NFPA No.

88B

REPAIR GARAGES 1973

$1.00

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NATIONAL FIRE PROTECTION ASSOCIATION
International
470 Atlantic Avenue, Boston, MA 02210

5M-6-73-FP
Printed in U.S.A.

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Standard for

Repair Garages

NFPA No. 88B — 1973

1973 Edition of No. 88B

This 1973 edition of the NFPA Standard on Repair Garages replaces in part the 1968 edition of the NFPA Standard on Garages. It was prepared by the NFPA Committee on Garages and Parking Structures and adopted at the 1973 NFPA Annual Meeting held May 14–18 in St. Louis, Mo. Together with No. 88–A, 1973, this edition represents a complete revision of and supersedes NFPA No. 88 – 1968.

Origin and Development of No. 88B

Work on fire protection safeguards for garages was initiated by the NFPA in 1927 with the appointment of a committee. After extensive deliberations and the publication of successive drafts, the standard was adopted in 1932. Subsequently, the committee was discharged as it appeared that no further activity was needed in this field. In 1952 the present Committee was created. This Committee prepared a number of redrafts of the 1932 text and in 1957 a revised NFPA Standard for Garages (No. 88) was adopted. Revisions were made in 1962 and 1968.

Prior to 1973, the subject of this standard was included in the Standard for Garages (No. 88). In order to treat separately the occupancies of repair garages and parking structures, this standard and the NFPA Standard on Parking Structures (No. 88–A) were published separately in 1973.

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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.

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Standard for
Repair Garages

NFPA No. 88B — 1973

Chapter 1 Application and Definitions

1-1 Purpose. The intent of this standard is to set forth fire protection standards for garages used for major repair and maintenance of motorized vehicles and any sales or servicing facilities associated therewith.

1-2 Scope. The provisions contained in Chapters 2, 3 and 4 of this standard apply to the three types of garages defined in Section 1-3.

1-3 Definitions

Repair garages means buildings, structures, or portions thereof, wherein major repair or painting or body and fender work is performed on motorized vehicles or automobiles, and includes associated floor space used for offices, parking or showrooms.

Taxicab and Bus Repair Garages means buildings, structures, or portions thereof, used for storage, maintenance and repair of fleets of taxicabs, sedan-limousine-type motor vehicles, or motor buses. Facilities for the dispensing of motor fuels are commonly provided in connection with these garages.

Commercial and Truck Repair Garages means buildings, structures, or portions thereof, used for the storage, maintenance and repair of commercial motor vehicles or trucks, including fleets of motor vehicles operated by utilities, large businesses, mercantile, rental agencies, and other similar concerns. Facilities for the dispensing of motor fuels are commonly provided in connection with these garages.

NOTE: Motor Freight Terminals are covered in *Standard for Motor Freight Terminals*, NFPA 513–1973.

Chapter 2 Construction

2-1 General Requirements

2-1.1 Repair garages shall be constructed of one of the types of construction defined in the *Standard for Standard Types of Building Construction* (*NFPA 220–1961*), except as may be amended within this standard.

2-1.2[1] Repair garages shall be limited in height and area, depending upon the type of construction and private fire protection provided. (See Section 4–1 for provisions where automatic sprinkler protection is required.)

2-1.3 A repair garage shall not be located within or attached to a building or structure used for any purpose other than a repair garage unless separated by walls or partitions, floors, or floor-ceiling assemblies having a fire resistance rating of not less than two hours.

2-2 Internal Subdivisions

2-2.1 Any single area occupied for salesrooms, showrooms, offices, or similar spaces 1500 square feet or more in area shall be separated from vehicle repair or parking areas by walls or partitions, floors, or floor-ceiling assemblies having a fire resistance rating of not less than two hours.

2-2.2 Any single area occupied for salesrooms, showrooms, offices or similar spaces of 1500 square feet or less in area shall be separated from vehicle repair or parking areas by walls or partitions, floors, or floor-ceiling assemblies constructed in such a manner as to restrict the passage of smoke, vehicle exhaust gases, and odors from the repair or parking area to these spaces.

2-2.3 Parts storage areas exceeding 1500 square feet shall be separated from all other portions of the building by walls, partitions, floors, or floor-ceiling assemblies having a fire resistance rating of not less than two hours.

