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NFPA 395 Storage of Flammable and Combustible Liquids on Farms and Isolated Construction Projects 1988 Edition

National Fire Protection Association Batterymarch Park, Quincy, MA 02269

NOTICE

All questions or other communications relating to this document should be sent only to NFPA Headquarters, addressed to the attention of the Committee responsible for the document.

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Policy Adopted by NFPA Board of Directors on December 3, 1982

The Board of Directors reaffirms that the National Fire Protection Association recognizes that the toxicity of the products of combustion is an important factor in the loss of life from fire. NFPA has dealt with that subject in its technical committee documents for many years.

There is a concern that the growing use of synthetic materials may produce more or additional toxic products of combustion in a fire environment. The Board has, therefore, asked all NFPA technical committees to review the documents for which they are responsible to be sure that the documents respond to this current concern. To assist the committees in meeting this request, the Board has appointed an advisory committee to provide specific guidance to the technical committees on questions relating to assessing the hazards of the products of combustion.

Statement on NFPA Procedures

This material has been developed under the published procedures of the National Fire Protection Association, which are designed to assure the appointment of technically competent Committees having balanced representation. While these procedures assure the highest degree of care, neither the National Fire Protection Association, its members, nor those participating in its activities accepts any liability resulting from compliance or noncompliance with the provisions given herein, for any restrictions imposed on materials or processes, or for the completeness of the text.

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NATIONAL FIRE PROTECTION ASSOCIATION

NFPA 395

Standard for the

Storage of Flammable and Combustible Liquids on Farms and Isolated Construction Projects

1988 Edition

This edition of NFPA 395, *Standard for the Storage of Flammable and Combustible Liquids on Farms and Isolated Construction Projects*, was prepared by the Technical Committee on Flammable and Combustible Liquids, released by the Correlating Committee on Flammable Liquids, and acted on by the National Fire Protection Association, Inc. at its Annual Meeting held May 16-18, 1988, in Los Angeles, California. It was issued by the Standards Council on June 8, 1988 with an effective date of June 28, 1988, and supersedes all previous editions.

The 1988 edition of this document has been approved by the American National Standards Institute.

Changes other than editorial are indicated by a vertical rule in the margin of the pages on which they appear. These lines are included as an aid to the user in identifying changes from the previous edition.

Origin and Development of NFPA 395

NFPA 395 was first adopted by the Association in 1947 as the *Standard for Farm Storage of Flammable Liquids* and was developed to provide guidance for safe storage of flammable liquids in rural locations where exposures were minimal and compliance with the more restrictive requirements of NFPA 30, *Flammable and Combustible Liquids Code*, was not justified. The original version of NFPA 395 was reconfirmed in 1952. In 1959, the scope of NFPA 395 was expanded to include isolated construction projects. Amendments were adopted in 1965, 1972, 1977, 1980, 1984, and 1988.

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This list represents the membership at the time the Committee was balloted on the text of this edition. Since that time, changes in the membership may have occurred.

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.

Contents

NFPA 395

Standard for the

Storage of Flammable and Combustible Liquids on Farms and Isolated Construction Projects

1988 Edition

Chapter 1 General

1-1 Scope.

1-1.1 This standard applies to the storage of flammable and combustible liquids having a flash point below 200°F (93.3°C) (as defined in NFPA 30, *Flammable and Combustible Liquids Code*) on farms or in rural areas. It is also applicable to the storage of flammable and combustible liquids at rural construction and rural earthmoving projects, including gravel pits and borrow pits, where it is customary to obtain fuels in bulk and dispense or transfer them under control of the owner or contractor, and where isolation from other structures and temporary use make it unnecessary, in the opinion of the authority having jurisdiction, to require compliance with the more rigid standards of NFPA 30.

1-1.2 This standard does not apply to (a) the storage, handling, and use of fuel oil tanks and containers connected with oil burning equipment as covered in NFPA 31, *Standard for the Installation of Oil Burning Equipment*, (b) storage of 25 gal (95 L) or less of flammable and combustible liquids in containers not exceeding 5 gal (19 L) capacity each.

1-2 Types of Approved Storage.

1-2.1 Storage of flammable and combustible liquids in rural areas for private use shall be permitted in any of the following:

(a) In aboveground or underground tanks or in containers meeting the requirements of NFPA 30;

(b) In containers of 60 gal (227 L) or less capacity each in accordance with Section 1-3 of this standard;

(c) In tanks of 61 to 1,100 gal (231 L to 4164 L) capacity each in accordance with Section 1-4 of this standard.

1-2.2 Storage areas shall be kept free of weeds and extraneous combustible material. Open flames and smoking shall not be permitted in flammable or combustible liquids storage areas.

1-3 Individual Containers of 60 Gallons or Less Capacity Each.

1-3.1 Storage shall be in DOT-approved metal containers or in other approved containers of 60 gal (227 L) or less capacity each. Discharge devices requiring the container to be pressurized shall be prohibited. Pumping devices or faucets used for dispensing flammable and combustible liquids shall be well maintained to prevent leakage. Individual containers shall not be interconnected and shall be kept closed when not in use.

