Insulation per 6.30.5.1~~ ~~9~~ ~~25~~ ~~7.6~~

~~**6.5.1.3** –~~

~~Where the provisions of 6.31.3 and 6.31.4 are met, the minimum separation distance between groups of ASME containers protected by hose stream only shall be one-half the distances required in Table 6.5.1.2 .~~

Statement of Problem and Substantiation for Public Input

Prior to the 1989 edition of NFPA 58 there were no limitations on the number of propane storage containers larger than 2,000 gallons that could be installed at one location. In the 1989 edition a requirement was added that limited the number of propane containers in a group to 6 with no fire protection other than hose streams or fixed monitor nozzles, and 9 in a group with fixed water sprays covering the container surfaces or insulation. The spacing of groups was a minimum of 50 ft where the only form of fire protection was hose streams, and 25 ft with fixed monitor nozzles, fixed water spray, or insulation.

The committee's substantiation for this limitation was:

The current spacing requirements provide adequate access to fire Fighters to cool all affected surfaces pf tanks to prevent BLEVE, and therefore no maximum is needed. [Fall 1998 Technical Committee Documentation] At that time, there were concerns of the possibility of BLEVEs and the memory of the serious BLEVE incidents of the 1960s and 1970 was fresh in everyone's mind.

There is no known significant incident in bulk storage facilities relative to proximity of tanks in any groups of more than 6. In facilities designed and constructed pre-1989 there is no evidence of incidents either occurring or increased exposure being present in facilities built in conformance with the standards that predated 1989 including banks of containers that far exceeded the current limitation of 6 containers.

Today, experience in the last 25 years has shown that BLEVE's are not occurring at propane storage locations. The last BLEVE incident involving a propane storage container larger than 2,000 gallons occurred in 1998 at a turkey farm in Iowa. It was a tragic incident in which two firefighters lost their lives. The incident was investigated by the U. S. Chemical Safety Board, which found several factors that led to the tragedy, including inadequate training of firefighters in the state, and recommended that the State Fire Marshal institute training for firefighters.

Significant safety features are now incorporated into propane storage containers larger than 4,000 gallons, specifically:

- Internal valves, shutoff valves located within the storage container which are operated by a thermal sensor and from a remote station. They contain an excess flow device which closes the valve in the event of pipe breakage. Internal valves were required to be installed on all containers larger than 4,000 gallons by July 1, 2003.
- Emergency shutoff valves, which allow rapid shutoff in the event of truck pull-away with hoses connected. These were required to be installed in all containers larger than 4,000 gallons by December 31, 1980.
- Pressure relief valves, which open to prevent excess container pressure and container failure.

Baker Engineering and Risk Consultants, Inc. conducted and published a study in 2020 evaluating the potential risks associated with bulk storage container releases, fires, and explosions. The evaluation also included a comparison of calculation results between the effects of a propane Vapor Cloud Explosion (VCE) modeled using the Baker-Strehlow-Tang1,2 methodology for predefined scenarios and the effects of a propane release using a TNT-equivalency method. Some federal agencies such as the Environmental Protection Agency (EPA) and the Department of Homeland Security (DHS) may use the older TNT-equivalency method in their analyses of propane release incidents. The goal of these calculations was to assess the difference in distance at which a 1 psi overpressure would occur based on a comparison of the two methodologies and the potential damage that would follow.

The study analyzed offsite consequences and determined that regardless of single container size from 18,000 to 120,000 gallons or groupings of containers within those volumes, a 1- psi over pressure condition would not extend beyond 420 feet from the source of the release.

Blast overpressure damage

Overpressure	Damage
1 psi	Glass breakage
2 psi	Partial collapse of walls and roofs of houses
5 psi	Wood telephone poles snapped
10 psi	Probable total building destruction

BakerRisk performed VCE calculations for the following two scenarios:
- Release from the rupture of a pipe or tank assuming a likely outcome from such a release would be a jet fire (a flame fed by the pressure of the tank contents, similar to a torch), but the potential for a VCE was modeled for determination of potential blast effects.
- Catastrophic failure of a tank. The consequences of the catastrophic failure of the tank would be an immediate release of the liquid in the tank and the transition of this liquid to a flammable vapor cloud that is subsequently ignited. Once the flammable cloud ignites, the remaining liquid would burn as a standing pool fire.

The calculations were run for sites in three types of settings: rural sites with no significant sources of congestion or confinement in the immediate area; sites with significant natural vegetation in the immediate area; and sites in a suburban or light industrial setting.

The results of these calculations were that the distance to a peak blast overpressure of 1 psi was about 400 feet for the worst-case event. The impulse at this distance varied from 20 psi-ms to 32 psi-ms depending on the setting. Given the relatively low impulse of the blast wave, the primary damage to buildings beyond the 1 psi range would be broken window glass.

Further to this, the catastrophic release of the contents of propane bulk storage tank has the potential of producing a vapor cloud that results in a 1 psi overpressure out to a distance of approximately 400 feet, depending on site conditions. The release of the propane at a rural site will reduce the distance to the 1 psi contour to approximately 135 feet. The potential building damage resulting from a 1 psi overpressure and the impulses calculated is between 0.1 and 0.5 percent depending on the site properties and building construction. The range of damage has a minimal potential for causing serious injuries to building occupants.

The Baker Risk report does not demonstrate an increased risk potential being created by multi-container installations regardless of the number of containers involved in a release or fire. A propane vapor cloud explosion (VCE) is incapable of generating sufficient energy (regardless of distance) to dislodge or damage neighboring containers. Based on the observed history of incidents that have occurred since the product control measures were introduced in the 2001 edition of NFPA 58 there is no reason to require a limitation on the number of containers in a single group.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 99-NFPA 58-2025 [Section No. 6.4.1.1]	Companion

Submitter Information Verification

Submitter Full Name: Christopher Wagner

Organization: National Propane Gas Associati
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 28 13:50:16 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-19-NFPA 58-2025

Statement: Prior to the 1989 edition of NFPA 58 there were no limitations on the number of propane storage containers larger than 2,000 gallons that could be installed at one location. In the 1989 edition a requirement was added that limited the number of propane containers in a group to 6 with no fire protection other than hose streams or fixed monitor nozzles, and 9 in a group with fixed water sprays covering the container surfaces or insulation. The spacing of groups was a minimum of 50 ft where the only form of fire protection was hose streams, and 25 ft with fixed monitor nozzles, fixed water spray, or insulation.

There is no known significant incident in bulk storage facilities relative to proximity of tanks in any groups of more than 6. In facilities designed and constructed pre-1989 there is no evidence of incidents either occurring or increased exposure being present in facilities built in conformance with the standards that predated 1989 including banks of containers that far exceeded the current limitation of 6 containers.

Today, experience in the last 25 years has shown that BLEVE's are not occurring at propane storage locations. The last BLEVE incident involving a propane storage container larger than 2,000 gallons occurred in 1998 at a turkey farm in Iowa.

Significant safety features are now incorporated into propane storage containers larger than 4,000 gallons, specifically:

1. Internal valves, shutoff valves located within the storage container which are operated by a thermal sensor and from a remote station. They contain an excess flow device which closes the valve in the event of pipe breakage. Internal valves were required to be installed on all containers larger than 4,000 gallons by July 1, 2003.

2. Emergency shutoff valves, which allow rapid shutoff in the event of truck pull-away with hoses connected. These were required to be installed in all containers larger than 4,000 gallons by December 31, 1980.

3. Pressure relief valves, which open to prevent excess container pressure and container failure.

Baker Engineering and Risk Consultants, Inc. conducted and published a study (see attached) in 2020 evaluating the potential risks associated with bulk storage container releases, fires, and explosions. The evaluation also included a comparison of calculation results between the effects of a propane Vapor Cloud Explosion (VCE) modeled using the Baker-Strehlow-Tang1,2 methodology for predefined scenarios and the effects of a propane release using a TNT-equivalency method. Some federal agencies such as the Environmental Protection Agency (EPA) and the Department of Homeland Security (DHS) may use the older TNT-equivalency method in their analyses of propane release incidents. The goal of these calculations was to assess the difference in distance at which a 1 psi overpressure would occur based on a comparison of the two methodologies and the potential damage that would follow.

The study analyzed offsite consequences and determined that regardless of single container size from 18,000 to 120,000 gallons or groupings of containers within those volumes, a 1- psi over pressure condition would not extend beyond 420 feet from the source of the release.

The calculations were run for sites in three types of settings: rural sites with no significant sources of congestion or confinement in the immediate area; sites with significant natural vegetation in the immediate area; and sites in a suburban or light industrial setting.

The results of these calculations were that the distance to a peak blast overpressure of 1 psi was about 400 feet for the worst-case event. The impulse at this distance varied from 20 psi-ms to 32 psi-ms depending on the setting. Given the relatively low impulse of the blast wave, the primary damage

to buildings beyond the 1 psi range would be broken window glass.

Further to this, the catastrophic release of the contents of propane bulk storage tank has the potential of producing a vapor cloud that results in a 1 psi overpressure out to a distance of approximately 400 feet, depending on site conditions. The release of the propane at a rural site will reduce the distance to the 1 psi contour to approximately 135 feet. The potential building damage resulting from a 1 psi overpressure and the impulses calculated is between 0.1 and 0.5 percent depending on the site properties and building construction. The range of damage has a minimal potential for causing serious injuries to building occupants.

The Baker Risk report does not demonstrate an increased risk potential being created by multi-container installations regardless of the number of containers involved in a release or fire. A propane vapor cloud explosion (VCE) is incapable of generating sufficient energy (regardless of distance) to dislodge or damage neighboring containers.

Public Input No. 28-NFPA 58-2025 [Section No. 6.5.3.13]

6.5.3.13

An aboveground LP-Gas container and any of its parts shall not be located within 6 ft (1.8 m) of a vertical plane beneath overhead electric power lines that are over 600 volts, nominal~~.~~ , or shall be protected from contact with falling overhead power lines over 600 volts nominal

Statement of Problem and Substantiation for Public Input

The current requirement is a total prohibition which causes hardships. The revision will allow installations under power lines where the container is protected to prevent a broken over head power line from impacting the tank and causing an electric arc that could puncture the container wall.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Tue Jan 28 11:57:19 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: Separation is needed from overhead lines as the heat coming off of a jet fire from the relief valve can cause powerlines to fail. Even should a cover or other protection be installed, the wire could still fall over the cover and come in contact with a vent stack or by draping over the cover make physical contact with the container. The design criteria for such protection is also vague.

Public Input No. 72-NFPA 58-2025 [Section No. 6.7.2.1]

6.7.2.1*

If the point of transfer of containers located outdoors in stationary installations is not located at the container, it shall be located in accordance with Table 6.7.2.1.

Table 6.7.2.1 Distance Between Point of Transfer and Exposures

Part	Exposure	Minimum Horizontal Distance ft	Minimum Horizontal Distance m
A	Buildings,[a] mobile homes, recreational vehicles, and modular homes with at least 1-hour fire-rated walls	10	3.1
B	Buildings[a] with other than at least 1-hour fire-rated walls	25[b]	7.6[b]
C	Building wall openings or pits at or below the level of the point of transfer	25[b]	7.6[b]
D	Line of adjoining property that can be built upon	25[b]	7.6[b]
E	Outdoor places of public assembly, including schoolyards, athletic fields, and playgrounds	50[b]	15[b]
F	Public ways, including public streets, highways, thoroughfares, and sidewalks	-	-
-	(1) From points of transfer of LP-Gas dispensing systems	10	3.1
-	(2) From other points of transfer	25[b]	7.6[b]
G	Driveways[c]	5	1.5
H	Mainline railroad track centerlines	25	7.6
I	Containers[d] other than those being filled	10	3.1
J	Flammable and Class II combustible liquid[e] dispensers and the fill connections of above ground and underground containers	10[b]	3.1[b]
K	Flammable and Class II combustible liquid[e] aboveground containers~~ and filling connections of underground containers~~	20	6.1
L	Stored or accumulated combustible materials	10	3.1

[a]For the purpose of this table, buildings also include structures such as tents and box trailers at construction sites.

[b]See 6.7.3.4.

[c]Not applicable to driveways and points of transfer at vehicle fuel dispensers.

[d]Not applicable to filling connections at the storage container or to vehicle fuel dispenser units of 4000 gal (15.2 m^3) water capacity or less when used for filling containers not on vehicles.

[e]NFPA 30 defines Class I flammable liquids as including those having a flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 psia (276 kPa) at 100°F (37.8°C). NFPA 30 defines Class II combustible liquids as including those having a flash point at or above 100°F (37.8°C) and below 140°F (60°C).

Statement of Problem and Substantiation for Public Input

The separation distance requirements in Table 6.7.2.1 to the filling connections for underground containers often make positioning of propane dispensers at gasoline stations and convenience stores problematical. These connections are almost always aluminum or brass, so do not present a sparking hazard. The pits are very shallow and removing the cover is enough to disturb any flammable vapors that may have accumulated. Reducing this separation requirement does not reduce safety.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
Street Address:
City:
State:
Zip:

Submittal Date: Fri Mar 21 12:31:22 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-21-NFPA 58-2025

Statement: Underground ignitible liquid containers do not present the same risks as above ground ignitible liquid containers related to leak or fire, and the connections themselves do not pose the same level of hazard to LP Gas operations as above ground ignitible liquid containers.

Public Input No. 130-NFPA 58-2025 [Section No. 6.8.1.2]

6.8.1.2

LP-Gas containers or systems that are installed within 10 ft (3 m) of a public vehicular ~~thoroughfares shall~~ thoroughfare or designated parking location shall be provided with a means of vehicular barrier protection.

Statement of Problem and Substantiation for Public Input

The 2024 edition of NFPA 58 addresses vehicle protection for containers and appurtenances in the following sections:

- 6.8.1.2 – applies generally to any LP-Gas container installed within 10 ft of a public vehicular thoroughfare and requires a “means of vehicular barrier protection.”
- 6.8.7.1(B) – applies to underground containers installed within 10 ft of a public vehicular thoroughfare OR designated parking location and requires “vehicular barrier protection” for the container’s fitting housing, housing cover, container connections and piping.
- 6.28.3.14 – applies to containers serving dispensers and located within 10 ft of a vehicular thoroughfare OR parking location and requires concrete filled steel posts meeting specific location and footing requirements, or equivalent protection.

This public input proposes revising the general vehicular barrier protection requirements in 6.8.1.2 to include “designated parking locations” consistent with 6.8.7.1(B). There is currently a gap in the requirements for above ground containers installed in parking areas. Small above ground containers are often installed in parking areas, especially in congested areas with wall-to-wall paving. The 2024 edition of NFPA 58 applies vehicle protection requirements to below ground container housings and piping installed in such parking areas. It is equally important to protect above ground containers in such locations. Earlier versions of NFPA 58 applied vehicle protection requirements generally (for example: 2011 ed. - 6.6.1.2 “LP-Gas containers or systems of which they are a part shall be protected from damage from vehicles.”) This public input proposes to revise the language in section 6.8.1.2 to read “LP-Gas containers or systems that are installed within 10 ft (3 m) of a public vehicular thoroughfare or designated parking location shall be provided with a means of vehicular barrier protection.”

Submitter Information Verification

Submitter Full Name: Kevin Dowling
Organization: The CT Public Utilities Regulatory Authority
Affiliation: The National Association of Pipeline Safety Representatives
Street Address:
City:
State:
Zip:

Submittal Date: Wed Jun 04 11:07:50 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: Designated parking areas have a lower risk for vehicle impact compared to vehicular thoroughfares in terms of speed and impact risk.

Public Input No. 30-NFPA 58-2025 [Section No. 6.8.4.4]

6.8.4.4

Where horizontal ASME containers less than or equal to 4000 gal (15.2 m^3) are supported with nonmetallic supports, the supports shall be as follows:

(1) Structurally support the container when subject to deteriorating environmental effects including, but not limited to, ambient temperature of −40°F to 150°F (−40°C to 66°C) or local conditions if outside this range, ultraviolet rays, radiant heat from fires, and moisture

(2) Be of either noncombustible or self-extinguishing material such that, once the source of ignition is removed, the flame is ~~quickly~~ extinguished without the fuel or oxidizer being exhausted

Statement of Problem and Substantiation for Public Input

The requirement is revised to be clearer and more enforceable. The committee may opt to select a specific time, such as 1 minute.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Tue Jan 28 13:37:57 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-22-NFPA 58-2025
Statement: Quickly is vague and unenforceable and is being deleted.

Public Input No. 105-NFPA 58-2025 [Sections 6.8.7.1(B), 6.8.7.1(C)]

Sections 6.8.7.1(B), 6.8.7.1(C)

(B)

At installations under or within ~~10 ft~~ 10 ft (~~3 m~~ 3 m) of a ~~public~~ vehicular thoroughfare , driveway , or designated parking location, the shell of a noninterchangeable underground container shall be installed ~~18 in~~ a minimum 18 in . (~~460 mm~~ 460 mm) below grade or vehicular barrier protection shall be provided . (See A.6.8.7.1 (C))

(C)*

Installations under or within

~~10 ft~~
10 ft (

~~3 m~~
3 m) of a ~~public~~ vehicular thoroughfare , driveway , or designated parking location , shall be provided with vehicular barrier protection for the

~~container's~~
containers fitting housing, housing cover, container connections, and piping.

A.6.8.7.1 (C) When containers are installed under driving surfaces such as parking areas or delivery ways, such as those located at retail or mercantile occupancies the container should be installed at a suitable depth to withstand expected vehicular weights expected to traverse the area directly above the container, or the area should be restricted from direct exposure to vehicular or equipment weights. Two suitable methods of protection include:

(1) A combination of depth, protective coverings such as manhole covers, and signage or paint markings prohibiting parking directly above the container access or

(2) Vehicle barrier protection that would prevent or restrict vehicular traffic from encroaching on the ground within 10' above the container and fittings during normal expected travel or parking. This vehicle barrier protection could consist of parking stops, curbs, or other barriers deemed suitable for restricting the traffic pattern. This protection is not meant to impede off-road maintenance vehicles such as lawn care equipment.

Statement of Problem and Substantiation for Public Input

There has been an increase in questions related to the installation of underground tanks in driveways, parking areas or vehicle thoroughfares and some inconsistent viewpoints by authorities. This proposal will clarify the intent of the Code and is based on the recognition that installing a tank in the driveway of a home, which is a designated parking location, is permissible as long as the tank is positioned at least 18 inches below ground level.

Submitter Information Verification

Submitter Full Name: Zachary Ware
Organization: National Propane Gas Association
Street Address:
City:
State:
Zip:

Submittal Date: Wed May 28 14:14:40 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-23-NFPA 58-2025

Statement: This change will clarifies that installation under driveways or parking lots is permissible as long as it is protected in accordance with the current code requirements in this section based on.

Public Input No. 77-NFPA 58-2025 [New Section after 6.8.7.1(K)]

6.8.7.1(L) The ground around the dome of an underground tank shall be sloped away from the dome to facilitate water moving away from the dome.

Additional Proposed Changes

File Name	Description	Approved
IMG_2606.JPEG	Flooded underground tank dome	

Statement of Problem and Substantiation for Public Input

Too many UG tank installations have the ground around the dome funneling water toward the dome, often forcing water to submerge the regulator, as shown in the supplied photo.
See EXHIBIT 6.12 Typical Small ASME Container Underground Installation. (Courtesy of National Propane Gas Association) in the 2024 LP-Gas Code Handbook for an applicable graphic.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
Street Address:
City:
State:
Zip:

Submittal Date: Fri Mar 28 18:21:09 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: Proposal is inclined to create a continuous performance standard whereby the installer or maintainer have no control. At time of installation ground may be graded away, but this is less important than having soil with the ability to leach moisture away from the tank. Tanks are currently installed with loose sand and aggregate in place to allow water to leach away from the container walls and dome area. Over time this soil can settle or soil compaction can change resulting in the potential for residual water to remain.


4SUG

Public Input No. 129-NFPA 58-2025 [Section No. 6.9.2.9]

6.9.2.9

Shutoff valves shall not be installed ~~at the outlet~~ downstream of a pressure relief device ~~or at the~~ outlet ~~of the discharge piping where discharge piping is installed~~ .

Statement of Problem and Substantiation for Public Input

As section 6.9.2.9 is worded in the 2024 edition, an installer is prohibited from installing a valve at the outlet of a relief device AND at the outlet of discharge piping, but not from installing a valve anywhere else in relief device discharge piping. This public input proposes to revise the language in section 6.9.2.9 to read “shutoff valves shall not be installed downstream of a pressure relief device outlet.”

Submitter Information Verification

Submitter Full Name: Kevin Dowling
Organization: The CT Public Utilities Regulatory Authority
Affiliation: The National Association of Pipeline Safety Representatives
Street Address:
City:
State:
Zip:

Submittal Date: Wed Jun 04 11:02:34 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-25-NFPA 58-2025

Statement: As section 6.9.2.9 is worded in the 2024 edition, an installer is prohibited from installing a valve at the outlet of a relief device and at the outlet of discharge piping, but not from installing a valve anywhere else in relief device discharge piping. The intent is to prevent it from being placed downstream of the relief valve rendering it's protection ineffective.

Public Input No. 31-NFPA 58-2025 [New Section after 6.11.3.5(B)]

TITLE OF NEW CONTENT

Type your content here ...

(B) Other fittings recommended for the service by the fitting manufacturer.

Statement of Problem and Substantiation for Public Input

As written, 6.11.3.5 and Table 6.11.3.5 (A) appear to only allow limited fittings (threaded, welded, brazed, and press connect). This revision will allow other fittings, such as compression fittings, that are recommended for the service.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Tue Jan 28 13:47:31 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: The proposed language does not include any listing requirements for the service and places all consideration solely on a manufacturer's discretion and recommendation, which can be a conflict of interest. This is already covered under Equivalency and would negate manufacturers need to seek equivalency.

Public Input No. 116-NFPA 58-2025 [Section No. 6.11.5.7]

6.11.5.7

7 An electrically continuous corrosion-resistant tracer wire (minimum AWG 14) or ~~tape~~ other approved detection methods shall be buried at the time of installation with the polyamide, polyethylene ~~,~~ or reinforced thermoplastic pipe to facilitate locating the pipe.

(A)

One end of the tracer wire shall be brought above ground at a building wall or riser.

(B)

The tracer wire or ~~tape~~ other approved methods shall not be in direct contact with the polyamide or polyethylene pipe.

Statement of Problem and Substantiation for Public Input

Tape is not defined, and the proposed change allows for other methods to be used besides wire. Other methods have been in use and should be recognized in the code.

Submitter Information Verification

Submitter Full Name: Christopher Wagner
Organization: National Propane Gas Associati
Street Address:
City:
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Submittal Date: Wed May 28 14:54:18 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-26-NFPA 58-2025

Statement: The annex material provides clarification that while tracer wire coating is available in a number of colors, it is not intended for utilization as a visual identifier. Regardless of the original color, the coating is subject to fading over time thus making the color of the coating irrelevant. Tape is also undefined and being replaced with other approved methods as there are several other methods that can be used to detect underground piping. This requirement is only applicable at the time of installation and does not require all tape or wire be replaced should it be cut or deteriorate.

Public Input No. 95-NFPA 58-2025 [Section No. 6.11.5.7 [Excluding any Sub-Sections]]

* An electrically continuous corrosion-resistant tracer wire (minimum AWG 14) or tape shall be buried with the polyamide, polyethylene, or reinforced thermoplastic pipe to facilitate locating the pipe.

A.6.11.4.6 Tracer wire or tape is intended for electronically locating underground piping and is not intended for visual identification of the piping. Therefore, the tracer wire or tape is not required to be of a specific color.

Statement of Problem and Substantiation for Public Input

This proposal will provide clarification that while tracer wire coating is available in a number of colors, it is not intended for utilization as a visual identifier. Regardless of the original color, the coating is subject to fading over time thus making the color of the coating irrelevant.

Submitter Information Verification

Submitter Full Name: Christopher Wagner
Organization: National Propane Gas Associati
Street Address:
City:
State:
Zip:

Submittal Date: Wed May 28 13:16:01 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-26-NFPA 58-2025

Statement: The annex material provides clarification that while tracer wire coating is available in a number of colors, it is not intended for utilization as a visual identifier. Regardless of the original color, the coating is subject to fading over time thus making the color of the coating irrelevant. Tape is also undefined and being replaced with other approved methods as there are several other methods that can be used to detect underground piping. This requirement is only applicable at the time of installation and does not require all tape or wire be replaced should it be cut or deteriorate.

Public Input No. 74-NFPA 58-2025 [Section No. 6.13.4.1]

6.13.4.1

~~At~~ Each internal valve in liquid service shall be operable by at least one remote emergency shutdown device in accordance with ~~Section~~ Section 4.10 ~~shall be installed for internal valves in liquid service~~ .

Statement of Problem and Substantiation for Public Input

The requirement in 6.15.12.1 in the 2024 edition can be easily misinterpreted to require a one-for-one ESV to remote emergency shutdown device ratio, which is not what was intended. This needs to be reworded to say what was meant, that each ESV must be operable by at least one remote device. Most sites use one or two remote devices to open and close all of their ESVs and internal valves. Since 6.13.4.1 is effectively the same requirement as 6.15.12.1, it is logical to make both read the same. Also, the current requirement in both sections is to install the remote device. There is no requirement for the remote device to operate the valve(s).

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 75-NFPA 58-2025 [Section No. 6.15.12.1]	
Public Input No. 75-NFPA 58-2025 [Section No. 6.15.12.1]	

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
Street Address:
City:
State:
Zip:

Submittal Date: Fri Mar 21 14:48:07 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-52-NFPA 58-2025

Statement: The requirements can be misinterpreted to require a one-for-one ESV to remote emergency shutdown device ratio, which is not what was intended, and this has been reworded such that each ESV must be operable by at least one remote device. Most sites use one or two remote devices to open and close all of their ESVs and internal valves.

Public Input No. 119-NFPA 58-2025 [Section No. 6.14.2]

~~6.14.2~~ * –

~~Bulk and industrial plant piping downstream from container openings protected in accordance with 6.14.1 shall be required to have excess-flow protection where the container's internal valve or emergency shutoff valve remains open to maintain a process or system while the plant is unattended.~~

Statement of Problem and Substantiation for Public Input

Inherent to the position downstream of the excess flow valve in an industrial or bulk plant, 6.14.2 is redundant as the piping is already protected by excess flow protection as required by 5.9.4.2 (D). Regardless of whether the facility is unattended while the liquid valve remains opened, the excess flow protection is still active.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 120-NFPA 58-2025 [Section No. A.6.14.2]	

Submitter Information Verification

Submitter Full Name: Zachary Ware
Organization: NPGA
Street Address:
City:
State:
Zip:

Submittal Date: Wed May 28 15:08:39 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-27-NFPA 58-2025

Statement: Inherent to the position downstream of the excess flow valve in an industrial or bulk plant, 6.14.2 is redundant as the piping is already protected by excess flow protection as required by 5.9.4.2 (D). Regardless of whether the facility is unattended while the liquid valve remains opened, the excess flow protection is still active.

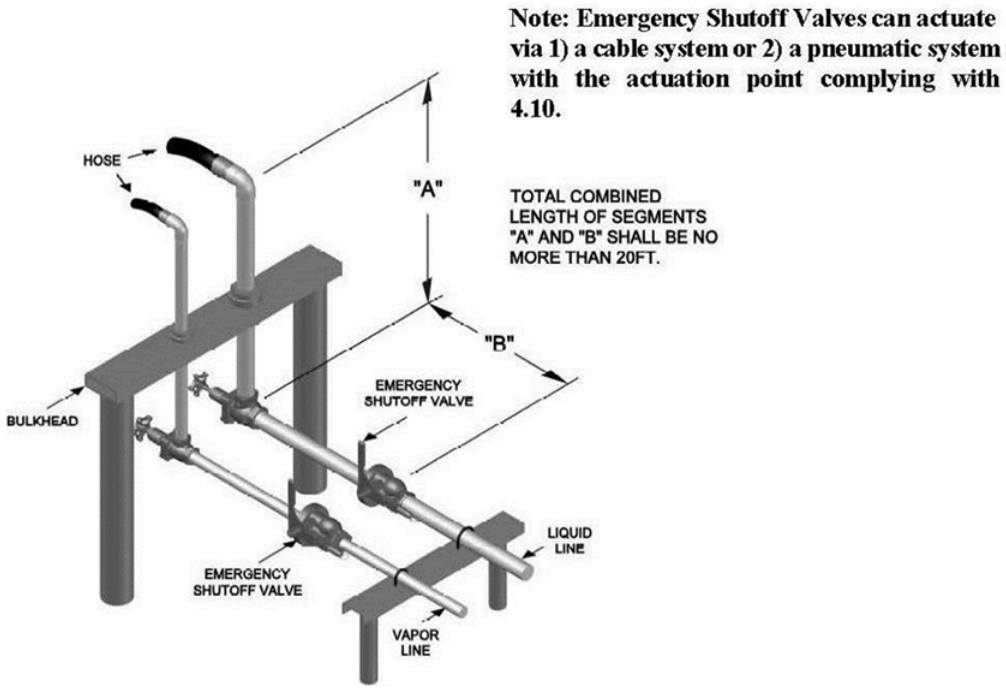
Public Input No. 115-NFPA 58-2025 [Section No. 6.15.2]

6.15.2*

An emergency shutoff valve shall be installed in the transfer lines of the fixed piping transfer system within ~~20 ft~~ 20 ft (~~6 m~~ 6 m) of lineal pipe ~~from~~ beginning at the connection to the nearest end of the hose or swivel-type piping connections.

A.6.15.2 Unless compliance with 6.15.3 or 6.15.5 is achieved, the emergency shutoff valve is required in the lines as specified in 6.15.1 regardless of how much pipe is installed between the connection to the nearest end of the hose or swivel-type piping and the container valve. The 20 ft. distance requirement is provided for instruction on the installation location for the emergency shutoff valves. The total distance is not intended to include the length of the hose. See Figure A.6.15.2.