2-2.4 Garage occupancies shall be separated from other portions of a multitenanted building as required in 2-1.3. Heating equipment shall be separated or enclosed in accordance with 3-2.2.

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[1]Building Codes generally contain provisions limiting the heights and areas of repair garages of various types of construction. Excessive heights and large undivided floor areas are undesirable in as much as moderate areas are essential to the effective use of hose streams where reliance is placed on manual fire fighting tactics.

2-3 Floors

2-3.1 In areas of repair garages used for repair or servicing of vehicles, floor assemblies shall be constructed of noncombustible materials or, if combustible materials are used in the assembly, shall be surfaced with approved noncombustible material. Floors shall be liquid-tight to prevent the leakage or seepage of liquids and shall be sloped to facilitate the movement of water, fuel or other liquids to floor drains.

2-3.2 In areas of repair garages where motor fuels are dispensed or where vehicles are serviced, if floor drains are provided, they shall be properly trapped and shall discharge through an oil separator to the sewer or to an outside vented sump.

2-3.3 The contents of oil separators and traps of floor drainage systems shall be collected at sufficiently frequent intervals to prevent oil from being carried into the sewers.

NOTE: For requirements for inspection and repair pits, see 3-4.5.

2-4 Means of Egress in repair garages, with respect to their required number, location and construction, shall conform with the provisions set forth in Chapter 14, Special Purpose Industrial Occupancy, and Section 15-2 of the *Code for Safety to Life from Fire in Buildings and Structures* (*NFPA 101–1973*).

2-5 Openings in Fire Walls and Fire Partitions

2-5.1 Openings in fire walls and fire partitions shall be protected with approved fire doors or fire dampers installed in accordance with the *Standard for Fire Doors and Windows* (*NFPA 80–1973*) or the *Standard for the Installation of Air Conditioning and Ventilating Systems* (*NFPA 90A–1973*).

2-5.2 Doorways and other openings in a fire wall shall be protected with an automatic-closing or self-closing fire door or doors approved for Class A locations. No openings in a fire wall shall exceed 120 square feet in area with no dimension greater than 12 feet. The aggregate width of all openings at any level shall not exceed 25 percent of the length of the wall.

2-5.3 Where ducts must pass through fire walls or fire partitions, the openings shall be protected with approved fire doors or dampers installed in accordance with the requirements of the *Standard for the Installation of Air Conditioning and Ventilating Systems* (*NFPA 90A–1973*), or the *Standard for the Installation of Blower and Exhaust Systems, Dust, Stock and Vapor Removal or Conveying* (*NFPA 91–1973*).

2-6 Vertical Openings

2-6.1 Elevator shafts and other vertical openings through floors in buildings four stories or more in height shall be enclosed with walls or partitions having a fire resistance rating of not less than two hours. For buildings less than four stories in height such walls or partitions shall have a fire resistance rating of not less than one hour. In all buildings of fire-resistive and noncombustible construction such walls or partitions shall be entirely constructed of noncombustible materials.

2-6.2 Those ramps which are not portions of the required means of egress, connecting not more than three floor levels, need not be enclosed as required in 2-6.1, provided the repair garage is fully protected by an approved, automatic fire extinguishing system.

2-7 Pits and Sub-Floor Work Areas. Pits and sub-floor work areas shall comply with the following:

(a) Walls, floors and piers shall be constructed of masonry, concrete or other suitable noncombustible material.

(b) Pits shall have adequate exits to prevent trapping of personnel in the event of fire. Steps shall be noncombustible and slip-proof and constructed with no accessible space underneath.

(c) Ventilation and drainage of pits and sub-floor work areas shall be in accordance with the provisions of 3-4.5 of this standard.

2-8 Tunnels and Ducts. Tunnels and ducts, except motor vehicle exhaust ventilating systems, which are located below the finished floor level of areas occupied for repair and servicing shall be provided with the following safeguards:

(a) Continuous mechanical ventilation at a minimum rate providing at least six air changes per hour. Air shall be exhausted to atmosphere and not reused. Installation of the system shall conform with the provisions set forth within the *Standard for the Installation of Blower and Exhaust Systems, Dust, Stock and Vapor Removal or Conveying* (*NFPA 91–1973*).

