NFPA No.
505

USE, MAINTENANCE AND OPERATION OF INDUSTRIAL TRUCKS 1965

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Official NFPA Definitions

Adopted Jan. 23, 1964. Where variances to these definitions are found, efforts to eliminate such conflicts are in process.

SHALL is intended to indicate requirements.

SHOULD is intended to indicate recommendations or that which is advised but not required.

APPROVED means acceptable to the authority having jurisdiction. 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 or 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 nationally recognized testing laboratories,* i.e., laboratories qualified and equipped to conduct the necessary tests, in a position to determine compliance with appropriate standards for the current production of listed items, and the satisfactory performance of such equipment or materials in actual usage.

*Among the laboratories nationally recognized by the authorities having jurisdiction in the United States and Canada are the Underwriters' Laboratories, Inc., the Factory Mutual Engineering Division, the American Gas Association Laboratories, the Underwriters' Laboratories of Canada, the Canadian Standards Association Testing Laboratories, and the Canadian Gas Association Approvals Division.

LISTED: Equipment or materials included in a list published by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

LABELED: Equipment or materials to which has been attached a label of a nationally recognized testing laboratory that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling is indicated compliance with nationally recognized standards or the conduct of tests to determine suitable usage in a specified manner.

AUTHORITY HAVING JURISDICTION: The organization, office or individual responsible for "approving" equipment, an installation, or a procedure.

Units of Measurements

Units of measurements used here are U. S. standard. 1 U. S. gallon = 0.83 Imperial gallons = 3.785 liters. One foot = 0.3048 meters. One inch = 25.40 millimeters. One pound per square inch = 0.06805 atmospheres = 2.307 feet of water. One pound = 453.6 grams.

Standard for the Use, Maintenance and Operation of Industrial Trucks

NFPA No. 505 — 1965

1965 Edition of No. 505

This 1965 Edition of the Standard for the Use, Maintenance and Operation of Industrial Trucks is published in accordance with action taken at the 1965 Annual Meeting of the National Fire Protection Association, May 17-21. This text replaces the previous edition of this Standard adopted in 1963. The 1965 changes involve recognition of the type ES truck (see Paragraph 103.f.), insertion of Table 1, development of new "Type Markers" (see Paragraph 315, Figures 1 and 2, and Paragraphs 720, 721 and 722), and a complete editorial revision of Part A.

Origin and Development of No. 505

Part A covering "Use of Industrial Trucks in Various Locations" was originally designated as NFPA No. 505A and was first adopted by the Association in 1951. The 1951 text was revised in 1955 after four years of deliberation by the sponsoring committee. The 1955 text has now been replaced by the current text.

Parts B and C covering "Maintenance of Industrial Trucks" and "Operation of Industrial Trucks" were originally adopted in 1952 and published by the NFPA under the designation NFPA No. 505 B, C. Revised editions of Parts B and C were submitted for approval in 1955 and adopted by the Association at the NFPA Annual Meeting held that year. In 1957 revisions were authorized affecting Paragraphs 310 and 314 of Part B, and in 1963 changes involved the recognition of the type DY truck. This 1965 Edition supersedes all previous editions.

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*Appointed after balloting closed.

Standard for the Use, Maintenance and Operation of

INDUSTRIAL TRUCKS

NFPA No. 505 — 1965

PART A

USE OF INDUSTRIAL TRUCKS IN VARIOUS LOCATIONS

100. GENERAL

101. This standard applies to fork trucks, tractors, platform lift trucks, motorized hand trucks and other specialized industrial trucks powered by electric motors or internal combustion engines. This standard does not apply to compressed air or nonflammable compressed gas-operated industrial trucks, nor to farm vehicles, nor automotive vehicles for highway use.

102. Approved industrial trucks are those trucks that are listed for the use intended by a nationally recognized testing laboratory. Trucks shall bear a label or some other identifying mark to that effect authorized by such laboratory. The word "listed" herein shall mean compliance with the above.

NOTE: In order to prevent confusion it is intended that all testing laboratories should use the same designations to identify the various types of industrial trucks.

