

NFPA[®] 498

Standard for Safe Havens and Interchange Lots for Vehicles Transporting Explosives

2023 Edition



NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471
An International Codes and Standards Organization

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NFPA® 498

Standard for

Safe Havens and Interchange Lots for Vehicles Transporting Explosives

2023 Edition

This edition of NFPA 498, *Standard for Safe Havens and Interchange Lots for Vehicles Transporting Explosives*, was prepared by the Technical Committee on Explosives. It was issued by the Standards Council on May 20, 2022, with an effective date of June 9, 2022, and supersedes all previous editions.

This edition of NFPA 498 was approved as an American National Standard on June 9, 2022.

Origin and Development of NFPA 498

This standard was developed by the Technical Committee on Explosives to address the special requirements of motor vehicle terminals specifically designed to handle cargoes of explosive materials. It was tentatively adopted at the 1969 NFPA Annual Meeting and officially adopted at the 1970 NFPA Annual Meeting. Several amendments were adopted at the 1976 and 1982 NFPA Annual Meetings. In 1986, 1990, and 1992, the document was reconfirmed.

Formerly titled *Explosives Motor Vehicle Terminals*, the 1996 edition of NFPA 498 was a complete revision.

The 1996 edition more completely addressed the fire, theft, and explosion hazards that exist when explosive materials are present in parked vehicles in safe havens and in explosives interchange lots.

The 2001 edition of NFPA 498 incorporated various editorial amendments.

The 2006 edition included a complete revision based on the *Manual of Style for NFPA Technical Committee Documents* and incorporated minor editorial changes to the standard.

The 2010 edition represented a reconfirmation of the technical requirements in the standard.

Minor editorial changes were made for consistency with the NFPA *Manual of Style for NFPA Technical Committee Documents*.

The 2013 edition of NFPA 498 included updated references and incorporated minor editorial changes to the standard.

The 2018 edition of NFPA 498 added a requirement to Chapter 4 preventing the location of safe havens within certain distances of schools or hospitals, as it would be difficult to move the occupants of such buildings in the case of an incident in the safe haven. Additionally, a series of revisions to update references and incorporate minor editorial changes to align with the *Manual of Style for NFPA Technical Committee Documents* was included.

The 2023 edition of NFPA 498 includes updated references and incorporates minor editorial changes to the standard.

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Committee Scope: This Committee shall have primary responsibility for documents on the manufacture, transportation, storage and use of explosives and related materials. This Committee does not have responsibility for documents on consumer and display fireworks, model and high power rockets and motors, and pyrotechnic special effects.

Contents

Chapter 1 Administration	498- 4	Chapter 4 Safe Havens	498- 5
1.1 Scope.	498- 4	4.1 General.	498- 5
1.2 Purpose.	498- 4	4.2 Vehicle Parking.	498- 6
1.3 Application.	498- 4	4.3 Control of Ignition Sources.	498- 6
1.4 Retroactivity.	498- 4	4.4 Security Against Trespassers.	498- 6
Chapter 2 Referenced Publications	498- 4	4.5 Employee Training at Safe Havens.	498- 6
2.1 General.	498- 4	4.6 Notification of Authority Having Jurisdiction. ..	498- 6
2.2 NFPA Publications.	498- 4	Chapter 5 Explosives Interchange Lots	498- 7
2.3 Other Publications.	498- 4	5.1 General.	498- 7
2.4 References for Extracts in Mandatory Sections.	498- 4	5.2 Operations.	498- 7
Chapter 3 Definitions	498- 5	Annex A Explanatory Material	498- 7
3.1 General.	498- 5	Annex B Informational References	498- 8
3.2 NFPA Official Definitions.	498- 5	Index	498- 9
3.3 General Definitions.	498- 5		

NFPA 498

Standard for

Safe Havens and Interchange Lots for Vehicles
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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 Annex A.

A reference in brackets [] following a section or paragraph indicates material that has been extracted from another NFPA document. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

Information on referenced and extracted publications can be found in Chapter 2 and Annex B.

Chapter 1 Administration

1.1* Scope.

