Revised January 2026 (Contact/Payment info)

FIRE DEPARTMENT • CITY OF NEW YORK

STUDY MATERIAL FOR THE EXAMINATION FOR THE

CERTIFICATE OF FITNESS
FOR

SUPERVISION OF DE-FUELING MOTOR VEHICLE FUEL TANKS

P-53

All applicants are required to apply and pay for an exam online before arriving at the FDNY. It can take about 30 minutes to complete.

Simplified instructions for online application and payment can be found here:

http://www1.nyc.gov/assets/fdny/downloads/pdf/business/fdny-business-cof-individuals-short.pdf

Create an Account and Log in to:

http://fires.fdnycloud.org/CitizenAccess

ALSO INCLUDED IN THIS BOOKLET YOU WILL FIND THE FOLLOWING:
NOTICE OF EXAMINATION (NOE)

© 07/2014 New York City Fire Department - All rights reserved ®.NOE Revised

CONTENTS

EXAM SPECIFIC INFORMATION FOR P-53 CERTIFICATE OF FITNESS 3
STUDY MATERIAL AND TEST INFORMATION 7
INTRODUCTION 10
PERMITS 10
DEFINITIONS 12
Class of Flammable and Combustible Liquids Reference Chart 15
NFPA HAZARD 704 DIAMOND SIGN EXPLANATION 17
Safety Data Sheets (SDS) Information 17
DE-FUELING MAINTENANCE AND OPERATION 22
MAINTENANCE 22
OPERATION 22
Dangerous Areas- 23
Worst Case Scenario 24
GENERAL DE-FUELING PROCEDURE 24
Worst Case Scenario 25
Recommended Repair Garage practice 26
Proper Gasoline Defueling Procedure 26
Proper Diesel Defueling Procedure 28
Worst Case Scenario 29
Salvage Yard Practice 29
Worst Case Scenario 30
STORAGE 31
EMERGENCY PROCEDURES 32
In Case of a Spill 32
Emergency Operations 32
FIRE EXTINGUISHERS 32
Portable Fire Extinguisher Tags 34
Portable Fire Extinguisher Inspections 36
LITHIUM-ION BATTERY SAFETY 37

EXAM SPECIFIC INFORMATION FOR P-53 CERTIFICATE OF FITNESS

Save time and submit application online!

All applicants are required to apply and pay for an exam online before arriving at the FDNY. It can take about 30 minutes to complete.

Simplified instructions for online application and payment can be found here:

http://www1.nyc.gov/assets/fdny/downloads/pdf/business/fdny-business-cof-individuals-short.pdf

Create an Account and Log in to:

http://fires.fdnycloud.org/CitizenAccess

REQUIREMENTS FOR CERTIFICATE OF FITNESS APPLICATION

General requirements:
Review the General Notice of Exam:
http://www1.nyc.gov/assets/fdny/downloads/pdf/business/general-notice-of-exam-cof.pdf

Special requirements for the P-53 Certificate of Fitness: None

Application fee must be paid with online submission:
Accepted forms of payment:
• Credit/debit card (American Express, Discover, MasterCard, or Visa)
• Personal or company check or money order (made payable to the New York City Fire Department).

A convenience fee of 2% will be applied to all credit card payments.

For fee waivers submit: ***(Only government employees who will use their COF for their work- related responsibilities are eligible for fee waivers.)***

- A letter requesting fee waiver on the Agency's official letterhead stating applicant full name, exam type and address of premises; ***AND***
- Copy of identification card issued by the agency

Each testing opportunity requires a separate application and payment.
Retesting on the same calendar day is not permitted.

REQUIREMENTS FOR ALTERNATIVE ISSUANCE PROCEDURE (AIP)

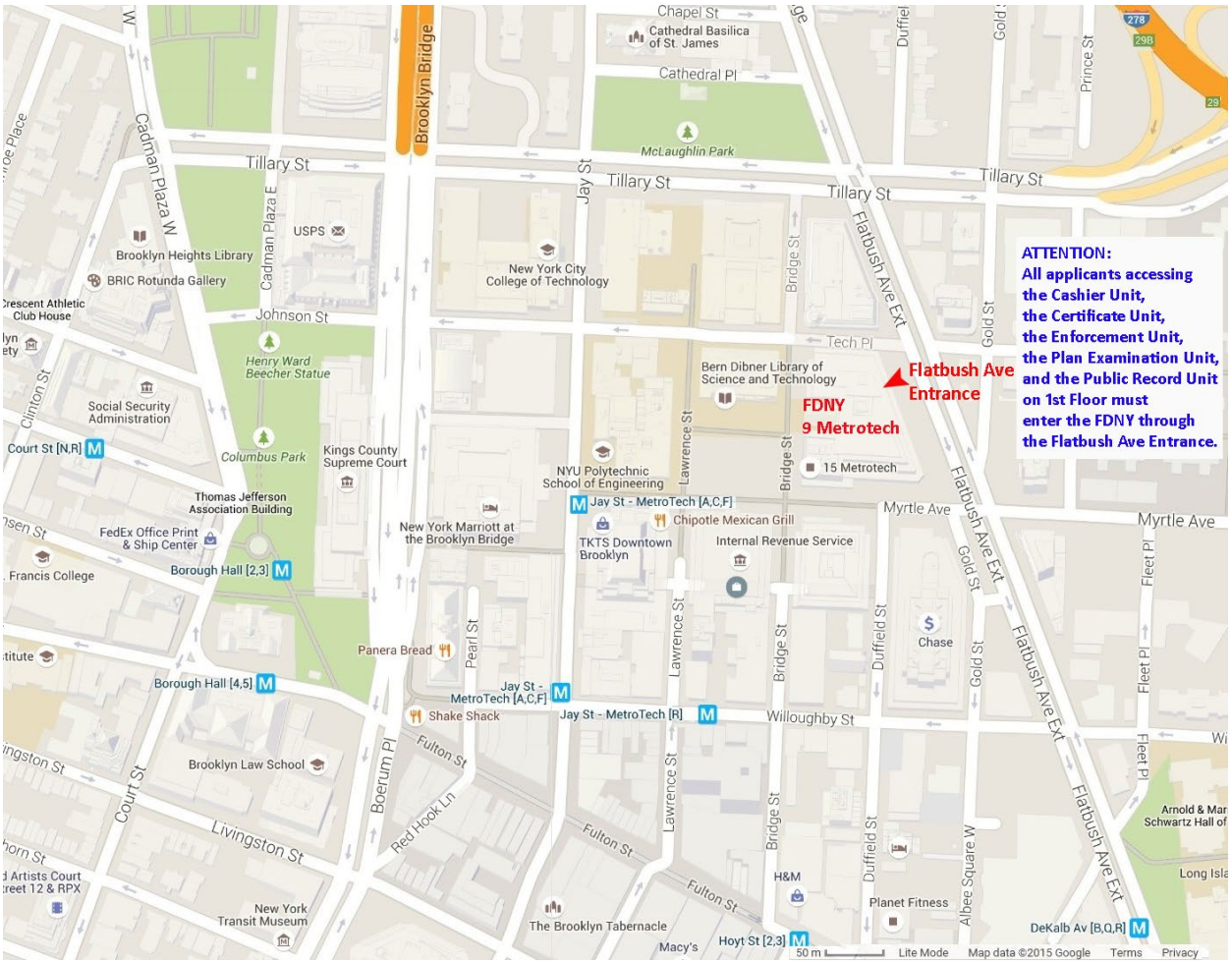
No AIP available. This certificate of fitness can only be obtained by passing the computer exam at the FDNY Headquarters.