103. For the purpose of this standard there are eleven different designations of industrial trucks or tractors as follows: D, DS, DY, E, EE, ES, EX, G, GS, LP and LPS.

a. The D designated units are units similar to the G units except that they are diesel engine powered instead of gasoline engine powered.

b. The DS designated units are diesel powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where a D unit may not be considered suitable.

c. The DY designated units are diesel powered units that have all the safeguards of the DS units and in addition do not have any electrical equipment including the ignition and are equipped with temperature limitation features.

d. The E designated units are electrically powered units that have minimum acceptable safeguards against inherent fire hazards.

e. The EE designated units are electrically powered units that have, in addition to all of the requirements for the E units, the electric motors and all other electrical equipment completely enclosed. In certain locations the EE unit may be used where the use of an E unit may not be considered suitable.

f. The ES designated units are electrically powered units that, in addition to all of the requirements for the E units, are provided with additional safeguards to the electrical system to prevent emission of hazardous sparks and to limit surface temperatures. They may be used in some locations where the use of an E unit may not be considered suitable.

g. The EX designated units are electrically powered units that differ from the E, EE, or ES units in that the electrical fittings and equipment are so designed, constructed and assembled that the units may be used in certain atmospheres containing flammable vapors or dusts.

h. The G designated units are gasoline powered units having minimum acceptable safeguards against inherent fire hazards.

i. The GS designated units are gasoline powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where the use of a G unit may not be considered suitable.

j. The LP designated unit is similar to the G unit except that liquefied petroleum gas is used for fuel instead of gasoline.

k. The LPS designated units are liquefied petroleum gas powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where the use of an LP unit may not be considered suitable.

104. The authority having jurisdiction shall determine the hazard classification of any particular atmosphere or location. The atmosphere or location shall have been classified as to whether it is hazardous or nonhazardous prior to

the consideration of industrial trucks being used therein and the type of industrial truck required shall be as provided in Article 200 of this standard for such location.

105. Any one plant or building may have several areas of different hazard classification. The authority having jurisdiction may limit the use of industrial trucks in certain hazardous areas in a plant or building in accordance with the hazard classification of such areas. The responsibility for enforcement of restricted use in such areas will rest on management.

NOTE: Attention is called to the recommendations for marking trucks and areas for hazard classification. Details may be found in Section 720.

106. The industrial trucks specified under Article 200 are the minimum types required but industrial trucks having greater safeguards may be used if desired.

200. Specific Areas of Use

NOTE 1: Table I tabulates the information contained in this Section.

NOTE 2: References in parentheses are to the corresponding classification as used in the National Electrical Code (NFPA No. 70)* for the convenience of people familiar with those classifications.

201. Areas Containing Certain Flammable Gases or Vapors Where Power-Operated Industrial Trucks Shall Not Be Used (Class I, Groups A, B and C, Division 1).

a. Power-operated industrial trucks shall not be used in atmospheres containing hazardous concentrations of acetylene gas; hydrogen gas or gases or vapors of similar hazard such as manufactured gas; or ethyl ether vapors, ethylene gas and cyclopropane gas.

202. Atmospheres Containing Metal Dusts, Carbon Black, Coke or Coal Dust (Class II, Groups E and F, Division 1).

a. Power-operated industrial trucks shall not be used in atmospheres containing hazardous concentrations of metal dust including aluminum, magnesium or their alloys or in atmospheres containing carbon black, coal or coke dust except approved power-operated industrial trucks des-

*Published in the National Fire Codes and in separate pamphlet form.

ignated as EX may be used in such atmospheres subject to special investigation by the authority having jurisdiction. In atmospheres where dust of magnesium, aluminum or aluminum bronze may be present, fuses, switches, motor controllers and circuit breakers of trucks shall have enclosures specifically approved for such locations.

203. Atmospheres Where Vapors of Flammable Liquids and Some Gases Exist Under Normal Operating Conditions (Class I, Group D, Division 1 — See Note).

a. Only approved power-operated industrial trucks designated as EX may be used in atmospheres containing acetone, ethyl and methyl alcohol, benzine, benzol, butane, gasoline, hexane, lacquer solvents, naphtha, natural gas or propane in quantities sufficient to produce explosive or ignitible mixtures and where such concentrations of these gases or vapors exist continuously, intermittently or periodically under normal operating conditions or may exist frequently because of repair, maintenance operations, leakage, breakdown or faulty operation of equipment.