(b) An approved, fixed, automatic fire extinguishing system protecting the tunnel or duct.

(c) Electrical equipment of a type suitable for use in hazardous areas as detailed by Article 511 of the *National Electrical Code* (*NFPA 70–1971*).

(d) A liquid-tight curb installed at the floor penetration to prevent the entrance of flammable liquids into the tunnel or duct.

Chapter 3 Hazards

3-1 Lighting and Power

3-1.1 Electrical wiring for light, power, heat and signal or control circuits, and electrically operated tools, portable appliances and devices shall be in accordance with the provisions of the *National Electrical Code* (*NFPA 70–1971*). Article 511 of the National Electrical Code shall apply to wiring and equipment within the hazardous areas.

3-1.2 Section 74 of the *Flammable and Combustible Liquids Code* (*NFPA 30–1973*) shall be used to determine the extent of the hazardous area where flammable liquids are stored, handled or dispensed.

3-2 Heating

3-2.1 General

3-2.1.1 Heating equipment shall be of an approved type. Improvised furnaces, salamanders or space heaters shall not be permitted.

3-2.1.2 Fuels used shall be of the type and quality specified by the manufacturer of the heating appliance. Crankcase drainings shall not be used in oil-fired units.

3-2.1.3 No heater employing an open flame or glowing element shall be installed in parking or repair areas, or areas communicating therewith, except as permitted by the provisions of 3-2.2.2 or 3-2.3.

3-2.1.4 Heating equipment shall be installed to conform with the standards of the National Fire Protection Association on *Air Conditioning and Ventilating Systems* (*NFPA 90A–1973*), on *Installation of Oil Burning Equipment* (*NFPA 31–1972*), on *Installation of Gas Appliances and Gas Piping* (*NFPA 54–1969*), on *Chimneys, Fireplaces and Venting Systems* (*NFPA 211–1972*), and on *Incinerators and Rubbish Handling* (*NFPA 82–1972*), as applicable, except as hereinafter specifically provided.

3-2.2 Location of Heating Equipment

3-2.2.1 Heating equipment, except as provided in 3-2.2.2, other than suspended unit heaters as covered in 3-2.3, shall be installed in a detached building or room, separated from motor vehicle repair or parking areas by walls or partitions, floors or floor-ceiling assemblies having a fire resistance rating of not less than two hours. Openings in walls or partitions separating heater rooms

from motor vehicle repair or parking areas shall be restricted to those necessary for heating pipes and ducts and shall be located not less than eight feet above the floor; openings for ducts shall be protected with approved, automatic fire doors or dampers (see 2-5.3). Air for combustion purposes shall be obtained from outside the building. The heating room shall not be used for storage of combustible materials, except for fuel storage as permitted by the standards referenced in 3-2.1.4.

3-2.2.2 Heating equipment may be installed in motor vehicle repair or parking areas where there is no dispensing or transferring of Class I or II flammable liquids (as defined in the *Flammable and Combustible Liquids Code, NFPA 30–1973*) or liquefied petroleum gas, provided the bottom of the combustion chamber is not less than 18 inches above the floor, the heating equipment is protected from physical damage by vehicles, and continuous mechanical ventilation is provided at the rate of .75 cfm per square foot of floor area. The heating system and the ventilation system shall be suitably interlocked to ensure operation of the ventilation system when the heating system is in operation.

NOTE: For requirements for devices used to heat solvents used for parts cleaning, see 3-4.7 of this standard.

3-2.3 Suspended Unit Heaters

3-2.3.1 Approved suspended unit heaters may be used provided they are located not less than eight feet above the floor and are installed in accordance with the conditions of their approval.

3-2.3.2 A distance shall be maintained between the heater and its vent, and any adjacent combustible material (which is part of the building or its contents) in conformance with the *Standard for the Installation of Gas Appliances and Gas Piping* (*NFPA 54–1969*) or the *Standard for the Installation of Oil Burning Equipment* (*NFPA 31–1972*).