EXAM INFORMATION

The **P-53** exam will consist of **25** multiple-choice questions, administered on a "touch screen" computer monitor. It is a time-limit exam. Based on the amount of the questions, you will have 38 minutes to complete the test. A passing score of at least 70% is required in order to secure a Certificate of Fitness. Read each question carefully before marking your answer. There is no penalty for guessing.

Please always check for the latest revised booklet at FDNY website before you take the exam.
http://www1.nyc.gov/assets/fdny/downloads/pdf/business/cof-p53-noe-study-materials.pdf

EXAM SITE: **FDNY Headquarters,** 9 MetroTech Center, Brooklyn, NY. Enter through the **Flatbush Avenue entrance (between Myrtle Avenue and Tech Place)**.



RENEWAL REQUIREMENTS

General renewal requirements:
Review the General Notice of Exam:
http://www1.nyc.gov/assets/fdny/downloads/pdf/business/general-notice-of-exam-cof.pdf

Special renewal requirements for P-53 COF: None

The FDNY strongly recommends the P-53 COF holders to renew the COF on-line. To learn the simplified on-line renewal:
http://www1.nyc.gov/assets/fdny/downloads/pdf/business/cof-simplified-renewal-short.pdf

QUESTIONS?

FDNY Business Support Team: For questions, call 311 and ask for the FDNY Customer Service Center or send an email to FDNY.BusinessSupport@fdny.nyc.gov.

STUDY MATERIAL AND TEST INFORMATION

This study material will help you prepare for the written examination of the Certificate of Fitness (**C of F**) for the SUPERVISION OF DE-FUELING MOTOR VEHICLE FUEL TANKS. The study materials include information taken from the New York City Fire Code (**FC**) and Fire Department rules. The study material does not contain all the information you need to know in order to perform the responsibilities of conducting de-fueling motor vehicle fuel tanks operations safely. It is your responsibility to become familiar with all applicable laws, rules and regulations of the federal, state and city agencies having jurisdiction on subject matter, even though such requirements are not included in this study material. You need to be familiar with 2022 **FC317** which regulates automotive salvage and wrecking facilities, 2022 **FC906**, 2022 **FC2311** which regulates repair garages**,** 2022 **FC3504,** 2022 **FC5002,** 2022 **FC57** as well as **NFPA 10, NFPA 30 and NFPA 704** that regulates storage, handling and use of flammable and combustible liquids in order to adequately prepare for the exam. **It is critical that you read and understand this booklet (including the appendix) to help increase your chance of passing this exam.**

2022 FIRE CODE ENACTED

The amended New York City Fire Code, to be known as the 2022 Fire Code, takes effect on April 15, 2022. **It may not have been updated in this study material. However, as the Certificate of Fitness holder, it is your responsibility to become familiar with the applicable sections of the new 2022 Fire Code.**

Design and installation provisions.

The design and installation provisions of the 2022 Fire Code shall apply to:

- Facilities established and conditions arising on or after 04/15/2022.
- Facilities and conditions not lawfully existing prior to 04/15/2022.

The facilities and conditions lawfully existing prior to the 04/15/2022 can be continued in compliance with the requirements of the former Fire Code/Fire Rule except as otherwise provided in the New Fire Code 102.5.

Operational and maintenance provisions.

The operational and maintenance provisions of the 2022 Fire Code, including permit and certification requirements, shall apply to all facilities, operations, conditions, uses and occupancies, regardless of when they were established or arose.

Whenever this code is amended or a rule is promulgated to require a permit or certificate for a facility, operation, condition, use or occupancy, and no permit or certificate was previously required therefor pursuant to this code or the rules, such facility, operation, condition, use or occupancy may be continued without such permit or certificate until 04/15/2023, except as may otherwise be provided by such amendment or rule.

The 2022 Fire Code can be obtained via the following website:
http://www1.nyc.gov/site/fdny/codes/fire-code/fire-code.page

The 2014/2022 New York City Fire Code Cross-Reference Table can be referred to the following website:
http://www1.nyc.gov/assets/fdny/downloads/pdf/codes/fire-code-cross-reference.pdf

About the Test

You must pass the given multiple choice test to qualify for the Certificate of Fitness. A score of 70% correct is required in order to pass the test. All questions have four optional answers. There is **only *one*** correct answer for each question. If you do not answer a question, or if you mark more than one answer to a single question, your answer to that question will be scored as incorrect. Read each question carefully before marking your answer. There is no penalty for guessing.

Sample Questions

1. Which of the following are allowed to be used/displayed while taking a Certificate of Fitness examination at 9 Metro Tech Center?

I. cellular phone
II. study material booklet
III. reference material provided by the FDNY
IV. mp3 player

A. III only
B. I, II, and III
C. II and IV
D. I only

Only reference material provided by the FDNY is allowed to be used during Certificate of Fitness examinations; therefore, the correct answer would be A. You would touch "A" on the computer terminal screen.

2. If you do not know the answer to a question while taking an examination, who should you ask for help?

A. the person next to you

B. the firefighters in the testing room
C. the examiner in the testing room
D. you should not ask about test questions since FDNY staff cannot assist applicants

You should not ask about examination questions or answers since FDNY staff cannot assist applicants with their tests. Therefore, the correct answer would be D. You would touch "D" on the computer terminal screen.

3. If the screen on your computer terminal freezes during your examination, who should you ask for help?

A. the person next to you
B. the firefighters in the testing room
C. the examiner in the testing room
D. the computer help desk

If you have a computer related question, you should ask the examiner in the testing room. Therefore, the correct answer would be C. You would touch "C" on the computer terminal screen.

INTRODUCTION

This Study Guide is intended to serve as an outline of the New York City Fire Code regulations for automotive salvage, wrecking facilities, and repair garages that de-fuel motor vehicle fuel tanks.

Automotive salvage, wrecking facilities, and repair garages should always maintain requirements of the New York State Department of Motor Vehicles and the New York City Department of Consumer Affairs in order to obtain permits and other approvals needed to remain in compliance with local laws.

These guidelines are intended to alert technicians, owners and recyclers to the potential hazards and safe practices when defueling motor vehicles. It is important that all fuel be removed from the fuel tank when changing the tank or replacing a sending unit in the tank (fuel pump). Fuel must always be removed from a motor vehicle fuel tank prior to performing such maintenance work or in the event of salvage/wrecking the motor vehicle. Although often times only a small amount of fuel or vapors are involved, the procedure of de-fueling is still very dangerous.

Hazardous Materials Reporting

The storage of hazardous materials shall be reported as required by the New York State General Municipal Law Section 209-u. The Fire Commissioner may require an application for a permit pursuant to this code to include a copy of the current filing pursuant to such New York State General Municipal Law for the facility or premises for which a permit is sought.

Certificate of Fitness

The P-53 Certificate of Fitness holder is responsible for making sure that all fire safety regulations and procedures are obeyed on the premises. The Certificate of fitness is valid for 3 years but can be revoked at any time if good cause exists. Defueling of a motor vehicle shall be under the **personal supervision** of a P-53 Certificate of Fitness holder.