NOTE: This category includes locations where flammable volatile liquids or liquefied flammable gases are transferred from one open container to another; areas in the vicinity of spraying and painting operations where volatile flammable solvents are used; locations containing open tanks or vats of volatile flammable liquids; drying rooms or compartments for the evaporation of flammable solvents; locations containing fat and oil extraction equipment using volatile flammable solvents; portions of cleaning and dyeing plants where flammable liquids are used; gas generator rooms and other portions of gas manufacturing plants where flammable gas may escape; pump rooms for flammable gas or for volatile flammable liquids; and all other locations where hazardous concentrations of flammable vapors or gases are likely to occur in the course of normal operations.

204. Atmospheres Where Volatile Flammable Liquids and Their Vapors or Flammable Gases Are Normally Confined (Class I, Group D, Division 2 — See Note).

a. When permitted by the authority having jurisdiction, only approved power-operated industrial trucks designated as DY, EE or EX may be used in locations where flammable volatile liquids or flammable gases are handled, processed or used, but where the hazardous liquids, vapors or gases will normally be confined within closed systems or

Continued on page 505-8

TABLE I
SUMMARY TABLE ON USE OF INDUSTRIAL TRUCKS IN VARIOUS LOCATIONS
(For full details see PART A of this Standard)

Classes	Unclassified	Class I Locations			
Description of Classes	Locations not possessing atmospheres as described in other columns	Locations in which flammable gases or vapors are, or may be, present in the air in quantities sufficient to produce explosive or ignitible mixtures.			
Groups in Classes	NONE	A	B	C	D
Examples of locations or atmospheres in classes and groups	Piers & Wharves Inside and Outside General Storage General Industrial or Commercial Properties	Acetylene	Hydrogen	Ethyl ether	Gasoline Naphtha Alcohols Acetone Lacquer solvent Benzene
Divisions (Nature of Hazardous Conditions)	NONE	1 Above condition exists continuously, intermittently, or periodically under normal operating conditions.		2 Above condition may occur accidentally as due to a puncture of a storage drum.	

AUTHORIZED USES OF TRUCKS BY TYPES

Groups in Classes	NONE	A	B	C	D	A	B	C	D
Types of Trucks Authorized									
Diesel Type D	D								
Type DS						†	†	†	DS*
Type DY						†	†	†	DY*
Electric Type E	E								
Type EE						†	†	†	EE*
Type ES						†	†	†	ES*
Type EX					EX	†	†	†	EX*
Gasoline Type G	G								
Type GS						†	†	†	GS*
LP-Gas Type LP	LP								
Type LPS						†	†	†	LPS*
Paragraph Ref. in No. 505	210, 211	201(a)			203 (a)	209(a)			204* (a),(b)

*Permitted with approval of the authority having jurisdiction.
†Type authorized to be determined by the authority having jurisdiction; Type letter inserted indicates authorized use.

TABLE I
SUMMARY TABLE ON USE OF INDUSTRIAL TRUCKS IN VARIOUS LOCATIONS
(For full details see PART A of this Standard)

Class II Locations			Class III Locations	
Locations which are hazardous because of the presence of combustible dust.			Locations where easily ignitible fibers or flyings are present but not likely to be in suspension in quantities sufficient to produce ignitible mixtures.	
E	F	G	NONE	
Metal dust	Carbon black Coal dust Coke dust	Grain dust Flour dust Starch dust Organic dust	Baled waste, cocoa fiber, cotton, excelsior, hemp, istle, jute, kapok, oakum, sisal, Spanish moss, synthetic fibers, tow.	
1		2	1	2
Explosive mixture may be present under normal operating conditions, or where failure of equipment may cause the condition to exist simultaneously with arcing or sparking of electrical equipment, or where dusts of an electrically conducting nature may be present.		Explosive mixture not normally present, but where deposits of dust may cause heat rise in electrical equipment, or where such deposits may be ignited by arcs or sparks from electrical equipment.	Locations in which easily ignitible fibers or materials producing combustible flyings are handled, manufactured, or used.	Locations in which easily ignitible fibers are stored or handled (except in the process of manufacture).