1-3.2 Containers provided for in this section for storage of Class I flammable liquids shall be stored outside at least 10 ft (3 m) from any building or may be stored inside a building used exclusively for the storage of flammable and combustible liquids and located at least 10 ft (3 m) from any other building. Buildings used for the storage of Class I flammable liquids shall be provided with cross ventilation with at least two vents of 64 sq in. (645 sq mm) of area, each placed at floor level.

1-4 Tanks of 60 to 1,100 Gallons Capacity Each.

1-4.1 Flammable and combustible liquids in aboveground tanks of 60 to 1,100 gal (227 L to 4164 L) capacity shall be stored outside buildings in tanks of single-compartment design constructed in accordance with accepted engineering practice. Joints shall be riveted and caulked, riveted and welded, or welded. Tank heads over 6 ft (2 m) in diameter shall be dished, stayed, braced, or reinforced. Tanks shall meet the following:

Capacity		Minimum Thickness of Steel
Gallons	Liters	Mfgrs. Std. Gage No.
60 to 560	231 to 2120	14
561 to 1100	2120 to 4164	12

1-4.1.1 A fill opening shall be provided and shall be equipped with a closure designed so that it may be locked. The fill opening shall be separate from the vent opening.

1-4.1.2 Each tank shall be provided with a free opening vent of the following minimum nominal pipe size to relieve vacuum or pressure which may develop in normal operation or from fire exposure.[1]

Tank Capacity		Vent Size	
Gallons	Liters	Diameter Inches	Millimeters
Up to 275	1040	1½	38
276 - 660	1041 - 2498	2	50.8
661 - 900	2499 - 3407	2½	63.5
901 - 1100	3408 - 4164	3	76.2

Vents shall be arranged to discharge in such a way as to prevent localized overheating of, or flame impingement on, any part of the tank in the event vapors from such vents are ignited.

1-4.1.3 Tanks provided for in this section shall be kept outside and at least 40 ft (12.2 m) from any building. They shall be so located, or such additional distance from buildings shall be provided, as to ensure that any vehicle, equip-

[1]Based upon limiting internal tank pressure to 120 percent of 2.5 psig using an orifice coefficient of 0.8 and an environmental factor of 0.5. The environmental factor of 0.5 recognizes the limited time a small tank is subjected to fire exposure, loss of fuel by absorption into the soil and the drainage of liquid away from the tank. Calculation methods are based upon NFPA 30, *Flammable and Combustible Liquids Code*, subsection 2-2.5, Emergency Relief Venting for Fire Exposure for Aboveground Tanks

ment, or container being filled directly from such tank will be at least 40 ft (12.2 m) from any building.

1-4.1.4 Tanks provided for in this section may be either tanks with top openings only or tanks elevated for gravity discharge.

(a) *Tanks with Top Openings Only.* Tanks constructed and located as provided for in this section may be designed with all openings in the top of the tank and in such event shall be mounted and equipped as follows:

(i) Stationary tanks shall be mounted on timbers or blocks approximately 6 in. (152 mm) in height so as to protect the bottom of the tank from corrosion from contact with the ground and, when so placed, be in a stable position; or, movable tanks may be equipped with attached metal legs resting on shoes or runners designed so that the tank is supported in a stable position and so that the entire tank and its supports may be moved as a unit.

(ii) Tanks shall be equipped with a tightly and permanently attached approved pumping device having an approved hose of sufficient length for filling vehicles, equipment or containers to be served from the tank. Either the pump or the hose shall be equipped with a padlock to its hanger to prevent tampering. An effective antisiphoning device shall be included in the pump discharge unless a self-closing nozzle is provided. Siphons or internal pressure discharge devices are prohibited.

(b) *Tanks Elevated for Gravity Discharge.* Tanks constructed and located as provided for in this section may be designed with a connection in the bottom or the end of the tank for gravity dispensing of flammable and combustible liquids and shall be mounted and equipped as follows:

(i) Supports to elevate the tank for gravity discharge shall be of adequate strength and design to provide stability. Supports may be of steel or of wood.

(ii) Alternately, the tank may be placed on a pile of earth or near the edge of a cut bank to provide the necessary elevation, and shall be supported on timbers or blocks for stability and to prevent corrosion by contact with the ground.

(iii) Bottom opening for gravity discharge shall be equipped with a valve located adjacent to the tank shell which will close automatically in the event of fire through the operation of an effective heat actuated releasing device. If this valve cannot be operated manually, it shall be supplemented by a second valve which can be. The gravity discharge outlet shall be provided with an approved hose equipped with a self-closing valve at the discharge end, of a type that can be padlocked to its hanger to prevent tampering.

1-5 Marking of Tanks and Containers. Tanks and containers for the storage of flammable and combustible liquids aboveground shall be conspicuously marked with the name of the product that they contain and "FLAMMABLE—KEEP FIRE AND FLAME AWAY." Tanks of 60 to 1,100 gal (227 L to 4164 L) capacity shall bear the additional marking "KEEP 40 FEET (12.2 M) FROM BUILDINGS."

NOTE: Clearance of 40 ft (12.2 m) from buildings should also apply to other combustible structures, haystacks, etc.