1.1.1 This standard shall apply to safe havens that are used for the parking of vehicles transporting explosives and to explosives interchange lots that are safe areas where less-than-truckloads of explosives shall be permitted to be held for transfer from one vehicle to another for continuance in transportation.

1.1.2 All vehicles covered by this standard shall be required to be engaged in the transportation of explosives and shall carry shipping papers to show that the explosives being transported are properly described, classified, identified, packaged, and labeled in accordance with regulations of the U.S. Department of Transportation.

1.1.3 Additionally, all vehicles shall be required to be marked and placarded in accordance with regulations of the U.S. Department of Transportation.

1.2 Purpose. This standard shall provide reasonable requirements for the prevention of fires, theft, and explosion within explosives motor vehicle facilities.

1.3 Application.

1.3.1 This standard shall apply to the design and operating features of explosives motor vehicle facilities related to the prevention of fire, theft, and explosion.

1.3.2 This standard shall not apply to motor freight terminals for vehicles handling general freight.

1.4 Retroactivity. The provisions of this code reflect a consensus of what is necessary to provide an acceptable degree of protection from the hazards addressed in this code at the time the code was issued.

1.4.1 Unless otherwise specified, the provisions of this code shall not apply to facilities, equipment, structures, or installations that existed or were approved for construction or installation prior to the effective date of the code. Where specified, the provisions of this code shall be retroactive.

1.4.2 In those cases where the authority having jurisdiction determines that the existing situation presents an unacceptable degree of risk, the authority having jurisdiction shall be permitted to apply retroactively any portions of this code deemed appropriate.

1.4.3 The retroactive requirements of this code shall be permitted to be modified if their application clearly would be impractical in the judgment of the authority having jurisdiction, and only where it is clearly evident that a reasonable degree of safety is provided.

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 495, *Explosive Materials Code*, 2023 edition.

NFPA 601, *Standard for Security Services in Fire Loss Prevention*, 2020 edition.

2.3 Other Publications.

2.3.1 U.S. Government Publications. U.S. Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401-0001.

Title 49, Code of Federal Regulations, Part 172, Subpart H, “Training.”

U.S. Department of Transportation, *Emergency Response Guidebook (ERG2020)*, 2020.

2.3.2 Other Publications.

Merriam-Webster’s Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003 edition.

2.4 References for Extracts in Mandatory Sections.

NFPA 495, *Explosive Materials Code*, 2023 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

3.2.3 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.

3.2.4* 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 appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.5 Shall. Indicates a mandatory requirement.

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

3.2.7 Standard. An NFPA Standard, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and that is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions are not to be considered a part of the requirements of a standard and shall be located in an appendix, annex, footnote, informational note, or other means as permitted in the NFPA Manuals of Style. When used in a generic sense, such as in the phrase "standards development process" or "standards development activities," the term "standards" includes all NFPA Standards, including Codes, Standards, Recommended Practices, and Guides.

3.3 General Definitions.

3.3.1 Explosives Interchange Lot. A specially designated safe area of a motor vehicle terminal where less-than-truckload lots of explosives can be held for transfer from one vehicle to another for continuance in transportation.

3.3.2* Explosives Motor Vehicle Facility. A designated area where motor vehicles transporting explosives can be parked, pending further movement in transportation.

3.3.3 Motor Vehicle. Any self-propelled vehicle, truck, tractor, semitrailer, or truck-trailer combination used for the transportation of freight over public highways. [495, 2023]

3.3.4* Safe Haven. A secured area specifically designated and approved in writing by local, state, or federal governmental authorities for the parking of vehicles containing Class 1 materials (explosives).

3.3.5* Shipping Papers. A shipping order, bill of lading, manifest, or other shipping document serving a similar purpose and containing the information required by regulations of the U.S. Department of Transportation.

Chapter 4 Safe Havens

4.1 General.

4.1.1 All safe havens shall be located in a secured area that complies with the provisions of this chapter.

4.1.2 Safe havens shall not be located within 91.5 m (300 ft) of a bridge, tunnel, dwelling, building, or place where people work, congregate, or assemble, except for facilities and personnel related to the operation of the safe haven.