IN GROUPS OF CLASSES AND DIVISIONS

E	F	G	E	F	G	NONE	NONE
			†	†	DS*		DS
			†	†	DY	DY	DY
							E*
			†	†	EE	EE	EE
			†	†	ES*		ES
EX*	EX*	EX	†	†	EX	EX	EX
			†	†	GS*		GS
			†	†	LPS*		LPS
202(a)		205 (a)	209(a)		206 (a),(b)	207(a)	208 *208(a)

*Permitted with approval of the authority having jurisdiction.

†Type authorized to be determined by the authority having jurisdiction; Type letter inserted indicates authorized use.

containers from which they can escape only in the event of accidental rupture or breakdown of such containers or systems or in cases of possible abnormal operation of equipment; also in locations in which hazardous concentrations of gases or vapors are prevented by positive mechanical ventilation provided with effective safeguards against ventilation failure.

b. In locations used for the storage of hazardous liquids in sealed containers or liquefied or compressed gases in containers, approved power-operated industrial trucks designated as DS, ES, GS or LPS may be used if permitted for such location by the authority having jurisdiction.

NOTE: This category includes locations where flammable volatile liquids or flammable gases or vapors are used, but which in the judgment of the authority having jurisdiction would become hazardous only in case of accident or of some unusual operating condition. The quantity of hazardous material that may escape in the event of accident, the adequacy of ventilating equipment, the total area involved and the experience of the industry or business with respect to explosions or fires are all factors that should receive consideration in determining whether or not the DS or DY, EE, ES, GS, LPS designated truck possesses sufficient safeguards for the location. Piping without valves, checks, meters and similar devices would not ordinarily be deemed to introduce a hazardous condition even though used for hazardous liquids or gases. Locations used for the storage of hazardous liquids or of liquefied or compressed gases in sealed containers would not normally be considered hazardous unless subject to other hazardous conditions also.

205. Atmospheres Containing Combustible Dusts in Suspension Other Than Those Specified in Paragraph 202 (Class II, Group G, Division 1 — See Note).

a. Only approved power-operated industrial trucks designated as EX may be used in atmospheres in which combustible dust is or may be in suspension continuously, intermittently or periodically under normal operating conditions, in quantities sufficient to produce explosive or ignitible mixtures, or where mechanical failure or abnormal operation of machinery or equipment may cause such mixtures to be produced.

NOTE: This category includes the working areas of grain handling and storage plants, rooms containing grinders or pulverizers, cleaners, graders, scalpers, open conveyors or spouts, open bins or hoppers, mixers or blenders, automatic or hopper scales, packing machinery, elevator heads and boots, stock distributors, dust and stock collectors and all similar dust producing ma-

chinery and equipment in grain processing plants, starch plants, sugar pulverizing plants, malting plants, hay grinding plants, pulverized spice and cocoa plants and other occupancies of similar nature where combustible dust may, under normal operating conditions, be present in the air in quantities sufficient to produce explosive or ignitible mixtures.

206. Locations Where Combustible Dusts Are Present But Not Normally in Suspension in the Atmosphere (Class II, Group G, Division 2 — See Note).

a. Only approved power-operated industrial trucks designated as DY, EE or EX may be used in atmospheres in which combustible dust will not normally be in suspension in the air or will not be likely to be thrown into suspension in the air by the normal operation of equipment or apparatus in quantities sufficient to produce explosive or ignitible mixtures but where deposits or accumulations of such dust may be ignited by arcs or sparks originating in the truck.

b. Approved power-operated industrial trucks designated as DS, ES, GS or LPS may be used in locations as indicated in the above paragraph if permitted by the authority having jurisdiction.

NOTE: Locations where dangerous concentrations of suspended dust would not be likely, but where dust accumulations might form on, in, or in the vicinity of electrical equipment would include rooms and areas containing only closed spouts and conveyors, closed bins or hoppers, or machines and equipment from which appreciable quantities of dust would escape only under abnormal operating conditions; rooms or areas into which explosive or ignitible concentrations of suspended dust might be communicated only under abnormal operating conditions; rooms or areas where the formation of explosive or ignitible concentrations of suspended dust is prevented by the operation of effective dust control equipment; warehouses and shipping rooms where dust producing materials are stored or handled only in bags or containers; and other similar locations.

207. Locations Where Ignitible Fibers Are Processed (Class III, Division 1 — See Note).

a. Only approved power-operated industrial trucks designated as DY, EE or EX may be used in locations which are hazardous because of the presence of easily ignitible fibers or flyings but in which such fibers or flyings are not likely to be in suspension in the air in quantities sufficient to produce ignitible mixtures.