Figure A.6.15.2



Additional Proposed Changes

File Name	Description	Approved
Figure_A.6.15.2.docx	Proposed Annex Image	

Statement of Problem and Substantiation for Public Input

The code needs to provide clarity as to what is required. New language needs to be provided that will provide clearer requirements for these valves – one of which is a container requirement (internal valve) and the other which is a piping requirement (ESV). Code references 6.15.1 and 6.15.2 need to be clearer so that no misunderstanding occurs for the installation of these vital safety valves.

Submitter Information Verification

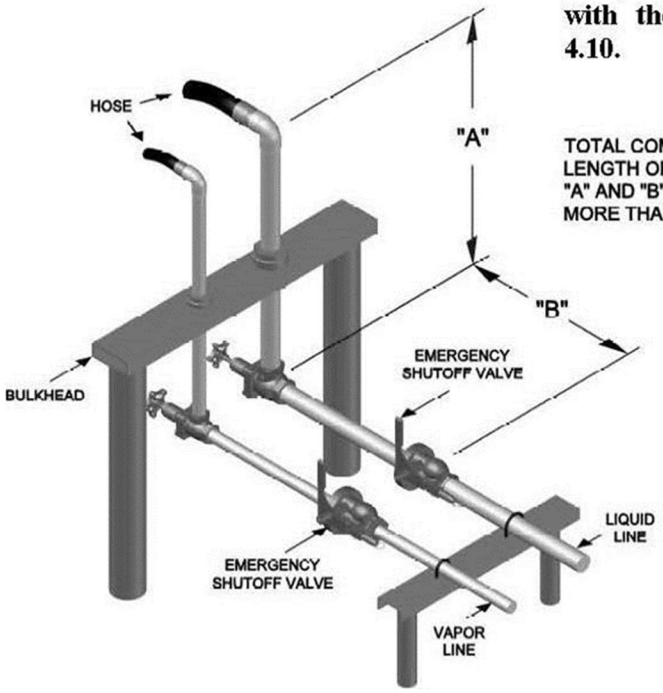
Submitter Full Name: Christopher Wagner
Organization: National Propane Gas Associati
Street Address:
City:

State:
Zip:
Submittal Date: Wed May 28 14:43:50 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-28-NFPA 58-2025
Statement: The annex explanation and requirement language is being added to clarify where the measurement of the lineal piping begins, which is exclusive of hose or swivel piping as that is variable in its length.

Figure A.6.15.2



Note: Emergency Shutoff Valves can actuate via 1) a cable system or 2) a pneumatic system with the actuation point complying with 4.10.

Public Input No. 75-NFPA 58-2025 [Section No. 6.15.12.1]

6.15.12.1

~~At~~ Each emergency shutoff valve shall be operable by at least one remote emergency shutdown device in accordance with ~~Section~~ Section 4.10 ~~shall be installed for each emergency shutoff valve~~ .

Statement of Problem and Substantiation for Public Input

The requirement in 6.15.12.1 in the 2024 edition can be easily misinterpreted to require a one-for-one ESV to remote emergency shutdown device ratio, which is not what was intended. This needs to be reworded to say what was meant, that each ESV must be operable by at least one remote device. Most sites use one or two remote devices to open and close all of their ESVs and internal valves. Since 6.13.4.1 is effectively the same requirement as 6.15.12.1, it is logical to make both read the same. Also, the current requirement in both sections is to install the remote device. There is no requirement for the remote device to operate the valve(s).

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 74-NFPA 58-2025 [Section No. 6.13.4.1]	
Public Input No. 74-NFPA 58-2025 [Section No. 6.13.4.1]	

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
Street Address:
City:
State:
Zip:
Submittal Date: Fri Mar 21 14:49:54 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-52-NFPA 58-2025

Statement: The requirements can be misinterpreted to require a one-for-one ESV to remote emergency shutdown device ratio, which is not what was intended, and this has been reworded such that each ESV must be operable by at least one remote device. Most sites use one or two remote devices to open and close all of their ESVs and internal valves.

Public Input No. 97-NFPA 58-2025 [Section No. 6.16]

6.16

Hydrostatic Relief

~~Valve~~

Installation.

~~A hydrostatic relief valve or a device designed for liquid service providing pressure relieving protection shall be installed in each section of piping and hose in which liquid LP-Gas can be trapped between valves .~~

~~6.16.1~~

~~Hydrostatic relief valves shall not be required where either of the following conditions exist:~~

~~(1) A plug, blind flange or cap is installed directly into a shutoff valve~~

~~(2) The pipe segment has a diameter no greater than 1 inch and serves as a drain or instrumentation connection~~

~~6.16.1 6.16.2 Shutoff valves that could isolate the hydrostatic~~

~~relief~~

relief valves or devices from the piping or hose shall not be installed.

6.16. ~~2~~

3 It shall be permitted to install a three-way

~~isolation~~

isolation valve rated for at least

~~500 psi~~

500 psi working pressure connected

~~to~~

to two hydrostatic relief valves where a path to at least one of the hydrostatic relief valves is open.

Statement of Problem and Substantiation for Public Input

The changes to text proposed in 5.16.1 and 6.16 will satisfy a need because NFPA 58 does not specifically address situations where liquid can be trapped between flanges, plugs or caps at a pipe termination. This proposal will provide an exemption to the requirement in 6.16 to address those common situations where a hydrostatic relief valve would not be required. The proposed text in 6.16.1 clarifies that hydrostatic relief valves must be designed for liquid service.

The text changes proposed in 6.16.2 and 6.16.3 is currently in the code but is being renumbered to accommodate the new text in 6.16.1.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 96-NFPA 58-2025 [Section No. 5.16.1]	Companion

Submitter Information Verification

Submitter Full Name: Christopher Wagner

Organization: National Propane Gas Associati

Street Address:
City:
State:
Zip:
Submittal Date: Wed May 28 13:25:15 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-24-NFPA 58-2025

Statement: NFPA 58 does not specifically address situations where liquid can be trapped between flanges, plugs or caps at a pipe termination. This change will provide an exemption to the requirement in 6.16 to address those common situations where a hydrostatic relief valve would not be required as they do not create hazardous pressure conditions. The text in 6.16.1 clarifies that hydrostatic relief valves or other devices that relieve vapor pressure that are not a relief valve are acceptable.

Public Input No. 33-NFPA 58-2025 [New Section after 6.17.1.1]

TITLE OF NEW CONTENT

Type your content here ...

6.17.2 After installation or modification, piping systems (including hose) at plants with more that 120,000 gallons of storage shall be pressure tested in accordance with ASME B31.3, Process Piping.

Statement of Problem and Substantiation for Public Input

See substantiation for PI 32.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Tue Jan 28 13:59:48 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: There is no technical reason provided for the 120,000 gallon aggregate threshold to require ASME B31.3. There are bulk and industrial plants that operate both above and below this threshold.

Public Input No. 32-NFPA 58-2025 [Section No. 6.17.1.1]

6.17.1.1

After installation or modification, piping systems (including hose) at plants with less than 120,000 gallons of storage shall be proven free of leaks at not less than the normal operating pressure.

Statement of Problem and Substantiation for Public Input

NFPA 58 has allowed pressure testing of piping has allowed testing at normal operating pressure. It is effective where a pressure regulator is included in the piping, such as a pipe from a storage container into a building. It is not equally effective in pipeline systems that do not have pressure regulators, such as piping in bulk storage plants. I have worked on storage terminals with larger storage than tradition bulk plants where the owners have required higher test pressure to ensure minimal leakage. The 120,000 gallon aggregate threshold cutoff is based on my understanding that the vast majority of bulk storage plants have 120,000 gallons or less of storage.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Tue Jan 28 13:54:31 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: There is no technical reason provided for the 120,000 gallon aggregate threshold to require ASME B31.3. There are bulk and industrial plants that operate both above and below this threshold.

Public Input No. 89-NFPA 58-2025 [New Section after 6.20.2]

6.20.3* Installation of Cathodic Protection System Using Sacrificial Anodes

6.20.3.1* Sacrificial anodes must be sized to produce the proper testing voltage, as specified in 6.20.5.1.

6.20.3.2 Where a single sacrificial anode will be used at the time of tank installation, it shall be placed below the center of the tank.

6.20.3.3* Where multiple sacrificial anodes will be used, they shall be placed symmetrically around the tank and evenly spaced.

6.20.3.4 Anodes shall be placed so there is at least 12 inches and no more than 18 inches of separation from the tank.

6.20.3.5 The anode(s) shall be electrically attached to the tank.

6.20.3.6 Sacrificial anode(s) installed to correct a failed test shall be placed to cause a passing test in accordance with 6.20.5.2.

A.6.20.3 Manufacturer's instructions should be followed when burying sacrificial anodes with an underground tank. The installation steps will typically include:

- **Removing the anode from any packing materials (cardboard box, plastic bag, etc.) but leaving the fabric bag in place and undamaged.**
- **Soaking the anode in its bag in water to "activate" the anode.**
- **Attaching the electrical wire from the anode(s) to a place provided on the propane tank, which is normally a stud on the riser pipe.**

A.6.20.3.1 Sacrificial anodes are typically sized as shown for various sizes of propane tanks:

Tank Size	Number of Anodes	Size of Anodes (each)
≤500 gallons	1	17 pounds
>500 – 1000 gallons	2	17 pounds
>1000 – 4000 gallons	4	17 pounds
>4000 gallons	Consult with an anode manufacturer.	

A.6.20.3.3 For two anodes, place them at opposite "corners" of the tank. For four anodes, place them at the four "corners" of the tank. When using sacrificial anodes for tanks larger than 4000 gallons, consult an anode manufacturer for instructions for placing the anodes.

New 6.20.4 Testing Method for Sacrificial Anodes

6.20.4.1* A minimum of 4 testing locations will be determined for a test of the cathodic protection system.

6.20.4.2 Wet the ground with water at each test location.

6.20.4.3 Attach the test leads for the reference half cell and the voltmeter or multimeter as directed by the manufacturer.

6.20.4.4 Remove the plastic cap from the test end of the reference half cell.

6.20.4.5 Firmly touch the test end of the half cell to the ground at the wetted locations.

6.20.4.6 Record the meter reading at each location.

6.20.4.7 All points tested shall attain the readings specified 6.20.5.1 for a passing system test.

A.6.20.4.1 Locations for testing the cathodic protection system are generally at both ends of the tank and on both sides at about mid-tank at about the edge of the tank's footprint. Other locations as specified by the cathodic system manufacturer may be used.

Statement of Problem and Substantiation for Public Input

The LP-Gas Code has almost no requirements for the installation of cathodic protection for underground containers except to say it is required in 6.8.7.1(I)(2) and must have a means to test the performance in 6.8.7.1(I)(3). Section 6.20.3.1 lists the passing criteria for using various test equipment. Section 6.20.3.2 shows the testing schedule for sacrificial anodes. Section 6.20.3.3 prescribes testing for impressed current systems. There are no requirements or suggestions for the location(s) or weight (capacity) of anodes. There is no requirement for following the manufacturer's instructions. There is nothing specifying the testing method, such as, number of test points and location(s), whether all test points must reach the prescribed voltage or if less than all is sufficient. Recent discussions with inspectors, seminar presenters, AHJs, and manufacturer reps illustrate the need for specifying more installation and testing requirements. A recent webinar and trade show discussions with the manufacturer of a new device for near-continuous and instantaneous testing and reporting results of the tests to the tank owner raised questions about its installation and results. I could not find any installation instructions for this device online. It appears that this device could be manipulated during installation to report passing test results where installation according to this PI is not followed. Code-specified requirements for installation and testing would help assure effective installations and meaningful, consistent test results.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 73-NFPA 58-2025 [Section No. 6.20.3.2]	

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: North Carolina Department of A
Street Address:
City:
State:
Zip:

Submittal Date: Wed May 07 13:21:50 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: The proposed changes are inconsistent with numerous current educational and installation programs. Further, the proposed text appears to identify a one size fits all approach based on tank sizes regardless of soil geomorphology. Corrosion protection is performance based on the site conditions and a prescriptive approach could diminish the effectiveness of the corrosion protection system. Specific existing conditions need to be reviewed to evaluate the effectiveness of the annode(s) or impressed current protection system.

Public Input No. 73-NFPA 58-2025 [Section No. 6.20.3.2]

6.20.3.2*

Sacrificial anodes shall be tested in accordance with the following schedule.

(1) Upon installation of the cathodic protection system, unless prohibited by climatic conditions, in which case testing shall be done within 180 days after the installation of the system.

(2) For continued verification of the effectiveness of the system, 12 to 18 months after the initial test.

(3) Upon successful verification testing and in consideration of previous test results, periodic follow-up testing shall be performed at intervals not to exceed 36 months.

(4) Systems failing a test shall be repaired as soon as practical unless climatic conditions prohibit this action, in which case the repair shall be made not more than 180 days thereafter. The testing schedule shall be restarted as required in 6.20.3.2(1) and 6.20.3.2(2), and the results shall comply with 6.20.3.2.

(5) Documentation of the results of the ~~two most~~ three most recent tests shall be retained.

Statement of Problem and Substantiation for Public Input

The readings from testing the cathodic protection system are a valuable resource for predicting the remaining life of sacrificial anodes. With the current requirement to retain the two most recent test results, only a straight line related to the anodes performance can be determined. If three readings are retained, then a curve can be plotted to project a better estimate of the anode's remaining life.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 89-NFPA 58-2025 [New Section after 6.20.2]	

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
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Submittal Date: Fri Mar 21 12:36:16 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: There is no expectation of the testers to trend depreciation of results. Voltage readings are not indicative of future failure of a cathodic protection system.

Public Input No. 88-NFPA 58-2025 [Section No. 6.22.4]

6.22.4 Security and Protection Against Tampering for Section 6.21 ~~and Section 6.27~~ Systems.

6.22.4.1

The following security measures shall be provided to minimize the possibility of entry by unauthorized persons:

(1) Security awareness training

(2) Limitation of unauthorized access to plant areas that include container appurtenances, pumping equipment, loading and unloading facilities, and container filling facilities

6.22.4.2

Areas that include features required in 6.22.4.1(2) shall be enclosed with a minimum 6 ft (1.8 m) high industrial-type fence, chain-link fence, or equivalent protection.

(A)

The enclosure shall have at least two means of emergency egress, unless all the following conditions are met:

(1) The fenced or otherwise enclosed area is not over 100 ft^2 (9 m^2).

(2) The point of transfer is within 3 ft (1 m) of the gate.

(3) Containers are not filled within the enclosure.

(B)

The two means of emergency egress, where required, shall be at least 25 ft (7.6 m) apart or as remotely located as is practical.

(C)

Designated means of egress shall be unlocked when the enclosure is occupied or shall be opened without the need for tools, keys, or combination codes.

(D)

Clearance of at least 3 ft (1 m) shall be provided to allow emergency access to the required means of egress.

(E)

Fencing shall not be required where devices are provided that can be locked in place and prevent unauthorized operation of valves, equipment, and appurtenances.

6.22.4.3

Where guard service is provided, it shall be extended to the LP-Gas installation, and the requirements of Section 4.4 shall apply to guard personnel.

Statement of Problem and Substantiation for Public Input

This change is related to PI 87, where the security needs of dispensers are elaborated in section 6.28 rather than being included in 6.22.4.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 87-NFPA 58-2025 [Section No. 6.28.3.8]	
Public Input No. 87-NFPA 58-2025 [Section No. 6.28.3.8]	

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: North Carolina Department of A
Street Address:
City:
State:
Zip:
Submittal Date: Wed Apr 30 15:53:10 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-29-NFPA 58-2025

Statement: The cross references in the title are being removed as they are unenforcable and would have to be updated with any future section changes and the section references here add no value to the section.

Public Input No. 34-NFPA 58-2025 [Section No. 6.23.2.6]

6.23.2.6*

Portable heaters, including salamanders, shall comply with the following:

(1) Portable heaters shall be equipped with an approved automatic device to shut off the flow of gas to the main burner and to the pilot, if used, in the event of flame extinguishment or combustion failure.

(2) Portable heaters shall be self-supporting unless designed for ~~cylinder mounting.~~ installation on cylinders

(3) Portable heaters shall not be installed utilizing cylinder valves, connectors, regulators, manifolds, piping, or tubing as structural supports.

(4) Portable heaters having an input of more than 50,000 Btu/hr (53 MJ/hr) shall be equipped with either a pilot that must be lighted and proved before the main burner can be turned on or an approved electric ignition system.

Statement of Problem and Substantiation for Public Input

Use consistent terminology. “Mounting” is used in (2). “Installed" is used in (3)

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

Organization: TLemoff Engineering

Affiliation: Use consistent terminology. “Mounting” is used in (2) “Installed is used in (3).

Street Address:

City:

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Zip:

Submittal Date: Tue Jan 28 14:04:39 EST 2025

Committee: LPG-AAA

Committee Statement

Resolution: FR-30-NFPA 58-2025

Statement: The term mounting is being removed to make it consistent with the terminology used through out the code.

Public Input No. 54-NFPA 58-2025 [Section No. 6.27]

6.27 – LP-Gas Systems on Vehicles (Other Than Engine Fuel Systems).

6.27.1 * – Application.

This section shall apply to nonengine fuel systems on all vehicles.

6.27.2 – Nonapplication.

This section shall not apply to the following:

(1) Systems installed on mobile homes

(2) Systems installed on recreational vehicles

(3) Systems installed on mobile food facilities *(see Chapter 16)*

(4) Cargo tank vehicles, including trailers and semitrailers, and similar units used to transport LP-Gas as cargo *(see Chapter 9)*

(5) LP-Gas engine fuel systems on the vehicles *(see Chapter 11)*

6.27.3 – Container Installation Requirements.

6.27.3.1 –

Containers shall comply with 6.27.3.1(A) through 6.27.3.1(E) :

(A) –

ASME mobile containers shall be in accordance with one of the following:

(1) A MAWP of 312 psig (2.2 MPag) or higher where installed in enclosed spaces of vehicles

(2) A MAWP of 312 psig (2.2 MPag) or higher where installed on passenger vehicles

(3) A MAWP of 250 psig (1.7 MPag) or higher for containers where installed on the exterior of nonpassenger vehicles

(B) –

LP-Gas fuel containers used on passenger-carrying vehicles shall not exceed 200 gal (0.8 m^3) aggregate water capacity.

(C) –

The capacity of individual LP-Gas containers on highway nonpassenger vehicles shall either be less than or equal to 1000 gal (3.8 m^3) water capacity or be in accordance with U.S. Department of Transportation regulations.

(D) –

The capacity of cargo tank motor vehicles shall not be limited by this code.

(E) –

Containers designed for stationary service only and not in compliance with the container appurtenance protection requirements of 5.2.6 shall not be used.

6.27.3.2 –

Containers used for the purposes covered by Section 6.27 shall not be installed, transported, or temporarily or permanently stored inside any vehicle covered by Section 6.27 , except for ASME containers installed in accordance with 6.27.3.3(H) , Chapter 9 , or DOT regulations.

6.27.3.3 –

LP-Gas containers and pressure regulators shall be installed either on the outside of the vehicle or in a recess or cabinet vaportight to the inside of the vehicle but accessible from and vented to the outside, with the vents located near the top and bottom of the enclosure and 3 ft (1 m) horizontally away from any opening into the vehicle below the level of the vents.

(A) –

Containers shall be installed with road clearance in accordance with 11.8.3 .

(B) –

Fuel containers shall be installed to prevent jarring loose and slipping or rotating, with the fastenings designed and constructed to withstand, without permanent visible deformation, static loading in any direction equal to four times the weight of the container filled with fuel.

(C) –

Where containers are installed within a vehicle housing, the securing of the housing to the vehicle shall comply with 6.27.3.3(B) . Any removable portions of the housing or cabinet shall be secured while in transit.

(D) –

Field welding on containers shall be limited to attachments to nonpressure parts applied by the container manufacturer.

(E) –

All container valves, appurtenances, and connections shall be protected to prevent damage from accidental contact with stationary objects; from loose objects, stones, mud, or ice thrown up from the ground or floor; and from an overturn or similar vehicular accident.

(F) –

Cylinders shall have permanent protection for cylinder valves and connections.

(G) –

Where cylinders are located on the outside of a vehicle, weather protection shall be provided.

(H) –

Containers installed on the interior of passenger-carrying vehicles shall be installed in compliance with Section 11.9 , with pressure relief valve installations in compliance with 11.8.5 .

6.27.3.4 –

Cylinders installed on portable tar kettles alongside the kettle, on the vehicle frame, or on road surface heating equipment shall be protected from radiant or convected heat from open flame or other burners by the use of a heat shield or by the location of the cylinder(s) on the vehicle. In addition, the following shall apply:

(1) Cylinder valves shall be closed when burners are not in use.

(2) Cylinders shall not be refilled while burners are in use as provided in 7.2.3.2(B) .

6.27.4 – Installation of Container Appurtenances.

6.27.4.1 –

Container appurtenances shall be installed in accordance with the following:

(1) Pressure relief valve installation on ASME containers installed in the interior of vehicles complying with Section 11.9 shall comply with 11.8.5 .

(2) Pressure relief valve installations on ASME containers installed on the outside of vehicles shall comply with 11.8.5 and 6.27.3.3 .

(3) Main shutoff valves on containers for liquid and vapor shall be readily accessible.

(4) Cylinders shall be designed to be filled in either the vertical or horizontal position, or if they are the universal type, they are permitted to be filled in either position.

(5) All ASME container inlets, outlets, or valves installed in container inlets or outlets, except pressure relief devices and gauging devices, shall be labeled to designate whether they communicate with the vapor or liquid space.

(6) Containers from which only vapor is to be withdrawn shall be installed and equipped with connections to minimize the possibility of the accidental withdrawal of liquid.

6.27.4.2 –

Regulators shall be installed in accordance with 6.10.2 and 6.27.4.2(A) through 6.27.4.2(E) .

(A) –

Regulators shall be installed with the pressure relief vent opening pointing vertically downward to allow for drainage of moisture collected on the diaphragm of the regulator.

(B) –

Regulators not installed in compartments shall be equipped with a durable cover designed to protect the regulator vent opening from sleet, snow, freezing rain, ice, mud, and wheel spray.

(C) –

Regulators installed at or below floor level shall be installed in a compartment that provides protection against the weather and wheel spray.

(D) –

Regulator compartments shall comply with the following:

(1) The compartment shall be of sufficient size to allow tool operation for connection to and replacement of the regulator(s).

(2) The compartment shall be vaportight to the interior of the vehicle.

(3) The compartment shall have a 1 in.^{2} (650 mm^2) minimum vent opening to the exterior located within 1 in. (25 mm) of the bottom of the compartment.

(4) The compartment shall not contain flame or spark-producing equipment.

(E) –

A regulator vent outlet shall be at least 2 in. (51 mm) above the compartment vent opening.

6.27.5 – Piping.

6.27.5.1 –

Piping shall be installed in accordance with 6.11.3 and 6.27.5.1(A) through 6.27.5.1(M) :

(A) –

Steel tubing shall have a minimum wall thickness of 0.049 in. (1.2 mm).

(B) –

A flexible connector shall be installed between the regulator outlet and the fixed piping system to protect against expansion, contraction, jarring, and vibration strains.

(C) –

Flexibility shall be provided in the piping between a cylinder and the gas piping system or regulator.

(D) –

Flexible connectors shall be installed in accordance with 6.11.7 :

(E) –

Flexible connectors longer than the length allowed in the code, or fuel lines that incorporate hose, shall be used only where approved.

(F) –

The fixed piping system shall be designed, installed, supported, and secured to minimize the possibility of damage due to vibration, strains, or wear and to preclude any loosening while in transit.

(G) –

Piping shall be installed in a protected location.

(H) –

Where piping is installed outside the vehicle, it shall be installed as follows:

(1) Piping shall be under the vehicle and below any insulation or false bottom.

(2) Fastening or other protection shall be installed to prevent damage due to vibration or abrasion.

(3) At each point where piping passes through sheet metal or a structural member, a rubber grommet or equivalent protection shall be installed to prevent chafing.

(I) –

Gas piping shall be installed to enter the vehicle through the floor directly beneath or adjacent to the appliance served.

(J) –

If a branch line is installed, the tee connection shall be located in the main gas line under the floor and outside the vehicle.

(K) –

Exposed parts of the fixed piping system either shall be of corrosion-resistant material or shall be coated or protected to minimize exterior corrosion.

(L) –

Hydrostatic relief valves shall be installed in isolated sections of liquid piping as provided in Section 6.16 .

(M) –

Piping systems, including hose, shall be proven free of leaks in accordance with Section 6.17 .

6.27.5.2 –

There shall be no fuel connection between a tractor and trailer or other vehicle units.

6.27.6 – Equipment Installation.

Equipment shall be installed in accordance with Section 6.21 , 6.27.6.1 , and 6.27.6.2 .

6.27.6.1 –

Installation shall be made in accordance with the manufacturer's recommendations and, in the case of approved equipment, as provided in the approval.

6.27.6.2 –

Equipment installed on vehicles shall be protected against vehicular damage as provided for container appurtenances and connections in 6.27.3.3(E) .

6.27.7 – Appliance Installation on Vehicles.

6.27.7.1 –

Subsection 6.27.7 shall apply to the installation of all appliances on vehicles. It shall not apply to engines.

6.27.7.2 –

All appliances covered by 6.27.7 installed on vehicles shall be approved.

6.27.7.3 –

Where the device or appliance, such as a cargo heater or cooler, is designed to be in operation while the vehicle is in transit, means, such as an excess-flow valve, to stop the flow of gas in the event of a line break shall be installed.

6.27.7.4 –

Gas-fired heating appliances shall be equipped with shutoffs in accordance with 5.24.8(A) , except for portable heaters used with cylinders having a maximum water capacity of 2.7 lb (1.2 kg), portable torches, melting pots, and tar kettles.

6.27.7.5 –

Gas-fired heating appliances, other than ranges and illuminating appliances installed on vehicles intended for human occupancy, shall be designed or installed to provide for a complete separation of the combustion system from the atmosphere inside the vehicle.

6.27.7.6 * –

Where unvented-type heaters that are designed to protect cargo are used on vehicles not intended for human occupancy, provisions shall be made to provide air from the outside for combustion and dispose of the products of combustion to the outside.

6.27.7.7 –

Appliances installed in the cargo space of a vehicle shall be readily accessible whether the vehicle is loaded or empty.

6.27.7.8 –

Appliances shall be constructed or otherwise protected to minimize possible damage or impaired operation due to cargo shifting or handling.

~~**6.27.7.9** –~~

~~Appliances shall be located so that a fire at any appliance will not block egress of persons from the vehicle.~~

~~**6.27.7.10** –~~

~~A permanent caution plate shall be affixed to either the appliance or the vehicle outside of any enclosure.~~

~~**6.27.7.10.1** –~~

~~The caution plate shall be adjacent to the container(s).~~

~~**6.27.7.10.2** –~~

~~The caution plate shall include the following text:~~

~~**CAUTION:**~~

(1) ~~Be sure all appliance valves are closed before opening container valve.~~

(2) ~~Connections at the appliances, regulators, and containers shall be checked periodically for leaks with soapy water or its equivalent.~~

(3) ~~Never use a match or flame to check for leaks.~~

(4) ~~Container valves shall be closed when equipment is not in use.~~

~~**6.27.7.11** –~~

~~Gas-fired heating appliances and water heaters shall be equipped with automatic devices designed to shut off the flow of gas to the main burner and the pilot in the event the pilot flame is extinguished.~~

~~**6.27.8** – Parking, Servicing, and Repair.~~

~~**6.27.8.1** –~~

~~Where vehicles with LP-Gas fuel systems used for purposes other than propulsion are parked, serviced, or repaired inside buildings, the requirements of 6.27.8.2 through 6.27.8.4 shall apply.~~

~~**6.27.8.2** –~~

~~The fuel system shall be leak-free, and the container(s) shall not be filled beyond the limits specified in Chapter 7 .~~

~~**6.27.8.3** –~~

~~The container shutoff valve shall be closed, except that the container shutoff valve shall not be required to be closed when fuel is required for test or repair.~~

~~**6.27.8.4** –~~

~~The vehicle shall not be parked near sources of heat, open flames, or similar sources of ignition, or near unventilated pits.~~

~~**6.27.8.5** –~~

~~Vehicles having containers with water capacities larger than 300 gal (1.1 m ^{3}) shall comply with the requirements of Section 9.7 .~~

Statement of Problem and Substantiation for Public Input

Section 6.27 is deleted and the requirements are incorporated into Chapter 11. Both chapters cover LP-Gas systems in vehicles other than on-road vehicles. The requirements are similar and do not need to be repeated. Over time, the requirements of 6.27 and Chapter 11 have been revised independently without review of the other location. This has led to duplication and inconsistent requirements. It is not the intent of this proposal to change any requirements.

1. 6.27.1 and 6.27.2 are deleted as they are already included in the scope of chapter 11, and the non-applications repeat parts of the scope of NFPA 58.
2. 6.27.3, Container installation requirements:
(A) Repeat Section 5.2, and are also in chapter 11.
(B), (C) Relocated to a new 11.3.3
(D) Capacity of cargo tank motor vehicles is deleted as it is not needed.
(E) is deleted. It is not needed as chapter 5 covers the subject
3. 6.27.3.2 is deleted. It prohibits all containers except ASME, DOT, and contiiners in accordance with Chapter 9. It is not needed as Chapter 5 is referenced for containers.
4. 6.27.3.3 is moved to a new 11.8.4.4
(A) is no longer needed, as it references 11.8.3

(B), (C) Mover to 11.8.4.4
(D) Already in 11.3.3.4
(E) is covered by 11.8.2.1
(F) Duplicates cylinder requirements in Chapter 5
(G) Moved to a new 11.8.2.3
(H) Not needed as it references 11.9
5. 6.27.3.4 Moved to 11.3.5. Sub paragraphs are no longer needed as they refer to Chapter 22
6. 6.27.4, Container Appurtenances is replace by 11.9.1 on the same subject.
(4) Deleted is it restates the obvious.
(5) covering marking of container connections.is deleted as it repeats 5.9.8.5
(6) covering vapor withdrawal connections is deleted as it is covered in Table 5.9.4.1(B)
7. 6.27.4.2 is relocated to a new 11.10
8. 6.27.5, Piping is covered in 11.10.
9. 6.27.1.5
(A), minimum 0.049” thickness for stee tubing is deleted. This minimum does not appear in Chapter 5, 11, or 12 and it’s need is questioned. If this minimum is needed it should be added to chapters 11 and 12.
(B) thru (G) covering flexibility of piping are deleted. They do not appear in Chapter 11 or Chapter 12, and it is questioned such requirements are needed. If there is a reason to main these requirements, they can be added to 11.10.1
(H) thru (K) covering location of piping are relocated to 11.10
(L), (M) not needed. 6.16 and 6.17 apply
10. 6.27.5.2 is already in 11.10.1.11
11. 6.27.6 and 6.27.7 are moved to 11.13.1
12. 6.27.8 is deleted as it is very similar to 11.14. 6.27.8.5 is relocated to 11.14.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 55-NFPA 58-2025 [Chapter 11]	

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
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Affiliation: None
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City:
State:
Zip:

Submittal Date: Tue Feb 18 14:07:20 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: The systems in 6.27 and Chapter 11 are not generically the same and are for two different applications. Chapter 11 systems are supplying non-propulsion engines typically in liquid service, and section 6.27 systems are supplying gas for consumption in a fuel burning appliance, typically in vapor service.