PERMITS

Every permit shall be valid for a period specified therein, not to exceed one year, and shall expire at the end of such period unless the Fire Commissioner approves its renewal. **All FDNY original permits shall be on site and available for inspection at all times**. Permits are not transferable and any change in occupancy, operation, tenancy or ownership shall require that a new permit be issued.

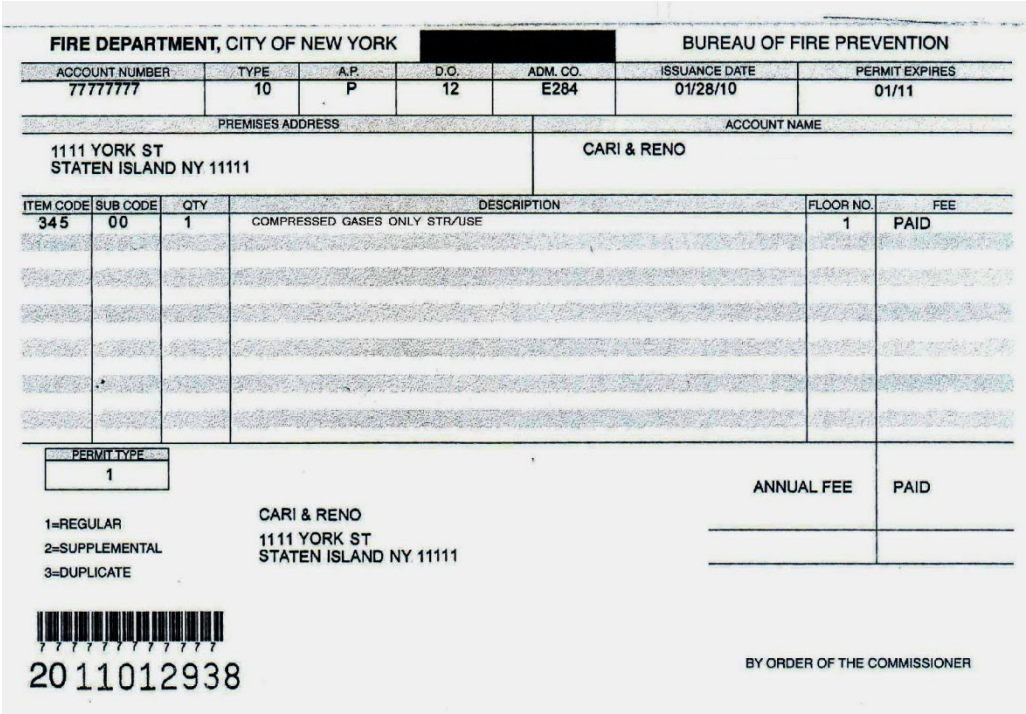
A FDNY permit is required to store, handle or use flammable and combustible liquids.

Site-specific permit. Such permit authorizes the permit holder to manufacture, store, handle, use or sell hazardous materials or combustible materials, or conduct an operation or maintain a facility at a specific premises or location, for which a permit is required by 2022 FC105.6.

Permits are not transferable and any change in occupancy, operation, tenancy or ownership must require that a new permit be issued. Permits and Certificates of Fitness shall be readily available on the premises for inspection by Fire Department representatives.

A permit is required for the following situations:

1. To store, handle or use amounts of **Class I liquids**, other than paints, varnishes, lacquers, gasoline and other petroleum-based Class I liquids, in excess of **5 gallons**, except that a permit is not required for the storage or use of Class I liquids in the fuel tank of a motor vehicle, aircraft, or watercraft.
2. To store, handle or use amounts of **gasoline and other petroleum-based Class I liquids** other than paints, varnishes and lacquers, in excess of **2½ gallons**, except that a permit is not required for the storage or use of gasoline or other petroleum-based Class I liquids in the fuel tank of a motor vehicle, aircraft, or watercraft.
3. To store, handle or use amounts of **Class II or Class III liquids** with a flash point of 300°F or less, other than paints, varnishes and lacquers, in excess of **10 gallons**, except that a permit is not required for the storage or use of Class II or Class III liquids with a flash point of 300°F or less in the fuel tank of a motor vehicle, aircraft, or watercraft.
4. To store, handle or use amounts in excess of **70 gallons of petroleum based Class III liquids** (such as antifreeze (coolant), lube oil, transmission oil, etc) with a flash point exceeding 300°F.



FIRE DEPARTMENT, CITY OF NEW YORK [redacted] BUREAU OF FIRE PREVENTION

ACCOUNT NUMBER	TYPE	A.P.	D.O.	ADM. CO.	ISSUANCE DATE	PERMIT EXPIRES
77777777	10	P	12	E284	01/28/10	01/11

PREMISES ADDRESS	ACCOUNT NAME
1111 YORK ST STATEN ISLAND NY 11111	CARI & RENO

ITEM CODE	SUB CODE	QTY	DESCRIPTION	FLOOR NO.	FEE
345	00	1	COMPRESSED GASES ONLY STR/USE	1	PAID

PERMIT TYPE
1

1=REGULAR
2=SUPPLEMENTAL
3=DUPLICATE

CARI & RENO
1111 YORK ST
STATEN ISLAND NY 11111

ANNUAL FEE PAID

20 11012938

BY ORDER OF THE COMMISSIONER

An example of FDNY permanent permit

Safety Data Sheet (SDS, prev. MSDS)

Safety Data Sheet (SDS) information should always be readily available. The safety data sheet (SDS) contains specific information about the health and physical hazards of the material used, as well as safe work practices and required protective equipment. It may also describe the material's physical characteristics and procedures that should be followed in case of an emergency. For example, the SDS may list appropriate and inappropriate extinguishing agents. The P-53 Certificate of Fitness holder must refer to the SDS when questions arise about how to handle, use, or store gasoline or diesel fuel. The SDS may also be requested by health care personnel to facilitate proper medical care in the event of chemical exposure.

DEFINITIONS

AUTOMOTIVE SALVAGE AND WRECKING FACILITY – Any Premises used for dismantling and/or wrecking of motor vehicles in connection with the sale of auto parts or scrap metal.

CERTIFICATE OF FITNESS. A written statement issued by the Fire Commissioner certifying that the person to whom it is issued has passed an examination as to his or her qualifications or is otherwise deemed qualified to perform one or more of the following duties, for which such certificate is

required by this code or the rules: supervise a facility; conduct or supervise an operation; supervise the storage, handling and/or use of a material; or conduct or supervise emergency planning and preparedness activities.

COMBUSTIBLE LIQUID - For purposes of transportation, a combustible liquid, as defined in the regulations of the United States Department of Transportation, as set forth in 49 CFR Section 173.120. For all other purposes, a liquid, other than a compressed gas or cryogenic fluid, having a closed cup flash point at or above 100°F (38°C), classified as follows:

Class II. Liquids having a closed cup flash point at or above 100°F (38°C) and below 140°F (60°C).

Class IIIA. Liquids having a closed cup flash point at or above 140°F (60°C) and below 200°F (93°C).

Class IIIB. Liquids having closed cup flash points at or above 200°F (93°C).