3-2.4 Warm Air Heating

3-2.4.1 Return air openings in motor vehicle repair or parking areas shall be not less than 18 inches above floor level measured to the bottom of the openings. Continuous mechanical ventilation as required within 3-2.2.2 shall be provided when openings are less than eight feet above the floor measured to the bottom of the openings.

3-2.4.2 Recirculated air shall not be taken from any floors below grade level.

3-3[1] Ventilation

3-3.1[2] General. Mechanical ventilating systems employed in repair garages shall be installed in accordance with the *Standard for the Installation of Air Conditioning and Ventilating Systems* (*NFPA 90A–1973*), except as modified within this standard. Blower and exhaust systems installed for vapor removal shall be installed in accordance with the *Standard for the Installation of Blower and Exhaust Systems, Dust, Stock and Vapor Removal or Conveying* (*NFPA 91–1973*).

3-3.2 Combination of Ventilation and Heating Systems. Combined ventilation and heating systems shall not recirculate air from areas below grade level.

3-3.3 Below Grade Areas. Below grade areas occupied for repairing, or communicating areas located below a repair garage, shall be continuously ventilated by a mechanical ventilating system having positive means for exhausting indoor air at a rate of not less than .75 cfm per square foot of floor area. An approved means shall be provided for introducing an equal amount of outdoor air.

3-3.4 Duct Openings. Exhaust duct openings for required ventilation shall be so located as to effectively remove vapor accumulations at floor level from all parts of the repair area.

NOTE: For required protection for duct openings in fire walls, see 2-5.3. See 3–2.2.1 for required protection of duct openings in walls or partitions separating heater rooms from motor vehicle repair or parking areas.

3-4 Repair Areas

3-4.1 General. Repairing of motor vehicles shall be restricted to areas specifically provided for such purposes.

3-4.2 Welding or Open Flame Operations

3-4.2.1 Operations involving open flame or electric arcs, including fusion gas and electric welding, shall be restricted to areas specifically provided for such purposes. Responsibility for cutting and welding, and related fire prevention precautions shall be in accordance with requirements of the *Standard for Fire Prevention in Use of Cutting and Welding Processes* (*NFPA 51B–1971*).

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[1]It is recognized that the ventilation requirements contained within Section 3–3 do not consider exhaust emissions from motor vehicle engines being tested. Authorities having jurisdiction should be consulted to determine precautions necessary to protect against this health hazard.

[2]Manual control switches for the supply and exhaust ventilating systems should be located close to the entrance door. In buildings protected by an automatic sprinkler or fire alarm system it is recommended that the necessary devices and connections be installed to shut down fans when sprinklers or fire alarms operate.

3-4.2.2 Electric arc welding generators or transformers shall conform to the *National Electrical Code* (*NFPA 70–1971*). Gas fusion welding apparatus and storage of compressed gas cylinders shall be in accordance with the provisions of the *Standard for the Installation and Operation of Oxygen-Fuel Gas Systems for Welding and Cutting* (*NFPA 51–1973*).

3-4.2.3[1] The grounded side of an electric welding circuit shall be attached to the part being welded.

3-4.2.4 Compressed gases shall be stored in accordance with Chapter 2 of the *Standard for the Installation and Operation of Oxygen-Fuel Gas Systems for Welding and Cutting* (*NFPA 51–1973*).

3-4.2.5 Gas fusion welding equipment shall be periodically inspected for worn or injured hose and defective or damaged valves, gages and reducing devices.

3-4.2.6 Cylinders stored outside in the open shall have valves and safety devices protected against accumulation of ice and snow.

3-4.3 Spray Painting and Undercoating

3-4.3.1 Spray painting shall conform to the *Standard for Spray Finishing Using Flammable and Combustible Materials* (*NFPA 33–1973*).

3-4.3.2 Where only a small portion of a vehicle is spray-painted and no accumulations of paint residue are allowed to form, such occasional painting may be done in the open in the structure if located not less than 20 feet horizontally from all open flame devices or spark producing electrical equipment or appliances.

3-4.3.3 Undercoating spray operations conducted in any area having adequate natural or mechanical ventilation may be exempt from the requirements pertaining to spray finishing operations when the undercoating materials are nonflammable or where the solvents used have a flash point in excess of 100° F. (closed cup). There shall be no open flame devices or spark producing electrical equipment or appliances within 20 feet horizontally while such operations are conducted. Undercoating materials shall be dry before starting the engine of the undercoated vehicle.