NOTE: Locations where easily ignitible fibers or materials producing combustible flyings are handled, manufactured or used would include some sections of cotton, rayon and other textile mills, combustible fiber manufacturing and processing plants, cotton gins and cotton-seed mills, flax processing plants, clothing manufacturing plants and establishments and industries processing similar hazardous materials. Woodworking plants (except wood flour mills) shall not be considered as being in the type of locations defined in paragraph 207.

208. Locations Where Ignitible Fibers Are Stored (Class III, Division 2 — See Note).

a. Only approved power-operated industrial trucks designated as DS, DY, EE, ES, EX, GS or LPS may be used in locations where easily ignitible fibers are stored or handled, including outside storage, but are not being processed or manufactured. Industrial trucks designated as E, which have been previously used in these locations may be continued in use with the approval of the authority having jurisdiction.

NOTE: Easily ignitible fibers and flyings include baled waste, cocoa fiber, cotton, cotton linters, cotton waste, hemp, istle, jute, kapok, oakum, rayon, sisal or henequen, Spanish moss, tow, excelsior and other materials of similar nature.

209. Hazardous Locations Not Otherwise Classified

a. The authority having jurisdiction shall determine what types of power-operated industrial truck, if any, may be used based on an engineering survey of the property and an evaluation of the fire and explosion hazards.

210. Piers and Wharves

a. On piers and wharves handling general cargo, any approved power-operated industrial fork truck designated as Type D, E, G or LP may be used. Where the authority having jurisdiction determines an area of a pier or wharf as hazardous, only approved power-operated industrial trucks specified for such locations in the preceding paragraphs may be used.

211. General Inside and Outside Storage

a. The authority having jurisdiction shall determine the classification of hazard for storage warehouses and outside storage locations. If classified as hazardous only the

approved power-operated industrial truck specified for such locations in the preceding paragraphs may be used. If not classified, Types D, E, G or LP industrial fork trucks may be used.

212. Converted Industrial Trucks

a. Power-operated industrial trucks that have been originally approved for the use of gasoline for fuel, when converted to the use of liquefied petroleum gas fuel in accordance with Part B, may be used in those locations where G, GS or LP and LPS designated trucks have been specified in the preceding paragraphs (See Paragraph 314 and Appendix).

PART B

Recommendations For Maintenance of Industrial Trucks

300. Maintenance Recommendations:

301. It is essential that the safety built into power operated industrial trucks be maintained. Deterioration due to usage should be compensated for properly and as frequently as may be indicated.

302. Any power operated industrial truck that shows any wear or part failure that may affect the safe operation of the vehicle shall be immediately withdrawn from service and not again used until proper repairs have been completed.

303. Industrial trucks requiring repairs to fuel or electrical systems shall be removed to a location designated as safe for their storage and repair. For gasoline, diesel fuel and liquefied petroleum gas-powered equipment, such location should preferably be a separate garage building, otherwise it shall be in a section cut off from the balance of the building in accordance with NFPA Standard on Garages (NFPA No. 88).*

304. All parts of any such industrial truck requiring replacement shall be replaced only by parts equivalent as to safety with those used in the original design.

305. Except as approved by the authority having jurisdiction, industrial trucks shall not be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer, nor shall they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts, except as provided in Paragraph 314. Additional counterweighing of fork trucks shall not be done unless approved by the truck manufacturer.

306. Industrial trucks shall be examined thoroughly before being placed in service, and shall not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examination shall be

* Published in National Fire Codes and in separate pamphlet form.

made at least daily and preferably before the day's work has started. Where industrial trucks are used on a round-the-clock basis they shall be examined after each shift. Defects when found shall be immediately reported and corrected.

307. Water mufflers shall be filled daily or as frequently as is necessary to prevent depletion of the supply of water below 75 per cent of the filled capacity. Vehicles with mufflers having screens or other parts that may become clogged shall not be operated while such screens or parts are clogged. Any vehicle that emits sparks or flames from the exhaust system shall immediately be removed from service, and not returned to service until the cause for the emission of such sparks and flames has been eliminated.