DISPENSING - The pouring or transferring by other means of any material from a container, tank or similar vessel, which would release dusts, fumes, mists, vapors or gases to the atmosphere, unless such release is prevented by a device, equipment or system designed for that purpose.

FLAMMABLE AND COMBUSTIBLE LIQUID STORAGE SYSTEM - A flammable or combustible liquid storage tank and all devices, equipment and systems associated with such tank, including the tank, piping, valves, fill connection, vent lines, pumps and any other auxiliary equipment, except liquid motor fuel storage and dispensing systems and flammable and combustible liquid storage systems at a bulk plant or terminal used for bulk transfer operations.

FLAMMABLE LIQUID- For purposes of transportation, a flammable liquid defined in the regulations of the United States Department of Transportation, as set forth in 49 CFR Section 173.120. For all other purposes, a liquid, other than a compressed gas or cryogenic fluid, having a closed cup flash point below 100°F (38°C), classified as follows:

Class IA. Liquids having a flash point below 73°F (23°C) and having a boiling point below 100°F (38°C).

Class IB. Liquids having a flash point below 73°F (23°C) and having a boiling point at or above 100°F (38°C).

Class IC. Liquids having a flash point at or above 73°F (23°C) and below 100°F (38°C).

FLAMMABLE VAPORS OR FUMES- The concentration of flammable constituents in air that exceeds 25 percent of their lower flammable limit (LFL).

FLAMMABLE LIQUID MOTOR FUEL - Gasoline or other flammable liquids

used as fuel in the operation of motor vehicles, motorcycles, watercraft and aircraft

FLASH POINT- The minimum temperature in degrees Fahrenheit at which a liquid will give off sufficient vapors to form an ignitable mixture with air near the surface or in the container, but will not sustain combustion. The flash point of a liquid shall be determined by appropriate test procedure and apparatus as specified in ASTM D 56, ASTM D 93 or ASTM D 3278.

FIRE EXTINGUISHING SYSTEM - An approved system of devices and equipment which detects a fire and discharges an approved fire extinguishing agent onto or in the area of a fire. This definition includes automatic systems and, where such systems are authorized by this code or the Building Code, manually activated systems.

HANDLING- The movement of a material in its container, the removal of the material from its container, or any other action or process that may affect the material, other than its storage or use.

LIQUID MOTOR FUEL - Gasoline, diesel fuel or other flammable or combustible liquids used as fuel in the operation of motor vehicles, motorcycles, watercraft and aircraft.

LISTED - A material, device, equipment or system included on a list published by a nationally recognized testing laboratory or other approved organization. They perform product evaluations that maintain periodic inspection of production of such listed material, device, equipment or system, and whose listing indicates compliance with nationally recognized standards and designates suitable usage.

LOWER EXPLOSIVE LIMIT (LEL) - See “Lower flammable limit.”

LOWER FLAMMABLE LIMIT (LFL) - The minimum concentration of vapor in the air at which propagation of flame will occur in the presence of an ignition source. The LFL is sometimes referred to as LEL or lower explosive limit.

MATERIAL SAFETY DATA SHEET (MSDS/SDS): A document prepared in accordance with the regulations of the United States Department of Labor, as set forth in 29 CFR Part 1910.1200 or a federally approved state OSHA plan which sets forth information concerning a hazardous material.

MOTOR VEHICLE - A vehicle or other means conveyance having more than 2 running wheels and using liquid motor fuel or flammable gas as fuel for generating motive power, except such vehicles as have a storage tank with a maximum capacity for less than 2 gallons (7.6 L) of liquid motor fuel or

flammable gas that generates energy that is equivalent to the energy generated by 2 gallons (7.6 L) of gasoline.

PERSONAL SUPERVISION - A method of supervision by the holder who is required to be personally present on the premises, or other proximate location acceptable to the department, while performing the duties for which the certificate is required.

REPAIR GARAGE- A building, structure or portion thereof used for servicing or repairing motor vehicles or motorcycles.

TANK, PROTECTED ABOVEGROUND - an atmospheric aboveground tank listed in accordance with UL 2085 or equivalent standard that is provided with integral secondary containment, protection from physical damage, and an insulation system intended to reduce the heat transferred to the primary tank when the tank is exposed to a high intensity liquid pool fire.

TRAVEL DISTANCE - The actual walking distance from any point to the nearest fire extinguisher fulfilling hazard requirements.

Class of Flammable and Combustible Liquids Reference Chart

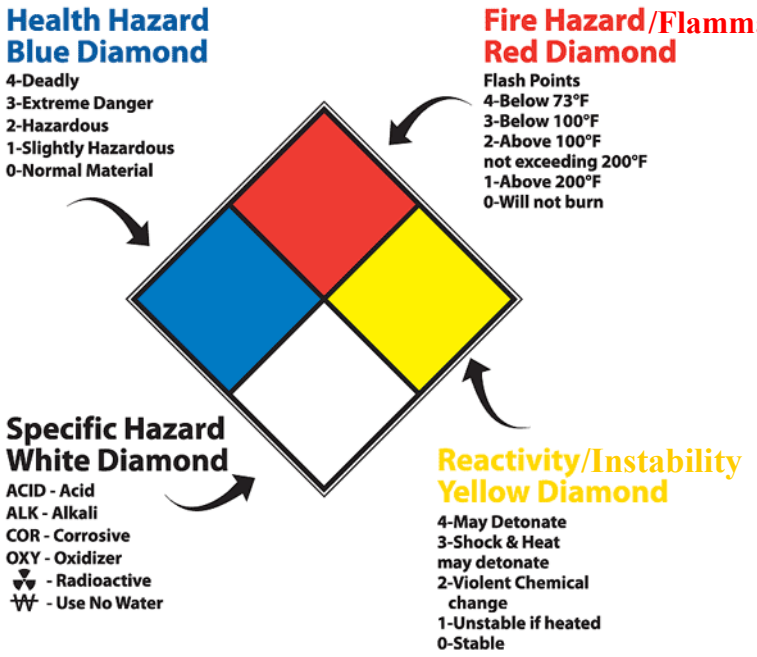
As per the Fire Code, there are 3 classes of flammable liquids and 3 classes of combustible liquids defined as the following table.

Class of Flammable and Combustible Liquids

		Flash point	Boiling point	Examples
Flammable liquids (Class I liquids)	**Class IA**	< 73°F	< 100°F	**Gasoline**, Acetaldehyde, Ethyl ether, formate, Pentane
	Class IB	< 73°F	≥ 100°F	Acetone, Ethanol, Methyl alcohol, Propyl alcohol
	Class IC	≥ 73°F but < 100°F	Not Applicable	Turpentine, Butyl alcohol, Hydrazine, Styrene, Xylene
Combustible liquids (Class II & III liquids)	**Class II**	≥ 100°F but < 140°F	Not Applicable	Kerosene, **Diesel**, WD-40 lubricant
	Class	≥ 140°F	Not	Butyric Acid,

	IIIA	but < 200°F	Applicable	Creostoe Oil
	Class IIIB	≥ 200°F	Not Applicable	Formalin, Glycerine, Picric acid, Propylene glycol

NFPA HAZARD 704 DIAMOND SIGN EXPLANATION



The basis of the system is a diamond-shaped sign that is divided into color-coded quadrants. The left-most quadrant is colored blue and represents the *health* hazard posed by the material. The upper quadrant is red in color and indicates the relative *fire* hazard. The right-most quadrant is yellow and conveys the relative potential for *reactivity* (instability) of the material. The last quadrant, at the bottom, is white in color and serves to convey *"special" or "specific"* information.