3-4.3.4 Undercoating spray operations not conforming to the provisions of 3-4.3.3 shall conform to all requirements of the *Standard for Spray Finishing Using Flammable and Combustible Materials* (*NFPA 33–1973*).

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[1]Never attach ground wire to chassis if welding a fender, as the electrical resistance between the two may be sufficient to cause a fire or personal injury. Do not use monorail and hoist as the ground side for same reason.

3-4.4 Drying Apparatus. Drying and baking apparatus in connection with the spray application of flammable finishes shall conform to the *Standard for Ovens and Furnaces (NFPA 86A–1973)*, and the *Standard for Spray Finishing Using Flammable and Combustible Materials (NFPA 33–1973)*.

3-4.5 Inspection and Repair Pits

3-4.5.1 Pits so arranged that natural ventilation cannot be used shall be provided with an individual ventilating system capable of providing a complete air change every five minutes with the intake located near floor level.

3-4.5.2 Fixed lighting fixtures in pits shall be installed in accordance with Article 511 of the *National Electrical Code (NFPA 70–1971)*.

3-4.5.3 Where floor drains are provided they shall be installed in accordance with Section 2-3.

3-4.6 Repair of Fuel Tanks

3-4.6.1 Prior to repair work on fuel tanks of vehicles involving flame or heat producing devices, the tank shall be drained and purged, or inerted, and tested in accordance with applicable procedures as outlined in the *Standard for Procedures for Cleaning or Safeguarding Small Tanks and Containers (NFPA 327–1970)*.

3-4.6.2 In lieu of draining the fuel tank outside the building, an approved, portable pump and storage tank may be used.

3-4.6.3 Fuel which is drained from vehicle tanks and is not to be disposed of shall be stored in approved safety cans or returned to standard underground storage tanks.

3-4.6.4 Fuel which is to be disposed of shall be stored in tanks or drums suitable for such purpose, which shall be located outside of the building until removal from the premises. Such containers shall be identified as having flammable contents.

3-4.6.5 Repair work on compressed and liquefied gas fuel tanks shall be performed only by a qualified cylinder or tank manufacturer in accordance with the US Department of Transportation Regulations.

3-4.7 Parts Cleaning

3-4.7.1 Cleaning of parts shall be performed with nonflammable solvent except a flammable solvent with a flash point above 100° F (closed cup) may be used for this purpose provided adequate ventilation is supplied and no sources of ignition are present in the cleaning area.

3-4.7.2 Devices used to heat nonflammable solvent shall conform to the requirements of one or more of the following: (*1*) *Standard for the Installation of Oil Burning Equipment* (*NFPA 31–1972*); (*2*) *Standard for the Installation of Gas Appliances and Gas Piping* (*NFPA 54–1969*). These heating devices shall be installed in accordance with the requirements set forth in 3-2.2 of this standard.

3-4.7.3 A device for heating solvents which give off flammable or toxic vapors when heated, shall be provided with a limit control to prevent the solvent from exceeding a temperature 50° F below the point at which flammable or toxic vapors are released.

3-4.7.4 Direct-fired parts cleaners shall not be installed or used below grade.

3-4.8 Chassis Cleaning

3-4.8.1 Chassis cleaning shall not be performed with flammable liquids having flash points below 140° F (closed cup). If steam is used, it shall be supplied from a boiler located, installed and safeguarded in accordance with the applicable requirements for heating equipment set forth in Section 3-2 of this standard, the *Standard for the Installation of Oil Burning Equipment* (*NFPA 31–1972*), the *Standard for the Installation of Gas Appliances and Gas Piping* (*NFPA 54–1969*), the *Standard on Fuel Oil and Natural Gas-Fired Watertube Boiler-Furnaces* (*NFPA 85–1973*), the *Standard on Natural Gas-Fired Multiple Burner Boiler-Furnaces* (*NFPA 85B–1973*), the *Standard on Fuel Oil-Fired Multiple Burner Boiler-Furnaces* (*NFPA 85D–1973*), and the *Standard on Pulverized Coal-Fired Multiple Burner Boiler-Furnaces* (*NFPA 85E–1973*).