308. When the temperature of any part of any truck is found to be in excess of its normal operating temperature, the vehicle shall be removed from service and not returned to service until the cause for such overheating has been eliminated.

309. Industrial trucks shall be kept free of lint, excess oil and grease and should be thoroughly cleaned, preferably with steam. When possible trucks should be cleaned once weekly and more frequently if necessary. Flammable liquids shall not be used for cleaning.

310. At no time shall the gasoline or diesel fuel supply of vehicles be replenished inside of buildings or the vehicles otherwise serviced, unless a special area for such work is provided. Engines must definitely be stopped during any refueling operation. It is suggested that lock type gas tank caps be provided for all gasoline fueled vehicles not so equipped, with key to cap in possession of responsible party. Exchange of removable liquefied petroleum gas fuel containers should preferably be done outdoors but may be done indoors. When removable fuel containers are used, means shall be provided in the fuel system to minimize the escape of fuel when the containers are exchanged. This may be accomplished by using a listed automatic quick closing coupling, of a type that closes in both directions when uncoupled, in the fuel line and by closing the valve at the fuel container and allowing the engine to run until the fuel in the line is exhausted.

311. Battery charging installation shall be located in areas designated for that purpose. When a room is required as specified in the National Electrical Code (NFPA No. 70)*, it shall conform to the requirements of that Code. Battery charging shall be under the supervision of a competent attendant.

312. Trucks should be equipped with a fire extinguisher approved for use on Class B and C fires,† maintained in operable condition†† and located where it will be accessible at all times.

313. Where it is necessary to use anti-freeze during winter months, only those products having a glycol base shall be used.

314. Industrial trucks originally approved for the use of gasoline for fuel may be converted to liquefied petroleum gas fuel provided the complete conversion results in a truck which in the judgment of the authority having jurisdiction embodies the features specified for LP or LPS designated trucks. The authority having jurisdiction shall require that the conversion equipment is "Listed by Report" by a recognized testing laboratory. The description of the component parts of this conversion system and the recommended method of installation on specific trucks are contained in the "Listing by Report" available for the use of the authority having jurisdiction. (See Paragraph 212 and Appendix.)

315. The truck designations (see Section 103) as shown on the nameplate and the Type markers (see Section 720) should not be painted over so as to obscure their content.

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* Published in National Fire Codes and in separate pamphlet form.

† See NFPA Standard for Portable Fire Extinguishers (NFPA No. 10) published in National Fire Codes and in separate pamphlet form.

†† See NFPA Recommended Good Practices for the Maintenance and Use of Portable Fire Extinguishers (No. 10A) published in National Fire Codes and in separate pamphlet form.

PART C

Recommendations for Operation of Industrial Trucks

400. General:

410. Experience indicates that a large percentage of the fires involving gasoline-powered industrial trucks occur during refueling. This shows the need for particular caution in carrying out all refueling operations of internal combustion engine-powered trucks.

420. For the safe operation of industrial trucks, measures must be taken to minimize the chances of overturning or involving them in collisions with fire protective equipment or other building fixtures and with commodities. Fuel may escape from an overturned truck and become involved in a fire. Wide-spread damage is likely if water is released from sprinkler pipes or fittings broken by careless truck operation. Fire doors intended to limit the spread of fire may be made inoperative if struck by a truck. Guards or curbs to prevent too close an approach, or tell-tales to warn operators, shall be provided to protect building features, such as sprinkler piping, if prominently exposed to injury by projecting into or being located over trucking aisles.

500. Driver Qualifications and Training:

510. Only trained and authorized operators shall be permitted to operate power operated industrial trucks. Training methods should be developed to instruct operators in safe and efficient operating procedures.

600. Fuel Handling and Storage:

610. Gasoline and diesel fuel shall be stored and handled as outlined in the NFPA Flammable and Combustible Liquids Code (NFPA No. 30).* Liquefied petroleum gas fuel shall be stored and handled as recommended by the NFPA Standard for the Storage and Handling of Liquefied Petroleum Gases (NFPA No. 58).*

* Published in National Fire Codes and in separate pamphlet form.