Public Input No. 87-NFPA 58-2025 [Section No. 6.28.3.8]

6.28.3.8

Protection against trespassing and tampering shall be in accordance with 6. 28.3.8(a) through (c) .

(a) Limitation of unauthorized access to the control portions of the system by either 6.28.3.8(a)(1) or (2).

6.28.3.8(a)(1) Enclosure with a minimum 6 ft (1.8 m) high industrial-type fence, chain-link fence.

6.28.3.8(a)(2) Enclosing the local pump and valve controls, the pump, and the delivery hose within a lockable cabinet.

(b) Where 6.28.3.8(a)(1) is selected, the requirements of 6. 22.4 . 2(A) through (D) must be met.

(c) The gates in 6.28.3.8(a)(1) or the cabinet in 6.28.3.8(a)(2) shall be locked when unattended.

Statement of Problem and Substantiation for Public Input

The security and protection requirements for dispensers refer to 6.22.4, which was developed for security and protection for bulk plants. Including dispensers in 6.22.4 is a forced fit and misapplication of the bulk plant requirements onto dispensers can and has occurred. This change uses the portions of 6.22.4 that can apply to dispensers and locates them in the dispenser installation portion of the code. Also, Section 6.22 is titled, “Bulk Plant and Industrial Plant LP-Gas Systems.” Including dispenser requirements in this section further demonstrates the forced fit of the requirements.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 88-NFPA 58-2025 [Section No. 6.22.4]	
Public Input No. 88-NFPA 58-2025 [Section No. 6.22.4]	

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: North Carolina Department of A
Street Address:
City:
State:
Zip:

Submittal Date: Wed Apr 30 15:49:04 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: This proposal adds significant requirements to dispenser security that exceed the current allowances permitted in 6.22.4.2(E). There is no benefit to further security provided in the proposed changes that is not already accomplished in 6.22.4.2(E), and would be overly burdensome for no additional gain.

Public Input No. 81-NFPA 58-2025 [Section No. 6.28.3.13]

6.28.3.13

All dispensers shall be installed on a concrete foundation or shall be part of a complete storage and dispensing unit on a common base~~- and installed in accordance with 6.8.3.5 -~~. Containers of 4000 gal (15.2 m3) water capacity or less installed with combined container-pump assemblies on a common base shall be placed either on paved surfaces or on concrete pads at ground level within 4 in. (100 mm) of ground level.

Statement of Problem and Substantiation for Public Input

A change was made in the 2024 update that makes reference to 6.8.3.5. This section, 6.8.3.5, does not exist within the 2024 edition of NFPA 58. In the 2020 edition, 6.27.3.13 covered this current section (6.28.3.13) and references installation in accordance with 6.8.3.1(F) for this application. The language provided is from the 2020 edition less the table reference which was removed with the 2024 update.

Submitter Information Verification

Submitter Full Name: Thomas Dunn
Organization: Iowa Propane Gas Association
Street Address:
City:
State:
Zip:

Submittal Date: Fri Apr 11 10:14:40 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-31-NFPA 58-2025
Statement: The cross reference is being corrected to the applicable horizontal container installation sections.

Public Input No. 133-NFPA 58-2025 [Section No. 6.28.3.14(A)]

(A)

~~Concrete filled guard~~ Guard posts shall be constructed of ~~steel~~ not less than ~~4 in. (100 mm) in diameter~~ schedule 40, 4-inch steel pipe with the following characteristics:

(1) Spaced not more than 4 ft (1200 mm) between posts on center

(2) Set not less than 3 ft (900 mm) deep in a concrete footing of not less than 15 in. (380 mm) diameter

(3) Set with the top of the posts not less than 3 ft (900 mm) above ground

(4) Located not less than 3 ft (900 mm) from the protected installation

Additional Proposed Changes

File Name	Description	Approved
bollard_failure_Marathon_Gas_Station_Convenience_Store_Midland_Texas_01.jpg	Bollard Failure at Convenience Store	
bollard_failure_Indianapolis_corrosion_due_to_small_diameter_and_concrete_filling_01.jpg	Bollard Failure at Store	

Statement of Problem and Substantiation for Public Input

Concerns have been raised about the effect of filling steel pipe with concrete. One of the concerns is that breaking the pipe might be easier if it is filled with concrete. A study performed for NPGA at SwRI in December 2013 shows two concrete-filled bollards broken or shorn off at ground level. This study did not test any non-concrete-filled bollards. The proponent is not aware of any studies where vertical concrete-filled bollards are compared to vertical non-concrete-filled bollards for resistance to horizontal impact.
In response to my request for photos, a member of another TC provided 10 photos of concrete-filled bollards shorn off at ground level. A few of these are attached to this PI. More will be provided for the TC at the FD meeting.
The simple requirement for being “constructed of steel” allows use of conduit, curtain rods, and other components of unknown configuration, composition, and strength. If the steel structure is the only resistance to forces, it must be a component with a known strength. Specifying a minimum of schedule 40, 4-inch steel pipe creates a minimum requirement that can be quantified.
Also, this changes the section so it no longer contains two requirements.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: North Carolina Department of A
Street Address:
City:
State:
Zip:

Submittal Date: Wed Jun 04 13:33:01 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: There has been no provided data that demonstrates that schedule 40 is more or less resilient than other currently utilized bollard material.


CAUTION AGENT CUIDADO FASTENAL
Marlboro $


PROPANE
NO SMOKING
FLAMMABLE GAS
meijer
PROPANE
EXCHANGE
$49.99
Purchase
$19.99
Exchange
CYLINDER EXCHANGE CHECKLIST
24 HOUR EMERGENCIES: 866.428.3427
NO SMOKING
FLAMMABLE LP GAS

Public Input No. 85-NFPA 58-2025 [Section No. 6.28.3.14(B)]

(B)*

~~Equivalent~~ Alternative protection in lieu of guard posts shall be approved.

Statement of Problem and Substantiation for Public Input

It is often difficult to determine if one form of protection is equivalent to another form in an engineering sense and could create difficulties between installers and AHJs about the acceptability of an alternate means of protection. Instead, using the word “alternative” does not imply an engineered equivalent. It simply means a different form of protection that must be acceptable to the AHJ.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
Street Address:
City:
State:
Zip:

Submittal Date: Mon Apr 21 12:42:16 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-32-NFPA 58-2025
Statement: Acceptability to the AHJ is already covered in using the defined term approved and the term equivalent implies equivalency in accordance with 1.5 which it does not.

Public Input No. 63-NFPA 58-2025 [Section No. 6.28.3.16]

~~**6.28.3.16** –~~

~~Dispensers shall be protected from physical damage.~~

Statement of Problem and Substantiation for Public Input

The requirement is proposed to be deleted because it does not add anything to the specific requirements for vehicular barrier protection in 6.28.3.14 and 6.28.3.15, immediately preceding the requirement. The requirement is unenforceable as it does not specify what types of damages are being prevented, airplanes, kicking, snowmobiles, tricycles or other.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Wed Mar 05 13:55:44 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-33-NFPA 58-2025

Statement: The requirement is unenforceable as it does not specify what types of damages are being prevented, and does not provide additional protection that isn't already required for vehicle barrier protection.

Public Input No. 61-NFPA 58-2025 [Section No. 6.28.5.4]

6.28.5.4

An emergency shutoff switch that closes the internal or emergency shutoff valve and opens the electrical circuit serving the dispenser shall be ~~located not less than 20 ft (6 m) and not more than 100 ft (30 m) from the dispenser.~~ located in accordance with 4.10.

Statement of Problem and Substantiation for Public Input

The spacing distances which are identical to those in 4.10 are replaced with a reference to 4.10, as has been done in other locations in the Code specifying separation distances to emergency shutoffs.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Wed Mar 05 13:29:26 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-34-NFPA 58-2025

Statement: The spacing distances which are identical to those in 4.10 are replaced with a reference to 4.10, as has been done in other locations in the Code specifying separation distances to emergency shutoffs. The term switch is being replaced to align with the device specified in 4.10.

Public Input No. 110-NFPA 58-2025 [Section No. 6.30.3]

6.30.3* Protection of ASME Containers.

6.30.3.1*

Fire protection shall be provided for installations ~~with an aggregate water capacity of more than 4000 gal (15.2 m^3) and for ASME containers on roofs.~~ of:

(1) Bulk and industrial plants

(2) Dispensing systems having a single container with a water capacity of more than 4000 gal (15.2 m^3)

(3) ASME containers on roofs.

6.30.3.2

The modes of fire protection shall be specified in a written fire safety analysis for the following new liquid service installations, ~~for existing installations that have an aggregate water capacity of more than 4000 gal (15.2 m^3), and for ASME containers on roofs. Existing installations shall comply with this requirement within 2 years of the effective date of this code.~~ :

(1) A single container greater than 4,000 gallons,

(2) ASME containers installed on roofs.

6.30.3.

~~3~~

2.1 Existing installations shall comply with this requirement within 2 years of the effective date of this code.

6.30.3.3* The requirements of 6.30.3.2 shall not apply to vapor service systems serving a single property, including those fed by a vaporizer.

A.6.30.3.3 Within the United States there are requirements to communicate large capacity installations to states, local/tribal emergency planning commissions and the fire service through the U.S. Environmental Protection Agency Tier II annual reporting requirement.

6.30.3.4

The fire safety analysis shall be submitted by the owner, operator, or their designee to the authority having jurisdiction and local emergency responders.

6.30.3.~~4~~ 5

The fire safety analysis shall be updated when the storage capacity or transfer system is modified.

6.30.3.~~5~~ 6

The fire safety analysis shall be an evaluation of the total product control system, such as the emergency shutoff and internal valves equipped for remote closure and automatic shutoff using thermal (fire) actuation, pullaway protection where installed, and the optional requirements of Section 6.31.

6.30.3.6 7

If in the preparation for the fire safety analysis it is determined that a hazard to adjacent structures exists that exceeds the protection provided by the provisions of this code, special protection shall be provided in accordance with 6.30.5 6 .

Statement of Problem and Substantiation for Public Input

Currently NFPA 58 6.30.3.2 requires that a fire safety analysis be performed for “new installations, for existing installations that have an aggregate water capacity of more than 4,000 gallons, and for ASME containers on roofs.” This is a very broad category of installations and includes installations that are providing vapor service, such as banks of 1000 gallon tanks, or underground tanks in vapor service. The requirement for a fire safety analysis was originally intended for bulk plants that engage in liquid transfer operations. It was adopted into NFPA 58 to address those installations that were exempted from the Risk Management Plan provisions that EPA adopted in the late 1990’s.
However, the scope of the requirement in NFPA 58 exceeded that of the RMP and as a result, many installations are included that would not even be within the scope of the RMP and would receive no great safety benefit from a fire safety analysis. An example would be an installation of 5 -1,000 underground tanks manifolded together that are purely for vapor service. The fire safety risks associated with such an installation are greatly reduced by burying the containers, so to require a fire safety analysis for this installation is redundant and a needless exercise.
Updating the code to limit the scope of the fire safety analysis to installations that are in liquid service would not be a detriment to safety.

Submitter Information Verification

Submitter Full Name: Christopher Wagner
Organization: National Propane Gas Associati
Street Address:
City:
State:
Zip:

Submittal Date: Wed May 28 14:25:48 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-35-NFPA 58-2025

Statement: The requirement for a fire safety analysis was originally intended for bulk plants that engage in liquid transfer operations, and not all installations that have an aggregate capacity of greater than that of an industrial or bulk plant. It was adopted into NFPA 58 to address those installations that were exempted from the Risk Management Plan provisions that EPA adopted in the late 1990’s. The scope of the requirement in NFPA 58 exceeded that of the RMP and as a result, many installations are included that would not even be within the scope of the RMP and would receive no great safety benefit from a fire safety analysis. Single property vapor service systems do not have the same risk as the other installations and are exempted from consideration of the FSA.

Public Input No. 15-NFPA 58-2024 [Section No. 6.31.5.2]

6.31.5.2

Transfer into ASME containers permanently installed on vehicles shall meet the provisions of 6.31.5.2(A) through 6.31.5.2(E).

(A)

The delivery valve and nozzle combination shall mate with the filler valve in the receiving container in such a manner that, when they are uncoupled following a transfer of LP-Gas, not more than 0.24 $in.^3$ (4 cm^3) of LP-Gas (liquid equivalent) is released to the atmosphere.

(B)

Fixed maximum liquid level gauges that are installed on engine fuel and mobile containers in accordance with Table 5.9.4.1(B) shall not be used to determine the maximum permitted filling limit at a low-emission transfer site.

(C)

The maximum permitted filling limit shall be in accordance with Section 11.5 and shall be determined by an overfilling prevention device or other approved means.

(D)

A label shall be placed near the fixed maximum liquid level gauge providing the following instructions: “Do not use this fixed maximum liquid level gauge at low-emission transfer stations.”

(E)

Paragraphs 6.31.5.2(A) and 6.31.5.2(B) shall not apply to LP-Gas transfers and equipment used for testing, maintenance, or repair.

Additional Proposed Changes

File Name	Description	Approved
TIA_58_24_1.pdf	NFPA 58 TIA 24-1 Log No. 1703	

Statement of Problem and Substantiation for Public Input

NOTE: This public input originates from Tentative Interim Amendment No. 24-1 (Log No. 1703) issued by the Standards Council on August 25, 2023 and per the NFPA Regs., needs to be reconsidered by the Technical Committee for the next edition of the Document.

Substantiation: The revised wording in 6.31.5.2 in the 2024 edition will prohibit the use of meter calibrating equipment at low-emission sites if it is not equipped with low-emission connectors. The equipment, including provers (ASME containers), is permanently mounted on trucks or trailers, so transfers to this equipment as they exist now would be prohibited by 6.31.5.2 and 6.31.5.2(A). It is possible that these prover systems could be modified to be low emission, but that might be prohibitively expensive for some state weights and measures programs and for some commercial calibrating services. It also might preclude their use for calibrating meters at non-low-emission dispensers for cylinder filling without the use of specialty adapters. It also might cause significant delays in performing calibrations while equipment is modified. There are also concerns that some repairs that require bleeding the contents of hose or piping would violate the low-emission requirements. Calibration operations are not conducted very often at dispensers. Usually, a calibration is performed once or twice in one or two years, depending on the state’s goals for calibrating meters. A typical calibration would be one uncoupling per dispenser per visit. The release at this single uncoupling would be small compared to the multiple transfers and releases anticipated for the site throughout the day. Similarly, repair/maintenance operations, such as bleeding and replacing a transfer hose would be infrequent. Those involved with the operations would be trained to bleed connector or hose contents slowly.

Emergency Nature: The standard contains an error or an omission that was overlooked during the regular revision process. The proposed TIA intends to correct a circumstance in which the revised NFPA Standard has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process or was without adequate technical (safety) justification of the action.

The committee made changes to the low-emission transfer requirements for the 2024 edition. They are in new sections 6.31.5.1 and 6.31.5.2, the requirements for low-emission transfer sites. The new requirements for transfer operations and limited uncoupling emissions prohibit activities to calibrate a dispenser or perform maintenance and repair at low-emission sites. The current requirements are in section 6.30.5. The specific section that would apply to the calibrators is 6.30.5.3. The 2020 requirements are OK and would allow calibrators and technicians to do their work. 2020 words – “6.30.5.3 Transfer into permanently mounted ASME engine fuel containers on vehicles shall meet the provisions of 6.30.5.3(A) through 6.30.5.3(D).” Since calibrators are not transferring into ASME engine fuel containers but into ASME containers attached to trucks or trailers, these transfers are outside of this section and are permitted by the 2020 rules. The new requirement in the 2024 edition is, “6.31.5.2 Transfer into ASME containers permanently installed on vehicles shall meet the provisions of 6.31.5.3(A) through 6.31.5.3(D).” 6.31.5.3(A) requires a low-emission uncoupling. Calibration equipment is ASME containers permanently installed on a licensed truck or trailer with an associated piping system. Few, if any, of the connectors are low emission and, if they were, provisions would have to be made to be able to make connections at other, non-low-emission sites. The bottom line is that calibrating equipment is not furnished for low-emission transfer uncoupling, so dispensers at a low-emission sites could not be calibrated a with current equipment.

Submitter Information Verification

Submitter Full Name: NFPA TIA

Organization: Technical Committee on Liquefied Petroleum Gases

Street Address:

City:

State:

Zip:

Submittal Date: Fri Nov 08 15:13:00 EST 2024

Committee: LPG-AAA

Committee Statement

Resolution: The committee is confirming the changes made by TIA No. 24-1 (Log1703).

Tentative Interim Amendment

NFPA® 58

Liquefied Petroleum Gas Code

2024 Edition

Reference: 6.31.5.2 and 6.31.5.2(E)(new)
TIA 24-1
(SC 23-8-53 / TIA Log #1703)

Note: Text of the TIA was issued and approved for incorporation into the document prior to printing.

1. Revise paragraph 6.31.5.2 and add a new paragraph 6.31.5.2(E) to read as follows:

6.31.5.2 Transfer into ASME containers permanently installed on vehicles shall meet the provisions of 6.31.5.2(A) through 6.31.5.2(~~D~~E).

(A) The delivery valve and nozzle combination shall mate with the filler valve in the receiving container in such a manner that, when they are uncoupled following a transfer of LP-Gas, not more than 0.24 $in.^3$ (4 cm^3) of LP-Gas (liquid equivalent) is released to the atmosphere.

(B) Fixed Maximum liquid level gauges that are installed on engine fuel and mobile containers in accordance with Table 5.9.4.1(B) shall not be used to determine the maximum permitted filling limit at a low-emission transfer site.

(C) …

(D) …

(E) Paragraphs 6.31.5.2(A) and 6.31.5.2(B) shall not apply to LP-Gas transfers and equipment used for testing, maintenance, or repair.

Issue Date: August 25, 2023

Effective Date: September 14, 2023

Public Input No. 35-NFPA 58-2025 [Section No. 7.2.2.12]

7.2.2.12

The requirements of 7.2.2.10 shall not apply ~~to~~ to hot air balloon containers that comply with 5.2.9 and are included in the flight log of a hot air balloon.

Statement of Problem and Substantiation for Public Input

Editorial revision to clarify that the requirement is applicable only to hot air balloon cylinders. Section 5.2.9 is titled, Containers for Hot Air Balloons.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Tue Jan 28 14:12:56 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-38-NFPA 58-2025
Statement: This requirement is only applicable for containers on hot air balloons and it is being added here for further specificity.

Public Input No. 25-NFPA 58-2025 [Section No. 7.4.3.1]

7.4.3.1

The volumetric method shall be limited to the following containers that are designed and equipped for filling by volume:

(1) Cylinders of less than 200 lb (91 kg) water capacity that are not subject to DOT jurisdiction

(2) Cylinders of 200 lb (91 kg) water capacity or more

(3) Cargo tanks or portable tanks

(4) ASME ~~and API-ASME~~ containers complying with 5.2.1.1 or 5.2.4.3

Statement of Problem and Substantiation for Public Input

Reference to the API-ASME Code is deleted as it has been proposed for deletion in Chapter 5.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Tue Jan 28 11:02:17 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: API-ASME containers are still in use today and can be repurposed, reinstalled, and placed back into service and requirements related to those containers are still need. The annex material on the history is necessary to help those that may encounter these older containers.

Public Input No. 36-NFPA 58-2025 [Section No. 8.2.1.3]

8.2.1.3

Cylinders stored in buildings in accordance with Section 8.3~~- shall not~~ shall be located ~~near~~ so that they do not block access to exits, ~~near~~ stairways, or in areas normally used, or intended to be used, for the safe egress of occupants.

Statement of Problem and Substantiation for Public Input

Revised to provided a clear, enforceable requirement. “Near” is vague and unenforceable.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Wed Jan 29 10:14:23 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: While near might be vague, it allows for some flexibility of cylinder storage that a prescriptive distance does not consider. Cylinders that are not physically blocking egress can still pose a hazard to the safe egress in buildings.

Public Input No. 68-NFPA 58-2025 [New Section after 8.3.6]

8.4* Storage in Shipping Containers - Storage of cylinders in shipping containers shall be limited to those that do not exceed a water capacity of 2.7 lb (1.1 kg) [nominal 1 lb (0.45 kg) LP-Gas].

Additional Proposed Changes

File Name	Description	Approved
StorageContainer.png	Picture showing container deformed by explosion	

Statement of Problem and Substantiation for Public Input

People have been injured where propane cylinders were stored in shipping containers. These containers are designed to be vapor tight to protect cargo from damaging environmental effects. As such, propane leaking from a cylinder in these containers will likely not be ventilated out of the container and continue to increase in concentration until a door is opened. If the concentration has reached the LFL, then a hazardous situation is present.
Five brothers, 6-14 years old, were injured by an explosion fueled by a leaking propane cylinder in a metal storage container on 11/4/2024 in Bagley, MN. A man lit a cigarette, igniting the propane that had accumulated.
Four workers hurt in 'powerful' propane explosion inside storage container in Mississauga, Ontario, Canada, where they stored their tools. You can see the deformed top of the container in the photo.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 69-NFPA 58-2025 [New Section after A.7.4.4]	Code text. Supporting Annex material in PI 68.
Public Input No. 69-NFPA 58-2025 [New Section after A.7.4.4]	

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
Street Address:
City:
State:
Zip:

Submittal Date: Tue Mar 18 16:51:06 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: Storage and shipping containers do not pose any additional hazard compared to other similar storage arrangements. Additionally there was no technical justification provided to limit the size of the containers as a large number of smaller containers could pose the same or greater hazard compared to larger containers. Rules for these buildings/structures are already covered throughout chapter 8 (see 8.3.5.3).

Public Input No. 14-NFPA 58-2024 [Section No. 8.4.1.1]

8.4.1.1

Storage outside of buildings for cylinders awaiting use or resale or that are part of a cylinder exchange point shall be located as follows:

(1) At least 5 ft (1.5 m) from any doorway or opening ~~in~~ into a building frequented by the public where occupants have at least two means of egress as defined by NFPA *101*

(2) At least 10 ft (3 m) from any doorway or opening ~~in~~ into a building or sections of a building that has only one means of egress

(3) At least 20 ft (6.1 m) from any automotive service station fuel dispenser

Statement of Problem and Substantiation for Public Input

There is confusion in the application of this section. Often, local code enforcement applies the opening separation distances to store front window panels. AHJs are applying unprotected opening as defined in the IBC to fill in the blanks since "opening" is not defined. I suggest additional clarification is provided to the enhanced content and/or add a definition for opening as appropriate. I am also suggesting a revision to text from in to into to imply the opening must open into the building.

Submitter Information Verification

Submitter Full Name: Jena Garcia
Organization: CALFIRE OSFM Code Development & Analysis
Affiliation: Self
Street Address:
City:
State:
Zip:

Submittal Date: Mon Oct 28 18:31:58 EDT 2024
Committee: LPG-AAA

Committee Statement

Resolution: Building openings in this section already only applies to those that are means of egress and not any building opening.

Public Input No. 58-NFPA 58-2025 [Section No. 9.1.1]

9.1.1

This chapter applies to containers, container appurtenances, piping, valves, equipment, and vehicles used in the transportation of LP-Gas, as follows:

(1) Transportation of cylinders

(2) Transportation in cargo tank vehicles, whether fabricated by ~~mounting~~ installing _ cargo tanks on conventional truck or trailer chassis or constructed as integral cargo units in which the container constitutes in whole, or in part, the stress member of the vehicle frame

(3) * Transfer equipment and piping and the protection of such equipment and the container appurtenances against overturn, collision, or other vehicular accidents

Statement of Problem and Substantiation for Public Input

Editorial revision for consistency of the use of "installing" throughout the Code.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Tue Feb 25 09:55:56 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-39-NFPA 58-2025

Statement: Editorial revision for consistency on the removal of mounting in favor of the use of "installing" throughout the Code.

Public Input No. 55-NFPA 58-2025 [Chapter 11]

Chapter 11 Engine Fuel Systems

11.1 Scope.

11.1.1*

This chapter applies to engine fuel systems installed on mobile and nonstationary engines and off-road vehicles using LP-Gas in internal combustion engines, including containers, container appurtenances, carburetion equipment, piping, hose, and fittings, and their installation.

11.1.2

This chapter does not apply to on-road LP-Gas fueled vehicles. *(See Chapter 12.)*

11.1.3*

Chapter 11 applies to the installation of fuel systems supplying engines used to propel motorized vehicles as defined in 11.1.1.

11.1.4

This chapter applies to garaging of vehicles where such systems are installed.

11.2 Training.

Each person engaged in installing, repairing, filling, or otherwise servicing an LP-Gas engine fuel system shall be trained in accordance with Section 4.4.

11.3 Containers.

11.3.1* General.

11.3.1.1

Containers shall be designed, fabricated, tested, and marked (or stamped) in accordance with DOT regulations or with Section VIII of ASME's *Boiler and Pressure Vessel Code* except for UG-125 through UG-136.

11.3.1.2

Adherence to applicable ASME Code case interpretations and addenda that have been adopted and published by ASME 180 calendar days prior to the effective date of this code shall be considered as compliant with the ASME Code.

11.3.1.3

Where containers fabricated to earlier editions of regulations, rules, or codes listed in 5.2.1.1 and of the Interstate Commerce Commission (ICC) *Rules for Construction of Unfired Pressure Vessels*, prior to April 1, 1967, are used, the requirements of Section 1.4 shall apply.

11.3.1.4

Containers that have been involved in a fire and show no distortion shall comply with the following:

(A)

Cylinders shall be requalified in accordance with CGA C-6, *Standard for Visual Inspection of Steel Compressed Gas Cylinders*, for continued service before being used or reinstalled.

(B)

Cylinders shall be requalified by a manufacturer of the type of cylinder or by a repair facility approved by DOT.

(C)

ASME containers shall be inspected and requalified in compliance with the requirements of NBBI NB23, *National Board Inspection Code*.

(D)

All container appurtenances shall be replaced.

(E)

DOT 4E specification (aluminum) cylinders or composite cylinders involved in a fire shall be permanently removed from service.

11.3.1.5

A cylinder with an expired requalification date shall not be refilled until it is requalified by the methods prescribed in DOT regulations.

11.3.1.6

Cylinders shall be designed and constructed for at least a 240 psig (1.6 MPag) service pressure.

11.3.1.7

Cylinders shall be continued in service and transported in accordance with DOT regulations.

11.3.2 Container Maximum Allowable Working Pressure (MAWP).

11.3.2.1

ASME containers shall have an MAWP of at least 312 psig (2.2 MPag) or comply with 11.3.2.2.

11.3.2.2

ASME containers installed outside of enclosed spaces of nonpassenger vehicles shall have a minimum MAWP of 250 psig (1.7 MPag).

11.3.3 Container Repairs and Alterations.

11.3.3.1*

Containers that show excessive denting, bulging, gouging, or corrosion shall be removed from service.

11.3.3.2

Repairs or alteration of a container shall comply with either 11.3.3.3 or the regulations, rules, or code under which the container was fabricated.

11.3.3.3

Repairs or alterations to ASME containers shall be in accordance with the NBBI NB23, *National Board Inspection Code*.

11.3.3.4

Field welding shall be permitted only on saddle plates, lugs, pads, or brackets that are attached to the container by the container manufacturer.

11.3.4 ASME Container Nameplates.

The markings specified for ASME containers shall be on a stainless steel metal nameplate attached to the container, located to remain visible after the container is installed.

(A)

The nameplate shall be attached in such a way as to minimize corrosion of the nameplate or its fastening means and not contribute to corrosion of the container.

(B)

ASME containers shall be marked with the following information:

(1) Service for which the container is designed (e.g., underground, aboveground, or both)

(2) Name and address of container supplier or trade name of container

(3) Water capacity of container in pounds or U.S. gallons (kg or m^3)

(4) MAWP in pounds per square inch (psig) (MPag)

(5) Wording that reads “This container shall not contain a product that has a vapor pressure in excess of 215 psig (1.5 MPag) at 100°F (38°C)” *(see Table 5.2.4.3)*

(6) Outside surface area in square feet (m^2)

(7) Year of manufacture

(8) Shell thickness and head thickness

(9) OL (overall length), OD (outside diameter), and HD (head design)

(10) Manufacturer’s unique serial number

(11) ASME Code symbol

(12) Minimum design metal temperature: “___°F at MAWP ___ psig (___ °C at MAWP ___ MPag)”

(13) Degree of radiography: “RT-___”

11.3.5 Container Filling.

Containers larger than 30 gal (0.1 m^3) water capacity shall be equipped for filling into the vapor space.

11.3.6 Container Connections.

11.3.6.1

The connections for pressure relief valves shall communicate directly with the vapor space of the container and shall not reduce the relieving capacity of the relief device.

11.3.6.2

The connection for the pressure relief valve shall be internally piped to the uppermost point practical in the vapor space of the container if the connection is located at any position other than the uppermost point practical in the vapor space of the container.

11.3.6.3

The container openings shall be labeled on the container or valves connected to the container opening to designate whether they communicate with the vapor or with the liquid space.