3-4.8.2 Steam cleaning devices shall be of an approved type.

3-5 Storage and Handling of Flammable Liquids and Liquefied Petroleum Gases

3-5.1 The storage and handling of flammable liquids shall be in accordance with the *Flammable and Combustible Liquids Code* (*NFPA 30–1973*). The storage and handling of liquefied petroleum gas shall be in compliance with the *Standard for the Storage and Handling of Liquefied Petroleum Gases* (*NFPA 58–1972*).

3-5.2 Dispensing of Flammable Liquids

3-5.2.1 The design and installation of equipment used for the dispensing of flammable liquids shall be in accordance with the requirements for service stations as set forth in Section 72 of the *Flammable and Combustible Liquids Code* (*NFPA 30–1973*), except as amended within this Section.

3-5.2.2 Dispensing devices shall be located above grade, within 20 feet of an outside door, and the floor shall have a definite downward slope toward the door of not less than one inch for each ten feet. Such dispensing areas shall be separated from other areas by walls, partitions, floors or floor-ceiling assemblies having a fire resistance rating of not less than two hours.

3-5.2.3 Floor drains in areas where flammable liquids are stored, handled or dispensed shall be in accordance with 2-3.2.

3-5.3 The design and installation of equipment used for, and in operations involving filling liquefied petroleum gas fuel tanks shall be in accordance with the requirements for LP-Gas as a Motor Fuel and LP-Gas Service Stations as set forth in Divisions IV and VIII of the *Standard for the Storage and Handling of Liquefied Petroleum Gases* (*NFPA 58–1972*).

3-6 Housekeeping

3-6.1 An authorized employee, an officer of the firm or the owner shall make daily inspections of the garage and shall be responsible for the prompt removal or repair of any hazardous condition, including proper maintenance of equipment and safety devices and the immediate removal of accumulations of combustible materials.

3-6.2 Clear aisle space shall be maintained to permit ready access to and the use of fire fighting equipment.

3-6.3 Floors shall be kept clean and free of oil and grease. Only approved water solutions or detergents, floor sweeping compounds and grease absorbents shall be used for cleaning floors.

3-6.4 Metal lockers shall be provided for employees' clothes.

3-6.5 Approved metal receptacles with self-closing covers shall be provided for the storage or disposal of oil-soaked waste or cloths.

3-6.6 Combustible rubbish shall be placed in covered metal receptacles until removed to a safe place for disposal. Contents of such containers shall be removed daily.

3-6.7 Smoking shall be prohibited except in designated areas subject to the approval of the authority having jurisdiction.

Chapter 4 Protection

4-1 Automatic Sprinklers. Approved automatic sprinkler equipment installed in conformance with the *Standard for the Installation of Sprinkler Systems* (*NFPA 13–1973*) shall be provided in repair garages under the following conditions:

(a) Repair garages over one story in height or located beneath another occupancy, exceeding an area on any one floor of 10,000 square feet, if of fire-resistive construction; 8,000 square feet if of protected noncombustible construction; or 6,000 square feet if of unprotected noncombustible construction, heavy timber construction, ordinary construction or wood frame construction.

(b) One-story repair garages exceeding an area of 15,000 square feet, if of fire-resistive construction; 12,000 square feet if of protected noncombustible construction; 9,000 square feet if of unprotected noncombustible construction, heavy timber construction or ordinary construction; or 6,000 square feet if of wood frame construction.

(c) All below grade floors of repair garages, the ceilings of which are less than two feet above grade.

4-2[1] Maintenance and Supervision of Automatic Sprinkler Systems.

4-2.1 Where an automatic sprinkler system is provided as a requirement of this standard, the system shall be adequately supervised to assure reliable operation as follows:

(a) The automatic sprinkler system shall be electrically connected, either directly or through a central station facility or by another approved method, to the fire department legally committed to serve the area in which the building is located. System actuation shall initiate the alarm sequence.

(b) Where a system may become inoperable, due to closing of valves, interruption of power or other reasons, adequate supervision shall be provided to sound at least a local trouble alarm when the system is disabled.