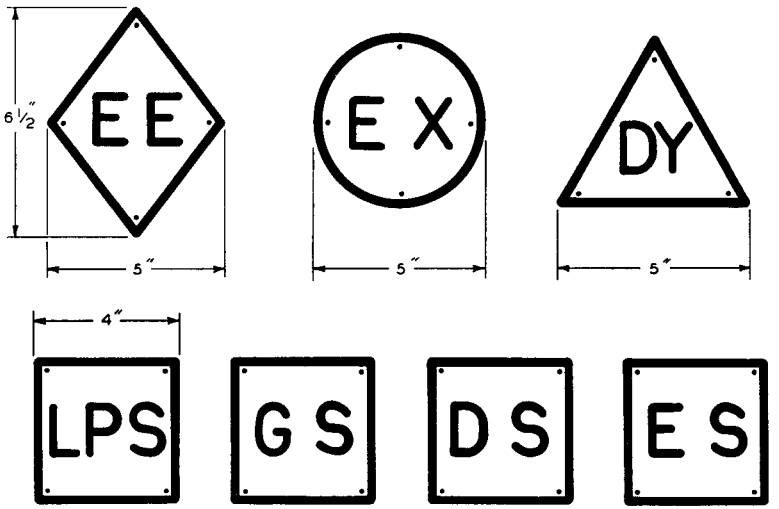

Figure 1. Markers to identify type of industrial truck.

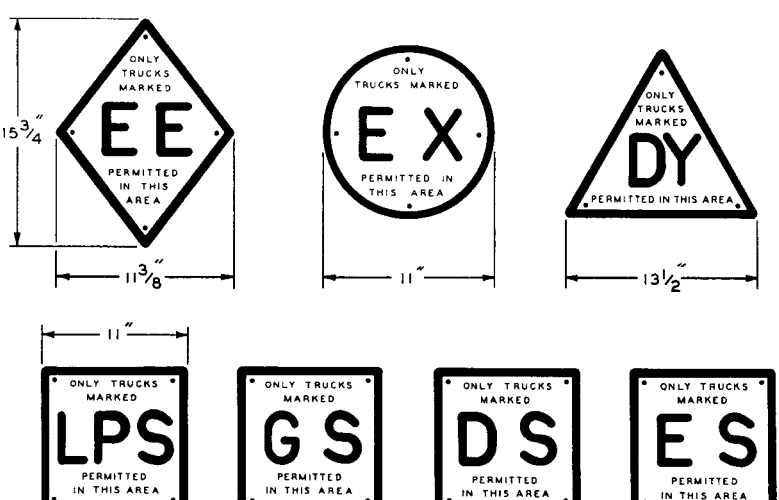

Figure 2. Markers for posting at entrances to hazardous areas.

620. Gasoline and diesel fuel-powered trucks shall be refueled only at locations specially designated for that purpose. Safe outdoor locations are preferable to those indoors. The NFPA Flammable and Combustible Liquids Code (No. 30),* Paragraph 6211 outlines recommendations for arranging safe indoor fueling facilities. Liquefied petroleum gas-powered trucks shall be refueled only as provided in the NFPA Standards for the Storage and Handling of Liquefied Petroleum Gases (NFPA No. 58).*

630. Exchange of removable liquefied petroleum gas truck fuel containers, recharging non-removable containers and storage of extra containers shall be done only in accordance with the NFPA Standards for Storage and Handling of Liquefied Petroleum Gases (NFPA No. 58).*

700. Hazardous Areas:

710. Industrial trucks shall not be used in hazardous areas except as specified in Part A of this Standard.

720. Recommended Marking of Types DS, DY, EE, ES, EX, GS and LPS Industrial Trucks:

721. The use of properly identified equipment in hazardous areas is essential for the safety and protection of employees and property. For this reason, it is recommended that approved trucks, listed by a nationally recognized testing laboratory for use in such areas, be clearly identified. To facilitate identification by both operators and supervisory personnel, a uniform system of marking has been developed as described herein.

a. Durable markers indicating the designation of type of truck should be applied to each side of the vehicle in a visible but protected location. These markers are distinctive in shape as indicated in Figure 1.

b. Entrances to hazardous areas should be posted with large durable markers of corresponding shape as shown in Figure 2.

722. The use of this system is recommended but is not a mandatory part of this Standard. Suitable markers may be obtained from NFPA, 60 Batterymarch Street, Boston, Massachusetts. 02110 at nominal prices.

* Published in National Fire Codes and in separate pamphlet form.