11.3.6.4

Labels shall not be required on openings for pressure relief valves and gauging devices.

11.3.7* Container Corrosion Protection.

(A)

Containers constructed of steel shall be painted or powder coated to minimize corrosion.

(B)

Stainless steel, composite, or aluminum containers shall not be required to be painted or powder coated.

11.4 Container Appurtenances.

11.4.1 General Requirements for Appurtenances.

11.4.1.1

Container appurtenances (such as valves and fittings) shall comply with Section 5.9 and 11.4.1.2 through 11.4.1.15(A).

11.4.1.2

Container appurtenances shall have a pressure rating equal to or greater than the design pressure of the container.

11.4.1.3

Manual shutoff valves shall be designed to provide positive closure under service conditions and shall be equipped with an internal excess-flow check valve designed to close automatically at the rated flows of vapor or liquid specified by the manufacturers.

11.4.1.4

A filler valve shall comply with 5.9.4.1(C)(7) and shall be installed in the fill opening of the container.

(A)

A filler valve used for remote filling shall be permitted to incorporate a single backflow check valve and shall be connected to the filler valve on the container by metal tubing or flexible hose connector.

(B)

Where a flexible hose connector is used, it shall comply with 11.7.3.1.

11.4.1.5

Containers shall be fabricated so they can be equipped with a fixed maximum liquid level gauge as follows:

(1) The fixed maximum liquid level gauge shall be capable of indicating the maximum permitted filling level in accordance with 7.4.3.2(A).

(2) Fixed maximum liquid level gauges in the container shall be designed so the bleeder valve maximum opening to the atmosphere is not larger than a No. 54 drill size.

(3) The container fixed maximum liquid level gauge opening and the remote bleeder valve opening shall not be larger than a No. 54 drill size where the bleeder valve is installed at a location remote from the container.

11.4.1.6

ASME containers shall be equipped with full internal or flush-type full internal pressure relief valves conforming with applicable requirements of UL 132, *Safety Relief Valves for Anhydrous Ammonia and LP-Gas,* or other equivalent pressure relief valve standards.

(A)

Fusible plugs shall not be used.

(B)

The start-to-leak setting of the pressure relief valves specified in 11.4.1.6, with relation to the MAWP of the container, shall be in accordance with Table 5.9.2.5(A).

11.4.1.7

Permanently mounted ASME containers shall be equipped with a valve or combination of valves in the liquid outlet connection that has manual shutoff, excess-flow, and automatic closure features.

(A)

The valve assembly shall prevent the flow of fuel when the engine is not in an operating mode even if the ignition switch is in the “on” position.

(B)

This requirement shall not apply to industrial and forklift trucks.

11.4.1.8

Pressure relief valves shall be marked as follows:

(1) In accordance with CGA S-1.3, *Pressure Relief Device Standards, Part 3 — Stationary Storage Containers for Compressed Gases*, and ASME Code, Section VIII, UG-125 through UG-136

(2) With the rated relieving capacity in cubic feet per minute of air at 60°F (16°C) and 14.7 psia (101 kPa)

(3) With the manufacturer's name and catalog number

11.4.1.9

Cylinders used in engine fuel service for industrial trucks shall be equipped with full internal or flush-type full internal pressure relief valves.

11.4.1.10

Single-opening cylinders in industrial truck service shall be equipped with a listed multiple function valve in accordance with 5.9.2.15.

11.4.1.11

A float gauge, if used, shall be designed and approved for use with LP-Gas.

11.4.1.12

A solid steel plug shall be installed in unused threaded openings.

11.4.1.13

A bolted blind flange with gasket shall be installed in all unused flanged openings.

11.4.1.14

Where an overfilling prevention device is installed on the ASME container or exterior of the compartment and remote filling is used, a filler valve complying with 5.9.4.1(C)(7)(a) or 5.9.4.1(C)(7)(b) shall be installed in the exterior fill opening, and a filler valve complying with 5.9.4.1(C)(7)(c) shall be installed in the container filler valve opening.

11.4.1.15*

Where an overfilling prevention device is installed on an ASME container, venting of gas through the fixed maximum liquid level gauge during filling shall not be required.

(A)

Where the fixed maximum liquid level gauge is not used during filling in accordance with 11.4.1.15, the fixed maximum liquid level gauge or other approved means shall be used annually to verify the operation of the overfilling prevention device.

(B)

If the container is found to be overfilled during the test, corrective action shall be taken.

(C)

The result shall be documented.

(D)

A label shall be affixed to the container near the fill point indicating the expiration date of the successful test.

11.5 Quantity of LP-Gas in Engine Fuel Containers.

The maximum permitted filling limit for engine fuel containers shall be as follows:

(1) The maximum permitted filling limit of permanently installed ASME containers shall not exceed the amount shown in Table 7.4.2.3(a) when the liquid is at 40°F (4°C).

(2) The maximum permitted filling limit of removable containers shall be in accordance with 7.4.2 and 7.4.3.

11.6 Carburetion Equipment.

11.6.1 Pressure.

Carburetion equipment subject to a pressure of 125 psig (0.9 MPag) or greater shall be designed for a pressure rating of 250 psig (1.7 MPag) or for the MAWP of the container where the MAWP of the container is greater than 250 psig (1.7 MPag).

11.6.2 Vaporizers.

11.6.2.1

Vaporizers shall be fabricated of materials resistant to corrosion by LP-Gas under service conditions.

11.6.2.2

Vaporizers shall be designed for engine fuel service.

11.6.2.3

Vaporizers subjected to pressures up to the MAWP of the supply container shall have a pressure rating of 250 psig (1.7 MPag) or the MAWP of the container where the MAWP of the container is greater than 250 psig (1.7 MPag).

11.6.2.4

Vaporizers shall be marked with the design pressure of the fuel-containing portion in psig (MPag), and the marking shall be visible when the vaporizer is installed.

11.6.2.5

The vaporizer shall not be equipped with a fusible plug.

11.6.2.6

Each vaporizer shall be capable of having the water or heating fluid drained from the engine cooling system drain or water hose or shall have a valve or plug located at or near the lowest portion of the section occupied by the water or other heating fluid to allow drainage of the water or heating fluid.

11.6.2.7

Where engine exhaust gases are used as a direct source of heat to vaporize the fuel, the materials of construction of those parts of the vaporizer in contact with the exhaust gases shall be resistant to corrosion by these gases, and the vaporizer system shall be designed to prevent a pressure in excess of 200 psig (1.4 MPag).

11.6.2.8

Devices that supply heat directly to the fuel container shall be equipped with an automatic device to cut off the supply of heat before the pressure in the container reaches 200 psig (1.4 MPag).

11.6.2.9

Fuel injection systems shall comply with the applicable requirements of Chapter 12.

11.6.3 Fuel Shutoff Valve.

11.6.3.1

An automatic shutoff valve shall be provided in the fuel system as close as practical to the inlet of the gas regulator.

11.6.3.2

The valve shall prevent flow of fuel to the carburetor when the engine is not running even if the ignition switch is in the “on” position.

11.6.3.3

Atmospheric-type regulators (zero governors) shall not be considered as automatic shutoff valves for the purpose of the requirements of 11.6.3.

11.7 Piping, Hose, and Fittings.

11.7.1 Pipe and Tubing.

11.7.1.1

Pipe shall be steel (black or galvanized), brass, or copper.

11.7.1.1.1

Pipe shall comply with the applicable standard as follows:

(1) Steel pipe shall comply with ASTM A53/A53M, *Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless*.

(2) Steel pipe shall comply with ASTM A106/A106M, *Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service*.

(3) Brass pipe shall comply with ASTM B43, *Standard Specification for Seamless Red Brass Pipe, Standard Sizes*.

(4) Copper pipe shall comply with ASTM B42, *Standard Specification for Seamless Copper Pipe, Standard Sizes*.

11.7.1.1.2

Furnace buttwelded piping shall not be used for piping that meets ASTM A53/A53M, *Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.*

11.7.1.2

Tubing shall be steel, stainless steel, brass, or copper and comply with the applicable standard as follows:

(1) Brass tubing shall comply with ASTM B135/B135M, *Standard Specification for Seamless Brass Tube*.

(2) Copper tubing shall comply with one of the following:

  (a) ASTM B75/B75M, *Standard Specification for Seamless Copper Tube*

  (b) For Type K or Type L, ASTM B88, *Standard Specification for Seamless Copper Water Tube*

  (c) ASTM B280, *Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service*

(3) Stainless steel shall comply with one of the following:

  (a) ASTM A213/A213M, *Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes*

  (b) ASTM A249/A249M, *Standard Specification for Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes*

  (c) ASTM A269/A269M, *Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service*

(4) Steel tubing shall comply with one of the following:

  (a) SAE J356, *Welded, Flash-Controlled, Low-Carbon Steel Tubing Normalized for Bending, Double Flaring, Beading, Forming, and Brazing*

  (b) ASTM A822/A822M, *Standard Specification for Seamless Cold-Drawn Carbon Steel Tubing for Hydraulic System Service*

11.7.2 Fittings for Metallic Pipe and Tubing.

11.7.2.1

Fittings shall be steel, brass, copper, malleable iron, or ductile (nodular) iron.

11.7.2.2

Pipe fittings shall have a minimum pressure rating as specified in Table 11.7.2.2 and shall comply with the following:

(1) Cast-iron pipe fittings shall not be used.

(2) Brazing filler material shall have a melting point that exceeds 1000°F (538°C).

Table 11.7.2.2 Service Pressure Rating of Pipe, Tube Fittings, and Valves

Service	Minimum Pressure
Higher than container pressure	350 psig (2.4 MPag) or the MAWP, whichever is higher, or 400 psig (2.8 MPag) WOG rating
LP-Gas liquid or vapor at operating pressure over 125 psig (0.9 MPag) and at or below container pressure	250 psig (1.7 MPag)
LP-Gas vapor at operating pressure or 125 psig (0.9 MPag) or less	125 psig (0.9 MPag)

11.7.2.3

Metal tube fittings shall have a minimum pressure rating as specified in Table 11.7.2.2.

11.7.3 Hose, Hose Connections, and Flexible Connectors.

11.7.3.1

Hose, hose connections, and flexible hose connectors *(see 3.3.28)* used for conveying LP-Gas liquid or vapor at pressures in excess of 5 psig (34.5 kPag) shall be fabricated of materials resistant to the action of LP-Gas both as liquid and vapor, and the hose and flexible hose connector shall be reinforced with stainless steel wire braid.

11.7.3.2

Hose that can be exposed to container pressure shall be designed for a pressure rating of 350 psig (2.4 MPag) with a safety factor of 5 to 1, and the reinforcement shall be stainless steel wire braid.

11.7.3.3 Hose Marking.

(A)

Hose shall be marked “LP-GAS, PROPANE, 350 PSI WORKING PRESSURE” and the manufacturer’s name or trademark. Marking shall comply with one of the following:

(1) Permanent markings at intervals not exceeding 6 in. (152 mm)

(2) Permanent labels applied not less than once per foot (305 mm) of length

(B)

Each installed piece of hose shall contain at least one such marking.

11.7.3.4 Pressure Capacity.

(A)

After the application of couplings, hose assemblies shall be capable of withstanding a pressure of not less than 700 psig (4.8 MPag).

(B)

If a pressure test is performed, such assemblies shall be pressure tested at 120 percent of the pressure rating [350 psig (2.4 MPag) minimum] of the hose.

11.7.3.5

Hose used for vapor service at 5 psig (34.5 kPag) or less shall be constructed of material resistant to the action of LP-Gas.

11.7.3.6

Hose in excess of 5 psig (34.5 kPag) service pressure and quick connectors shall be approved.

11.7.3.7

Hose that is utilized at lower than container pressure shall be designed and marked for its maximum anticipated operating pressure.

11.8 Installation of Containers and Container Appurtenances.

11.8.1 Location of Containers.

11.8.1.1

Containers shall be located to minimize the possibility of damage to the container and its fittings.

11.8.1.2

Where containers are located in the rear of the vehicle, they shall be protected.

11.8.1.3

Containers located less than 18 in. (460 mm) from the exhaust system, the transmission, or a heat-producing component of the internal combustion engine shall be shielded by a vehicle frame member or by a noncombustible baffle with an air space on both sides of the frame member or baffle.

11.8.1.4

After a container is permanently installed on a vehicle, container markings shall be readable either directly or with a portable lamp and mirror.

11.8.2 Protection of Containers and Appurtenances.

11.8.2.1

Container valves, appurtenances, and connections shall be protected to prevent damage due to accidental contact with stationary objects, or from stones, mud, or ice, and from damage due to an overturn or similar vehicular accident.

11.8.2.2

Protection of container valves, appurtenances, and connections shall be provided by one of the following:

(1) By locating the container so that parts of the vehicle furnish the necessary protection

(2) By the use of a fitting guard furnished by the manufacturer of the container

(3) By other means to provide equivalent protection

11.8.3 Container Clearances.

11.8.3.1

Containers shall not be installed on roofs or ahead of the front axle or beyond the rear bumper of the vehicles.

11.8.3.2

No part of a container or its appurtenances shall protrude beyond the sides or top of the vehicle.

11.8.3.3

Containers shall be installed with as much ground clearance as practicable.

11.8.3.4

Clearance shall be measured to the bottom of the container or the lowest fitting, support, or attachment on the container or its housing, if any, whichever is lowest.

11.8.3.5

Containers installed between axles shall comply with 11.8.3.6 or shall not be lower than the lowest point forward of the container with the vehicle suspension under full-rated load compression on the following points:

(1) Lowest structural component of the body

(2) Lowest structural component of the frame or subframe

(3) Lowest point on the engine

(4) Lowest point of the transmission (including the clutch housing or torque converter housing, as applicable)

11.8.3.6

Containers installed behind the rear axle and extending below the frame shall comply with 11.8.3.7 or shall not be lower than the lowest of the following points and surfaces with the vehicle suspension under full-rated load compression:

(1) Containers shall not be lower than the lowest point of a structural component of the body, engine, and transmission (including clutch housing or torque converter housing, as applicable) forward of the container.

(2) Containers shall not be lower than lines extending rearward from each wheel at the point where the wheels contact the ground directly below the center of the axle to the lowest and most rearward structural interference.

11.8.3.7

Where an LP-Gas container is substituted for the fuel container installed by the original manufacturer of the vehicle, the LP-Gas container either shall fit within the space in which the original fuel container was installed or shall comply with 11.8.3.5 or 11.8.3.6.

11.8.4 Container Installation.

11.8.4.1

Fuel containers shall be installed to prevent their jarring loose and slipping or rotating, and the fastenings shall be designed and constructed to withstand static loading in any direction equal to four times the weight of the container filled with fuel.

11.8.4.2

Welding for the repair or alterations of containers shall comply with 11.3.3.4.

11.8.4.3*

Main shutoff valves on a container for liquid and vapor shall be readily accessible without the use of tools, or other equipment shall be provided to shut off the container valves.

11.8.5 Pressure Relief Valve Discharge System.

11.8.5.1

The pressure relief valve discharge from fuel containers on vehicles other than industrial (and forklift) trucks shall be in accordance with the following:

(1) It shall be directed upward or downward within 45 degrees of vertical.

(2) It shall not directly impinge on the vehicle fuel container(s), the exhaust system, or any other part of the vehicle.

(3) It shall not be directed into the interior of the vehicle.

11.8.5.2

Where the pressure relief valve discharge must be piped away, the pipeaway system shall have a breakaway adapter.

(A)

The breakaway adapter shall have a melting point of not less than 1500°F (816°C).

(B)

The adapter either shall be an integral part of the pressure relief valve or shall be a separate adapter attached directly to the pressure relief valve.

(C)

The pipeaway system shall be designed and installed to prevent failure due to thermal or mechanical stress.

(D)

Where used, nonmetallic hose shall be as short as practicable and shall be able to withstand the downstream pressure from the relief valve in the full open position, and the hose shall be fabricated of materials resistant to the action of LP-Gas.

(E)

Where hose is used to pipe away the relief valve discharge on containers installed on the outside of the vehicle, the breakaway adapter and any attached fitting shall deflect the relief valve discharge upward or downward within 45 degrees of vertical and shall meet the other requirements of 11.8.5.1 without the hose attached. If an additional fitting is necessary to meet this requirement, it shall have a melting point not less than 1500°F (816°C).

(F)

The pipeaway system discharge shall have a protective cover to minimize the possibility of the entrance of water or dirt into either the relief valve or its discharge system.

(G)

No portion of the system shall have an internal diameter less than the internal diameter of the recommended breakaway adapter.

(H)

The breakaway adapter either shall be threaded for direct connection to the relief valve and shall not interfere with the operation of the relief valve or shall be an integral part of the pressure relief valve. It shall break away without impairing the function of the relief valve.

(I)

The pipeaway system connections shall be mechanically secured and shall not depend on adhesives or sealing compounds and shall not be routed between a bumper system and the vehicle body.

(J)

Where a pipeaway system is not required, the pressure relief valve shall have a protective cover.

11.9 Installation in Interior of Vehicles.

11.9.1 Installation of Containers and Appurtenances.

11.9.1.1

Installation of containers in the interior of vehicles or in enclosed compartments shall comply with either 11.9.1.2 or 11.9.1.3.

11.9.1.2*

The container and its appurtenances shall be installed in an enclosure that is secured to the vehicle.

(A)

The enclosure shall be gastight with respect to driver or passenger compartments and to any space containing radio transmitters or other spark-producing equipment.

(B)

The enclosure shall be vented to the outside of the vehicle.

11.9.1.3

The container appurtenances and their connections shall be installed in an enclosure that is secured to the container.

(A)

The appurtenances and their connections shall be installed in an enclosure that is gastight with respect to the driver or passenger compartments or with any space carrying radio transmitters or other sources of ignition.

(B)

The enclosure shall be vented to the outside of the vehicle.

11.9.1.4

Fuel containers and piping shall be installed so that no gas from fueling and gauging operations can be released inside of the passenger or enclosed compartments of the vehicle.

11.9.1.5

Enclosures, structures, seals, and conduits used to vent enclosures shall be designed and fabricated of durable materials and shall be designed to resist damage, blockage, or dislodgement through movement of articles carried in the vehicle or by the closing of luggage compartment enclosures or vehicle doors and shall require the use of tools for removal.

11.10 Pipe and Hose Installation.

11.10.1 General Requirements.

11.10.1.1

The piping system shall be designed, installed, supported, and secured in such a manner as to minimize damage due to expansion, contraction, vibration, strains, abrasion, UV deterioration, and wear.

11.10.1.2*

Pipe, tubing, and hoses shall be installed in a manner that protects them from damage due to accidental contact with stationary objects, impact from stones, mud, or ice, or a vehicular accident.

11.10.1.3

Piping and hose shall be installed in a manner that permits visual inspection.

11.10.1.4

Fastening or other protection shall be installed to prevent damage due to vibration or abrasion.

11.10.1.5

At each point where piping passes through sheet metal or a structural member, a rubber grommet or equivalent protection shall be installed to prevent chafing.

11.10.1.6

Fuel line piping that must pass through the floor of a vehicle shall be installed to enter the vehicle through the floor directly beneath or adjacent to the container.

11.10.1.7

If a branch fuel line is required, the tee connection shall be in the main fuel line outside the passenger compartment of the vehicle.

11.10.1.8

Where liquid service lines of two or more individual containers are connected together, a spring-loaded backflow check valve or equivalent shall be installed in each of the liquid lines prior to the point where the liquid lines tee together to prevent the transfer of LP-Gas from one container to another.

11.10.1.9

Exposed parts of the piping system shall be of corrosion-resistant material or shall be protected to minimize exterior corrosion.

11.10.1.10

Piping systems, including hose, shall be tested and proven free of leaks at not less than normal operating pressure.

11.10.1.11

There shall be no fuel connection between a tractor and trailer or other vehicle units.

11.10.2 Hydrostatic Relief Valves.

11.10.2.1

A hydrostatic relief valve or device providing pressure-relieving protection shall be installed in each section of piping (including hose) in which liquid LP-Gas can be isolated between shutoff valves, so as to relieve to the atmosphere.

11.10.2.2

Hydrostatic relief valves shall have a pressure setting of not less than 400 psig (2.8 MPag) or more than 500 psig (3.5 MPag).

11.11 Industrial (and Forklift) Trucks Powered by LP-Gas.

11.11.1 Scope.

Section 11.11 applies to LP-Gas installation on industrial trucks (including forklift trucks), both to propel them and to provide the energy for their materials-handling attachments.

11.11.2 Industrial Truck Cylinders.

11.11.2.1

Cylinders shall be designed, constructed, or fitted for installation and filling in either the vertical or horizontal position or, if the cylinder is a universal cylinder, in either position.

11.11.2.2

Universal cylinders shall be permitted to be filled in the vertical position or in the horizontal position, provided the positioning hole or slot is in the proper orientation.

11.11.2.3

The fixed maximum liquid level gauge shall indicate the maximum permitted filling level in either position.

11.11.2.4

The pressure relief valves shall be in direct communication with the vapor space of the cylinder in either position.

11.11.2.5

The cylinder vapor or liquid withdrawal valves shall function in either position.

11.11.2.6

The cylinder pressure relief valve discharge shall be directed upward within 45 degrees of vertical and otherwise shall not impinge on the cylinder, the exhaust system, or any other part of the industrial truck.

11.11.2.7

The discharge opening shall be provided with a protective cover to minimize the possibility of the entry of water or any extraneous matter.

11.11.2.8

Industrial truck cylinders shall have pressure relief valves that conform with 5.9.2.15.

11.11.3 Hose.

11.11.3.1

Hose used in vapor service and greater than 5 ft (1.5 m) in length shall be of stainless steel wire braid construction.

11.11.3.2

Hose used in liquid service shall be of stainless steel wire braid construction.

11.11.4 Operations.

The operation of industrial trucks (including forklift trucks) powered by LP-Gas engine fuel systems shall comply with 11.11.4.1 through 11.11.4.4.

11.11.4.1

Industrial trucks shall be refueled outdoors.

11.11.4.2

Where cylinders are exchanged indoors, the fuel piping system shall be equipped to minimize the release of fuel when cylinders are exchanged, in accordance with either of the following:

(1) Using an approved quick-closing coupling in the fuel line

(2) Closing the shutoff valve at the fuel cylinder and allowing the engine to run until the fuel in the line is exhausted

11.11.4.3

Where LP-Gas–fueled industrial trucks are used in buildings or structures, the following shall apply:

(1) The number of fuel cylinders on such a truck shall not exceed two.

(2) The use of industrial trucks in buildings frequented by the public, including those times when such buildings are occupied by the public, shall require the approval of the authority having jurisdiction.

(3) The total water capacity of the fuel cylinders on an individual truck shall not exceed 105 lb (48 kg) [nominal 45 lb (20 kg) propane capacity].

(4) Trucks shall not be parked and left unattended in areas occupied by or frequented by the public without the approval of the authority having jurisdiction. If left unattended with approval, the cylinder shutoff valve shall be closed.

(5) In no case shall trucks be parked and left unattended in areas of excessive heat or near sources of ignition.

11.11.4.4

All cylinders used in industrial truck service (including forklift truck cylinders) shall have the cylinder pressure relief valve replaced in accordance with 5.9.2.14.

11.12 General Provisions for Vehicles With Engines (Including Floor Maintenance Machines).

11.12.1 Scope.

11.12.1.1

Section 11.12 applies to the installation of equipment on vehicles that supply LP-Gas as a fuel for engines installed on these vehicles.

11.12.1.2

Vehicles include floor maintenance and any other portable mobile unit, whether the engine is used to propel the vehicle or for other purposes.

11.12.2 General Requirements.

11.12.2.1

Industrial trucks (including forklift trucks) and other engines on vehicles operating in buildings other than those used exclusively to house engines shall have an approved automatic shutoff valve installed in the fuel system.

11.12.2.2

The source of air for combustion shall be isolated from the driver and passenger compartment, ventilating system, or air-conditioning system on the vehicle.

11.12.2.3

Non–self-propelled floor maintenance machinery (floor polishers, scrubbers, buffers) and other similar portable equipment shall be listed.

(A)

A label shall be affixed to the machinery or equipment, with the label facing the operator, with the text denoting that the cylinder or portion of the machinery or equipment containing the cylinder shall be stored in accordance with Chapter 8.

(B)

The use of floor maintenance machines in buildings frequented by the public, including the times when such buildings are occupied by the public, shall require the approval of the authority having jurisdiction.

11.13 Engine Installation Other Than on Vehicles.

11.13.1 Portable Engines.

11.13.1.1

The use of portable engines in buildings shall be limited to emergencies.

11.13.1.2

Portable engines shall be used only where sufficient air for combustion and cooling is available.

11.13.1.3

Exhaust gases shall be discharged to a point outside the building or to an area in which they will not constitute a hazard.

11.13.1.4

Where atmospheric-type regulators (zero governors) are used on engines operated only outdoors, a separate automatic shutoff valve shall not be required.

11.13.1.5

Engines used to drive pumps and compressors shall be equipped in accordance with 5.21.7.

11.14 Garaging of Vehicles.

Where vehicles with LP-Gas engine fuel systems, and general-purpose vehicles propelled by LP-Gas engines, are stored or serviced inside garages, the following conditions shall apply:

(1) The fuel system shall be leak-free.

(2) The container shall not be filled beyond the limits specified in Chapter 7.

(3) The container shutoff valve shall be closed when the vehicle or the engine is being repaired, except when the engine is required to operate. Containers equipped with an automatic shutoff valve as specified in 11.4.1.7 satisfy this requirement.

(4) The vehicle shall not be parked near sources of heat, open flames, or similar sources of ignition or near inadequately ventilated pits.

Additional Proposed Changes

File Name	Description	Approved
PI_incorporating_6.27_into_Chapter_11_Feb_18.docx		

Statement of Problem and Substantiation for Public Input

This proposal relocates requirements for containers installed on vehicles from 6.27 to Chapter 11 and delete Section 6.27, LP-Gas Systems on Vehicles (Other than engine fuel systems). Requirements were not intentionally changed, except as noted here. The requirements for LP-Gas systems currently in 6.27 are very similar to those in Chapter 11 and there is no reason to have separate requirements for the same thing. Section not already included in Chapter 11 are moved there. The system components, containers, container appurtenances, piping, etc. are the same whether the propane is fed to an engine or other device consuming propane. Most of the requirements are already in chapter 11.

Many requirements in Chapter 11 duplicate requirements in Chapter 5. This was done because at one time it was thought that the chapter would be relocated to the NFPA standard covering for alternate fueled vehicles. This has not occurred, and it does not appear that there is any consideration of such a relocation at this time. Therefore, requirements that duplicate requirements in other chapters are deleted and the relevant requirements are referenced.

It is noted that Chapter 11 does not include requirements for joints and fittings while it does have requirements for pipe and tubing. Such requirements could be added in Chapter 11.

Changes are:

1. 11.1, Scope is revised to add all propane systems on vehicles, other than on-road vehicles. The requirements for nonapplication are relocated from 6.27.2.
2. 11.2, Training is deleted. The training requirements of 4.4 are applicable to all chapters and do not need to be

cited here.
3. 11.3.1, Containers, General is deleted. It repeats requirements in 5.2.1, which proposed to be referenced. They do not need to be repeated here.
4. ASME container pressure requirements are relocated to 11.3.2.2
5. A new requirement on maximum container capacity is added in 11.3.3. The requirements are moved here from 6.27.3.1.
6. 11.3.3 is revised to delete “excessive” in relation to denting, bulging, gouging, or corrosion, as it is vague. Reference to the NBBI code and DOT regulations are substituted as they are specific and can be enforced.
7. 11.3.4, the requirements of the paragraph which duplicate ASME container nameplate requirements of 5.2.8 are deleted and reference to 5.2.8 is substituted. It is noted that the content of 5.2.8 and 11.3.3 are inconsistent. 5.2.8 was revised in the 2024 edition and these revisions were not include in 11.3.4. These revisions are equally needed in chapter 11.
8.11.3.6.2 is deleted and replaced with the text of 5.2.5.6 (D). These cover the same subject and should be identical to prevent misinterpretation. Alternately, a reference to 5.2.5.6 could be substituted.
9. 11.2.6.3 and 11.3.6.3 are replaced with a reference to 5.9.8.5 and 5.9.8.6. The requirements are identical.
10. Container capacity limits are relocated from 6.27.3.199. Other requirements in
11. The requirements for the installation of containers and container appurtenances is relocated from 11.8.3 to 11.5 to follow the container requirements. This is a more logical location.
11. 11.4.1.3 is revised to substitute MAWP for design pressure. MAWP is defined in 3.3.47, and is the appropriate term.
12 11.4.1.5 is deleted as it duplicates requirements in Section 5.9, which are referenced in 11.4.1.1.
13. 9. 11.4.1.6 is deleted. The requirements of 5.9.2.5 are similar, and 5.9 is already referenced in 11.4.1.1. (A) is deleted as a pressure relief valve is required. There is no reason to not allow a fusible plug in addition to a pressure relief valve. (B) is deleted as the 5.9 is referenced in 11.4.1.1.
14 11.4.1.7 is revised by substituting “installed” for “mounted” and to incorporate (B), which is deleted.. Installed is the preferred term in NFPA 58.
15. 11.4.1.8 is revised to refer to 5.9.2, which includes reference to the CGA and UL standards currently cited. These standards require the markings required in 11.4.1.8 (2) and (3).
15a. 11.4.1.9 is deleted because it restates requirements of Table 5.4.9.4.1 (B), which is required in 11.4.1.
16. 11.4.1.11 is deleted because it restates requirements of Table 5.4.9.4.1 (B), which is required in 11.4.1.
17. 11.4.1.12 is revised to combine 11.4.1.12 and 11.4.1.13, and the term “solid steel plug” is replaced by “blind flange” as is used in 5.9.7.1 for the same component.
18. 11.4.1.14 is revised to reference 5.9.4.1 (C), rather than list the subsections of 5.9.4.1 (C).
19. 11.4.1.15 (A) is revised to delete the reference to 11.4.1.15, as it is the main paragraph.
20. 11.4.1.15 (B) is proposed to be deleted as it is vague in that the type of documentation and retention period are not specified, and it appears to duplicate the require label in 11.4.1.15 (C).
21. 11.4.1.15 (C) is revised to require the label to be “visible from the fill point” and not “near” the fill point.
22. 11.7.1, Pipe, Hose, and Fittings is revised to reference 5.11.3.2.1, other than non-metallic pipe. 17.1.1.1.2 is deleted as it duplicates 5.11.3.1.2, which is now referenced. It is noted that 5.11.3.2.1 allows stainless steel pipe, and that 11.7.1 does not include stainless steel pipe. As stainless steel tubing is allowed, there is no reason for stainless steel pipe to not be allowed.
23. 11.7.2 is revised to reference 5.11.4. The requirements are identical
24. 11.8.4.2 is deleted because 11.8 covers installation of containers and 11.3.3.4 applies whether cited in 11.8.4.3 or not.
25. 11.8.4.3 is revised to delete “without the use of tools” as this repeats the definition of the term in 3.3.71.
26. A new 11.8.4.5 is added, based on 12.4.4 (8). It provides a specific minimum elevation for the fill connection while 12.4.4 (8) requires that the attendant is not required to lay on the ground, which is subjective and may be difficult to enforce. The 2 ft. elevation recommended was arbitrarily selected and the committee may beleive that another elevation is more appropriate.
27. A new 11.8.4 is added, taken from 12.4.4. The concerns for proper container installation is the same in chapter in both chapters and should be in both.
28. Requirements for the installation of regulators on vehicles are added, relocated from 6.27.4.
29. 11.10.2 (hydrostatic relief valves) is replace with a reference to 6.16. This will add a new requirement to Chapter
30. 11 to allow a three-way isolation valve on vehicle hydrostatic relief valve installations.
31. With the relocation from 6.27 to chapter 11 many requirements are not added to chapter 11 as they are already included in chapter 11.
32. 6.27.3.1 (E) covering stationary containers is deleted because such containers are covered in Chapter 6.
33. 6.27.3.2 is deleted because it is not needed. It covers transportation of containers, which is not included in the Scope of Section 6.27 or Chapter 11.
34. 6.27.3.3 (A) and (D) are not relocated (and deleted) because they are not installation or location requirements
35. 6.27.4.1 (5) is not relocated (and deleted). Its requirements for labeling of container openings differ from 5.9.8.5. The requirements of 5.9.8.5 will apply.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 54-NFPA 58-2025 [Section No. 6.27]	

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
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Submittal Date: Tue Feb 18 14:28:08 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: The systems in 6.27 and Chapter 11 are not generically the same and are for two different applications. Chapter 11 systems are supplying non-propulsion engines typically in liquid service, and section 6.27 systems are supplying gas for consumption in a fuel burning appliance, typically in vapor service.