The numbering system that is used to convey the hazards of a material uses a scale of 0 through 4 for each of the three hazard types (health, fire and reactivity). A number is placed in each box, specific to the material at hand. In each quadrant, a "0" represents the least concern and "4" represents the highest degree of hazard posed by a material. For instance, a "0" in the upper quadrant indicates a material that will not burn, while a "4" in the same quadrant indicates a gaseous material that will burn very readily. Intermediate numbers represent increasing levels of hazard in all categories, such as the "3" that is present in the "health" quadrant. This is indicative of a material that can cause permanent or serious injury upon exposure.

Safety Data Sheets (SDS) Information

The following paragraphs give a brief overview of gasoline and diesel which are two flammable and combustible liquids that are associated with defueling. The name of each flammable and combustible liquid is followed by its hazard signal

classification for flammability, instability (reactivity), and health. The Certificate of Fitness holder must know the properties of both of these liquids and their handling and storage requirements. He or she must also know the procedures that must be followed when dealing with fire or spill emergencies for these liquids.

It is recommended that all personnel wear hand protection, chemical safety goggles and properly fitted self-contained breathing apparatus (if available) when handling the flammable liquids described below. If a person becomes exposed to the liquids or their irritating vapors, or if their breathing becomes compromised because of exposure, immediately remove them from the contaminated environment to an unaffected area with plenty of fresh air. Contact qualified medical personnel to provide medical attention.

Gasoline

Class IB (chart page 17)

(Hazard Signal: 1 Health 3 Flammability 0 Instability)

Gasoline is a toxic translucent, petroleum-derived liquid that is primarily used as a fuel in internal combustion engines. It consists mostly of organic compounds obtained by the fractional distillation of petroleum, enhanced with a variety of additives. Some gasoline also contains ethanol as an alternative fuel. In North America, the term "gasoline" is often shortened in colloquial usage to "gas", whereas most current or former Commonwealth nations use the term "petrol."

Handling and Storage

- ***Handling Precautions:***
  USE ONLY AS A MOTOR FUEL. DO NOT SIPHON BY MOUTH. Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion. Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product).
- ***Storage:***
  Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition. Store in a well-ventilated area. Avoid storage near incompatible materials.

Fire Hazards

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Health Hazard

- ***Inhalation:***
  Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.
- ***Skin Contact:***
  Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.
- ***Eye Contact:***
  Moderate irritant. Contact with liquid or vapor may cause irritation.
- ***Chronic Exposure:***
  Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity.

Diesel

Class II (Chart page 17)

(Hazard Signal: 0 Health 2 Flammability 0 Instability)

Diesel in general is any liquid fuel used in diesel engines. The most common is a specific fractional distillate of petroleum fuel oil. Diesel fuel is refined into several sub-categories or grades. From highest to lowest viscosity are Number 1 Diesel Fuel (1-D), Number 2 Diesel Fuel (2-D) and Number 4 Fuel Diesel (4-D). Number 4 Fuel Diesel Fuel is used in low and medium speed engines that operate at a constant or near-constant speed, such as stationary powerplants or railroad locomotives. Numbers 1 and 2 Diesel Fuels are the primary fuel for mobile diesel engine applications. Volatility is one of the primary factors which distinguish #1 from #2 diesel fuel. No. 1 diesel typically has greater volatility than No. 2. Number 1 Diesel Fuel is commonly labeled at the pump as

"Premium Diesel". While Number 2 Diesel Fuel has a higher lubricating quality than Number 1 Diesel, its thickness can cause rough starting in a cold engine and rough-running in cold weather.

Home heating oil is closest to Number 2 diesel fuel in ignition quality and lubricating ability. But home heating oil is not intended to be used in an internal combustion engine because it may not have the smoke suppressants, ignition accelerators and biocides.

Handling and Storage

- ***Handling Precautions:***
  Handle as a combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion. Diesel fuel, and in particular low and ultra-low sulfur diesel fuel, has the capability of accumulating a static electrical charge of sufficient energy to cause a fire/explosion in the presence of lower flashpoint products such as gasoline. The accumulation of such a static charge occurs as the diesel flows through pipelines, filters, nozzles and various work tasks such as tank/container filling, splash loading, tank cleaning; product sampling; tank gauging; cleaning, mixing, vacuum truck operations, switch loading, and product agitation. There is a greater potential for static charge accumulation in cold temperature and low humidity conditions.
- ***Storage:***
  Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition. Store in a well-ventilated area.

Fire Hazards

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to a sewer may cause fire or explosion hazard.

Health Hazards

- ***Inhalation:***
  Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.
  WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products,

including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

- ***Eye Contact:***
  Contact with liquid or vapor may cause mild irritation.
- ***Skin Contact:***
  May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.
- ***Chronic Exposure:***
  Similar products produced skin cancer and systemic toxicity in laboratory animals following repeated applications.

DE-FUELING EQUIPMENT (Fuel Caddy, as seen below) is a portable tank with a pump and hose attached. Its primary purpose is to safely transfer fuel from the fuel tank; safely store the fuel during the repair process; and, safely transfer the fuel back into the fuel tank after the repair is made. If fuel is not returned to the repaired vehicle it must be disposed of in an appropriate manner.

Defueling equipment must be **listed** and its capacity cannot exceed **65gal.** Fuel Caddy's should be labeled for type of fuel it is used for and fuel should never be mixed.

DE-FUELING MAINTENANCE AND OPERATION

MAINTENANCE

It is always important to check that all parts of the de-fueling equipment are in proper working order including:

- No leaks or cracks in hoses
- The tank is of the manufacturer's standard of integrity

OPERATION

Warning Signs

Must be easily read, constructed of a durable metal and visibly posted. The signs must reflect that no smoking is permitted on the premises.

A sample of a No Smoking sign is shown below:

NO SMOKING SIGN

Unacceptable Warning Sign

Before the de-fueling operation starts the C of F holder must inspect the following -

- that electrical equipment, open flame devices, or any other spark source are not in the immediate area of the de-fueling;
- All **warning signs** including no smoking signs and danger signs are visibly displayed;
- The fire extinguisher shall be readily accessible, in proper operating condition and within a **travel distance** of **30ft** of the de-fueling area
- De-fueling must be on a concrete surface to avoid soil contamination in the event of a **spill**;
- All fluid draining, removal, and collection activities shall be conducted on asphalt or concrete surface or other surface that allows equivalent protection to surface and groundwater. Such surfaces shall be cleaned

daily, or more frequently when spillage has occurred, using absorbent materials that are collected and properly disposed.

SPILL - any escape of petroleum from the equipment or ordinary containers employed in the normal course of storage, transfer, processing or use.

De-fueling of motor vehicles and the transfer of fuel from the defueling equipment shall be done under the **personal supervision** of a Certificate of Fitness holder.

Salvage yards must also:

- Conduct defueling operations at an approved location protected by a **fire extinguishing system**. The type of system (extinguishing agent used in the system) requires FDNY approval.

- Ensure that the defueling location is sealed off on all sides by a solid fence or a wall that is at least 8 feet high and accessible to a fire hydrant and other fire equipment access roads.