4.1.3 Under no circumstances shall any safe haven be located within 457 m (1500 ft) of a school or hospital.

4.1.4 Weeds, underbrush, vegetation, or other combustible materials shall be cleared for a distance of 7.6 m (25 ft) from the safe haven.

4.1.5* The safe haven shall be protected from unauthorized persons or trespassers by use of warning signs, gates, and patrols specified in Section 4.4.

4.1.5.1 When vehicles carrying Class 1 materials (explosives) are parked in a safe haven, the entrance to the safe haven shall be marked with the following warning sign:

DANGER
NO SMOKING
NEVER FIGHT EXPLOSIVE FIRES
VEHICLES ON THIS SITE CONTAIN EXPLOSIVES
CALL _____

4.1.5.2 The sign shall be weatherproof with reflective printing, and the letters shall be at least 5 cm (2 in.) high.

4.1.6 Watch personnel assigned to patrol the safe haven shall be made familiar with the information in NFPA 601.

4.1.6.1 All watch personnel at the safe haven shall be made aware of the classification of explosives in each vehicle and its inherent dangers, and shall have been instructed in the measures and procedures to be followed to protect the public from these dangers.

4.1.6.2 Stand-by Vehicle.

4.1.6.2.1 A motor vehicle in good operating condition and capable of moving the explosives-laden trailers in the safe haven shall be kept at the safe haven at all times.

4.1.6.2.2 The watch or patrol personnel shall be familiar with the vehicle, trained in its use, and supplied with the necessary means and authority to use the motor vehicle to move any of the explosives-loaded vehicles in the safe haven where required.

4.1.6.2.3 The motor vehicle shall not be parked within 7.6 m (25 ft) of any vehicle containing explosives.

4.1.7 Fire Protection Equipment.

4.1.7.1 Fire protection equipment capable of handling incipient fires shall be provided at each safe haven.

4.1.7.2 Two or more portable fire extinguishers with a total fire extinguisher rating of at least 4-A:40-B:C shall be placed at accessible locations in the safe haven.

4.1.7.3 Where a dependable water supply source is readily accessible, water hoses shall be permitted to be used in addition to the required portable extinguishers.

4.2 Vehicle Parking.

4.2.1 Vehicle Inspection.

4.2.1.1 Before any vehicle is admitted to a safe haven, a thorough inspection shall be made of the vehicle by the driver(s).

4.2.1.2 As a minimum, the vehicle shall be checked for hot tires, hot wheel bearings, hot brakes, any accumulation of oil or grease, any defects in the electrical system, and any apparent physical damage to the vehicle that could cause or contribute to a fire.

4.2.1.3 Any defects shall be corrected before the vehicle is placed in the safe haven.

4.2.2 After a loaded trailer is positioned in the safe haven, the tractor shall be disconnected immediately and removed from the safe haven.

4.2.3 Spacing of not less than 1.5 m (5 ft) shall be maintained between trailers parked side by side or back to back.

4.2.4 Parking shall be maintained so as not to require the moving of one vehicle in order to move another vehicle.

4.2.5 Trailers in the safe haven shall be maintained in the same condition as is required for highway transportation, including placarding.

4.2.6 Where a self-propelled vehicle loaded with explosives is parked in a safe haven, the following requirements shall be met:

- (1) Parked at least 7.6 m (25 ft) from any other vehicles containing explosives
- (2) In operable condition
- (3) Properly placarded
- (4) In a position and condition where it can be moved easily in case of necessity or emergency

4.2.7 No explosives shall be transferred from one vehicle to another in a safe haven except in case of necessity or emergency such as that mentioned in 4.3.1.2.

4.2.8* No vehicle transporting other hazardous materials shall be parked in a safe haven unless the materials being transported are compatible with explosives.

4.3 Control of Ignition Sources.

4.3.1 Repairs.

4.3.1.1 Other than minor repairs, no repair work shall be performed on any vehicle parked in a safe haven.

4.3.1.2 Any repair work involving cutting or welding, operation of the vehicle engine, or the electrical wiring shall be performed only after the explosives have been unloaded from the vehicle and the vehicle to be repaired has been removed from the safe haven.

4.3.2 Smoking, matches, open flames, spark-producing devices, and firearms shall be prohibited inside and within 15.3 m (50 ft) of the safe haven unless otherwise permitted in 4.3.3.

