

NFPA 231D

Standard for Storage of Rubber Tires

1998 Edition



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An International Codes and Standards Organization

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Storage of Rubber Tires

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This edition of NFPA 231D, *Standard for Storage of Rubber Tires*, was prepared by the Technical Committee on Rubber Tires and acted on by the National Fire Protection Association, Inc., at its Annual Meeting held May 18–21, 1998, in Cincinnati, OH. It was issued by the Standards Council on July 16, 1998, with an effective date of August 5, 1998, and supersedes all previous editions.

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.

This edition of NFPA 231D was approved as an American National Standard on August 6, 1998.

Origin and Development of NFPA 231D

A tentative standard on the storage of rubber tires was developed by a subcommittee of the Committee on General Storage and adopted by the National Fire Protection Association, Inc., at its 1974 Annual Meeting in Miami Beach, FL.

The first official edition of NFPA 231D was prepared by the Committee on General Storage. It included revisions to the tentative standard and was adopted by the Association at its 1975 Fall Meeting in Pittsburgh, PA. The 1980 edition was a partial revision of the 1975 edition, and the 1986 edition was a partial revision of the 1980 edition. The 1989 edition contained guidelines for outdoor storage of scrap tires in Appendix C.

The 1994 edition of the standard incorporated findings from recent full-scale fire tests. The concept of miscellaneous storage was introduced, and the suggestions for fighting rubber tire fires in sprinklered buildings were revised. Additional changes were incorporated to further enhance the document's user friendliness.

The 1998 edition introduces protection requirements for large-drop sprinklers and ESFR sprinklers. In addition, the fire wall requirements have been clarified.

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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. A key to classifications is found at the back of this document.

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 on the safeguards against fire in the storage of rubber tires.

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Appendix A.

Information on referenced publications can be found in Chapter 6 and Appendix D.

Chapter 1 Introduction

1-1 Scope.

1-1.1 This standard shall apply to the indoor storage of rubber tires.

1-1.2 The provisions contained in this standard shall apply to new facilities for tire storage and the conversion of existing buildings to tire storage occupancy. This standard shall be permitted to be used as a basis for evaluating existing storage facilities.

1-1.3 Miscellaneous storage, as defined in this standard, shall be permitted to be protected in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*.

1-2 Definitions. Unless expressly stated otherwise, for the purposes of this standard, the following definitions shall apply:

Approved.* Acceptable to the authority having jurisdiction.

Authority Having Jurisdiction.* The organization, office, or individual responsible for approving equipment, an installation, or a procedure.

Available Height for Storage. The maximum height at which tires can be stored above the floor while maintaining adequate clearance from structural members and the required clearance below sprinklers.

Banded Tires. A storage method in which a number of tires are strapped together.

Conventional Pallet. A material-handling aid designed to support a unit of load with stringers to provide support for material-handling devices.

Encapsulated.* A method of packing consisting of plastic sheet completely enclosing the sides and top of a combustible commodity or combustible package.

Horizontal Channel. Any uninterrupted space in excess of 5 ft (1.5 m) in length between horizontal layers of stored tires. Such channels are formed by pallets, shelving, racks, or other storage arrangements.

Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction

and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

Laced Storage. Tires stored where the sides of the tires overlap, creating a woven or laced appearance. [See Figure 1-3(g).]

Listed.* Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets identified standards or has been tested and found suitable for a specified purpose.

Miscellaneous Storage.* Storage of rubber tires that is incidental to the main use of the building. Storage areas shall not exceed 2000 ft² (186 m²). (See Section 3-3.)

On-Side Storage. Tires stored horizontally or flat.

On-Tread Storage. Tires stored vertically or on their treads.

Palletized. Storage on portable racks of various types utilizing a conventional pallet as a base.

Pyramid Storage. On-floor storage in which the tires are formed into a pyramid to provide pile stability.

Rack.* Any combination of vertical, horizontal, and diagonal members that supports stored materials. Racks are fixed or portable. A fixed rack is a supporting framework that remains in a fixed position within the warehouse during normal usage and into which the placement and retrieval of storage is by means of handling tires individually or in pallet loads.

Rubber Tires. Pneumatic tires for passenger automobiles, aircraft, light and heavy trucks, trailers, farm equipment, construction equipment (off-the-road), and buses.

Shall. Indicates a mandatory requirement.

Should. Indicates a recommendation or that which is advised but not required.

Standard. A document, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions shall be located in an appendix, footnote, or fine-print note and are not to be considered a part of the requirements of a standard.

Sprinkler Temperature Rating. Ordinary-temperature-rated sprinklers include temperature ratings between 135°F and 175°F (57°C and 80°C), and high-temperature-rated sprinklers include temperature ratings between 250°F and 300°F (121°C and 149°C).

Storage Aids. Commodity storage devices such as shelves, pallets, dunnage, separators, and skids.

1-3 Figures. Figures 1-3(a) through 1-3(g), which follow, do not necessarily illustrate all possible storage configurations.