- Not fuel motor vehicles with defueling equipment. The fuel recovered shall be transferred into a storage tank.

Dangerous Areas-

Clearance from Ignition Sources- Clearance between ignition sources (such as light fixtures, heaters and open-flame devices) and defueling operations (including all combustible materials) shall be maintained in an approved manner.

Sources of ignition shall not be located 18 inches from the floor.

A P-53 holder should also be aware that a ***G-60*** Certificate of Fitness and FDNY permit ***are required*** when any torch operation is being performed and that:

- Torch operation should be conducted no less than 35 feet from combustible waste or other motor vehicles.
- Torch operations should not be conducted in any location where hazardous gases or vapors are present.
- In repair garages, that house more than one vehicle, hot-work shall be conducted within a fire-rated enclosure or behind a noncombustible screen that is positioned and of sufficient size to prevent the passage of sparks, slag and heat from the hot work area.
- Compressed gas containers when in use, shall be properly supported and placed a safe distance from torch operations.

- Valves of compressed gas containers when not in use shall be closed and protected from any type of damage with protective caps. **Empty containers should always be treated as if they are full.**

Worst Case Scenario

HEADLINE: Fire heavily guts Broadway garage.

February 2009
Fort Wayne, Indianapolis

"They had just replaced the gas tank and were welding the exhaust system when a spark ignited the gas fumes that had built up in the garage"

GENERAL DE-FUELING PROCEDURE

First and foremost, safety while de-fueling a vehicle is the number one priority. There are different procedures used to defuel motor vehicles depending on the location as well as the type of equipment available. Some use an air or crank operated siphoning device whereas other procedures use a non-parking punch tool to punch a hole in the tank for fuel to drain.

It is advised the defueling be conducted in a well-ventilated area to avoid the possible accumulation of flammable vapors.

Never use droplights with incandescent bulbs while de-fueling a motor vehicle because of a spark risk which can result in fire.
Lights with florescent, L.E.D., or fiber optic bulbs are recommended.

Worst Case Scenario

Headline: Coram auto repair ship fire ignited by light dropped on gas, cops say

June 2014
Coram, NY

"an employee dropped a light on the gas he was draining from a car… the drop light broke, igniting a fires…"

Headline: Darlington auto repair shop fire damages five cars

March 2014
Darlington, South Carolina

"Darlington City Firefighters say a Joe's Repairs employee was working on a vehicle and somehow mixed gasoline with a light, which sparked a small explosion. That set off a fire in the shop. Darlington's license and inspections office says the shop violated city code, which says the shop can have up to only ten cars outside. … it had more than three times that amount"

Recommended Repair Garage practice

Proper Gasoline Defueling Procedure

Hose Grounded

Defueler grounded

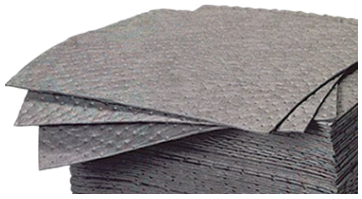
Preparation of vehicle:

*Entire fuel system integrity should be evaluated

-inspection should include testing the entire fuel system for leaks

Defueling procedure:

- Check fuel level;
- Depressurize fuel system according to manufacturer's guidelines;
- Disconnect negative (-) battery terminal;
- Put car on lift;
- An **absorbent pad** should be placed on the ground underneath a raised car before the hose is removed, just in case there is any residual gas drips while de-fueling;
- Disconnect fuel fill hose from the fuel gas tank (if vehicle is equipped with anti-siphoning);
- Ground Hose and defueler equipment to a clean area on car fuel tank or chassis are both viable areas);
- Put defueler hose inside connection line on fuel tank and crank (or turn on air operated machine);
- Recovered fuel should be either be returned back into vehicle, used for another vehicle or removed from premises by the end of the shift.



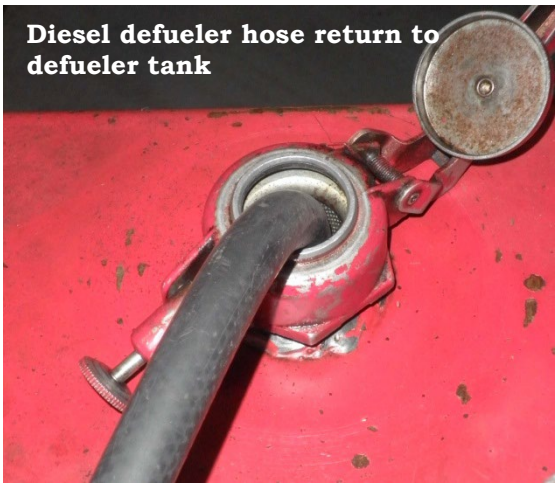
Absorbent pad

Anti-siphoning feature: a feature in most vehicles that prevents both fuel theft and excessive fuel spills. Also, many new cars have an anti-rollover valve, which prevents fuel from leaking out if a car is involved in an accident.

Proper Diesel Defueling Procedure

Defueler grounded to a diesel vehicle.

Defueler hose in diesel gas tank



Always refer and read the manufacturer operating manual for the de-fueling equipment prior de-fueling operations.

Worst Case Scenario

Headline: Man seriously burned as fire engulfs Brooklyn auto-body shop

January 2014
Brooklyn, NY

"The mechanic at Eastern Auto Center was swapping out a fuel pump on an Isuzu Rodeo inside his Bushwick Ave. shop near Vanderveer St. in Cypress Hills when the SUV — which was resting on a six-foot lift — burst into flames.
The Isuzu's gas tank fell out of the burning vehicle, spraying gasoline all over the floor, Florentino said. Within seconds, the victim was trapped in a circle of fire underneath the burning SUV."

Salvage Yard Practice

- connect hose to the vehicle's fuel fill connection;
- punch a hole using a **non-sparking punch tool** into the vapor space (above the liquid level) of the fuel tank of vehicle;
- when de-fueling from punched hole ensure tight connections with the defueler;
- Spark free tool must be used to punch a hole in fuel tank;
- the fuel connection should be closed after de-fueling;
- the punched hole in the fuel tank must be plugged before shredding;
- de-fueling equipment should be shut down and cool to the touch;
- Recovered fuel can be transferred from defueling equipment to a storage tank complying with the requirements of Chapter 23 or 57 of the 2022 NYC Fire Code.

NON-SPARKING PUNCHING TOOL- tools specifically designed to puncture but eliminate the risk of sparks. Non-sparking hand tools are made of metals such as brass, bronze, Monel metal (copper-nickel alloy), copper-aluminum alloys (aluminum bronze), or copper-beryllium alloys (beryllium bronze)such as hammers, flange wedges,

striking wrenches are safe for punching tanks with hazardous, flammable or combustible vapors.

Worst Case Scenario

Headline: Crews extinguish two-alarm fire at salvage yard

February 2014

Flinn Springs, CA

"a raging two-alarm fire at a salvage yard… the fire was started when a worker using backhoe attempted to crush a vehicle that had gasoline in its tank.

"He probably punctured a hole in the tank that still had fuel in it, not supposed to be in it,"

Headline: Crews extinguish two-alarm fire at salvage yard

February 2014

Harrisburg, PA

"…the spark was caused by a short in pumping equipment used to empty fuel tanks from the vehicles

…investigation showed vapors at the tanks ignited, and the fire was off and running."