11.1 Scope.

11.1.1 * This chapter applies to ~~engine~~ fuel systems installed on mobile and nonstationary engines and off-road vehicles using LP-Gas ~~in internal combustion engines, including containers, container appurtenances, carburetion equipment, piping, hose, and fittings~~, and their installation.

11.1.2 This chapter does not apply to:

(1) on-road LP-Gas fueled vehicles. *(See Chapter 12.)*

(2) Systems installed on mobile homes

(3) Systems installed on recreational vehicles (See NFPA 1192)

(4) Systems installed on mobile food facilities *(see Chapter 16)*

(5) Cargo tank vehicles, including trailers and semitrailers, and similar units used to transport LP-Gas as cargo *(see Chapter 9)*

~~**11.1.3** * Chapter 11 applies to the installation of fuel systems supplying engines used to propel motorized vehicles as defined in 11.1.1.~~

11.1.4 This chapter applies to garaging of vehicles where such systems are installed.

~~**11.2 Training.**~~

~~**11.2 Training.** Each person engaged in installing, repairing, filling, or otherwise servicing an LP-Gas engine fuel system shall be trained in accordance with Section 4.4.~~

11.3 Containers.

11.3.1 * **General.**

~~**11.3.1.1** Containers shall be designed, fabricated, tested, and marked (or stamped) in accordance with DOT regulations or with Section VIII of ASME's *Boiler and Pressure Vessel Code* except for UG-125 through UG-136.~~

The design and construction of containers shall be in accordance with 5.2.1.1.

~~**11.3.1.2** Adherence to applicable ASME Code case interpretations and addenda that have been adopted and published by ASME 180 calendar days prior to the effective date of this code shall be considered as compliant with the ASME Code.~~

~~**11.3.1.3** Where containers fabricated to earlier editions of regulatiorules, or codes listed in 5.2.1.1 and of the Interstate Commerce Commission (ICC) *Rules for Construction of Unfired Pressure Vessels*, prior to April 1, 1967, are used, the requirements of Section 1.4 shall apply.~~

~~**11.3.1.4** Containers that have been involved in a fire and show no distortion shall comply with the following:~~

~~**(A)** Cylinders shall be requalified in accordance with CGA C-6, *Standard for Visual Inspection of Steel Compressed Gas Cylinders*, for continued service before being used or reinstalled.~~

~~**(B)** Cylinders shall be requalified by a manufacturer of the type of cylinder or by a repair facility approved by DOT.~~

~~**(C)** ASME containers shall be inspected and requalified in compliance with the requirements of NBBI NB23, *National Board Inspection Code*.~~

~~**(D)** All container appurtenances shall be replaced.~~

~~**(E)** DOT 4E specification (aluminum) cylinders or composite cylinders involved in a fire shall be permanently removed from service.~~

~~**11.3.1.5** A cylinder with an expired requalification date shall not be refilled until it is requalified by the methods prescribed in DOT regulations.~~

~~**11.3.1.6** Cylinders shall be designed and constructed for at least a 240 psig (1.6 MPag) service pressure.~~

~~**11.3.1.7** Cylinders shall be continued in service and transported in accordance with DOT regulations.~~

11.3.2 Container Maximum Allowable Working Pressure (MAWP). Container MAWP shall be in accordance with 5.2.4.6.

~~**11.3.2.1** ASME containers shall have an MAWP of at least 312 psig (2.2 MPag) or comply with 11.3.2.2.~~

~~**11.3.2.2** ASME containers installed outside of enclosed spaces of nonpassenger vehicles shall have a minimum MAWP of 250 psig (1.7 MPag).~~

ASME ~~mobile~~ containers shall be in accordance with one of the following:

~~(1) A MAWP of 312 psig (2.2 MPag) or higher where installed in enclosed spaces of vehicles~~

~~(2) A MAWP of 312 psig (2.2 MPag) or higher where installed on passenger vehicles~~

~~(3) A MAWP of 250 psig (1.7 MPag) or higher for containers where installed on the exterior of nonpassenger vehicles~~

11.3.3 Container Capacity

11.3.1.1 LP-Gas fuel containers used on passenger-carrying vehicles shall not exceed gal (0.8 m^3) aggregate water capacity.

11.3.2.2 The capacity of individual LP-Gas containers on highway nonpassenger vehicles shall either be less than or equal to 1000 gal (3.8 m^3) water capacity or be in accordance with U.S. Department of Transportation regulations.

11.3.3 Container Repairs and Alterations.

11.3.3.1 * Containers that show ~~excessive~~ denting, bulging, gouging, or corrosion in excess of what is allowed by NBBI NB23, *National Board Inspection Code* or Department of Transportation Regulations shall be removed from service or repaired in accordance with NBBI N23 or Department of Transportation Regulations.

~~**11.3.3.2** Repairs or alteration of a container shall comply with either 11.3.3.3 or the regulations, rules, or code under which the container was fabricated.~~

~~**11.3.3.3** Repairs or alterations to ASME containers shall be in accordance with the NBBI NB23, *National Board Inspection Code*.~~

11.3.3.4 Field welding shall be permitted only on saddle plates, lugs, pads, or brackets that are attached to the container by the container manufacturer.

11.3.4 ASME Container Nameplates. ~~The markings specified for ASME containers shall be on a stainless steel metal nameplate attached to the container, located to remain visible after the container is installed.~~

~~**(A)** The nameplate shall be attached in such a way as to minimize corrosion of the nameplate or its fastening means and not contribute to corrosion of the container.~~

~~**(B)** ASME containers shall be marked with the following information:~~

~~(1) Service for which the container is designed (e.g., underground, aboveground, or both)~~
~~(2) Name and address of container supplier or trade name of container~~
~~(3) Water capacity of container in pounds or U.S. gallons (kg or m^3)~~
~~(4) MAWP in pounds per square inch (psig) (MPag)~~
~~(5) Wording that reads "This container shall not contain a product that has a vapor pressure in excess of 215 psig (1.5 MPag) at 100°F (38°C)" *(see Table 5.2.4.3)*~~
~~(6) Outside surface area in square feet (m^2)~~
~~(7) Year of manufacture~~
~~(8) Shell thickness and head thickness~~
~~(9) OL (overall length), OD (outside diameter), and HD (head design)~~
~~(10) Manufacturer's unique serial number~~
~~(11) ASME Code symbol~~
~~(12) Minimum design metal temperature: "___°F at MAWP ___ psig (___ °C at MAWP ___ MPag)"~~
~~(13) Degree of radiography: "RT ___"~~

ASTM containers shall be marked in accordance with 5.2.8

11.3.5 Container Filling. Containers larger than 30 gal (0.1 m^3) water capacity shall be equipped for filling into the vapor space.

11.3.6 Container Connections.

11.3.6.1 The connections for pressure relief valves shall communicate directly with the vapor space of the container and shall not reduce the relieving capacity of the relief device.

11.3.6.2 ~~The connection for the pressure relief valve shall be internally piped to the uppermost point practical in the vapor space of the container if the connection is located at any position other than the uppermost point practical in the vapor space of the container.~~ If the pressure relief valve is located in any position other than the uppermost point of the ASME container, the connection shall be internally piped to the uppermost point practical in the vapor space of the container.

11.3.6.3 ~~The container openings shall be labeled on the container or valves connected to the container opening to designate whether they communicate with the vapor or with the liquid space.~~

~~**11.3.6.4** Labels shall not be required on openings for pressure relief valves and gauging devices.~~
Container openings shall be labeled in accordance with 5.9.8.5 and 5.9.8.6.

11.3.7 * **Container Corrosion Protection.**

(A) Containers constructed of steel shall be painted or powder coated to minimize corrosion.

(B) Stainless steel, composite, or aluminum containers shall not be required to be painted or powder coated.

Relocate Section 11.8, Installation of Containers and Containers here

11.4 Container Appurtenances.

11.4 Container Appurtenances.

11.4.1 General Requirements for Appurtenances.

11.4.1.1 Container appurtenances (such as valves and fittings) shall comply with Section 5.9 and 11.4.1.2 through 11.4.1.15(A).

11.4.1.2 Container appurtenances shall have a pressure rating equal to or greater than the ~~design pressure~~ MAWP of the container.

11.4.1.3 Manual shutoff valves shall be designed to provide positive closure under service conditions and shall be equipped with an internal excess-flow check valve designed to close automatically at the rated flows of vapor or liquid specified by the manufacturers.

11.4.1.4 A filler valve shall comply with 5.9.4.1(C)(7) and shall be installed in the fill opening of the container.

(A) A filler valve used for remote filling shall be permitted to incorporate a single backflow check valve and shall be connected to the filler valve on the container by metal tubing or flexible hose connector.
(B) Where a flexible hose connector is used, it shall comply with 11.7.3.1.
11.4.1.5 Containers shall be fabricated so they can be equipped with a fixed maximum liquid level gauge as follows:
(1) The fixed maximum liquid level gauge shall be capable of indicating the maximum permitted filling level in accordance with 7.4.3.2(A).
(2) Fixed maximum liquid level gauges in the container shall be designed so the bleeder valve maximum opening to the atmosphere is not larger than a No. 54 drill size.
(3) The container fixed maximum liquid level gauge opening and the remote bleeder valve opening shall not be larger than a No. 54 drill size where the bleeder valve is installed at a location remote from the container.
11.4.1.6 ASME containers shall be equipped with full internal or flush-type full internal pressure relief valves conforming with applicable requirements of UL 132, *Safety Relief Valves for Anhydrous Ammonia and LP-Gas,* or other equivalent pressure relief valve standards.

(A) Fusible plugs shall not be used.
(B) The start-to-leak setting of the pressure relief valves specified in 11.4.1.6, with relation to the MAWP of the container, shall be in accordance with Table 5.9.2.5(A).
11.4.1.7 ASME containers Permanently mounted installed ASME containers on vehicles other than forklift trucks shall be equipped with a valve or combination of valves in the liquid outlet connection that has manual shutoff, excess-flow, and automatic closure features.
(A) The valve assembly shall prevent the flow of fuel when the engine is not in an operating mode even if the ignition switch is in the "on" position.
(B) This requirement shall not apply to industrial and forklift trucks.

11.4.1.8 Pressure relief valves shall be marked as follows:
(1) In accordance with CGA S-1.3, *Pressure Relief Device Standards, Part 3 — Stationary Storage Containers for Compressed Gases*, and ASME Code, Section VIII, UG-125 through UG-136
(2) With the rated relieving capacity in cubic feet per minute of air at 60°F (16°C) and 14.7 psia (101 kPa)
(3) With the manufacturer's name and catalog number
Pressure relief valves shall be in accordance with 5.9.2

11.4.1.9 Cylinders used in engine fuel service for industrial trucks shall be equipped with full internal or flush-type full internal pressure relief valves.
11.4.1.10 Single-opening cylinders in industrial truck service shall be equipped with a listed multiple function valve in accordance with 5.9.2.15.
11.4.1.11 A float gauge, if used, shall be designed and approved for use with LP-Gas.
11.4.1.12 unused container openings shall be plugged or have a bolted flange.
11.4.1.12 A solid steel plug shall be installed in unused threaded openings.
11.4.1.13 A bolted blind flange with gasket shall be installed in all unused flanged openings.
11.4.1.14 Where an overfilling prevention device is installed on the ASME container or exterior of the compartment and remote filling is used, a filler valve complying with 5.9.4.1(C)(7)(a) or 5.9.4.1(C)(7)(b) shall be installed in the exterior fill opening, and a filler valve complying with 5.9.4.1(C)(7)(c) shall be installed in the container filler valve opening.
Overfilling protection devices shall be in accordance with 5.9.4.1 (C).
11.4.1.15 * Where an overfilling prevention device is installed on an ASME container, venting of gas through the fixed maximum liquid level gauge during filling shall not be required.
(A) Where the fixed maximum liquid level gauge is not used during filling in accordance with 11.4.1.15, the fixed maximum liquid level gauge or other approved means shall be used annually to verify the operation of the overfilling prevention device.
(B) If the container is found to be overfilled during the test, corrective action shall be taken.
(C) The result shall be documented.
(D) A label shall be affixed to the container near visible from the fill point indicating the expiration date of the successful test.

11.5 Quantity of LP-Gas in Engine Fuel Containers. – No Changes

11.6 Carburetion Equipment. – No Changes

11.7 Piping, Hose, and Fittings.

11.7 Piping, Hose, and Fittings.

11.7.1 Pipe and Tubing.

11.7.1.1 Pipe and tubing shall be be in accordance with 5.11.3.1.2.

11.7.1.2 The use of non-metallic pipe and tubing shall not be permitted.

~~**11.7.1.1** Pipe shall be steel (black or galvanized), brass, or copper.~~

~~**11.7.1.1.1** Pipe shall comply with the applicable standard as follows:~~

~~(1) Steel pipe shall comply with ASTM A53/A53M, *Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless*.~~

~~(2) Steel pipe shall comply with ASTM A106/A106M, *Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service*.~~

~~(3) Brass pipe shall comply with ASTM B43, *Standard Specification for Seamless Red Brass Pipe, Standard Sizes*.~~

~~(4) Copper pipe shall comply with ASTM B42, *Standard Specification for Seamless Copper Pipe, Standard Sizes*.~~

~~**11.7.1.1.2** Furnace buttwelded piping shall not be used for piping that meets ASTM A53/A53M, *Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless*.~~

~~**11.7.1.2** Tubing shall be steel, stainless steel, brass, or copper and comply with the applicable standard as follows:~~

~~(1) Brass tubing shall comply with ASTM B135/B135M, *Standard Specification for Seamless Brass Tube*.~~

~~(2) Copper tubing shall comply with one of the following:~~

~~(a) ASTM B75/B75M, *Standard Specification for Seamless Copper Tube*~~

~~(b) For Type K or Type L, ASTM B88, *Standard Specification for Seamless Copper Water Tube*~~

~~(c) ASTM B280, *Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service*~~

~~(3) Stainless steel shall comply with one of the following:~~

~~(a) ASTM A213/A213M, *Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes*~~

~~(b) ASTM A249/A249M, *Standard Specification for Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes*~~

~~(c) ASTM A269/A269M, *Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service*~~

~~(4) Steel tubing shall comply with one of the following:~~

~~(a) SAE J356, Welded, Flash-Controlled, Low-Carbon Steel Tubing Normalized for Bending, Double Flaring, Beading, Forming, and Brazing~~

~~(b) ASTM A822/A822M, Standard Specification for Seamless Cold-Drawn Carbon Steel Tubing for Hydraulic System Service~~

11.7.1.2 Tubing shall be in accordance with 5.11.3.1.

11.7.1.2.1 Copper and non-metallic tubing shall not be permitted.

11.7.2 Fittings for Metallic Pipe and Tubing.

11.7.2.1 Fittings shall be steel, brass, copper, malleable iron, or ductile (nodular) iron.

11.7.2.1 Fittings shall be in accordance with 5.11.4

~~**11.7.2.2** Pipe fittings shall have a minimum pressure rating as specified in Table 11.7.2.2 and shall comply with the following:~~

~~(1) Cast iron pipe fittings shall not be used.~~

~~(2) Brazing filler material shall have a melting point that exceeds 1000°F (538°C).~~

~~Table 11.7.2.2 Service Pressure Rating of Pipe, Tube Fittings, and Valves~~

~~Service~~	~~Minimum Pressure~~
~~Higher than container pressure~~	~~350 psig (2.4 MPag) or the MAWP, whichever is higher, or 400 psig (2.8 MPag) WOG rating~~

~~**Table 11.7.2.2 Service Pressure Rating of Pipe, Tube Fittings, and Valves**~~

~~Service~~	~~Minimum Pressure~~
~~LP-Gas liquid or vapor at operating pressure over 125 psig (0.9 MPag) and at or below container pressure~~	~~250 psig (1.7 MPag)~~
~~LP-Gas vapor at operating pressure or 125 psig (0.9 MPag) or less~~	~~125 psig (0.9 MPag)~~

~~**11.7.2.3** Metal tube fittings shall have a minimum pressure rating as specified in Table 11.7.2.2.~~

11.7.3 Hose, Hose Connections, and Flexible Connectors. - Unchanged

11.8 Installation of Containers and Container Appurtenances.

11.8.1 Location of Containers. – Unchanged EXCEPT new 11.8.4.4

~~**6.27.3.3**~~ 11.8.4.4 LP-Gas containers shall be installed either on the outside of the vehicle or in a recess or cabinet vaportight to the inside of the vehicle but accessible from and vented to the outside, with the vents located near the top and bottom of the enclosure and 3 ft (1 m) horizontally away from any opening into the vehicle below the level of the vents.

11.8.1.1 ~~**6.27.3.3 (C)**~~ Where containers are installed within a vehicle housing, the securing of the housing to the vehicle shall comply with 6.27.3.3(B). Any removable portions of the housing or cabinet shall be in transit.

11.8.1.2 ~~**6.27.3.3 (F)**~~ Cylinders shall have permanent protection for cylinder valves and connections.

11.8.2 Protection of Containers and Appurtenances.

11.8.2.1 Container valves, appurtenances, and connections shall be protected to prevent damage due to accidental contact with stationary objects, or from stones, mud, or ice, and from damage due to an overturn or similar vehicular accident.

11.8.2.2 Protection of container valves, appurtenances, and connections shall be provided by one of the following:

(1) By locating the container so that parts of the vehicle furnish the necessary protection
(2) By the use of a fitting guard furnished by the manufacturer of the container
(3) By other means to provide equivalent protection

11.8.2.3 ~~6.27.3.3 **(G)**~~ Where cylinders are located on the outside of a vehicle, weather protection shall be provided.

11.8.3 Container Clearances. - Unchanged

11.8.4 Container Installation.

11.8.4.1 Fuel containers shall be installed to prevent their jarring loose and slipping or rotating, and the fastenings shall be designed and constructed to withstand static loading in any direction equal to four times the weight of the container filled with fuel.

~~**11.8.4.2** Welding for the repair or alterations of containers shall comply with 11.3.3.4.~~

11.8.4.3 Main shutoff valves on a container for liquid and vapor shall be readily accessible ~~without the use of tools,~~ or other equipment shall be provided to shut off the container valves.

11.8.4.4. Filling connections for ASME containers shall be located at least 2 ft. above the ground.uch that the attendant is not required to lay on the ground.

11.8.4.5 Structural members that have been drilled shall be protected from corrosion.

11.8.4.5 ~~**6.27.3.4**~~ Cylinders installed on portable tar kettles alongside the kettle, on the vehicle frame, or on road surface heating equipment shall be protected from radiant or convected heat from open flame or other burners by the use of a heat shield or by the location of the cylinder(s) on the vehicle. In addition, the following shall apply:

(1) Cylinder valves shall be closed when burners are not in use.
(2) Cylinders shall not be refilled while burners are in use as provided in 7.2.3.2(B).

~~**11.8.5**~~ **11.9 Pressure Relief Valve Discharge System. - Unchanged**

11.9 Installation in Interior of Vehicles. - Unchanged

NEW 11.10 Installation of Regulators on Vehicles. (Relocated from 6.27.4)

11.10.1.1 ~~**6.27.4.2**~~ Regulators shall be installed in accordance with 6.10.2 and 6.27.4.2(A) through 6.27.4.2(E).
11.10.1.1 (A) Regulators shall be installed with the pressure relief vent opening pointing vertically downward to allow for drainage of moisture collected on the diaphragm of the regulator.
11.10.1.2 (B) Regulators not installed in compartments shall be equipped with a durable cover designed to protect the regulator vent opening from sleet, snow, freezing rain, ice, mud, and wheel spray.
11.10.1.3 (C) Regulators installed at or below floor level shall be installed in a compartment that provides protection against the weather and wheel spray.
11.10.1.4 (D) Regulator compartments shall comply with the following:

(1) The compartment shall be of sufficient size to allow tool operation for connection to and replacement of the regulator(s).
(2) The compartment shall be vaportight to the interior of the vehicle.
(3) The compartment shall have a 1 in.^{2} (650 mm^2) minimum vent opening to the exterior located within 1 in. (25 mm) of the bottom of the compartment.
(4) The compartment shall not contain ~~flame or spark-producing equipment~~ sources of ignition.

(E) A regulator vent outlet shall be at least 2 in. (51 mm) above the compartment vent opening.

Relocated from 6.27.4.2. The term “flame or spark producing equipment is replaces with sources of ignition, the preferred term which is defined in 3.3.75. This is the only place in the Code the term is used.

Renumber subsequent paragraphs.

11.10 Pipe and Hose Installation.
11.10.1 General Requirements.
11.10.1.1 The piping system shall be designed, installed, supported, and secured in such a manner as to minimize damage due to expansion, contraction, vibration, strains, abrasion, UV deterioration, and wear.
11.10.1.2 * Pipe, tubing, and hoses shall be installed in a manner that protects them from damage due to accidental contact with stationary objects, impact from stones, mud, or ice, or a vehicular accident.
11.10.1.3 Piping and hose shall be installed in a manner that permits visual inspection.
11.10.1.4 Fastening or other protection shall be installed to prevent damage due to vibration or abrasion.
11.10.1.5 At each point where piping passes through sheet metal or a structural member, a rubber grommet or equivalent protection shall be installed to prevent chafing.
11.10.1.6 Fuel line piping that ~~must~~ pass through the floor of a vehicle shall be installed to enter the vehicle through the floor directly beneath or adjacent to the container.

Editorial modification

11.10.1.7 ~~If~~ Where a branch fuel line is ~~required~~ installed, the tee connection shall be in the main fuel line outside the passenger compartment of the vehicle.

Editorial modification

11.10.1.8 Where liquid service lines of two or more individual containers are connected together, a spring-loaded backflow check valve or equivalent shall be installed in each of the liquid lines prior to the point where the liquid lines tee together to prevent the transfer of LP-Gas from one container to another.
11.10.1.9 Exposed parts of the piping system shall be of corrosion-resistant material or shall be protected to minimize exterior corrosion.
11.10.1.10 Piping systems, including hose, shall be tested and proven free of leaks at not less than normal operating pressure.
11.10.1.11 There shall be no fuel connection between a or other vehicle units.
11.10.1.12 ~~6.27.5.1 (B)~~ A flexible connector shall be installed between the regulator outlet and the fixed piping system to protect against expansion, contraction, jarring, and vibration strains.
11.10.1.13 ~~6.27.5.1~~ **~~(G)~~** Piping shall be installed in a protected location.
11.10.1.14 ~~**6.27.5.1 (H)**~~ Where piping is installed outside the vehicle, it shall be installed as follows:

(1) Piping shall be under the vehicle and below any insulation or false bottom.
(2) Fastening or other protection shall be installed to prevent damage due to vibration or abrasion.

(3) At each point where piping passes through sheet metal or a structural member, a rubber grommet or equivalent protection shall be installed to prevent chafing

11.10.1.15 6.27.5.1 (I) Gas piping shall be installed to enter the vehicle through the floor directly beneath or adjacent to the appliance served.

11.10.1.13 ~~6.27.5.1~~ ~~(J)~~ ~~If~~ where a branch line is installed, the tee connection shall be located in the main gas line under the floor and outside the vehicle.

11.10.1.13 ~~6.27.5.1~~ ~~(K)~~ Exposed parts of the fixed piping system either shall be of corrosion-resistant material or shall be coated or protected to minimize exterior corrosion.

11.10.2 Hydrostatic Relief Valves.

11.10.2.1 Hydrostatic relief valves shall be installed in accordance with 6.16.

~~**11.10.2.1** A hydrostatic relief valve or device providing pressure-relieving protection shall be installed in each section of piping (including hose) in which liquid LP-Gas can be isolated between shutoff valves, so as to relieve to the atmosphere.~~

~~**11.10.2.2** Hydrostatic relief valves shall have a pressure setting of not less than 400 psig (2.8 MPag) or more than 500 psig (3.5 MPag).~~

11.11 Industrial (and Forklift) Trucks Powered by LP-Gas.

11.12 General Provisions for Vehicles With Engines (Including Floor Maintenance Machines). – No Changes

(NEW) 11.13 ~~6.27.6~~ Equipment and Appliance Installation.

~~Equipment shall be installed in accordance with Section 6.21, 6.27.6.1, and 6.27.6.2.~~

11.13.1 ~~6.27.6.1~~ Installation shall be made in accordance with the manufacturer's recommendations and, in the case of approved equipment, as provided in the approval.

11.13.2 ~~6.27.6.2~~ Equipment installed on vehicles shall be protected against vehicular damage as provided for container appurtenances and connections in 6.27.3.3(E).

~~**6.27.7 Appliance Installation on Vehicles.**~~

~~**6.27.7.1** Subsection 6.27.7 shall apply to the installation of all appliances on vehicles. It shall not apply to engines.~~

11.13.3 ~~6.27.7.2~~ All appliances covered by 6.27.7 installed on vehicles shall be approved.

11.13.4 ~~6.27.7.3~~ Where the device or appliance, such as a cargo heater or cooler, is designed to be in operation while the vehicle is in transit, means, such as an excess-flow valve, to stop the flow of gas in the event of a line break shall be installed.

11.13.5 ~~6.27.7.4~~ Gas-fired heating appliances shall be equipped with shutoffs in accordance with 5.24.8(A), except for portable heaters used with cylinders having a maximum water capacity of 2.7 lb (1.2 kg), portable torches, melting pots, and tar kettles.

11.13.6 ~~6.27.7.5~~ Gas-fired heating appliances, other than ranges and illuminating appliances installed on vehicles intended for human occupancy, shall be designed or installed to provide for a complete separation of the combustion system from the atmosphere inside the vehicle.6.27.4.1

11.13.6~~*~~ ~~6.27.7.6~~ ~~*~~ Where unvented-type heaters that are designed to protect cargo are used on vehicles not intended for human occupancy, provisions shall be made to provide air from the outside for combustion and dispose of the products of combustion to the outside.

11.13.7 ~~6.27.7.7~~ Appliances installed in the cargo space of a vehicle shall be readily accessible whether the vehicle is loaded or empty.

11.13.7 ~~6.27.7.8~~ Appliances shall be constructed or otherwise protected to minimize possible damage or impaired operation due to cargo shifting or handling

11.13.8 ~~6.27.7.9~~ Appliances shall be located so that a fire at any appliance will not block egress of persons from the vehicle.

11.13.9 ~~6.27.7.10~~ A permanent caution plate shall be affixed to either the appliance or the vehicle outside of any enclosure adjacent to the container(s).

11.13.10 ~~6.27.7.10.1~~The caution plate shall include the following text: SEE **16.7.10**

CAUTION:

(1) Be sure all appliance valves are closed before opening container valve.
(2) Connections at the appliances, regulators, and containers shall be checked periodically for leaks with soapy water or its equivalent.
(3) Never use a match or flame to check for leaks.
(4) Container valves shall be closed when equipment is not in use.

10.13.11 ~~**6.27.7.11**~~ Gas-fired heating appliances and water heaters shall be equipped with automatic devices designed to shut off the flow of gas to the main burner and the pilot in the event the pilot flame is extinguished.

11.13 Engine Installation Other Than on Vehicles. – No Changes

11.14 Garaging of Vehicles. – Same, except one requirement is added:

11.14.1 ~~**6.27.8.5**~~ Vehicles having containers with water capacities larger than 300 gal (1.1 m^3) shall comply with the requirements of Section 9.7.

Public Input No. 93-NFPA 58-2025 [Sections 11.1.1, 11.1.2]

Sections 11.1.1, 11.1.2

11.1.1*

This chapter applies to engine fuel systems installed on mobile and nonstationary engines and off-road vehicles and on-road vehicles not propelled by propane using LP-Gas in internal combustion engines, including containers, container appurtenances, carburetion equipment, piping, hose, and fittings, and their installation.

