STUDY MATERIAL FOR THE
CONSOLIDATED EXAMINATION F-93 FOR:
F-29  FIRE GUARD AT FIELD CONSTRUCTION SITES
F-30  FIRE GUARD FOR TORCH OPERATIONS
This study material will help you prepare for the examination for the Certificate of Fitness (F-93) for Fire Guard for Field Construction sites (F-29) and Fire Guard for Torch Operations (F30). The study material includes information taken from the Fire Prevention Code and the Fire Prevention Directives of the Bureau of Fire Prevention, NYFD. The study material does not contain all the information you need to know in order to perform the job of a Fire Guard at your work location. It is your responsibility to learn whatever else you need to know to do your job. You must also become familiar with all applicable rules and regulations of the City of New York, even if they are not covered in this material.

All questions on the Certificate of Fitness examination are multiple choice, with four alternate answers to each question. There is only one correct answer for each question. If you do not answer a question or mark more than one alternative, your answer will be scored as incorrect. A score of 70% correct is required on the examination in order to qualify for the Certificate of Fitness. Read each question carefully before marking your answer. There is no penalty for guessing.

Sample questions

_____1. Fire guards are required at which of the following locations?
   (A) Construction sites.
   (B) Marinas.
   (C) Places of assembly.
   (D) All of the alternatives are correct.

The correct answer is "D". You would mark "D" on your answer sheet.

_____2. The purpose of conducting fire drills is to:
   (A) give employees a break from work.
   (B) practice emergency evacuation procedures.
   (C) make sure the sprinkler system works.
   (D) be sure the Fire Department knows where the building is.

The correct answer is "B". You would mark "B" on your answer sheet.
FIRE GUARDS

Fire guards are required to reduce the threat of fires in a variety of locations. For example, they are required in places of public assembly, hotels, film studios, construction sites, homeless shelters and marinas. Fire guards are used when a sprinkler system is not installed, e.g., at construction sites. Fire guards are also used when an automatic fire protection system is shut down while being repaired. The fire guards are responsible for making sure that fire safety regulations are obeyed.

Fire guards must have a good working knowledge of basic fire fighting and fire protection techniques. They must know the location of all fire protection devices in their areas of responsibility. They must make sure that these devices are in good working conditions at all times.

Requirements and Duties

Fire guards must know the location of all fire protection devices, as well as, interior and exterior fire alarm pull stations. At least one interior fire alarm pull station is required on each floor of the premises. The interior fire alarm pull stations are positioned at the natural exits on each floor of the building. In larger buildings the fire alarm pull stations must be spaced so that the distance between stations does not exceed 200 feet. They must be securely mounted to the wall between 3.5 and 5 feet above the floor level. All fire alarm pull stations must be painted red.

There are two kinds of fire alarm pull stations. They are called **single action** and **double action** stations. Single action stations require only one step to activate the alarm. For example, a single action station could be activated by simply pulling down on a lever or breaking some glass. One example of a single action station is shown below. This kind of alarm station is often found indoors, e.g., in office buildings. The cover on these alarm stations serves as a lever. When the cover is pulled down, it allows a switch inside to close. This sends the alarm signal. The double action stations require the fire guard to take two steps in order to activate the alarm. The fire guard might have to remove a cover or break some glass before he can pull down the lever. Two kinds of the double action alarm stations are shown in the following page. The fire alarm station on the left is activated by lifting the cover and then pulling the lever. This kind of double action station is often found indoors. The double action station shown on the right is often found outdoors. The station is specially enclosed to protect the alarm from bad weather. A guard must lifted before the handle is pulled to sound the alarm.
The Certificate of Fitness holder must know how to manually operate each alarm station on the premises. Once activated, the fire alarm system cannot be shut off at the pull station. The alarm must be shut off at the main control panel using a special key. The key must be kept near the control panel at all times. The alarm may be turned off only by a Certificate of Fitness holder or by a Fire Department representative.

In some locations the fire guard is equipped with a walkie-talkie and/or bull horn. The walkie-talkie is used to communicate with a fire safety director, a supervisor or Fire Department during a fire emergency. The bull horn is used to notify the occupants when evacuating the building. The bull horn allows the fire guard's instruction to be heard clearly. The bull horn and walkie-talkie should be inspected before making each patrol. Defective units should be repaired or replaced.

In case of a fire emergency, building occupants must be evacuated. Occupants on the fire floor and the floor above are most seriously threatened by the spread of the fire and must be evacuated first. The fire guard must remain composed and in control of the situation during a fire emergency. He/she must speak in a clear and concise manner when assisting with the evacuation. The fire guard's instructions and his/her actions play an important role in reducing panic during an emergency. The fire guard should speak in a clear and firm voice with no evidence of alarm. Occupants should be instructed to be calm and move to the nearest way to safety in an orderly manner.

In case of a fire emergency, the fire guard must activate the fire alarm and notify the Fire Department. This will send an alarm throughout the area controlled by the interior fire alarm. It will also send a signal to an approved central station company. The Fire department may be contacted directly by phone. The Fire Department may also be contacted using an exterior fire alarm pull station. When an exterior fire alarm pull station is used, the fire guard must wait at the alarm station until the fire fighting units arrive. Then the fire guard must direct the fire fighters to the scene of the fire.

The fire guard must know the telephone numbers of the local Fire Department Company and the Fire Department Borough Communication Office. The borough phone numbers are listed on the following page.
These phone numbers must be posted near the phones most likely to be used in case of an emergency.