STORAGE

Volatile flammable liquids are easily ignited; therefore, smoking is prohibited at all times at all automotive salvage, wrecking facilities, and repair garages.

For Repair Garages
Liquid motor fuel shall not be dispensed into a portable container, unless such container is of approved material and construction, and has a tight closure with screwed or spring-loaded cover so designed that the contents can be dispensed without spilling. Liquids shall not be dispensed into portable or cargo tanks.

Combustible liquid should never be dispensed into glass or plastic containers. An example of an approved and listed gasoline container is shown below:

APPROVED PORTABLE CONTAINER

The capacity of the approved portable container should not exceed 2½ gallons (9.5 L).

For Salvage/ Wrecking Facilities
The fuel recovered by the defueler can be stored in the defueler until removed from the premises. This fuel cannot be used for **RESALE**.
The Certificate of Fitness holder also may pump volatile flammable liquid into , an approved storage tank complying with the requirements of Chapter 22 or 34 of the NYC Fire Code.
Storage areas shall be protected against tampering or trespassers other approved control measures.

The storage location shall be kept free from vegetation and other combustible waste. Rubbish and other combustible waste shall not be allowed to accumulate within 15 feet of a flammable or combustible liquid storage location. Brush, grass, vines, weeds and other vegetation capable of being ignited that is located within 15 feet of a flammable or combustible liquid

storage location shall be regularly mowed or pruned and the clippings removed from the premises.

EMERGENCY PROCEDURES

In Case of a Spill –
The Certificate of Fitness holder should pour an absorbent material on a fuel spill. An absorbent material is commonly used to contain and soak up fuel spills. The area should then be cleaned. If a large spill (more than 5 gallons) or leak occurs it must be reported to the New York State (NYS) Spill Hotline (1-800-457-7362) **within 2 hours of discovery**, except spills which meet **ALL of the following criteria**:

1. The quantity is known to be less than 5 gallons; and
2. The spill is contained and under the control of the spiller; and
3. The spill has not and will not reach the State's water or any land; and
4. The spill is cleaned up within 2 hours of discovery.

A spill is considered to have not impacted land if it occurs on a paved surface such as asphalt or concrete. **A spill in a dirt or gravel parking lot is considered to have impacted land and is reportable.**

More details on notification and reporting requirements can be found in the document posted by the Department of Environmental Conservation (http://www.dec.ny.gov/docs/remediation_hudson_pdf/1x1.pdf).
(The spill responses can be referred to
http://www.dec.ny.gov/chemical/8692.html)

Emergency Operations –
The owners of **automotive salvage and wrecking facilities** having cranes for moving or stacking motor vehicle should develop a procedure that a crane operator is available in a reasonable period of time in the event that crane operation is required during a fire or other emergency.

- **Excessive fires**: If more than two (2) fires occur in 1 year (12 months) it is evident that the owner has not maintained requirements and will be at risk for violations as well as cancellation of FDNY permits and other approvals

*The FDNY reserves the right to revoke a permit issued if good cause exists.

FIRE EXTINGUISHERS

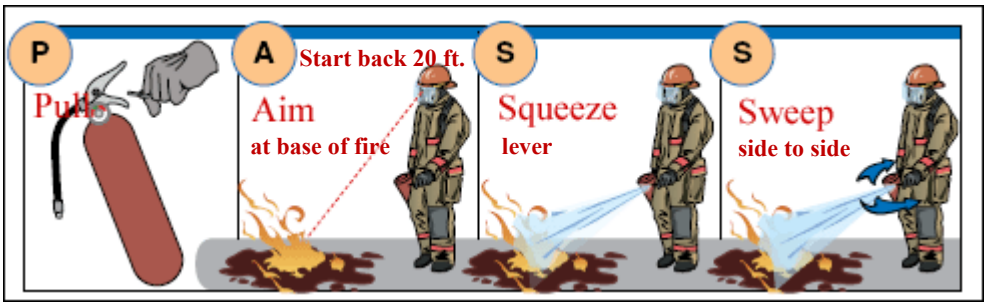
At least one (1) portable fire extinguisher with a minimum rating of 40BC shall be provided within 30 feet of the de-fueling area but not more than 75 feet **travel distance** from the storage tank and de-fueling operation area.

According to the ***National Fire Protection Association (NFPA)* and *New York City Fire Department's Rule***, fire extinguishers are categorized according to their compatibility with the fuel they are expected to extinguish, or the danger of energized electrical equipment. Fuels include four basic groups: wood, liquids, metals, and animal fats; and the hazard of electrical conductivity. Further, extinguishers are designated by alphabetical letters and symbols as shown in the table below:

CLASSES OF FIRES	TYPES OF FIRES	PICTURE SYMBOL
A	Wood, paper, cloth, trash & other ordinary materials.	
B	Gasoline, oil, paint and other flammable liquids.	
C	May be used on fires involving live electrical equipment without danger to the operator.	
D	Combustible metals and combustible metal alloys.	
K	Cooking media (Vegetable or Animal Oils and Fats)	

In case of any fire, immediately call 911.

Fire extinguishers must be used in accordance with the instructions painted on the side of the extinguisher. They clearly describe how to use the extinguisher in case of an emergency. The Certificate of Fitness holder should be familiar with the use of portable fire extinguishers. When it comes to using a fire-extinguisher just remember the acronym P.A.S.S. to help make sure you use it properly. **P.A.S.S. stands for <u>P</u>ull, <u>A</u>im, <u>S</u>queeze, <u>S</u>weep.** An example of these instructions is depicted in the picture below.



Portable Fire Extinguisher Tags

Installed portable fire extinguishers must have an FDNY standard PFE tag affixed. This tag will have important information about the extinguisher. By November 15, 2019, all portable fire extinguishers must have the new PFE tags. The FDNY will only recognize new PFE tags and will be issuing violations to business that have PFE installed without a proper tag.

The color of the fire extinguishers may be changed by the FDNY every few years. The FDNY recommends two ways to verify the tag's legitimacy:

1. Hologram:

A real hologram strip shown on the tag is 3 inches long by ¼ inch wide. Counterfeit tags will NOT have a high quality silver hologram. The hologram on a counterfeit tag will NOT change color as it is moved against the light.

2. QR code

IF you scan the QR code, it should direct you to the updated FDNY approved fire extinguisher company list. You can use the company list to verify if the company printed on the list is currently approved by the FDNY.

If your PFE tags cannot be verified via these two methods, contact your supervisor. If you suspect your PFE is a counterfeit, contact FDNY immediately by e-mail: Tags.Decal@fdny.nyc.gov

PFE tag (This tag is released for 2021-2023)

Tag colors and year will change every few years for security purposes.

Fire Department also issues standard outdoor fire extinguisher tags. If the fire extinguishers may be placed outdoors, the COF holder should ask the fire extinguisher suppliers to provide the outdoor fire extinguisher tags for the fire extinguishers.

The special features of the outdoor tags:
1. The material is durable and tear-resistant
2. Different printings:
    - On the back of the tag, the series number will contain a "D" letter; AND/OR
    - On the front of the tag, an "O" is printed on the top of the tag (this feature may not be on ALL outdoor tags)

Outdoor PFE tags

Tag colors and year will change every few years for security purposes.

