

NFPA®

30

Flammable and
Combustible
Liquids Code

2021



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NFPA® 30

Flammable and Combustible Liquids Code

2021 Edition

This edition of NFPA 30, *Flammable and Combustible Liquids Code*, was prepared by the Technical Committees on Fundamentals, Operations, Storage and Warehousing of Containers and Portable Tanks, and Tank Storage and Piping Systems, released by the Correlating Committee on Flammable and Combustible Liquids, and acted on by the NFPA membership during the 2020 NFPA Technical Meeting held June 8–29. It was issued by the Standards Council on August 11, 2020, with an effective date of August 31, 2020, and supersedes all previous editions.

This document has been amended by one or more Tentative Interim Amendments (TIAs) and/or Errata. See “Codes & Standards” at www.nfpa.org for more information.

This edition of NFPA 30 was approved as an American National Standard on August 31, 2020.

Origin and Development of NFPA 30

From 1913 to 1957, this document was written as a model municipal ordinance known as the *Suggested Ordinance for the Storage, Handling, and Use of Flammable Liquids*. In 1957, the format was changed to a code, although the technical requirements and provisions remained the same. Since its inception, numerous revised editions have been published as dictated by experience and advances in technology.

A brief review of the major changes adopted since 1981 follows. In 1984, the chapter on automotive and marine service stations was removed from NFPA 30 and was replaced with a new document, NFPA 30A, *Automotive and Marine Service Station Code*, now titled *Code for Motor Fuel Dispensing Facilities and Repair Garages*. In 1987, Chapter 5 (Industrial Plants), Chapter 6 (Bulk Plants and Terminals), Chapter 7 (Process Plants), and Chapter 8 (Refineries, Chemical Plants, and Distilleries) were combined into a single chapter on operations. In 1990, a new section was added to address hazardous materials storage lockers, and more detailed guidance was added to address ventilation of enclosed process areas and for estimation of fugitive emissions. In 1993, the chapter on tank storage was amended to allow combined remote impounding and diking systems and to provide relief from the spill control requirements for certain secondary-containment-type tanks. Also, the chapter on container and portable tank storage was completely rewritten so that its requirements were presented more clearly, especially for mercantile occupancies.

In 1996, the following major changes were incorporated: requirements for temporary and permanent closure of underground storage tanks; requirements for tightness testing of tanks of specific design; recognition of intermediate bulk containers; and mandatory fire protection design criteria for inside storage of liquids in storage rooms and liquid warehouses.

In 2000, the following major changes were incorporated: complete editorial rewrites of Chapter 2, Tank Storage, and Chapter 3, Piping Systems; requirements for vaults for aboveground tanks and for protected aboveground tanks; recognition of certain nonmetallic intermediate bulk containers for storage of Class II and Class III liquids, along with fire protection system design criteria for them; simplified spill containment and drainage requirements; new fire protection design criteria for a number of flammable and combustible liquid commodities; expansion of the requirements for construction and separation of process buildings; a new section addressing recirculating heat transfer fluid heating systems; a new section addressing solvent recovery distillation units; and consolidation of all requirements for hazardous location electrical area classification into a single chapter.

The 2003 edition of NFPA 30 incorporated occupancy definitions to correlate with NFPA 1, *Uniform Fire Code*™; NFPA 101®, *Life Safety Code*®; and NFPA 5000®, *Building Construction and Safety Code*®. This edition of the code also added revisions to the separation distance requirements for both protected aboveground tanks and tanks in vaults.

The 2008 edition of NFPA 30 incorporated a complete editorial revision of the prior edition to implement NFPA's hazardous materials template, a formatting scheme intended to integrate a common organization and common outline for all NFPA codes and standards that address the various types of hazardous materials. As a result of the implementation of the template, the eight chapters comprising the 2003 edition of NFPA 30 were subdivided and rearranged into 29 shorter, more narrowly focused chapters. Requirements that are generally applicable to all facilities that store, handle, and use flammable and combustible liquids were relocated to the beginning of the code. Chapters dealing with bulk storage and bulk handling of liquids were moved to the end of the code, based on the reasoning that not all codes and standards dealing with hazardous materials include provisions for bulk storage.

In addition to the editorial revision, the 2008 edition of NFPA 30 incorporated the following technical changes:

Chapter 6, Container and Portable Tank Storage, was replaced by Chapters 9 through 16 of the 2008 edition. These new chapters regulated storage of containers, portable tanks, and intermediate bulk containers in a manner that is consistent with model building codes, such as *NFPA 5000*[®], *Building Construction and Safety Code*[®], and model fire prevention codes, such as NFPA 1, *Uniform Fire Code*[™], and incorporated the concepts of maximum allowable quantities (MAQs), control areas, and protection levels.