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[1]It is recommended that all repair garages be provided with approved watchman service, an approved automatic fire alarm system or, if the garage is sprinklered, with approved sprinkler supervisory service. Watchmen should make rounds at least hourly through all portions of the garage at night and at all other times when not open for regular business. Details of facilities for approved watchman, fire alarm and supervisory service are contained in the standards referenced in the text following.

(c) Where building fire alarm facilities are provided, actuation of the automatic sprinkler system shall cause the building alarm to sound.

(d) Signaling system details, with respect to design, shall conform to the requirements set forth in the various NFPA Standards as follows: Standards for, the *Installation, Maintenance and Use of Central Station Protective Signaling Systems* (*NFPA 71–1972*), *Local Protective Signaling Systems* (*NFPA 72A–1972*), *Auxiliary Protective Signaling Systems* (*NFPA 72B–1972*), *Remote Station Protective Signaling Systems* (*NFPA 72C–1972*), *Proprietary Protective Signaling Systems* (*NFPA 72D–1973*), and *Municipal Fire Alarm Systems* (*NFPA 73–1973*).

4-2.2 Every automatic fire extinguishing system required by this standard shall be continuously maintained in reliable operating condition at all times and such periodic inspections and tests shall be made as are necessary to assure that the system will perform as expected in a fire emergency.

4-3 Portable Fire Extinguishers. Approved extinguishers, installed and maintained in accordance with the *Standard for the Installation of Portable Fire Extinguishers* (*NFPA 10–1973*) and the *Recommended Good Practice for the Maintenance and Use of Portable Fire Extinguishers* (*NFPA 10A–1973*) shall be provided in all repair garages.

4-4 Standpipes. All repair garages which exceed a height of 50 feet, or have parking levels below grade, or are unsprinklered and more than one story in height shall be provided with one or more standpipes conforming to the provisions of the *Standard for the Installation of Standpipe and Hose Systems* (*NFPA 14–1973*).

4-5[1] Employee Instruction. Employees of all repair garages shall be instructed with respect to the importance of transmitting fire alarms promptly and shall be trained in the use of available private fire fighting facilities.

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[1]Repair garages which are not within the protection area of an organized public fire department should have a fire brigade organized, equipped and drilled in accordance with the NFPA *Recommendations for the Organization, Training and Equipment of Private Fire Brigades* (*NFPA 27–1967*).

Appendix

This Appendix is not a part of this NFPA *Standard for Repair Garages* but is included for information purposes only.

The text of this Standard references the following NFPA codes and standards and the year dates shown indicate the latest available editions:

Standard for Motor Freight Terminals, NFPA 513–1973

Standard for Standard Types of Building Construction, NFPA 220–1961

Code for Safety to Life from Fire in Buildings and Structures, NFPA 101–1973

Standard for Fire Doors and Windows, NFPA 80–1973

Standard for the Installation of Air Conditioning and Ventilating Systems, NFPA 90A–1973

Standard for the Installation of Blower and Exhaust Systems, Dust, Stock and Vapor Removal or Conveying, NFPA 91–1973

National Electrical Code, NFPA 70–1971

Flammable and Combustible Liquids Code, NFPA 30–1973

Standard on the Installation of Oil Burning Equipment, NFPA 31–1972

Standard on the Installation of Gas Appliances and Gas Piping, NFPA 54–1969

Standard on Chimneys, Fireplaces and Venting Systems, NFPA 211–1972

Standard on Incinerators and Rubbish Handling, NFPA 82–1972

Standard for Fire Prevention in Use of Cutting and Welding Processes, NFPA 51B–1971

Standard for the Installation and Operation of Oxygen-Fuel Gas Systems for Welding and Cutting, NFPA 51–1973

Standard for Spray Finishing Using Flammable and Combustible Materials, NFPA 33–1973

Standard for Ovens and Furnaces, Design, Location and Equipment, NFPA 86A–1973

Standard for Procedures for Cleaning or Safeguarding Small Tanks and Containers, NFPA 327–1970

Standard for Prevention of Furnace Explosions in Fuel Oil- and Natural Gas-Fired Watertube Boiler-Furnaces with One Burner, NFPA 85–1973