Chapter 2 Referenced Publications

2-1 The following documents or portions thereof are referenced within this standard and shall be considered part of the requirements of this document. The edition indicated for each reference is the current edition as of the date of the NFPA issuance of this document.

2-1.1 NFPA Publications. National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

NFPA 30-1987, *Flammable and Combustible Liquids Code.*

NFPA 31-1987, *Standard for the Installation of Oil Burning Equipment.*

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SUBMITTING PROPOSALS ON NFPA TECHNICAL COMMITTEE DOCUMENTS

Contact NFPA Standards Administration for final date for receipt of proposals on a specific document.

INSTRUCTIONS

Please use the forms which follow for submitting proposed amendments. Use a separate form for each proposal.

1. For each document on which you are proposing amendment indicate:
   (a) The number and title of the document
   (b) The specific section or paragraph.

2. Check the box indicating whether or not this proposal recommends new text, revised text, or to delete text.

3. In the space identified as "Proposal" include the wording you propose as new or revised text, or indicate if you wish to delete text.

4. In the space titled "Statement of Problem and Substantiation for Proposal" state the problem which will be resolved by your recommendation and give the specific reason for your proposal including copies of tests, research papers, fire experience, etc. If a statement is more than 200 words in length, the technical committee is authorized to abstract it for the Technical Committee Report.

5. Check the box indicating whether or not this proposal is original material, and if it is not, indicate source.

6. If supplementary material (photographs, diagrams, reports, etc.) is included, you may be required to submit sufficient copies for all members and alternates of the technical committee.

NOTE: The NFPA Regulations Governing Committee Projects in Paragraph 10-10 state. Each proposal shall be submitted to the Council Secretary and shall include:

(a) identification of the submitter and his affiliation (Committee, organization, company) where appropriate, and

(b) identification of the document, paragraph of the document to which the proposal is directed, and

(c) a statement of the problem and substantiation for the proposal, and

(d) proposed text of proposal, including the wording to be added, revised (and how revised), or deleted.

FORM FOR PROPOSALS ON NFPA TECHNICAL COMMITTEE DOCUMENTS

Mail to: Secretary, Standards Council
National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269

Date 5/18/85 Name John B. Smith Tel. No. 617-555-1212

Address 9 Seattle St., Seattle, WA 02255

Representing (Please indicate organization, company or self) Fire Marshals Assn. of North America

1. a) Document Title: Protective Signaling Systems NFPA No. & Year NFPA 72D

b) Section/Paragraph: 2-7.1 (Exception)

2. Proposal recommends: (Check one) ☐ new text
☐ revised text
☒ deleted text.

3. Proposal (include proposed new or revised wording, or identification of wording to be deleted):

Delete exception.

4. Statement of Problem and Substantiation for Proposal:

A properly installed and maintained system should be free of ground faults. The occurrence of one or more ground faults should be required to cause a "trouble" signal because it indicates a condition that could contribute to future malfunction of the system. Ground fault protection has been widely available on these systems for years and its cost is negligible. Requiring it on all systems will promote better installations, maintenance and reliability.

5. ☒ This Proposal is original material.
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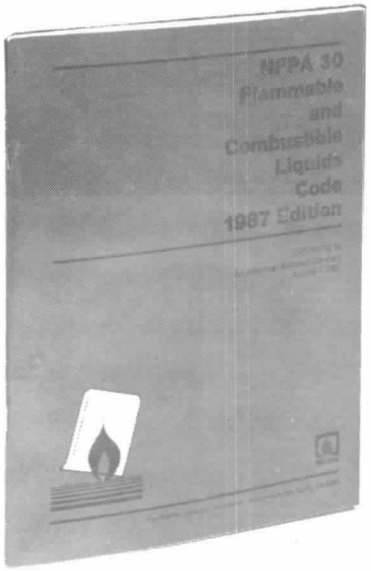

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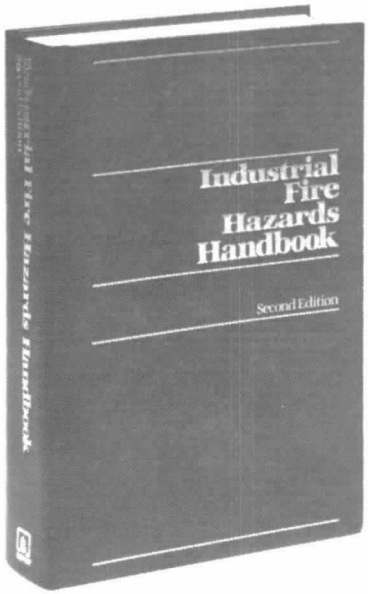

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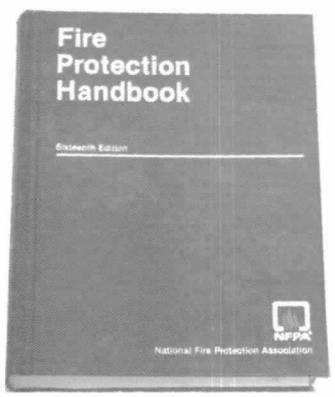

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