The fire protection design criteria for inside storage areas were expanded to include requirements for small plastic containers of Class IB, IC, II, and III liquids in corrugated cartons and for Class IIIB liquids in corrugated cardboard intermediate bulk containers with plastic inner liners. Overfill prevention requirements were revised so that they apply to all tanks larger than 1320 gal (5000 L) capacity.

The 2012 edition of NFPA 30 incorporated the following technical changes:

Use and installation of alcohol-based hand rub dispensers were exempted from the code.

New provisions were added to require that Class II and Class III liquids that are stored, handled, processed, or used at temperatures at or above their flash points follow all applicable requirements in the code for Class I liquids, unless an engineering evaluation deems otherwise. Supplementary information was included in Annex A. In addition, direct reference to this provision was added at appropriate locations in subsequent chapters.

A new Section 6.10 and the accompanying Annex G were added to address management of facility security by means of a mandatory security and vulnerability assessment. Annex G provides an outline of a suggested assessment process.

The 2015 edition of NFPA 30 incorporated the following major amendments:

A 12 ft (3.6 m) storage height restriction was imposed on unprotected storage in mercantile occupancies, to be consistent with the storage height restriction already in place for mercantile occupancies protected in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*, for ordinary hazard Group 2. In addition, numerous amendments were made to Chapter 16 to clarify intent, to eliminate certain inconsistencies between NFPA 30 and NFPA 13, and to correlate terminology and specific requirements in NFPA 13.

Amendments to Chapter 17 and 27 reflect recommendations submitted to NFPA by the U.S. Chemical Safety and Hazard Investigation Board.

A new Annex A item, A.21.7.2.2, was added to address security of storage tanks in remote unattended locations at the recommendation of the U.S. Chemical Safety and Hazard Investigation Board.

The 2018 edition of NFPA 30 incorporated the following major amendments:

Subsection 9.4.1, which sets forth the types of containers considered acceptable under the code, was amended by the addition of item (8), which recognizes nonmetallic intermediate bulk containers that can satisfy the fire exposure test protocols of 9.4.1.1.

Paragraph 9.4.1.1 was amended to specifically reference UL 2368, *Fire Exposure Testing of Intermediate Bulk Containers for Flammable and Combustible Liquids*, and FM Class 6020, *Approval Standard for Intermediate Bulk Containers*. Section 12.8 was replaced with provisions that only allow specific liquid/container combinations to be stored in such facilities. These combinations are allowed in unlimited quantities, but must be protected in accordance with the fire protection design criteria in Chapter 16. For consistency, 12.3.1 was appropriately amended and (former) 12.3.2 was deleted.

For the 2021 edition of NFPA 30, the committee introduced a sweeping change in the classification scheme for liquids. The term *ignitable liquid* has been introduced to initiate a process whereby the terms *flammable liquid* and *combustible liquid* are no longer used. This causes the requirements in NFPA 30 and other codes and standards to adopt a scheme based exclusively on the liquid physical state and property (i.e., the liquid flash point), for all liquids that can be ignited. The necessity for this change stems from the existence of multiple regulatory systems that use the terms *flammable liquid* and *combustible liquid* inconsistently, leading to confusion in how to apply regulations properly among overlapping regulatory authorities, such as fire officials, occupational safety officials, and transportation officials.

The term *ignitable liquid* is used to include all liquids with a measurable flash point. To assist existing code users in the transition, the terms *flammable liquid* and *combustible liquid* have been retained in a diminished capacity. Unless otherwise specified, the term *liquid* means ignitable liquid.

As a result of the change in approach for classifying liquids, the committee determined that Chapter 4 was actually not for defining the liquid classification, but instead for establishing the classification scheme based on the introduced flash point and boiling point criteria. The revisions to Chapter 4 address the classification criteria, whereas Chapter 3 defines specific liquids. The revisions to Chapters 1, 3, and 4 seek to make the requirements consistent with each other in terms of the scope of the code, specific terminology, and the evaluation of liquids within the classification scheme. The revised classification scheme outlined in Chapter 4 has been implemented throughout the code and annexes.

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Committee Scope: This Committee shall have primary responsibility for documents on safeguarding against the fire and explosion hazards associated with the storage, handling, and use of flammable and combustible liquids; and classifying flammable and combustible liquids.

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Committee Scope: This Committee shall have primary responsibility for documents or portions of documents on safeguarding against the fire and explosion hazards associated with operations that involve the handling, transfer, and use of flammable and combustible liquids, either as a principal activity or as an incidental activity.

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NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

Committee Scope: This Committee shall have primary responsibility for documents or portions of documents on safeguarding against the fire and explosion hazards associated with the storage, warehousing, and display merchandising of flammable and combustible liquids in containers and in portable tanks whose capacity does not exceed 2500 liters (660 gallons).