11.1.2

This chapter does not apply to on-road LP-Gas fueled vehicles propelled by propane . *(See Chapter 12.)*

Statement of Problem and Substantiation for Public Input

There is a hole in NFPA 58 concerning vehicles with propane engine fuel systems that are utilized on-road but do not propel the vehicle. 6.27 does not cover engine fuel systems, ch11 specifies off-road, and ch12 only covers on road when propelling the vehicle. This comment is to modify the scope of ch11 to cover on road engine fuel systems that do not propel the vehicle. Examples of on road vehicles that would fit this application would be trailered propane powered generators and propane powered ev charger trailers. these are tagged and titled vehicles that travel on-road but the engine fuel systems are not propelling the vehicle. subsequent code in ch11 may need to be updated due to this addition if the TC feels the need.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 94-NFPA 58-2025 [Section No. 12.1.1]	

Submitter Information Verification

Submitter Full Name: David Kennedy
Organization: Blossman Gas, Inc.
Street Address:
City:
State:
Zip:

Submittal Date: Tue May 20 11:09:34 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-40-NFPA 58-2025
Statement: This change would expand chapter 11 to cover a gap when there are engines installed on vehicles that are not propelling the vehicle, either on or off road.

Public Input No. 38-NFPA 58-2025 [Section No. 11.4.1.15]

11.4.1.15*

~~Where the~~

~~Where an overfilling prevention device is installed on an ASME container~~ , venting of gas through the fixed maximum liquid level gauge during filling shall not be required ~~.~~

~~**(A)** –~~

where a fixed maximum liquid level gauge or other means is

~~not~~

used

~~during filling in accordance with 11.4.1.15 ;~~

to control filling of the ASME container .

(A)

the fixed maximum liquid level gauge or other approved means shall be used annually to verify the operation of the overfilling prevention device.

(B)

If the container is found to be overfilled during the test, corrective action shall be taken.

(C)

The result shall be documented and retained until the next verification .

(D)

A label shall be affixed to the container ~~near~~ visible from the fill point indicating the expiration date of the successful test.

Statement of Problem and Substantiation for Public Input

The requirement is revised to recognize that a fixed maximum liquid level gauge is required for all ASME containers. The revisions will continue to require that where overfilling prevention devices (OPDs) are used to control filling of containers, the fixed maximum liquid level gauges be used annually to verify proper operation of OPDs.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Wed Jan 29 10:28:27 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: The retention of documentation is sufficiently performed with the label that is to be affixed to the container (similar to a vehicle inspection window sticker). The visible from the fill point, may not be achievable if the container is under body. The container could have an OPD and the container can be filled through that rather than the fixed maximum liquid level gauge.

Public Input No. 39-NFPA 58-2025 [Section No. 11.8.1.1]

~~11.8.1.1~~ –

~~Containers shall be located to minimize the possibility of damage to the container and its fittings.~~

Statement of Problem and Substantiation for Public Input

Paragraphs 11.8.1 and 11.8.1.4 appear to cover the same subject, prevention of damage to containers. There is no need to state this twice in the same requirement. It is proposed to delete 11.8.1.1.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Wed Jan 29 10:40:33 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: 11.8.1 is on container protection and 11.8.1.4 on marking the container and they are not related or redundant to each other.

Public Input No. 40-NFPA 58-2025 [Chapter 12 [Title Only]]

~~Motor Vehicles Intended for~~
LP-Gas On-Road
~~Use or Designed to Transport Passengers and Are Fueled by LP-Gas~~
Motor Vehicle Fuel Systems.

Statement of Problem and Substantiation for Public Input

Revised editorially and to be consistent with the scope of the chapter. The scope (12.1) does not include transporting passengers.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Wed Jan 29 13:26:58 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-41-NFPA 58-2025
Statement: The transportation of passengers is not relevant to the content of the chapter and has been revised to reflect the content of the chapter

Public Input No. 94-NFPA 58-2025 [Section No. 12.1.1]

12.1.1*

This chapter applies to the design, installation, operation, and maintenance of LP-Gas engine fuel system components and ASME containers installed on motor vehicles intended for onroad use~~, where LP-Gas is used for the engine propulsion of the vehicle~~ .

Statement of Problem and Substantiation for Public Input

There is a hole in NFPA 58 concerning vehicles with propane engine fuel systems that are utilized on-road but do not propel the vehicle. 6.27 does not cover engine fuel systems, ch11 specifies off-road, and ch12 only covers on road when propelling the vehicle. This comment is to modify the scope of ch12 to cover on road engine fuel systems that do not propel the vehicle. Examples of on road vehicles that would fit this application would be trailered propane powered generators and propane powered ev charger trailers. these are tagged and titled vehicles that travel on-road but the engine fuel systems are not propelling the vehicle. subsequent code in ch12 may need to be updated due to this addition if the TC feels the need.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 93-NFPA 58-2025 [Sections 11.1.1, 11.1.2]	optional solution

Submitter Information Verification

Submitter Full Name: David Kennedy
Organization: Blossman Gas, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Tue May 20 11:20:11 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-40-NFPA 58-2025
Statement: This change would expand chapter 11 to cover a gap when there are engines installed on vehicles that are not propelling the vehicle, either on or off road.

Public Input No. 48-NFPA 58-2025 [Section No. 12.3.2.4]

12.3.2.4*

New or reconditioned ASME containers, or ASME containers that have had their interiors exposed to the atmosphere, shall be purged prior to being filled with LP-Gas unless they contain an atmosphere that prevents corrosion .

Statement of Problem and Substantiation for Public Input

Revised to recognize some containers are shipped under vacuum or have an atmosphere that prevents corrosion.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Fri Jan 31 11:28:54 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: A container needs to be purged prior to being placed into service to prevent damage to the container, its appurtenances, and the engine it supplies.

Public Input No. 59-NFPA 58-2025 [Section No. 12.3.6.2]

12.3.6.2

The excess-flow valve shall meet the following requirements:

(1) Either be part of the valve (where installed in a dedicated opening), internal to the container, or be located in the opening portion of a multipurpose valve body or manifold, in the container opening

(2) Be of the ~~fully~~ full internal type

(3) Have a rated flow not exceeding 150% of the flow capacity of the piping, tubing, or hose it is protecting

Statement of Problem and Substantiation for Public Input

1. Editorial revision to use "full" instead of "fully" to be consistent with use of the term in other code locations. See definitions in 3.3.81.
2. As excess flow valves are offered with a limited number of flow ratings it is impossible to locate an excess flow valve with exactly the flow it will be handling. Also, as surge can be expected when a system starts, some additional flow is needed to prevent nuisance trips.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Tue Feb 25 10:12:59 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-45-NFPA 58-2025
Statement: The change is to be consistent with use of the term in other code locations. See definitions in 3.3.81.

Public Input No. 13-NFPA 58-2024 [Section No. 12.3.7.4 [Excluding any Sub-Sections]]

Where the overfilling prevention device is used as the primary means to fill the ASME container, the fixed maximum liquid level gauge or other approved means shall be used at ~~least once annually to~~ an interval not exceed one year to verify the proper operation of the overfilling prevention device.

Statement of Problem and Substantiation for Public Input

The current wording of "at least once annually" means at least once in a calendar year, for instance. This could be met by performing the test on December 31 of one year and January 1 of the next year or January 1 of one year and December 31 of the next year. The intent should be that it is performed at intervals no longer than one year. Otherwise, how is the expiration date required on the label in 12.3.7.4.3 going to be determined? Also, "proper" operation must be determined to allow continued use without performing maintenance.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
Street Address:
City:
State:
Zip:

Submittal Date: Mon Aug 26 15:35:05 EDT 2024
Committee: LPG-AAA

Committee Statement

Resolution: FR-46-NFPA 58-2025
Statement: The time period has been revised to be more specific as which time period is intended for this section. Annually could mean once per calendar year or once per year interval.

Public Input No. 112-NFPA 58-2025 [Section No. 12.3.8.1]

12.3.8.1

Fuel pumps shall comply with ~~Annex 4 of ECE R67.01~~ one of the following:

(1) Annex 4 of ECE R67 . 01

(2) SAE J1537 “Validation Testing of Electric Fuel Pumps for Gasoline Fuel Injection Systems”

(3) Be qualified under the US. Federal motor vehicle safety standards (FMVSS), as documented by the Original Equipment Manufacturer for the intended application .

Statement of Problem and Substantiation for Public Input

Chapter 12 of the Standard does not allow for the qualifying of product to FMVSS standards to be used as in place of the requirements in Chapter 12. This proposal will introduce the rationale that if a vehicle meets FMVSS standards then it is equivalent or superior to the current requirements in Chapter 12, specifically the European Standard ECE R67.01. The current code is deficient in these areas:
▪ FMVSS is a vehicle level safety standard. Chapter 12 references individual components.
▪ The FMVSS standard is not adequate nor designed for HD (Heavy Duty) vehicles.
▪ Lacking an FMVSS standard for HD vehicles, OEMs must qualify to the ECE R.67 standards referenced in NFPA 58.
▪ ECE R.67 was created to include validation criteria including HPDI (High Pressure Direct Injected) fuel systems. HPDI fuel systems are not currently used in HD Vehicles and therefore an alternative approach is needed to qualify these vehicles.
The FMVSS allows the OEM’s to validate all components and fuel systems to meet the FMVSS requirements for safety when used in LP-gas vehicles and OEM’s have created validation and safety criteria that allows them to certify their products. OEM’s criteria for releasing a product to market far exceeds the FMVSS, ECE R standards and NFPA standards as they relate to product safety and their intended application.
To solve for the lack of FMVSS standards for components and HD vehicle level testing criteria, we propose to allow OEM’s to qualify components for acceptable safety performance using their own safety criteria. This is consistent with the way products are released into commerce and regulated by NHTSA (National Highway Traffic Safety Administration).

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 113-NFPA 58-2025 [Section No. 12.3.9.1]	
Public Input No. 114-NFPA 58-2025 [Section No. 12.3.13.4]	

Submitter Information Verification

Submitter Full Name: Christopher Wagner
Organization: National Propane Gas Associati
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 28 14:33:53 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-54-NFPA 58-2025
Statement: Components that comply with FMVSS specifications are equivalent to the current requirements and are permissible for installation as parts of vehicles in chapter 12. Other equivalent standards these

components can be listed to are being added.

Public Input No. 113-NFPA 58-2025 [Section No. 12.3.9.1]

12.3.9.1

Fuel injectors, fuel rails, distribution blocks

;

and fuel

-

switching devices shall comply with ~~the requirements of~~

~~Annex 11~~

~~Annex 11~~ ~~of ECE R67.01~~ one of the following:

(1) The requirements of Annex 11 of ECE R67 . 01

(2) Be qualified to the US. Federal motor vehicle safety standards (FMVSS), as documented by the Original Equipment Manufacturer for the intended application .

Statement of Problem and Substantiation for Public Input

Chapter 12 of the Standard does not allow for the qualifying of product to FMVSS standards to be used as in place of the requirements in Chapter 12. This proposal will introduce the rationale that if a vehicle meets FMVSS standards then it is equivalent or superior to the current requirements in Chapter 12, specifically the European Standard ECE R67.01. The current code is deficient in these areas:
▪ FMVSS is a vehicle level safety standard. Chapter 12 references individual components.
▪ The FMVSS standard is not adequate nor designed for HD (Heavy Duty) vehicles.
▪ Lacking an FMVSS standard for HD vehicles, OEMs must qualify to the ECE R.67 standards referenced in NFPA 58.
▪ ECE R.67 was created to include validation criteria including HPDI (High Pressure Direct Injected) fuel systems. HPDI fuel systems are not currently used in HD Vehicles and therefore an alternative approach is needed to qualify these vehicles.
The FMVSS allows the OEM's to validate all components and fuel systems to meet the FMVSS requirements for safety when used in LP-gas vehicles and OEM's have created validation and safety criteria that allows them to certify their products. OEM's criteria for releasing a product to market far exceeds the FMVSS, ECE R standards and NFPA standards as they relate to product safety and their intended application.
To solve for the lack of FMVSS standards for components and HD vehicle level testing criteria, we propose to allow OEM's to qualify components for acceptable safety performance using their own safety criteria. This is consistent with the way products are released into commerce and regulated by NHTSA (National Highway Traffic Safety Administration).

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 112-NFPA 58-2025 [Section No. 12.3.8.1]	Companion

Submitter Information Verification

Submitter Full Name: Christopher Wagner
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Street Address:
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Submittal Date: Wed May 28 14:35:48 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-55-NFPA 58-2025

Statement: Components that comply with FMVSS specifications are equivalent to the current requirements and are permissible for installation as parts of vehicles in chapter 12. Other equivalent standards these components can be listed to are being added.

Public Input No. 114-NFPA 58-2025 [Section No. 12.3.13.4]

12.3.13.4

Vaporizers, pressure regulators, and carburetors shall ~~be listed to~~ ~~UL 1337,~~ ~~*Outline of Investigation for LP-Gas, Natural Gas, and Manufactured Gas Devices for Engine Fuel Systems*~~ comply with one of the following:

(1) Be listed to UL 1337, *Outline of Investigation for LP-Gas, Natural Gas, and Manufactured Gas Devices for Engine Fuel Systems*.

(2) Meet the requirements of Annex 6 or 11 of ECE R67.01, as applicable

(3) Be qualified to the US. Federal motor vehicle safety standards (FMVSS), as documented by the Original Equipment Manufacturer for the intended application.

Statement of Problem and Substantiation for Public Input

Chapter 12 of the Standard does not allow for the qualifying of product to FMVSS standards to be used as in place of the requirements in Chapter 12. This proposal will introduce the rationale that if a vehicle meets FMVSS standards then it is equivalent or superior to the current requirements in Chapter 12, specifically the European Standard ECE R67.01. The current code is deficient in these areas:
▪ FMVSS is a vehicle level safety standard. Chapter 12 references individual components.
▪ The FMVSS standard is not adequate nor designed for HD (Heavy Duty) vehicles.
▪ Lacking an FMVSS standard for HD vehicles, OEMs must qualify to the ECE R.67 standards referenced in NFPA 58.
▪ ECE R.67 was created to include validation criteria including HPDI (High Pressure Direct Injected) fuel systems. HPDI fuel systems are not currently used in HD Vehicles and therefore an alternative approach is needed to qualify these vehicles.
The FMVSS allows the OEM's to validate all components and fuel systems to meet the FMVSS requirements for safety when used in LP-gas vehicles and OEM's have created validation and safety criteria that allows them to certify their products. OEM's criteria for releasing a product to market far exceeds the FMVSS, ECE R standards and NFPA standards as they relate to product safety and their intended application.
To solve for the lack of FMVSS standards for components and HD vehicle level testing criteria, we propose to allow OEM's to qualify components for acceptable safety performance using their own safety criteria. This is consistent with the way products are released into commerce and regulated by NHTSA (National Highway Traffic Safety Administration).

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 112-NFPA 58-2025 [Section No. 12.3.8.1]	Companion

Submitter Information Verification

Submitter Full Name: Christopher Wagner
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Street Address:
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Submittal Date: Wed May 28 14:37:50 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-56-NFPA 58-2025

Statement: Components that comply with FMVSS specifications are equivalent to the current requirements and are permissible for installation as parts of vehicles in chapter 12. Other equivalent standards these components can be listed to are being added.

Public Input No. 43-NFPA 58-2025 [Section No. 12.4.2]

12.4.2 Training Requirements.

12.4.2.1*

Each person engaged in installing or maintaining a LP-Gas engine fuel system shall be trained as follows:

(1) In accordance with the requirements of Section 4.4

(2) ~~With general training on the nature of~~ LP-Gas engine fuel systems and their components

(3) ~~With training~~ on the specific LP-Gas fuel system to be installed or maintained

~~**12.4.2.2** –~~

~~All training in accordance with 12.4.2.1 shall be documented.~~

Statement of Problem and Substantiation for Public Input

1. Editorial revision to remove repeated words.

2. Paragraph 4.2.2 is deleted as the requirements of 4.4.3 4overs documentation of training is applicable and is referenced in 12.4.2.1.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Thu Jan 30 14:43:41 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-53-NFPA 58-2025

Statement: Paragraph 12.4.2.2 is deleted as the requirements of 4.4 covers documentation of training is applicable and is referenced in 12.4.2.1. The levels of training are not necessary in the annex material and general reference to the 3 training areas is more concise.

Public Input No. 60-NFPA 58-2025 [Section No. 12.4.3]

12.4.3 Welding.

~~Welding~~ ASME container welding shall be ~~performed as follows:Welding shall be performed~~ in accordance with ~~ASME's *Boiler and Pressure Vessel Code* .~~

- ~~Welding shall be performed by a certified ASME pressure vessel welder with an ASME "U" or "R" certification.~~
- ~~Welding by a qualified welder for brackets or other attachments shall be permitted on weld pads or other non-pressure containing portions of the ASME container.~~

~~Welding of attachments or supports to ASME containers shall not reduce the structural integrity of the ASME container.~~ 5.2.1.6 and 5.2.1.7.

Statement of Problem and Substantiation for Public Input

ASME container welding requirements are the same for stationary and vehicle containers. Therefore, these requirements in Chapter 5 are referenced rather than rewriting them in chapter 12.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Tue Feb 25 10:28:40 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-48-NFPA 58-2025

Statement: ASME container welding requirements are the same for stationary and vehicle containers. Therefore, these requirements in Chapter 5 are referenced rather than rewriting them in chapter 12.

Public Input No. 44-NFPA 58-2025 [Section No. 12.4.4]

12.4.4 Structural Requirements for ~~Mounting~~ the installation of ASME Containers.

ASME containers shall be installed and fastened in accordance with the following:

(1) * ASME containers shall be installed to prevent them from jarring loose and slipping or rotating.

(2) The fastenings shall be designed and constructed to withstand static loading in any direction equal to four times the weight of the container filled with fuel.

(3) * Prior to being returned to service, an ASME container shall be inspected to determine its suitability for continued service.

(4) Structural members that have been drilled shall be protected from corrosion.

(5) * ASME container ~~mounting~~ brackets shall be provided by or recommended by the ASME container manufacturer and shall be provided with a resilient material to be installed between the supports or clamping bands and the ASME container such that there is no direct metal-to-metal contact.

(6) Welding shall not be used as a means of attaching ASME container brackets to a vehicle.

(7) ASME containers shall not be used as structural members.

(8) Filling connections for ASME containers shall be located such that the attendant is not required to lay on the ground.

(9) Filling connections and related fittings shall not be installed in a manner that will necessitate access for filling from the passenger compartment or any contiguous portion of the vehicle where the potential for vapors to migrate into the passenger compartment is possible.

(10) ASME containers and their means of attachment shall be protected from corrosion and abrasion.

Statement of Problem and Substantiation for Public Input

The title is revised to cover the installation of ASME containers as the term is used predominantly used in the Code. Subparagraph (5) is revised to be consistent with subparagraph (6).

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Thu Jan 30 14:53:11 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: Mounting brackets are an industry term in relation to chapter 12 vehicles and is the appropriate term here.

Public Input No. 57-NFPA 58-2025 [Section No. 12.6]

12.6 Installation of Pipe, Tubing, and Hose.

12.6.

~~1 * –~~

~~Where applicable, all threaded connections shall be tightened to the torque specification of the fitting or fuel system manufacturer's specifications.~~

~~12.6.~~

2 _

LP-Gas piping, tubing, and hose shall be secured to the vehicle at intervals not greater than 24 in. (61 cm) by corrosion-resistant hose/tubing

~~mounting fixtures that are constructed of a material recommended for the application.~~

attachments

12.6.3 _

~~Any~~

pipe, tubing, or hose

~~connection~~

ends not in use shall be capped or plugged.

12.6.4 _

All pipe and tubing joints and hose connections shall be accessible for service and inspection after installation.

12.6.5 _

All piping and tubing fittings shall be inspected or tested to assure that they are correctly installed.

12.6.6 _

Defects in LP-Gas piping or tubing that can affect its performance shall not be repaired, and the piping or tubing shall be removed from service.

Statement of Problem and Substantiation for Public Input

12.6.1 is proposed to be deleted because it is unenforceable. The qualifying statement, "where applicable" is unspecified. This term is not used elsewhere in the Code. The related annex does not provide information on applicability. It is noted that there are no requirements for tightening of threaded connections anywhere else in the Code, including Chapter 11 that also applies to vehicles. If this is needed is also needed for pipe connections in chapter 11 and in other locations in the Code.
12.6.12 is revised to delete the requirement that the attachment fixture must be recommended for the application. It does not specify who makes this recommendation. It could be the fuel system manufacturer, the component manufacturer, the installer, or anyone else as currently written.
12.6.3 is revised editorially. It is noted that similar requirements for plugging and capping exist for containers, but not for pipe and tubing elsewhere in the Code. This is something that can be addressed by the committee.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
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Zip:

Submittal Date: Mon Feb 24 11:19:07 EST 2025

Committee: LPG-AAA

Committee Statement

Resolution: FR-51-NFPA 58-2025

Statement: The previous language in 12.6.1 was vague as it already applies to all pipe, tubing, and hose as that is the scope of the section. There is no requirement for tightening of threaded connections anywhere else in the Code and it is not needed here.

Public Input No. 70-NFPA 58-2025 [Section No. 12.6.1]

12.6.1*

~~Where applicable, all threaded connections shall be tightened to the torque specification of the fitting or fuel system manufacturer's specifications.~~

Statement of Problem and Substantiation for Public Input

This requirement is vague and made even more so by the lead-in "where applicable." Being in the general requirements for pipe, tubing, and hose, it applies to everything within the scope of 12.1.1. Torque requirements usually apply to bolts and flare nuts, but this could also apply to piping screwed into fittings. Should it also apply to the threaded connections already completed on components to be installed?
Also delete A.12.6.1.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
Street Address:
City:
State:
Zip:

Submittal Date: Wed Mar 19 12:30:00 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-51-NFPA 58-2025

Statement: The previous language in 12.6.1 was vague as it already applies to all pipe, tubing, and hose as that is the scope of the section. There is no requirement for tightening of threaded connections anywhere else in the Code and it is not needed here.

Public Input No. 76-NFPA 58-2025 [Section No. 16.2.2]

16.2.2

Cylinders shall be containers designed, constructed, tested, and marked in accordance with 49 CFR, “Transportation,” or in accordance with a valid DOT special permit with a minimum service pressure of 240 psi (1.7 MPag).

Can we get clarification for the abbreviation for megapascal? The only information found acknowledges the abbreviation MPa as a unit of measurement in the International System of Units (SI). The abbreviation MPag is not a standard unit of measurement, and if it does relate to a unit of measurement, it should be clearly defined.

Statement of Problem and Substantiation for Public Input

Review if the unit of measure is a typographical error, and if it is not, identify where it is recognized as a unit of measurement.

Submitter Information Verification

Submitter Full Name: Brian Gordon
Organization: Young & Associates
Affiliation: Young & Associates
Street Address:
City:
State:
Zip:

Submittal Date: Thu Mar 27 15:05:16 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-58-NFPA 58-2025
Statement: MPag is the correct term and the psi unit is being corrected to add the gauge designation on the imperial unit. The MPag term is defined in chapter 3.

Public Input No. 1-NFPA 58-2024 [New Section after 16.11.5]

16.12 LP Gas System Certification

16.12.1 LP Gas systems on mobile food service vehicles, used for purposes other than propulsion, shall be certified for compliance with NFPA 58 by an approved company with expertise in the installation, inspection and maintenance of LP-Gas systems.

16.12.1.1 The certification shall be good for one year.

16.12.1.2 Recertification shall occur every time an appliance is replaced or added and if a piping connection is modified in any way.

16.12.1.2.1 A change in a cylinder shall not be considered a piping connection modification.

16.12.1.3 Mobile food service vehicles equipped with an LP-Gas system used for purposes other than propulsion, but without a current approved LP-Gas certification, shall not be permitted to be permitted to be operated for mobile food service.

Statement of Problem and Substantiation for Public Input

This language was in the 2018 edition of NFPA 1 Section 50.7.2.3.4. It did not get picked up by NFPA 96 when the scope of mobile food trucks was moved from NFPA 1 to NFPA 96. The code provisions from NFPA 1 are absolutely critical to ensure food trucks are operated safely. Because of the unique mobile nature of food trucks, there is no assurance that a food truck operating within a jurisdiction is in compliance with LP-Gas provisions of NFPA 96 or 58. In addition, an AHJ does not possess the capabilities, resources or training to thoroughly inspect an LP-Gas system of every mobile food truck proposing to operate in their jurisdiction to ensure it has been installed and maintained in accordance with NFPA 96 and 58. The only way for the AHJ to have some confidence that the LP-Gas system on a food truck is in compliance with NFPA 96 and 58 is to rely on a third party certification by an individual/company with expertise.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 2-NFPA 58-2024 [New Section after A.16.7.11]	

Submitter Information Verification

Submitter Full Name: Anthony Apfelbeck
Organization: Altamonte Springs Building and Fire Safety Department
Street Address:
City:
State:
Zip:

Submittal Date: Mon Feb 19 12:58:00 EST 2024
Committee: LPG-AAA

Committee Statement

Resolution: The "approved company" with expertise in mobile food facilities does not exist currently and requiring certification by this company would create an enforcement gap. This would be placing enforcement authority on an unregulated entity and it is the responsibility of the AHJ to enforce this code through voluntary adoption of this code. AHJs have the right to delegate inspections to other entities if they so desire but that is outside the scope of this code.The annual certification also places an undue burden on the enforcement community given the vast number of mobile food facilities currently in operation and this could place these operators out of business. There are already requirements for annual leak inspections of LP-Gas systems, and certification of the whole installation is outside the scope of this code.

Public Input No. 90-NFPA 58-2025 [Section No. A.4.4]

A.4.4

Examples of training programs are as follows:

(1) ~~Certified Employee Training~~ PERC Education Program available from the Propane Education and Research Council (PERC) at www.propane.com

(2) Programs developed by propane companies

(3) Programs developed by government entities

The term *refresher* indicates that the periodic training could be less intensive than the original training, since the primary purpose of periodic training is to reinforce initial training rather than repeat it.

Statement of Problem and Substantiation for Public Input

The Certified Employee Training Program has been replaced by the PERC Education Program.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: North Carolina Department of A
Street Address:
City:
State:
Zip:

Submittal Date: Tue May 13 15:32:17 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-9-NFPA 58-2025

Statement: CETP is being sunset by PERC and will no longer be maintained and the specificity is not needed as the general term programs from PERC covers the intent to guide the user to those programs.

Public Input No. 20-NFPA 58-2025 [Section No. A.5.2.2.2]

~~**A.5.2.2.2** —~~

~~See CGA C-6, *Standard for Visual Inspection of Steel Compressed Gas Cylinders*, or CGA C-6.3, *Standard for Visual Inspection of Low Pressure Aluminum Alloy Compressed Gas Cylinders*, for further information regarding cylinder inspection.~~

Statement of Problem and Substantiation for Public Input

The section is deleted because 5.2.2.1 and 5.2.2.2 have been proposed to be merged. A.5.2.2.2 is identical to A.5.2.1.1 and it is not necessary to repeat it.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 19-NFPA 58-2025 [Sections 5.2.2.1, 5.2.2.2]	

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Thu Jan 23 11:57:13 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: While special provisions are defined in 49 CFR, they are not enumerated in 49 CFR and the specific call out for a DOT special permit is need here. A special permit must be independently issued, and often requires party status. Each special permit is independent to the standards contained in 49 CFR and limited to the parties identified within the permit.

Public Input No. 53-NFPA 58-2025 [Section No. A.5.2.8.3]

A.5.2.8.3

Head design refers to the shape of the head ~~. Shapes include~~ which include hemispherical, semi-ellipsoidal, and others. ~~*(Refer to the API-ASME Code for Unfired Pressure Vessels for Petroleum Liquids and Gases for more information.)*~~

Statement of Problem and Substantiation for Public Input

With the proposed deletion of reference to the API-ASME code, which could be used until 1961, the reference to the API-ASME code is no longer needed. The 2 sentences are combined as required by the Manual of Style.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 23-NFPA 58-2025 [Section No. 5.2.1.1]	

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:
Submittal Date: Mon Feb 17 11:18:29 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: The reference to API-ASME for head design marking is helpful when inspecting containers with this information.

Public Input No. 117-NFPA 58-2025 [Section No. A.6.4.4.3]

A.6.4.4.3

Building openings in the context of 6.4.4.3 are any opening s , that ~~communicates~~ communicate ~~s~~ , air from the exterior to the interior of the building, including windows, doors, or dryer vent terminations below the level of the relief valve discharge. This section is meant to address pits and descending stairways, not topography, that create a reservoir communicating with building openings below the level of the point of discharge of the pressure relief valve.

Statement of Problem and Substantiation for Public Input

There is no provision in NFPA 58 that directly addresses the situation where a propane installation may be made within proximity of a below-grade stairwell that is adjacent to a building. An example of such is when a below-grade dwelling unit or occupiable basement has an exterior egress pathway that ascends to grade level. This new provision will address those occurrences.

The choice was made to modify the similar section (6.4.4.3) instead of 6.4.4.4 because the latter section involves separation from sources of ignition, which is of a more immediate safety concern, and separation from openings that are drawing air into the building through mechanical means, which again are a level of concern that is different from that reflected in 6.4.4.3.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 118-NFPA 58-2025 [Section No. 6.4.4.3]	Companion

Submitter Information Verification

Submitter Full Name: Zachary Ware
Organization: NPGA
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 28 15:05:34 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-20-NFPA 58-2025

Statement: The term vent discharge is changing to the defined term in the standard rather than its slang terminology. The intent of this addition is to resolve the issue where containers were installed directly adjacent to a subgrade stairwell leading to a building opening. The subgrade stairwell had no means of evacuating any collected vapor creating a potentially hazardous situation, but the opening into the basement was a distance of at least 10' from that of the container.