4.3.3 Law enforcement and security personnel shall be permitted to carry firearms where specifically authorized by the authority having jurisdiction.

4.3.3.1 Where exigent circumstances warranting the response of law enforcement and/or security personnel exist, authorized firearms shall be permitted to be carried.

4.3.4 Electric service lines required to be in proximity to a safe haven shall be no closer than the length of the lines between the poles or towers supporting the lines, unless an effective means is provided to ensure that energized lines, on breaking, cannot come into contact with vehicles parked in the safe haven.

4.4 Security Against Trespassers.

4.4.1 When any vehicle transporting explosives is parked in a safe haven, at least one trained person, 21 years of age or older, shall be assigned to patrol the safe haven on a continuous and dedicated basis.

4.4.2 Safe havens located on explosives manufacturing facilities or at motor vehicle terminals shall be permitted to employ other means of acceptable security such as existing plant or terminal protection systems or electronic surveillance devices.

4.5 Employee Training at Safe Havens. The operator of the safe haven shall maintain an active safety and security training program in emergency response procedures for all employees working at the safe haven.

4.5.1 Written emergency instructions shall be posted and readily accessible to all employees.

4.5.2 Employees involved in the loading, shipping, or transportation of explosives shall receive hazardous material training as required by the U.S. Department of Transportation (49 CFR 172, Subpart H, "Training") and shall be familiar with the U.S. Department of Transportation *Emergency Response Guidebook* (ERG2020).

4.6 Notification of Authority Having Jurisdiction.

4.6.1 The operator of the safe haven shall notify, in writing (with signed receipt), local fire department, law enforcement, and emergency response agencies of the establishment and approval of a safe haven, and advise of the type and maximum quantity of Class 1 materials authorized for the safe haven.

4.6.2 The operator of the safe haven shall maintain copies of the safe haven approval and emergency response notifications.

Chapter 5 Explosives Interchange Lots

5.1 General.

5.1.1* Temporary Holding Facility.

5.1.1.1 A temporary holding facility conforming to the construction requirements for Type 1 or Type 2 magazines as described in NFPA 495 shall be provided in the interchange lot.

5.1.1.2 If detonators or other initiators are to be temporarily held at the same time as other explosives, then two temporary holding facilities shall be required: one for detonators (initiators) and the second for the other explosives.

5.1.2 The facilities specified in 5.1.1 shall be located a minimum of 15.3 m (50 ft) from structures on the adjoining property or any facility that could create a fire hazard.

5.1.3 Where an area at the loading dock is designated for the temporary holding of explosives in a trailer (as provided in Section 5.2), it shall not be located within 15.3 m (50 ft) of a fire hazard such as an area where smoking is permitted, hot work is being done, or combustible or flammable materials are present.

5.2 Operations.

5.2.1 Explosives brought into the interchange lot to await shipment shall be immediately placed in the facility specified in 5.1.1 until such time as the explosives are loaded on a departing over-the-road motor vehicle.

5.2.2 Explosives delivered to the interchange lot by a connecting carrier shall be retained in the trailer at a designated section of the loading dock, or the trailer shall be parked in an isolated area of the interchange lot, or the explosives shall be placed in the holding facility.

5.2.3 The explosives transport vehicles, including trailers, in the interchange lot shall be maintained in the same condition as is required for highway transportation, including placarding.

5.2.4 Explosives shall not be retained on the lot, either in a trailer or holding facility, for a period longer than necessary, but in no case for more than 100 hours.

5.2.5 Smoking, matches, open flames, spark-producing devices, and firearms shall be prohibited inside and within 15.3 m (50 ft) of the temporary holding facility or trailer containing explosives unless otherwise permitted in 5.2.6.

5.2.6 Law enforcement and security personnel shall be permitted to carry firearms where specifically authorized by the authority having jurisdiction.

5.2.7 Temporary facilities as specified in 5.1.1 shall be appropriately marked so that the interchange lot employees are aware of the location.

5.2.8 At least two portable fire extinguishers, having a capacity of at least 4-A:40-B:C, shall be placed at each temporary holding facility and shall be readily available for immediate use.