Portable Fire Extinguisher Inspections

MONTHLY

The portable fire extinguishers are required to be checked monthly. The owner of the business is responsible to select a person to do a monthly inspection. This monthly inspection is called a "quick check".

The **QUICK CHECK** should check if:
(1) the fire extinguisher is fully charged;
(2) it is in its designated place;
(3) it has not been actuated or tampered with;
(4) there is no obvious or physical damage or condition to prevent its operation.

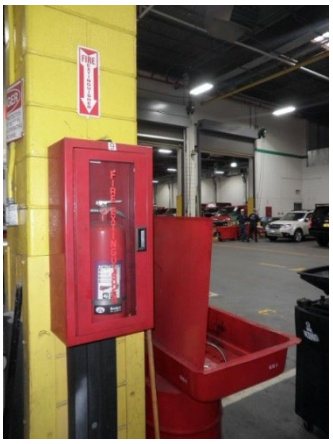
The information of the monthly inspection record must include the date of the inspection, the name/initials of the person who did the inspection. This monthly quick check record must be kept on the back of the PFE tag or by an approved electronic method that provides a permanent record.

ANNUALLY

At least annually all Portable Fire Extinguishers must be checked by a W-96 Certificate of Fitness holder from FDNY approved company. After each annual inspection W-96 COF holder will replace the PFE tag. The information of the annual inspection record must be indicated on the new PFE tag.

Unacceptable

(1) Fire extinguisher must be unobstructed.
(2) The bottom of the fire extinguisher must be at least 4 in above the floor.
(3) The fire extinguisher must be properly mounted.



Acceptable

(1) For a fire extinguisher having 40 pounds or less, its top must not be more than 5 ft above the floor
(2) The fire extinguishers must be accessible.

LITHIUM-ION BATTERY SAFETY

Lithium-ion safety

Lithium-ion batteries are rechargeable batteries found in electric bikes, scooters, cars, laptops, tablets, phones, and many other common household devices.

Lithium-ion battery fires have caused deaths, serious injuries, and devastating damage to property around the city. It's important to follow rules for safe storage, charging, and disposal for these types of batteries.

If you own a lithium-ion powered device or plan to buy one, the FDNY has important safety tips that you should follow. These tips apply to all devices powered by lithium-ion batteries, including phones, tablets, laptops, e-cigarettes, toys, high-tech luggage, and even robotic vacuum cleaners.

Immediately stop using or charging battery and call 911 if you notice:

- **Fire or Smoke**
- **Overheating**
- **Change in color or shape**
- **Odd noises**
- **Leaking**
- **Strange smell**

ALWAYS:

- purchase and use devices certified by a Nationally Recognized Testing Laboratory (NRTL).
- follow the manufacturer's instructions for:
  - charging and storage.
  - correct battery, cord, and power adapter
- keep exit path clear at all times.
- plug directly into a wall electrical outlet for charging.
- keep batteries and devices at room temperature.
- store and/or charge batteries away from anything flammable.
- keep away from heat sources.
- bring batteries to a **NYC Battery Recycling Center.** Visit nyc.gov/batteries for more information.

NEVER:

- use aftermarket batteries or chargers.
- use damaged or altered batteries
- plug into a power strip or overload an outlet.
- overcharge or leave battery charging overnight.
- charge a battery or device under your pillow, on your bed, or near a couch.
- leave e-bikes or e-scooters unattended while charging.
- block your primary way in or out of a room/space with e-bikes, e-scooters, wheelchairs, etc.
- place batteries in Trash or Recycling bin. **It is ILLEGAL.** Visit nyc.gov/batteries for disposal locations and information.

In the event of a Fire, Leave and CLOSE the door. Call 911 once you are in a safe location.

Charging Lithium Ion

Lithium-ion batteries do not have to be fully charged; partial charge is the most suitable.

When **charging more than five (5)** personal mobility devices or their removable batteries, it must be in a **dedicated room with ventilation** and a self-closing door.

For a total battery capacity of 20 kilowatt-hours (kWh), a 2-foot separation between charging batteries is required. For a total battery capacity up to 50 kWh, a 3-foot separation is needed.

Chargers must only be used with a compatible battery pack. The original equipment manufacturer (OEM) charger interplays with the battery pack using the battery management system (BMS). The wrong battery/charger combination may not work safely. For example, the 100% cutoff to prevent overcharging, which damages batteries, may not work which can easily create hazardous conditions such as fires, explosions and/or injuries.

Always check with the manufacturer or retailer of the personal mobility device, an authorized repair shop or a testing laboratory such as Underwrites Laboratories (UL) to see if replacement is recommended or listed and safe for use with that device. Using unauthorized parts, including batteries and/or chargers, may cause damage, fire and possibly void your warranty.

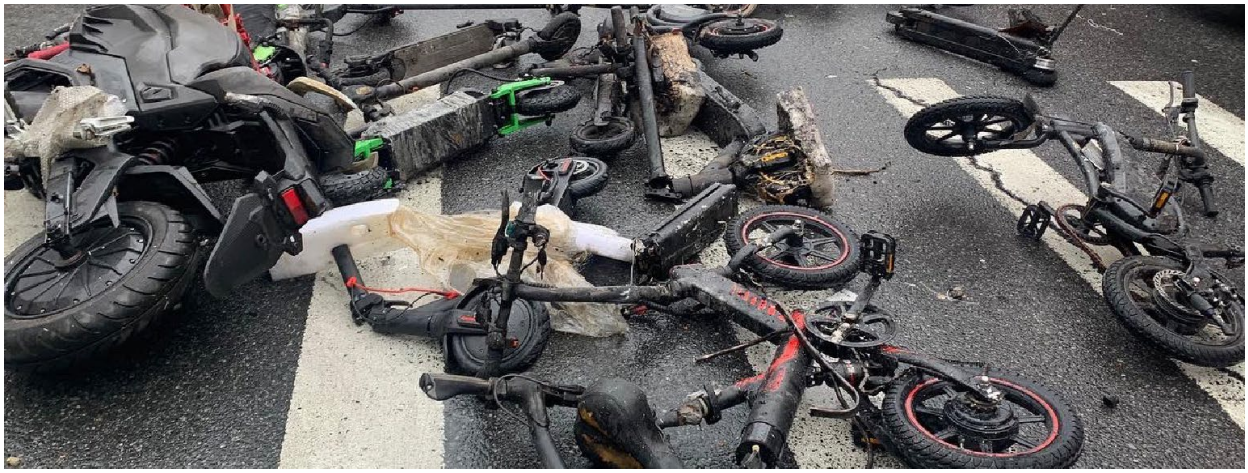
Extinguishing Lithium-ion

Water may not prevent a battery from burning and spreading. Battery cells are known to explode and quickly spread to another battery. It can spread to another devices.

Fire Extinguishers
do not work
on lithium-ion batteries fires.

Unexpected Re-ignition.

Reignition is common. Lithium-Ion Batteries are known to unexpectedly re-ignite (without warning) minutes, hours and even days after all visible fire has been put out.

Lithium-ion batteries can enter an uncontrollable, self-heating state. This can result in the release of gas, cause fire and possible explosion.

These batteries may continue to generate heat even when there is no visible sign of fire. Once heat reaches a certain level fire may reignite on the battery and surrounding area.