Public Input No. 120-NFPA 58-2025 [Section No. A.6.14.2]

~~A.6.14.2~~ —

~~Excess-flow check valves are not required in bulk and industrial plant piping systems downstream from container openings where the container's openings are protected in accordance with 5.9.4.2 and valves are closed except when attended. The terms process and system do not include liquid transfer operations.~~

Statement of Problem and Substantiation for Public Input

Inherent to the position downstream of the excess flow valve in an industrial or bulk plant, 6.14.2 is redundant as the piping is already protected by excess flow protection as required by 5.9.4.2 (D). Regardless of whether the facility is unattended while the liquid valve remains opened, the excess flow protection is still active.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 119-NFPA 58-2025 [Section No. 6.14.2]	Companion

Submitter Information Verification

Submitter Full Name: Zachary Ware
Organization: NPGA
Street Address:
City:
State:
Zip:

Submittal Date: Wed May 28 15:09:29 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-27-NFPA 58-2025

Statement: Inherent to the position downstream of the excess flow valve in an industrial or bulk plant, 6.14.2 is redundant as the piping is already protected by excess flow protection as required by 5.9.4.2 (D). Regardless of whether the facility is unattended while the liquid valve remains opened, the excess flow protection is still active.

Public Input No. 47-NFPA 58-2025 [Section No. A.6.30.3]

A.6.30.3

~~In recent years,~~ the concept of total product control systems has been ~~developed~~ part of NFPA 58 for over 2 decades . Facilities that have redundant automatic product control systems provide a high level of confidence that propane will not be released during an emergency. Therefore, not only will the storage be protected from a fire that could lead to container rupture, but major fires at the facility would be prevented. The public would be protected, firefighting operations would be safer, and applications of large quantities of water would not be needed to prevent tank failure.

A fire safety analysis should include the following:

(1) Effectiveness of product control measures

(2) Analysis of local conditions of hazard within the container site

(3) Exposure to or from other properties, population density, and congestion within the site

(4) Probable effectiveness of plant fire brigades or local fire departments, based on adequate water supply, response time, and training

(5) Consideration for the adequate application of water by hose stream or other method for effective control of leakage, fire, or other exposures

(6) If necessary, designated time period for review of the fire safety analysis with local emergency response agencies to ensure preplanning and emergency response plans for the installation are current

The National Fire Protection Association and the National Propane Gas Association, through a grant with the Propane Education and Research Council, have developed and published the *Fire Safety Analysis Manual for LP-Gas Storage Facilities* in order to provide a format and guidance for propane industry personnel or competent persons to perform a fire safety analysis in conjunction with the requirements of NFPA 58.

Statement of Problem and Substantiation for Public Input

Updated to be more time specific.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Fri Jan 31 11:24:37 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-35-NFPA 58-2025

Statement: The requirement for a fire safety analysis was originally intended for bulk plants that engage in liquid transfer operations, and not all installations that have an aggregate capacity of greater than that of an industrial or bulk plant. It was adopted into NFPA 58 to address those installations that were exempted from the Risk Management Plan provisions that EPA adopted in the late 1990's. The scope of the requirement in NFPA 58 exceeded that of the RMP and as a result, many installations are included that would not even be within the scope of the RMP and would receive no great safety benefit from a fire safety analysis. Single property vapor service systems do not have the same risk as the other installations and are exempted from consideration of the FSA.

Public Input No. 69-NFPA 58-2025 [New Section after A.7.4.4]

A.8.4 Storage in Shipping Containers.

Storage containers are often sealed vapor tight, due to their design for protecting cargo from damaging environmental effects. Being vapor tight, leaked LP-Gases cannot escape from shipping containers. It may be appropriate for authorities having jurisdiction to approve storing containers according to section 8.3 in shipping containers that have been modified to provide at least 0.35 air exchanges per hour.

Statement of Problem and Substantiation for Public Input

People have been injured where propane cylinders were stored in shipping containers. These containers are designed to be vapor tight to protect cargo from damaging environmental effects. As such, propane leaking from a cylinder in these containers will likely not be ventilated out of the container and continue to increase in concentration until a door is opened. If the concentration has reached the LFL, then a hazardous situation is present.
Shipping containers can be modified for safe housing or working conditions. They are much like confined spaces, so confined space ventilation requirements should provide a safe environment. The value of 0.35 air exchanges per hour was taken from the Health Safet & Environmental Encyclopedia. They have confined space ventilation requirements at https://hsewatch.com/confined-space-ventilation-requirements/.

Five brothers, 6-14 years old, were injured by an explosion fueled by a leaking propane cylinder in a metal storage container on 11/4/2024 in Bagley, MN. A man lit a cigarette, igniting the propane that had accumulated.
Four workers hurt in 'powerful' propane explosion inside storage container in Mississauga, Ontario, Canada, where they stored their tools

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 68-NFPA 58-2025 [New Section after 8.3.6]	Annex material for code section
Public Input No. 68-NFPA 58-2025 [New Section after 8.3.6]	

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
Street Address:
City:
State:
Zip:

Submittal Date: Tue Mar 18 17:04:13 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: Storage and shipping containers do not pose any additional hazard compared to other similar storage arrangements. Additionally there was no technical justification provided to limit the size of the containers as a large number of smaller containers could pose the same or greater hazard compared to larger containers. Rules for these buildings/structures are already covered throughout chapter 8 (see 8.3.5.3).

Public Input No. 62-NFPA 58-2025 [Section No. A.8.4.1]

A.8.4.1

The filling process in 8.4.1.4 refers to the time period beginning when a cylinder or cylinders are brought to a ~~dispensing system~~ dispenser to be filled and ending when the last cylinder is filled and all the cylinders are removed from the filling area. This is meant to define a continuous process, with the cylinders being unattended for only brief periods, such as operator breaks or lunch.

Statement of Problem and Substantiation for Public Input

The term "dispensing system" is not correct here. A dispensing system includes the dispenser and the storage tank supplying the dispenser. When filling a number of cylinders the concern is distance to the dispenser, and not the tank supplying the dispenser while all the cylinders in a group are filled.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Wed Mar 05 13:47:51 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-50-NFPA 58-2025

Statement: A dispensing system includes the dispenser and the storage tank supplying the dispenser. When filling a number of cylinders the concern is distance to the dispenser, and not the tank supplying the dispenser while all the cylinders in a group are filled.

Public Input No. 42-NFPA 58-2025 [Section No. A.12.1.1]

~~A.12.1.1~~ —

~~The need for a new chapter to address on-road vehicles became apparent when the requirements in NFPA 58 were no longer in step with the technologies that modern LP-Gas fuel systems now utilize.~~

Statement of Problem and Substantiation for Public Input

The annex material is no longer needed as the chapter is not new.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Thu Jan 30 14:36:04 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-42-NFPA 58-2025
Statement: The annex is no longer necessary as chapter 12 has been in the code for several cycles and is not new.

Public Input No. 45-NFPA 58-2025 [Section No. A.12.3.1.2]

A.12.3.1.2

~~Cylinders are permitted to~~ Cylinders can be used temporarily ~~for the purposes of shipping a vehicle, transporting it between assembly lines/areas, or testing the vehicle~~ during vehicle manufacture, testing, and repair .

Statement of Problem and Substantiation for Public Input

Annex text is revised for clarity.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Fri Jan 31 11:16:11 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-43-NFPA 58-2025
Statement: The annex is being revised to more clearly state examples of temporary use.

Public Input No. 46-NFPA 58-2025 [Section No. A.12.3.1.3]

A.12.3.1.3

ECE R67.01 is ~~one of the most commonly used standards in the world~~ a UN Standard that is commonly used for the approval and installation of equipment used in LP-Gas vehicle fuel systems. Where no performance or specification standard is referenced in NFPA 58 for materials or equipment within the scope of Chapter 12, ~~NFPA 58 will defer to the~~ NFPA 58 accept the requirements in R67.01. Compliance to R67.01 is demonstrated by a ~~homologation~~ report issued by a country who is signatory to the UN standards. ~~A list of these countries can be found in Annex 3 of this document: http://www.unece.org/fileadmin/DAM/trans/main/wp29/wp29resolutions/ECE-TRANS-WP29-78-r3e.pdf.~~

The reason for specifying cold weather testing to at least −40°F (−40°C) is due to the fact that R67.01 requires testing to only −20°F (−28.9°C), which is not sufficient to provide assurance of safe performance in many locations in North America. The choice of −40°F (−40°C) was based on the fact that other standards already referenced in NFPA 58 use that temperature for cold weather testing.

Statement of Problem and Substantiation for Public Input

The annex text is revised for multiple reasons.
1. Grammar.
Reference to Annex 3 is deleted. NFPA 58 does not have numbered annexes, and it is not clear which document is being referenced.
2. The web page cited is no longer available and is deleted.
3. The term “homologation” is deleted as it not needed. It is defined as granting approval by an official authority.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Fri Jan 31 11:18:36 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-44-NFPA 58-2025
Statement: The link is no longer available and is being removed.

Public Input No. 49-NFPA 58-2025 [Section No. A.12.4.2.1]

A.12.4.2.1

Training of technicians is ~~needed on three levels. The first level is to train the technician in the proper~~ needed in three areas

(1). Proper handling and emergency response procedures ~~associated with LP-Gas as required by 4.4.1 . The next level of training would be to ensure that the technician is familiar with and can identify the~~ .

(2) Familiarity with and identification of the basic components of all LP-Gas engine fuel systems. ~~The third level would be to qualify the individual to install the~~

(3) Installation of the specific fuel delivery system. This ~~third level of training typically relies upon an organized and managed~~ relies upon a program developed and administered by the manufacturer or distributor of the ~~system brand or technology~~ fuel system being installed. This training typically addresses the installation, diagnosis, maintenance, and repair of the specific system.

Statement of Problem and Substantiation for Public Input

The text is editorially revised to be clear and concise.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Fri Jan 31 11:44:05 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-53-NFPA 58-2025
Statement: Paragraph 12.4.2.2 is deleted as the requirements of 4.4 covers documentation of training is applicable and is referenced in 12.4.2.1. The levels of training are not necessary in the annex material and general reference to the 3 training areas is more concise.

Public Input No. 50-NFPA 58-2025 [Section No. A.12.4.4(5)]

A.12.4.4(5)

The term *mounting brackets* is intended to mean the welded ~~mounting~~ structure on the container or another component affixed directly to the container.

Statement of Problem and Substantiation for Public Input

Revised editorially. The term defined should not be included in the definition.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Affiliation: None
Street Address:
City:
State:
Zip:

Submittal Date: Fri Jan 31 14:56:34 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-49-NFPA 58-2025
Statement: The term being defined should not be used in the definition and is being deleted.

Public Input No. 2-NFPA 58-2024 [New Section after A.16.7.11]

A.16.12 The certification documentation might consist of the following:

(1) The name of the certification company

(2) The license number, certificate of fitness number or other applicable identifying number that demonstrates the certification company is approved to install, inspect, and maintain LP-Gas systems

(3) The corporate name of the mobile food service business

(4) The identifying name on the side of the mobile food vehicle

(5) Date of inspection

(6) Vehicle tag number and VIN

(7) A signed statement by the agent for the certification company that reads: The LP-Gas system has been inspected for compliance with the current editions of NFPA 96 and NFPA 58 and found to be in compliance with the provisions of the these codes. In addition, leak detection has been conducted on the LP-Gas system piping and the piping has been found to maintain integrity.

Statement of Problem and Substantiation for Public Input

Annex Material for PI No.1. The language in this PI was the annex language contained in NFPA 1 to match the code text submitted in PI No. 1. This annex text provides the AHJ, third-party and food truck operator guidance as to what information is needed with the certification. See justification for PI No. 1.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 1-NFPA 58-2024 [New Section after 16.11.5]	Annex Material to PI #1

Submitter Information Verification

Submitter Full Name: Anthony Apfelbeck
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Submittal Date: Mon Feb 19 13:02:00 EST 2024
Committee: LPG-AAA

Committee Statement

Resolution: The "approved company" with expertise in mobile food facilities does not exist currently and requiring certification by this company would create an enforcement gap. This would be placing enforcement authority on an unregulated entity and it is the responsibility of the AHJ to enforce this code through voluntary adoption of this code. AHJs have the right to delegate inspections to other entities if they so desire but that is outside the scope of this code.The annual certification also places an undue burden on the enforcement community given the vast number of mobile food facilities currently in operation and this could place these operators out of business. There are already requirements for annual leak inspections of LP-Gas systems, and certification of the whole installation is outside the scope of this code.

Public Input No. 64-NFPA 58-2025 [Section No. B.1.2]

B.1.2 Approximate Properties of Commercial LP-Gases.

The principal properties of commercial propane and commercial butane are shown in Table B.1.2(a) and Table B.1.2(b). Reasonably accurate property values for propane–butane mixtures can be obtained by computation, applying the percentages by weight of each in the mixture to the values for the property desired to be obtained. Slightly more accurate results for vapor pressure are obtained by using the percentages by volume. Very accurate results can be obtained using data and methods explained in petroleum and chemical engineering data books.

Table B.1.2(a) Approximate Properties of LP-Gases (English)

Property	Commercial Propane	Commercial Butane
Vapor pressure in psi (absolute pressure) at:	-	-
70°F	145	32
100°F	218	52
105°F	233	56
130°F	315	84
Specific gravity of liquid at 60°F	0.504	0.582
Initial boiling point (°F) at 14.7 psia	–44	31
Weight (lb) per gallon of liquid at 60°F	4.20	4.81
Specific heat of liquid (Btu/lb) at 60°F	0.630	0.549
Cubic feet of vapor per gallon at 60°F	36.38	31.26
Cubic feet of vapor per pound at 60°F	8.66	6.51
Specific gravity of vapor (air = 1) at 60°F	1.50	2.01
Ignition temperature (°F) in air	920–1,120 (correct calculation 1020F per 549C below)	900–1,000
Maximum flame temperature (°F) in air	3,595	3,615
Limits of flammability in air, percent of vapor in air–gas mixture:	-	-
Lower	2.15	1.55
Upper	9.60	8.60
Latent heat of vaporization at boiling point:	-	-
Btu per pound	184	167
Btu per gallon	773	808
Total heating values after vaporization:	-	-
Btu per cubic foot	2,488	3,280
Btu per pound	21,548	21,221
Btu per gallon	91,502	102,032

Note: To obtain gauge pressures at sea level, subtract 14.7 psi.

Table B.1.2(b) Approximate Properties of LP-Gases (Metric)

Property	Commercial Propane	Commercial Butane
Vapor pressure in kPa (absolute pressure) at:	-	-
20°C	1,000	220
40°C	1,570	360
45°C	1,760	385
55°C	2,170	580
Specific gravity of liquid at 15.56°C	0.504	0.582
Initial boiling point (°C) at 1.00 atm pressure	–42	–1
Weight (kg) per cubic meter of liquid at 15.56°C	504	582
Specific heat (kJ/kg) of liquid at 15.56°C	1.464	1.276
Cubic meter of vapor per liter of liquid at 15.56°C	0.271	0.235

Property	Commercial Propane	Commercial Butane
Cubic meter of vapor per kilogram of liquid at 15.56°C	0.539	0.410
Specific gravity of vapor (air = 1) at 15.56°C	1.50	2.01
Ignition temperature (°C) in air	493–549 (correct calculation 604C per 1120F above)	482–538
Maximum flame temperature (°C) in air	1,980	2,008
Limits of flammability in air, percent of vapor in air–gas mixture:	-	-
Lower	2.15	1.55
Upper	9.60	8.60
Latent heat of vaporization at boiling point:	-	-
Kilojoules per kilogram	428	388
Kilojoules per liter	216	226
Total heating value after vaporization:	-	-
Kilojoules per cubic meter	92,430	121,280
Kilojoules per kilogram	49,920	49,140
Kilojoules per liter	25,140	28,100

Note: To obtain gauge pressures at sea level, subtract 101.3 kPa.

Statement of Problem and Substantiation for Public Input

The conversion for C to F doesnt match up in the Table. One of the calculations is incorrect and needs to be addressed.

Submitter Information Verification

Submitter Full Name: Christopher Bloom
Organization: CJB Fire Consultant
Street Address:
City:
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Zip:

Submittal Date: Thu Mar 06 12:48:42 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-59-NFPA 58-2025
Statement: The Celsius number is correct and the imperial number is changing to be converted correctly.

Public Input No. 52-NFPA 58-2025 [Chapter D]

Annex D Design of ASME and API-ASME Containers

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

D.1 General.

D.1.1 Application.

D.1.1.1

This annex provides general information on containers designed and constructed in accordance with ASME or API-ASME codes, usually referred to as ASME containers. For complete information on either ASME or API-ASME containers, the applicable code should be consulted. Construction of containers to the API-ASME *Code for Unfired Pressure Vessels for Petroleum Liquids and Gases* has not been authorized since July 1, 1961.

D.1.1.2

Department of Transportation (DOT) and Interstate Commerce Commission (ICC) specifications for portable tanks and cargo tanks are for either ASME or API-ASME containers. In writing these specifications, which should be consulted for complete information, additions were made to ASME and API-ASME pressure vessel codes to cover the following:

(1) Protection of tank valves and appurtenances against physical damage in transportation

(2) Hold-down devices for securing cargo tanks to conventional vehicles

(3) Attachments to relatively large [6000 gal (22.7 m^3) or more water capacity] cargo tanks in which the tank serves as a stress member in lieu of a frame

D.1.2 Development of ASME and API-ASME Codes.

D.1.2.1

ASME-type containers of approximately 12,000 gal (45.4 m^3) or more water capacity were initially used for bulk storage in processing, distribution, and industrial plants. As the industry expanded and residential and commercial usage increased, the need grew for small ASME containers with capacities greater than the upper limit for cylinders. This ultimately resulted in the development of cargo containers for cargo tank vehicles and the wide use of ASME containers ranging in size from less than 25 gal to 120,000 gal (0.1 m^3 to 454 m^3) water capacity.

D.1.2.2

In 1911, the American Society of Mechanical Engineers (ASME) set up the Boiler and Pressure Vessel Committee to formulate “standard rules for the construction of steam boilers and other pressure vessels.” The ASME *Boiler and Pressure Vessel Code*, first published in 1925, has been revised regularly since that time. During this period, changes have been made to the code as materials of construction improved and more was known about them and as fabrication methods changed and inspection procedures were refined.

D.1.2.3

One major change involved the so-called “factor of safety” (the ratio of the ultimate strength of the metal to the design stress used). Prior to 1946, a 5:1 safety factor was used. Fabrication changed from the riveting widely used when the code was first written (some forge welding was used) to fusion welding. This latter method was incorporated into the code as welding techniques were perfected, and it now predominates.

D.1.2.4

The safety factor change in the ASME Code was based on the technical progress made since 1925 and on experience with the use of the API-ASME Code. This offshoot of the ASME Code, initiated in 1931, was formulated and published by the American Petroleum Institute (API) in cooperation with ASME. It justified the 4:1 safety factor on the basis of certain quality and inspection controls not incorporated at that time in the ASME Code editions. In 1998, ASME reduced the safety factor or design margin from 4:1 to 3.5:1, noting improvements in metal manufacturing, welding techniques, x-ray quality, and pressure vessel manufacturer's quality systems.

D.1.2.5

ASME Code case interpretations and addenda are published between code editions and normally become part of the code in the new edition. Adherence to these interpretations and addenda is considered compliance with the code. *[See 5.2.1.1(B).]*

D.2 Design of Containers for LP-Gas.

D.2.1 ASME Container Design.

D.2.1.1

When ASME containers were first used to store LP-Gas, the properties of the chemically pure (CP) grades of the principal constituents were available, but the average properties for the commercial grades of propane and butane were not. Also, there was no experience that demonstrated the expected temperatures and pressures for product stored in areas with high atmospheric temperatures. A 200 psig (1378 kPag) design pressure was for propane [the CP grade of which has a gauge vapor pressure of 176 psig (1210 kPag) at 100°F (37.8°C)] and 80 psig (550 kPag) for butane [CP grade has a vapor pressure of 37 psig (255 kPag) at 100°F (37.8°C)] were deemed appropriate. These containers were built with a 5:1 safety factor. *(See D.1.2.3.)*

D.2.1.2

Pressure vessel codes, following boiler pressure relief valve practice, require that the pressure relief valve start-to-leak setting be the maximum allowable working pressure (MAWP) of the container. In specifying pressure relief valve capacity, however, they stipulate that this relieving capacity be adequate to prevent the internal pressure from rising above 120 percent of the design pressure under fire exposure conditions.

D.2.1.3

Containers built in accordance with D.2.1.1 were entirely adequate for the commercial grades of the LP-Gases [the vapor pressure of propane at 100°F (37.8°C) is 220 psig (1515 kPag); the gauge vapor pressure of commercial butane at 100°F (37.8°C) is 37 psig (255 kPag)]. However, because they were equipped with pressure relief valves set to start-to-leak at the MAWP of the container, these relief valves occasionally opened on an unusually warm day. Because any unnecessary release of a flammable gas is potentially dangerous, and considering the recommendations of fire prevention and insurance groups as well as the favorable experience with API-ASME containers *(see D.2.2.1)*, relief valve settings above the design pressure [up to 250 psig (1720 kPag) for propane and 100 psig (690 kPag) for butane] were widely used.

D.2.1.4

In determining safe filling limits for compressed liquefied gases, DOT (ICC) uses the criterion that the container not become liquid full at the highest temperature the liquid is expected to reach due to the normal atmospheric conditions to which the container can be exposed. For containers of more than 1200 gal (4.5 m^3) water capacity, the liquid temperature selected is 115°F (46°C). The vapor pressure of the gas to be contained at 115°F (46°C) is specified by DOT as the minimum design pressure for the container. The gauge vapor pressure of CP propane and commercial propane at 115°F (46.1°C) is 211 psig (1450 kPag) and 255 psig (1756 kPag), respectively. The gauge vapor pressure of both normal butane and commercial butane at 115°F (46.1°C) is 51 psig (350 kPag).

D.2.1.5

The ASME *Boiler and Pressure Vessel Code* editions generally applicable to LP-Gas containers, and the design pressures, safety factors, and exceptions to these editions for LP-Gas use, are shown in Table D.2.1.5. They reflect the use of the information in D.2.1.1 through D.2.1.4.

Table D.2.1.5 Container Pressure and Safety Factors/Design Margin for Various Editions of the ASME Code

Year ASME Code Edition Published	Maximum Allowable Working Pressure (MAWP)				Safety Factor/Design Margin
	Butane		Propane		
	psig	MPag	psig	MPag	
1931 through 1946[a]	100[a]	0.7	200	1.4	5:1
1949, paragraphs U-68 and U-69[b]	100	0.7	200	1.4	5:1
1949, paragraphs U-200 and U-201[c]	125	0.9	250	1.7	4:1
1952 through 1998	125	0.9	250	1.7	4:1
1998 to current					3.5:1

[a]Until December 31, 1947, containers designed for 80 psig (0.6 MPag) under prior (5:1 safety factor) codes were authorized for butane. Since that time, either 100 psig (0.7 MPag) (under prior codes) or 125 psig (0.9 MPag) (under present codes) is required.

[b]Containers constructed in accordance with the 1949 edition and prior editions of the ASME Code were not required to be in compliance with paragraphs U-2 to U-10, inclusive, or with paragraph U-19. Construction in accordance with paragraph U-70 of these editions was not authorized.

[c]Higher MAWP [312.5 psig (2.2 MPag)] is required for small ASME containers used for vehicular installations, because they can be exposed to higher temperatures and, consequently, develop higher internal pressure.

D.2.2 API-ASME Container Design.

D.2.2.1

The API-ASME Code was first published in 1931. Based on petroleum industry experience using certain material quality and inspection controls not incorporated at that time in the ASME Code, the 4:1 safety factor was first used. Many LP-Gas containers were built under this code with design pressures of 125 psig (860 kPag) [100 psig (690 kPag) until December 31, 1947] for butane and 250 psig (1725 kPag) for propane. Containers constructed in accordance with the API-ASME Code were not required to comply with Section 1 or with the annex to Section 1. Paragraphs W-601 through W-606 of the 1943 and earlier editions were not applicable to LP-Gas containers.

D.2.2.2

By changing the safety factor from 5:1 to 4:1 through consideration of the factors described in D.2.1.1 through D.2.1.4, the ASME Code became, in effect, nearly identical to the API-ASME Code by the 1950s. Thus, the API-ASME Code was phased out, and construction was not authorized after July 1, 1961.

D.2.3 Design Criteria for LP-Gas Containers.

To prevent confusion in earlier editions of this code, the container type nomenclature was used to designate the pressure rating of the container to be used for various types of LP-Gases. With the adoption of the 4:1 safety factor in the ASME Code and the phasing out of the API-ASME Code, the need for container type ceased to exist.

D.2.4 DOT (ICC) Specifications Utilizing ASME or API-ASME Containers.

D.2.4.1

DOT (ICC) specifications for portable tanks and cargo tanks require ASME or API-ASME construction for the tank proper *(see D.1.1.2)*. Several such specifications were written by the ICC prior to 1967, and DOT has continued this practice.

D.2.4.2

ICC specifications written prior to 1946, and to some extent through 1952, used ASME containers with a 200 psig (1380 kPag) design pressure for propane and 80 psig (550 kPag) for butane [100 psi (690 kPa) after 1947] with a 5:1 safety factor. During this period and until 1961, ICC specifications also permitted API-ASME containers with a 250 psig (1720 kPag) design pressure for propane and 100 psig (690 kPag) for butane [125 psig (862 kPag) after 1947].

D.2.4.3

To prevent any unnecessary release of flammable vapor during transportation *(see D.2.1.3)*, the use of safety relief valve settings 25 percent above the MAWP was common for ASME 5:1 safety factor containers. To eliminate confusion, and in line with the good experience with API-ASME containers, the ICC permitted the rerating of these particular ASME containers used under its specifications to 125 percent of the originally marked MAWP.

D.2.4.4

DOT (ICC) pressure specifications applicable to portable tanks and cargo tanks currently in use are listed in Table D.2.4.4. New construction is not permitted under the older specifications. However, use of these older containers is permitted to continue, provided that they have been maintained in accordance with DOT (ICC) regulations.

Table D.2.4.4 DOT Pressure Specification for Cargo Tanks

	ASME Construction			API-ASME Construction		
Specification Number	MAWP (psig)		Safety Factor/Design Margin	Design Pressure (psig)		Safety Factor
	Propane	Butane		Propane	Butane	
ICC-50[a]	200[b]	100[b]	5:1	250	125	4:1
ICC-51[a]	250	125	4:1	250	125	4:1
MC-320[c,d]	200[b]	100[b]	5:1	250	125	4:1
MC-330[c]	250	125	4:1	250	125	4:1
MC-331[c]	250	125	4:1	250	125	4:1

For SI units, 100 psig = 0.69 MPag; 125 psig = 0.86 MPag; 200 psig = 1.40 MPag; 250 psig = 1.72 MPag.

[a]Portable tank container.

[b]Permitted to be re-rated to 125 percent of original ASME MAWP.

[c]Cargo tank.

[d]Requires DOT exemption.

D.3 Underground ASME or API-ASME Containers.

D.3.1 Use of Containers Underground.

D.3.1.1

ASME or API-ASME containers are used for underground or partially underground installation in accordance with 6.8.7.1 or 6.8.7.2. The temperature of the soil is normally low so that the average liquid temperature and vapor pressure of product stored in underground containers will be lower than in aboveground containers.

D.3.1.2

Containers listed to be used interchangeably for installation either above ground or under ground must comply as to pressure relief valve rated relieving capacity and filling limit with aboveground provisions when installed above ground *(see 5.9.2.6)*. When installed under ground, the pressure relief valve rated relieving capacity and filling limit can be in accordance with underground provisions *(see 5.9.2.8)*, provided that all other underground installation provisions are met. Containers installed partially under ground are considered as aboveground containers insofar as filling limit and pressure relief valve rated relieving capacity are concerned.

Additional Proposed Changes

File Name	Description	Approved

Annex_D_Design_of_ASME_and_API.docx

Annex_D_Revisions_Feb_5.docx Annex D proposed revisions

Statement of Problem and Substantiation for Public Input

Annex D, Design of ASME and API-ASME Containers, is extensively revised to delete archaic and unneeded material. The last date that containers could be constructed to the API-ASME code was July 1, 1961, over 60 years ago. The history of this code is of no practical value to users of NFPA 58 today. Existing containers constructed to the API-ASME code can be continued in service, and there is no intent to change this continued use.
In addition, references to DOT requirements for cargo tank vehicles is deleted as it is of no practical value to Code users other than truck builders who are required to comply with DOT requirements and are familiar with them.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
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Affiliation: None
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Submittal Date: Wed Feb 05 13:25:32 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: API-ASME containers are still in use today and can be repurposed, reinstalled, and placed back into service and requirements related to those containers are still need. The annex material on the history is necessary to help those that may encounter these older containers.

Annex D Design of ASME and API-ASME Containers

D Design of ASME and API-ASME Containers

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

D.1 General.

D.1.1 Application.

D.1.1.1 This annex provides general information on containers designed and constructed in accordance with ASME ~~or API-ASME~~ codes, usually referred to as ASME containers. For complete information on ~~either~~ ASME ~~or API-ASME containers,~~ the applicable code should be consulted. ~~Construction of containers to the API-ASME *Code for Unfired Pressure Vessels for Petroleum Liquids and Gases* has not been authorized since July 1, 1961.~~ Information of API-ASME containers was deleted from the 2027 edition as API-ASME containers could not be fabricated after July 1, 1961. Information API-ASME containers can be found in Annex D of the 2024 and earlier editions of this Code.

D.1.1.2 Department of Transportation (DOT) and Interstate Commerce Commission (ICC) specifications for portable tanks and cargo tanks are ~~for either~~ ASME ~~or API-ASME~~ containers. In writing these specifications, which should be consulted for complete information, additions were made to ASME ~~and API-ASME~~ pressure vessel codes to cover the following:

(1) Protection of tank valves and appurtenances against physical damage in transportation
(2) Hold-down devices for securing cargo tanks to conventional vehicles
(3) Attachments to relatively large [6000 gal (22.7 m^3) or more water capacity] cargo tanks in which the tank serves as a stress member in lieu of a frame

D.1.2 Development of ASME ~~and API-ASME~~ Codes.