5.2.9 Employee Training at Interchange Lots. The operator of the explosives motor vehicle interchange lot shall maintain an active training program in emergency procedures for all employees stationed at the interchange lot.

5.2.9.1 Written emergency instructions shall be posted and readily accessible to all employees.

5.2.9.2 Employees involved in the loading, shipping, or transportation of explosives shall receive hazardous material training as required by the U.S. Department of Transportation (49 CFR 172, Subpart H, "Training") and shall be familiar with the U.S. Department of Transportation *Emergency Response Guidebook* (ERG2020).

5.2.9.3 Any driver who transports a vehicle loaded with explosives over public highways shall possess a valid commercial driver's license (CDL) with a hazardous material endorsement (H).

Annex A Explanatory Material

Annex A is not a part of the requirements of this NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs.

A.1.1 Safe havens and interchange lots provide parking and interchange facilities for vehicles transporting explosives. Some explosives interchange lots also provide temporary holding facilities for less-than-truckload quantities of explosives. This standard is designed to prevent the occurrence or spread of fire in facilities where an explosion can present a distinct threat to the surrounding areas.

Explosives motor vehicle facilities are part of the over-the-road transportation of explosives. These facilities not only provide the services noted above, but can also provide vehicle maintenance and driver rest areas.

Motor vehicles using these facilities operate under the regulations of the U.S. Department of Transportation (49 CFR). These vehicles are engaged in transporting explosives and ammunition on government bills of lading or are often carriers of commercial explosives.

Properly operated explosives motor vehicle facilities provide a safe and controlled environment for parking vehicles carrying explosives. The overall result is improved highway safety.

A.3.2.1 Approved. The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installations, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

A.3.2.2 Authority Having Jurisdiction (AHJ). The phrase "authority having jurisdiction," or its acronym AHJ, is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection depart-

ment, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

A.3.2.4 Listed. The means for identifying listed equipment may vary for each organization concerned with product evaluation; some organizations do not recognize equipment as listed unless it is also labeled. The authority having jurisdiction should utilize the system employed by the listing organization to identify a listed product.

A.3.3.2 Explosives Motor Vehicle Facility. Such a facility can be a safe haven or interchange lot and can include maintenance shops, driver rest services, or any combination of these conveniences.

A.3.3.4 Safe Haven. See 49 CFR 397.5, "Attendance and Surveillance of Motor Vehicles," and 49 CFR 177.835(f), "Class 1 (Explosive) Materials Vehicles, Floors Tight and Lined."

A.3.3.5 Shipping Papers. The information required for shipping papers is specified in 49 CFR 172, Subpart C, "Shipping Papers."

A.4.1.5 Signs do not need to be displayed when there are no explosives-laden vehicles in the safe haven.

A.4.2.8 In case of an emergency where vehicles loaded with other hazardous materials are brought to a safe haven, such vehicles should be parked at a location on the lot well separated from the explosives-laden vehicles.

A.5.1.1 Temporary holding facilities should be separated as far as practicable to reduce the concentration of explosives in any single area of the terminal.

Annex B Informational References

B.1 Referenced Publications. The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not part of the requirements of this document unless also listed in Chapter 2 for other reasons.

B.1.1 NFPA Publications. (Reserved)

B.1.2 Other Publications.

B.1.2.1 U.S. Government Publications. U.S. Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401-0001.

Title 49, Code of Federal Regulations, Part 172, Subpart C, "Shipping Papers."

Title 49, Code of Federal Regulations, Part 177.835(f), "Class 1 (Explosive) Materials Vehicles, Floors Tight and Lined."

Title 49, Code of Federal Regulations, Part 397.5, "Attendance and Surveillance of Motor Vehicles."

B.2 Informational References. The following documents or portions thereof are listed here as informational resources only. They are not a part of the requirements of this document.

B.2.1 IME Publications. The Institute of Makers of Explosives, 1212 New York Avenue, NW, Suite 650, Washington, DC 20005.

IME SLP 27, "Security in Manufacturing, Transportation, Storage and Use of Commercial Explosives," March 2019.

B.3 References for Extracts in Informational Sections. (Reserved)