D.1.2.1 ASME-type containers of approximately 12,000 gal (45.4 m^3) or more water capacity were initially used for bulk storage in processing, distribution, and industrial plants. As the industry expanded and residential and commercial usage increased, the need grew for ~~small~~ ASME containers with capacities greater than the upper limit for cylinders. This ultimately resulted in the development of cargo containers for cargo tank vehicles and the wide use of ASME containers ranging in size from less than 25 gal to 120,000 gal (0.1 m^3 to 454 m^3) water capacity. Milestones

- ~~**D.1.2.2** In~~ 1911,~~,~~ the American Society of Mechanical Engineers (ASME) set up the Boiler and Pressure Vessel Committee to formulate "standard rules for the construction of steam boilers and other pressure vessels." The ASME *Boiler and Pressure Vessel Code*,
- 1925 first edition of the ASME Boiler and Pressure Vessel Code published~~, in 1925, has been revised~~REvisions have been mare regularly since that time. During this period, changes have been made to the code as materials of construction improved and more was known about them and as fabrication methods changed and inspection procedures were refined.
- 1946. Design margin (safety factor) was revised to 4:1. Previously a 5:1 design margin was used, with a pressure relief valve setting of 200 psig (for propane).
- 1998. Revised the design margin (safety factor) from 4:1 to 3.5:1, noting improvements in metal manufacturing, welding techniques, x-ray quality, and pressure vessel manufacturer's quality systems allowed this reduction without compromising safety.

~~**D.1.2.3**~~ **D.1.2.2** One ~~major~~ change in the 1946 edition involved the ~~so-called "factor of safety"~~ design margin (safety factor, the ratio of the ultimate strength of the metal to the design stress used). Prior to 1946, a 5:1 safety factor was used. Fabrication changed from the riveting widely used when the code was first written ~~(some forge welding was used)~~ to fusion welding. This latter method was incorporated into the code as welding techniques were perfected, and it now predominates. A 200 psig maximum allowable working pressure (MAOP) with a 5:1 design margin results in a 1,000 psig container minimum burst pressure. A 250 psig MAOP with a 4:1 design margin resultf in the same 1,000 psi minimum burst pressure. Riveted containers are no longer allowed by the ASME Code.

D.1.2.4 The Design margin (safety factor) change in the ASME Code was based on the technical progress made since 1925 ~~and on experience with the use of the API-ASME Code. This offshoot of the ASME Code, initiated in 1931, was formulated and published by the American Petroleum Institute (API) in cooperation with ASME. It justified the 4:1 safety factor on the basis of certain quality and inspection controls not incorporated at that time in the ASME Code editions~~. In 1998, ASME reduced the ~~safety factor or design margin from 4:1 to 3.5:1, noting improvements in metal manufacturing, welding techniques, x-ray quality, and pressure vessel manufacturer's quality systems.~~

D.1.2.5 ASME Code case interpretations and addenda are published between code editions and normally become part of the code in the new edition. Adherence to these interpretations and addenda is considered compliance with the code. *[See 5.2.1.1(B).]*

D.1.2.6 The ASME committees that write Section VIII of the ASME Boiler and Pressure Vessel Code are experts in all aspects of pressure vessel design, construction and testing. They are not experts on how and where pressure vessels are used and the exposures they are subject to. This is why Section VIII does not require resisting at specific times.

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D.2 **Design of Containers for LP-Gas.**

D.2.1 **ASME Container Design.**

D.2.1.1 When ASME containers were first used to store LP-Gas, the properties of the chemically pure (CP) grades of the principal constituents were available, but the average properties for the commercial grades of propane and butane were not. Also, there was no experience that demonstrated the expected temperatures and pressures for product stored in areas with high atmospheric temperatures. A 200 psig (1378 kPag) design pressure was for propane [the CP grade of which has a gauge vapor pressure of 176 psig (1210 kPag) at 100°F (37.8°C)] and 80 psig (550 kPag) for butane [CP grade has a vapor pressure of 37 psig (255 kPag) at 100°F (37.8°C)] were deemed appropriate. These containers were built with a 5:1 design margin (safety factor). *(See D.1.2.3.)* The vapor pressure of commercial propane varies with the hydrocarbons present. The vapor pressure of commercial propane is usually higher than the vapor pressure of pure propane, especially when ethane is present.

D.2.1.2 Pressure vessel codes, following boiler pressure relief valve practice, require that the pressure relief valve start-to-leak setting be the maximum allowable working pressure (MAWP) of the container. In specifying pressure relief valve capacity, however, they stipulate that this relieving capacity be adequate to prevent the internal pressure from rising above 120 percent of the design pressure under fire exposure conditions.

D.2.1.3 Containers built in accordance with D.2.1.1 were entirely adequate for the commercial grades of the LP-Gases [the vapor pressure of propane at 100°F (37.8°C) is 220 psig (1515 kPag); the gauge vapor pressure of commercial butane at 100°F (37.8°C) is 37 psig (255 kPag)]. However, because they were equipped with pressure relief valves set to start-to-leak at the MAWP of the container, these relief valves occasionally opened on an unusually warm day. Because any unnecessary release of a flammable gas is potentially dangerous, and considering the recommendations of fire prevention and insurance groups as well as the favorable experience with containers consructed to the now discontinued API-ASME Code.~~containers~~ *(~~see D.2.2.1 which required a 250 PSIG mawp for propane containers with a 4:1 design margin~~)*, relief valve settings above the design pressure [up to 250 psig (1720 kPag) for propane and 100 psig (690 kPag) for butane] were widely used.

D.2.1.4 In determining safe filling limits for compressed liquefied gases, DOT ~~(ICC)~~ uses the criterion that the container not become liquid full at the highest temperature the liquid is expected to reach due to the normal atmospheric conditions to which the container can be exposed. For containers of more than 1200 gal (4.5 m^3) water capacity, the liquid temperature selected is 115°F (46°C). The vapor pressure of the gas to be contained at 115°F (46°C) is specified by DOT as the minimum design pressure for the container. The gauge vapor pressure of CP propane and commercial propane at 115°F (46.1°C) is 211 psig (1450 kPag) and 255 psig (1756 kPag), respectively. The gauge vapor pressure of both normal butane and commercial butane at 115°F (46.1°C) is 51 psig (350 kPag).

~~**D.2.1.5** The ASME *Boiler and Pressure Vessel Code* editions generally applicable to LP-Gas containers, and the design pressures, safety factors, and exceptions to these editions for LP-Gas use, are shown in Table D.2.1.5. They reflect the use of the information in D.2.1.1 through D.2.1.4.~~

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~~**Table D.2.1.5 Container Pressure and Safety Factors/Design Margin for Various Editions of the ASME Code**~~

~~Year ASME Code Edition Published~~	~~Maximum Allowable Working Pressure (MAWP)~~				~~Safety Factor/Design Margin~~
	~~Butane~~		~~Propane~~		
	~~psig~~	~~MPag~~	~~psig~~	~~MPag~~	
~~1931 through 1946[a]~~	~~100[a]~~	~~0.7~~	~~200~~	~~1.4~~	~~5:1~~
~~1949, paragraphs U-68 and U-69[b]~~	~~100~~	~~0.7~~	~~200~~	~~1.4~~	~~5:1~~
~~1949, paragraphs U-200 and U-201[c]~~	~~125~~	~~0.9~~	~~250~~	~~1.7~~	~~4:1~~
~~1952 through 1998~~	~~125~~	~~0.9~~	~~250~~	~~1.7~~	~~4:1~~
~~1998 to current~~					~~3.5:1~~

~~[a]Until December 31, 1947, containers designed for 80 psig (0.6 MPag) under prior (5:1 safety factor) codes were authorized for butane. Since that time, either 100 psig (0.7 MPag) (under prior codes) or 125 psig (0.9 MPag) (under present codes) is required.~~

[b]Containers constructed in accordance with the 1949 edition and prior editions of the ASME Code were not required to be in compliance with paragraphs U-2 to U-10, inclusive, or with paragraph U-19. Construction in accordance with paragraph U-70 of these editions was not authorized.
[c]Higher MAWP [312.5 psig (2.2 MPag)] is required for small ASME containers used for vehicular installations, because they can be exposed to higher temperatures and, consequently, develop higher internal pressure.

D.2.2 **API-ASME Container Design.**

D.2.2.1 The API-ASME Cod was first published in 1931. Based on petroleum industry experience using certain material quality and inspection controls not incorporated at that time in the ASME Code, the 4:1 safety factor was first used. Many LP-Gas containers were built under this code with design pressures of 125 psig (860 kPag) [100 psig (690 kPag) until December 31, 1947] for butane and 250 psig (1725 kPag) for propane. Containers constructed in accordance with the API-ASME Code were not required to comply with Section 1 or with the annex to Section 1. Paragraphs W-601 through W-606 of the 1943 and earlier editions were not applicable to LP-Gas containers.

D.2.2.2

By changing the safety factor from 5:1 to 4:1 through consideration of the factors described in D.2.1.1 through D.2.1.4, the ASME Code became, in effect, nearly identical to the API-ASME Code by the 1950s. Thus, the API-ASME Code was phased out, and construction was not authorized after July 1, 1961.

D.2.3 **Design Criteria for LP-Gas Containers.**

To prevent confusion in earlier editions of this code, the container type nomenclature was used to designate the pressure rating of the container to be used for various types of LP-Gases. With the adoption of the 4:1 safety factor in the ASME Code and the phasing out of the API-ASME Code, the need for container type ceased to exist.

D.2.4 **DOT (ICC) Specifications Utilizing ASME or API-ASME Containers.**

D.2.4.1 DOT (ICC) specifications for portable tanks and cargo tanks require ASME or API-ASME construction for the tank proper *(see D.1.1.2)*. Several such specifications were written by the ICC prior to 1967, and DOT has continued this practice.

D.2.4.2 ICC specifications written prior to 1946, and to some extent through 1952, used ASME containers with a 200 psig (1380 kPag) design pressure for propane and 80 psig (550 kPag) for butane [100 psi (690 kPa) after 1947] with a 5:1 safety factor. During this period and until 1961, ICC specifications also permitted API-ASME containers with a 250 psig (1720 kPag) design pressure for propane and 100 psig (690 kPag) for butane [125 psig (862 kPag) after 1947].

D.2.4.3 To prevent any unnecessary release of flammable vapor during transportation *(see D.2.1.3)*, the use of safety relief valve settings 25 percent above the MAWP was common for ASME 5:1 safety factor containers. To eliminate confusion, and in line with the good experience with API-ASME containers, the ICC permitted the rerating of these particular ASME containers used under its specifications to 125 percent of the originally marked MAWP.

D.2.4.4 DOT (ICC) pressure specifications applicable to portable tanks and cargo tanks currently in use are listed in Table D.2.4.4. New construction is not permitted under the older specifications. However, use of these older containers is permitted to continue, provided that they have been maintained in accordance with DOT (ICC) regulations.

Table D.2.4.4 DOT Pressure Specification for Cargo Tanks

Specification Number	ASME Construction MAWP (psig) Propane	Butane	Safety Factor/Design Margin
ICC-50[a]	200[b]	100[b]	5:1
ICC-51[a]	250	125	4:1
MC-320[c,d]	200[b]	100[b]	5:1
MC-330[e]	250	125	4:1
MC-331[c]	250	125	4:1

For SI units, 100 psig = 0.69 MPag; 125 psig = 0.86 MPag; 200 psig = 1.40 MPag; 250 psig = 1.72 MPag.
[a]Portable tank container.

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[b]Permitted to be re-rated to 125 percent of original ASME MAWP.
[c]Cargo tank.
[d]Requires DOT exemption.

D.2.5 In 1961 the Department of Transportation (DOT) was created and assumed most of the functions of the Interstate Commerce Commission (ICC).

D.3 Underground ASME ~~or API-ASME~~ Containers.

D.3.1 Use of Containers Underground.

D.3.1.1 ASME ~~or API-ASME~~ containers are used for underground or partially underground installation in accordance with 6.8.7.1 or 6.8.7.2. The temperature of the soil is normally low so that the average liquid temperature and vapor pressure of product stored in underground containers will be lower than in aboveground containers. The soil prevents flame impingement on the container in the event of a fire, and the flow capacity of the pressure relief valve can be reduced to 30% of the flow required for aboveground propane storage containers (see 5.9.2.8).

D.3.1.2 Containers listed to be used interchangeably for installation either above ground or under ground must comply ~~as to~~ with the pressure relief valve rated relieving capacity and filling limit with aboveground provisions when installed above ground *(see 5.9.2.6)*. When installed ~~under ground~~ underground, the pressure relief valve rated relieving capacity and filling limit can be in accordance with underground provisions *(see 5.9.2.8)*, provided that all other underground installation provisions are met. Containers installed partially ~~under ground~~ underground are considered as aboveground containers insofar as filling limit and pressure relief valve rated relieving capacity are concerned.

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Annex D Design of ASME and API-ASME Containers

D Design of ASME and API-ASME Containers

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

D.1 General.

D.1.1 Application.

D.1.1.1 This annex provides general information on containers designed and constructed in accordance with ASME ~~or API-ASME~~ codes, usually referred to as ASME containers. For complete information on ~~either~~ ASME ~~or API-ASME containers,~~ the applicable code should be consulted. ~~Construction of containers to the API-ASME *Code for Unfired Pressure Vessels for Petroleum Liquids and Gases* has not been authorized since July 1, 1961.~~ Information of API-ASME containers was deleted from the 2027 edition as API-ASME containers could not be fabricated after July 1, 1961. Information API-ASME containers can be found in Annex D of the 2024 and earlier editions of this Code.

D.1.1.2 Department of Transportation (DOT) and Interstate Commerce Commission (ICC) specifications for portable tanks and cargo tanks are ~~for either~~ ASME ~~or API-ASME~~ containers. In writing these specifications, which should be consulted for complete information, additions were made to ASME ~~and API-ASME~~ pressure vessel codes to cover the following:

(1) Protection of tank valves and appurtenances against physical damage in transportation
(2) Hold-down devices for securing cargo tanks to conventional vehicles
(3) Attachments to relatively large [6000 gal (22.7 m^3) or more water capacity] cargo tanks in which the tank serves as a stress member in lieu of a frame

D.1.2 Development of ASME ~~and API-ASME~~ Codes.

D.1.2.1 ASME-type containers of approximately 12,000 gal (45.4 m^3) or more water capacity were initially used for bulk storage in processing, distribution, and industrial plants. As the industry expanded and residential and commercial usage increased, the need grew for ~~small~~ ASME containers with capacities greater than the upper limit for cylinders. This ultimately resulted in the development of cargo containers for cargo tank vehicles and the wide use of ASME containers ranging in size from less than 25 gal to 120,000 gal (0.1 m^3 to 454 m^3) water capacity. Milestones

- ~~**D.1.2.2** In~~ 1911,~~,~~ the American Society of Mechanical Engineers (ASME) set up the Boiler and Pressure Vessel Committee to formulate "standard rules for the construction of steam boilers and other pressure vessels." The ASME *Boiler and Pressure Vessel Code*,
- 1925 first edition of the ASME Boiler and Pressure Vessel Code published~~, in 1925, has been revised~~REvisions have been mare regularly since that time. During this period, changes have been made to the code as materials of construction improved and more was known about them and as fabrication methods changed and inspection procedures were refined.
- 1946. Design margin (safety factor) was revised to 4:1. Previously a 5:1 design margin was used, with a pressure relief valve setting of 200 psig (for propane).
- 1998. Revised the design margin (safety factor) from 4:1 to 3.5:1, noting improvements in metal manufacturing, welding techniques, x-ray quality, and pressure vessel manufacturer's quality systems allowed this reduction without compromising safety.

~~**D.1.2.3**~~ **D.1.2.2** One ~~major~~ change in the 1946 edition involved the ~~so-called "factor of safety"~~ design margin (safety factor, the ratio of the ultimate strength of the metal to the design stress used). Prior to 1946, a 5:1 safety factor was used. Fabrication changed from the riveting widely used when the code was first written ~~(some forge welding was used)~~ to fusion welding. This latter method was incorporated into the code as welding techniques were perfected, and it now predominates. A 200 psig maximum allowable working pressure (MAOP) with a 5:1 design margin results in a 1,000 psig container minimum burst pressure. A 250 psig MAOP with a 4:1 design margin resultf in the same 1,000 psi minimum burst pressure. Riveted containers are no longer allowed by the ASME Code.

D.1.2.4 The Design margin (safety factor) change in the ASME Code was based on the technical progress made since 1925 ~~and on experience with the use of the API-ASME Code. This offshoot of the ASME Code, initiated in 1931, was formulated and published by the American Petroleum Institute (API) in cooperation with ASME. It justified the 4:1 safety factor on the basis of certain quality and inspection controls not incorporated at that time in the ASME Code editions~~. In 1998, ASME reduced the ~~safety factor or design margin from 4:1 to 3.5:1, noting improvements in metal manufacturing, welding techniques, x-ray quality, and pressure vessel manufacturer's quality systems.~~

D.1.2.5 ASME Code case interpretations and addenda are published between code editions and normally become part of the code in the new edition. Adherence to these interpretations and addenda is considered compliance with the code. *[See 5.2.1.1(B).]*

D.1.2.6 The ASME committees that write Section VIII of the ASME Boiler and Pressure Vessel Code are experts in all aspects of pressure vessel design, construction and testing. They are not experts on how and where pressure vessels are used and the exposures they are subject to. This is why Section VIII does not require resisting at specific times.

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D.2 **Design of Containers for LP-Gas.**

D.2.1 **ASME Container Design.**

D.2.1.1 When ASME containers were first used to store LP-Gas, the properties of the chemically pure (CP) grades of the principal constituents were available, but the average properties for the commercial grades of propane and butane were not. Also, there was no experience that demonstrated the expected temperatures and pressures for product stored in areas with high atmospheric temperatures. A 200 psig (1378 kPag) design pressure was for propane [the CP grade of which has a gauge vapor pressure of 176 psig (1210 kPag) at 100°F (37.8°C)] and 80 psig (550 kPag) for butane [CP grade has a vapor pressure of 37 psig (255 kPag) at 100°F (37.8°C)] were deemed appropriate. These containers were built with a 5:1 design margin (safety factor). *(See D.1.2.3.)* The vapor pressure of commercial propane varies with the hydrocarbons present. The vapor pressure of commercial propane is usually higher than the vapor pressure of pure propane, especially when ethane is present.

D.2.1.2 Pressure vessel codes, following boiler pressure relief valve practice, require that the pressure relief valve start-to-leak setting be the maximum allowable working pressure (MAWP) of the container. In specifying pressure relief valve capacity, however, they stipulate that this relieving capacity be adequate to prevent the internal pressure from rising above 120 percent of the design pressure under fire exposure conditions.

D.2.1.3 Containers built in accordance with D.2.1.1 were entirely adequate for the commercial grades of the LP-Gases [the vapor pressure of propane at 100°F (37.8°C) is 220 psig (1515 kPag); the gauge vapor pressure of commercial butane at 100°F (37.8°C) is 37 psig (255 kPag)]. However, because they were equipped with pressure relief valves set to start-to-leak at the MAWP of the container, these relief valves occasionally opened on an unusually warm day. Because any unnecessary release of a flammable gas is potentially dangerous, and considering the recommendations of fire prevention and insurance groups as well as the favorable experience with containers consructed to the now discontinued API-ASME Code.~~containers~~ *(~~see D.2.2.1~~ which required a 250 PSIG mawp for propane containers with a 4:1 design margin)*, relief valve settings above the design pressure [up to 250 psig (1720 kPag) for propane and 100 psig (690 kPag) for butane] were widely used.

D.2.1.4 In determining safe filling limits for compressed liquefied gases, DOT ~~(ICC)~~ uses the criterion that the container not become liquid full at the highest temperature the liquid is expected to reach due to the normal atmospheric conditions to which the container can be exposed. For containers of more than 1200 gal (4.5 m^3) water capacity, the liquid temperature selected is 115°F (46°C). The vapor pressure of the gas to be contained at 115°F (46°C) is specified by DOT as the minimum design pressure for the container. The gauge vapor pressure of CP propane and commercial propane at 115°F (46.1°C) is 211 psig (1450 kPag) and 255 psig (1756 kPag), respectively. The gauge vapor pressure of both normal butane and commercial butane at 115°F (46.1°C) is 51 psig (350 kPag).

D.2.1.5 The ASME *Boiler and Pressure Vessel Code* editions ~~generally~~ applicable to LP-Gas containers, and the design pressures, safety factors, and exceptions to these editions for LP-Gas use, are shown in Table D.2.1.5. They reflect the use of the information in D.2.1.1 through D.2.1.4.

Table D.2.1.5 Container Pressure and Safety Factors/Design Margin for Various Editions of the ASME Code

Year ASME Code Edition Published	Maximum Allowable Working Pressure (MAWP)				Safety Factor/Design Margin
	Butane		Propane		
	psig	MPag	psig	MPag	
1931 through 1946[a]	100[a]	0.7	200	1.4	5:1
1949, paragraphs U-68 and U-69[b]	100	0.7	200	1.4	5:1
1949, paragraphs U-200 and U-201[c]	125	0.9	250	1.7	4:1
1952 through 1998	125	0.9	250	1.7	4:1
1998 to current	xxx	xxx	xxx	Xxx	3.5:1

[a]Until December 31, 1947, containers designed for 80 psig (0.6 MPag) under prior (5:1 safety factor) codes were authorized for butane. Since that time, either 100 psig (0.7 MPag) (under prior codes) or 125 psig (0.9 MPag) (under present codes) is required.

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[b]Containers constructed in accordance with the 1949 edition and prior editions of the ASME Code were not required to be in compliance with paragraphs U-2 to U-10, inclusive, or with paragraph U-19. Construction in accordance with paragraph U-70 of these editions was not authorized.
[c]Higher MAWP [312.5 psig (2.2 MPag)] is required for small ASME containers used for vehicular installations, because they can be exposed to higher temperatures and, consequently, develop higher internal pressure.

~~D.2.2 **API-ASME Container Design.**~~

~~D.2.2.1 The API-ASME Cod was first published in 1931. Based on petroleum industry experience using certain material quality and inspection controls not incorporated at that time in the ASME Code, the 4:1 safety factor was first used. Many LP-Gas containers were built under this code with design pressures of 125 psig (860 kPag) [100 psig (690 kPag) until December 31, 1947] for butane and 250 psig (1725 kPag) for propane. Containers constructed in accordance with the API-ASME Code were not required to comply with Section 1 or with the annex to Section 1. Paragraphs W-601 through W-606 of the 1943 and earlier editions were not applicable to LP-Gas containers.~~

~~D.2.2.2~~

~~By changing the safety factor from 5:1 to 4:1 through consideration of the factors described in D.2.1.1 through D.2.1.4, the ASME Code became, in effect, nearly identical to the API-ASME Code by the 1950s. Thus, the API-ASME Code was phased out, and construction was not authorized after July 1, 1961.~~

~~D.2.3 **Design Criteria for LP-Gas Containers.**~~

~~To prevent confusion in earlier editions of this code, the container type nomenclature was used to designate the pressure rating of the container to be used for various types of LP-Gases. With the adoption of the 4:1 safety factor in the ASME Code and the phasing out of the API-ASME Code, the need for container type ceased to exist.~~

D.2.4 **DOT (ICC) Specifications Utilizing ASME or API-ASME Containers.**

D.2.4.1 DOT ~~(ICC)~~ specifications for portable tanks and cargo tanks require ASME ~~or API-ASME~~ construction for the tank proper *(see D.1.1.2)*. Several such specifications were written by the ICC prior to 1967, and DOT has continued this practice.

D.2.4.2 ICC specifications written prior to 1946, and to some extent through 1952, used ASME containers with a 200 psig (1380 kPag) design pressure for propane and 80 psig (550 kPag) for butane [100 psi (690 kPa) after 1947] with a 5:1 safety factor. During this period and until 1961, ICC specifications also permitted API-ASME containers with a 250 psig (1720 kPag) design pressure for propane and 100 psig (690 kPag) for butane [125 psig (862 kPag) after 1947].

D.2.4.3 To prevent any unnecessary release of flammable vapor during transportation *(see D.2.1.3)*, the use of safety relief valve settings 25 percent above the MAWP was common for ASME 5:1 safety factor containers. To eliminate confusion, and in line with the good experience with API-ASME containers, the ICC permitted the rerating of these particular ASME containers used under its specifications to 125 percent of the originally marked MAWP.

D.2.4.4 DOT (ICC) pressure specifications applicable to portable tanks and cargo tanks currently in use are listed in Table D.2.4.4. New construction is not permitted under the older specifications. However, use of these older containers is permitted to continue, provided that they have been maintained in accordance with DOT (ICC) regulations.e

Table D.2.4.4 DOT Pressure Specification for Cargo Tanks

Specification Number	ASME Construction MAWP, ~~(~~psig~~)~~ (MPag) Propane	Butane	Safety Factor/Design Margin
ICC-50[a]	200[b] (1.40)	100[b] (0.69)	5:1
ICC-51[a]	250 (1.72)	125 (0.86)	4:1
MC-320[c,d]	200[b] (1.40)	100[b] (0.69)	5:1
MC-330[c]	250 (1.72)	125 (0.86)	4:1
MC-331[c]	250 (1.72)	125 (0.86)	4:1

~~For SI units, 100 psig = 0.69 MPag; 125 psig = 0.86 MPag; 200 psig = 1.40 MPag; 250 psig = 1.72 MPag.~~

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[a]Portable tank container.
[b]Permitted to be re-rated to 125 percent of original ASME MAWP.
[c]Cargo tank.
[d]Requires DOT exemption.

D.2.5 In 1961 the Department of Transportation (DOT) was created and assumed most of the functions of the Interstate Commerce Commission (ICC).

D.3 Underground ASME ~~or API-ASME~~ Containers.

D.3.1 Use of Containers Underground.

D.3.1.1 ASME ~~or API-ASME~~ containers are used for underground or partially underground installation in accordance with 6.8.7.1 or 6.8.7.2. The temperature of the soil is normally low so that the average liquid temperature and vapor pressure of product stored in underground containers will be lower than in aboveground containers. The soil prevents flame impingement on the container in the event of a fire, and the flow capacity of the pressure relief valve can be reduced to 30% of the flow required for aboveground propane storage containers (see 5.9.2.8).

D.3.1.2 Containers listed to be used interchangeably for installation either above ground or under ground must comply ~~as to~~ with the pressure relief valve rated relieving capacity and filling limit with aboveground provisions when installed above ground *(see 5.9.2.6)*. When installed ~~under ground~~ underground, the pressure relief valve rated relieving capacity and filling limit can be in accordance with underground provisions *(see 5.9.2.8)*, provided that all other underground installation provisions are met. Containers installed partially ~~under ground~~ underground are considered as aboveground containers insofar as filling limit and pressure relief valve rated relieving capacity are concerned.

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Public Input No. 51-NFPA 58-2025 [Chapter G]

~~**Annex G** – Wall Thickness of Copper Tubing~~

~~*This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.*~~

~~**G.1** –~~

~~Table G.1(a) and Table G.1(b) contain the nominal wall thicknesses of Type K, Type L, and Type ACR copper tubing.~~

~~Table G.1(a) Wall Thickness of Copper Tubing (ASTM B88, *Standard Specification for Seamless Copper Water Tube)*~~

~~Standard Size~~

~~(in.) Nominal Outside Diameter~~

~~(in.) Nominal Wall Thickness (in.) Type K Type L 1/4 0.375 0.035 0.030 3/8 0.500 0.049 0.035 1/2 0.625 0.049 0.040 5/8 0.750 0.049 0.042 3/4 0.875 0.065 0.045~~

~~For SI units, 1 in. = 25 mm.~~

~~Table G.1(b) Wall Thickness of Copper Tubing (ASTM B280, *Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service)*~~

~~Standard Size~~

~~(in.) Outside Diameter~~

~~(in.) Wall Thickness~~

~~(in.) 1/4 0.250 0.030 5/16 0.312 0.032 3/8 0.375 0.032 1/2 0.500 0.032 5/8 0.625 0.035 3/4 0.750 0.042 7/8 0.875 0.045~~

~~For SI units, 1 in. = 25 mm.~~

Statement of Problem and Substantiation for Public Input

Delete Annex G, Wall Thickness of Copper Tubing. Copper tube wall thickness is included in the tubing sizing tables in Chapter 17.

Submitter Information Verification

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Submittal Date: Fri Jan 31 15:16:41 EST 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-60-NFPA 58-2025

Statement: The information appears to be taken from another standard and it is unnecessary to directly copy their material into NFPA 58. The relevant information is already appropriately referenced in the piping tables where used.

Public Input No. 126-NFPA 58-2025 [Section No. N.1.2.16]

N.1.2.16 UL Publications.

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

UL 651, *Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings*, 2011, revised ~~2020~~ 2022 .

UL 723, *Test for Surface Burning Characteristics of Building Materials*, 2018.

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

Statement of Problem and Substantiation for Public Input

Update of UL references to the document.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 125-NFPA 58-2025 [Section No. 2.3.10]	
Public Input No. 127-NFPA 58-2025 [Section No. N.1.2.17]	

Submitter Information Verification

Submitter Full Name: Kelly Nicolello
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Submittal Date: Sat May 31 16:10:17 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-2-NFPA 58-2025
Statement: Reference standards are being updated to the latest edition year.

Public Input No. 127-NFPA 58-2025 [Section No. N.1.2.17]

N.1.2.17 ULC Publications.

Underwriters' Laboratories of Canada, 7 Underwriters Road, Toronto, ON M1R 3A9, Canada.

CAN/ULC S603.1, *Standard for External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids*, ~~2017~~ 2022 .

Statement of Problem and Substantiation for Public Input

Update of UL references to the document.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 125-NFPA 58-2025 [Section No. 2.3.10]	
Public Input No. 126-NFPA 58-2025 [Section No. N.1.2.16]	

Submitter Information Verification

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Submittal Date: Sat May 31 16:12:01 EDT 2025
Committee: LPG-AAA

Committee Statement

Resolution: FR-2-NFPA 58-2025
Statement: Reference standards are being updated to the latest edition year.