The fire guard must make sure that all exits, hallways, and staircases are kept free of obstruction at all times. An exit aisle at least three feet wide is required all locations. This aisle space is necessary to permit occupants to exit the premises quickly in case of an emergency.

Safety Requirements

Several types of safety signs may be posted at various locations inside the building. The signs are designed to ensure the safety of occupants. For example these signs may indicate:

(a) The general fire safety procedures to be followed during a fire emergency.
(b) The location of fire extinguishers and emergency exits.
(c) How to use the fire extinguishers and related fire fighting equipment.
(d) How to sound the fire alarm in case of an emergency.
(e) That the elevators must not be used in case of a fire unless otherwise instructed by the Fire Department.
(f) The floor numbers.

The fire guard must make sure that all posted fire safety signs are clearly visible. He/she must also make sure that exit signs posted above doors are always illuminated. Examples of some of these signs are shown below.

Typical Safety Signs
General Inspection Checklist

The fire guards are required to make regular inspections and patrols of the assigned area of responsibility. These inspections may vary depending on the location. However, the following general guidelines for all locations.

(a) All exits, stairways, hallways must be kept free of obstructions. Obstructions may prevent occupants from exiting the building in case of an emergency. An exit aisle of at least 3 feet wide must be maintained. This aisle is also used by fire fighters during fire emergencies.

(b) Self closing doors must not be propped open. These doors are designed to close automatically when an alarm sounds. When the doors close it helps prevent the spread of fire and smoke.

(c) Locks, bolts, chains must not be installed on exits while there are people in the building. If locks are discovered they must be removed immediately. The fire guard must then report the fire safety violation to his supervisor. The supervisor must make sure that the chains or locks are removed. If the supervisor does not have the locks and chains removed the fire guard must notify the fire department.

(d) The entire premises must be checked daily for potential ignition sources. Any potential ignition sources that are discovered must be corrected or removed immediately. For example, frayed electrical wires and defective electronic components must be either repaired or removed.

(e) Trash and garbage must not be allowed to accumulate anywhere inside the building. Accumulated trash is a fire hazard. It may be easily ignited by a stray spark. All trash and garbage must be removed from the premises.

(f) The fire alarm pull stations must be examined daily by the fire guard. It is not necessary to test all alarm pull stations. All components of the fire alarm system must be tested semi-annually, while the central station connection must be tested monthly.

(g) All required Fire Department permits, certificates, and inspection logs must be kept current. The results of all tests and inspections must be recorded in the inspection log. The log, permits and certificates must be made available to Fire Department representatives upon request.

(h) If a sprinkler system is installed it must be visually inspected by the fire guard. The fire guard must report all defects to the supervisor. All leaks or breaks in the piping, tanks, valves, etc.- no matter how small- must be reported to the owner of the building.

(i) All fire extinguishers must be clearly visible. Signs must be posted indicating the location of the extinguishers. Signs indicating how to use the fire extinguishing devices must be posted also. The fire guard must make sure that the extinguishers are inspected every six months. The fire extinguishers must be recharged after each time they are used or when required according to the type of extinguisher.

FIRE EXTINGUISHING DEVICES AND SYSTEMS

Fire Extinguishers

The fire guard must be familiar with the different types of fire extinguishers that are present on the premises. He/she must know how to operate the extinguishers in a safe and efficient manner.
He/she must know the difference between the various types of extinguishers and when they should be used. A description of the three classes of fires and the appropriate extinguishers are described on the following page.

**Class A** fires are caused by ordinary combustible materials (such as wood, paper, and cloth), for which the quenching-cooling effect of quantities of water or solutions containing large percentages of water is most effective in reducing the temperature of the burning material below its ignition temperature.

**Class B** fires are caused by flammable petroleum products or other flammable liquids, greases, etc., for which the blanketing-smothering effect of oxygen-excluding media such as CO\(_2\), dry chemical or foam is most effective.

**Class C** fires involve electrical equipment. The electrical non-conductivity of the extinguishing media is of first importance. These fires must be extinguished with non-conductive media such as CO\(_2\) or dry chemical.

**Class D** fires are caused by ignitable metals, such as magnesium, titanium, and metallic sodium, or metals that are combustible under certain conditions, such as calcium, zinc, and aluminum. Generally, water should not be used to extinguish these fires.

A multi-purpose dry chemical fire extinguisher may be used to extinguish Class A, B, or C fires. Examples of Water type, CO\(_2\) and Dry Chemical extinguishers are shown below.

![Typical Fire Extinguishers](image)

Symbols may also be painted on the extinguisher. They indicate what kind of fires the extinguishers may be used on. Examples of these symbols are shown on the following page.
Typical Symbols Painted on Fire Extinguishers

The symbol with the shaded background and the slash indicate when the extinguisher must not be used. The fire guard must understand these symbols. The fire guard must make sure that the fire extinguishers are kept in good working order at all times.

Generally, operation instructions are clearly painted on the side of the fire extinguisher. They clearly describe how to use the extinguisher in case of an emergency. An example of these instructions are shown below.

**INSTRUCTIONS**

1. **HOLD UPRIGHT PULL RING PIN**
2. **START BACK 20 FEET AIM AT BASE OF FIRE**
3. **SQUEEZE LEVER SWEEP SIDE TO SIDE**

**Operation Instructions for a Fire Extinguisher**
Sprinkler Systems

Sprinkler systems are commonly installed in buildings. They are designed to permit the discharge of water in case of an fire emergency. Even thou some sprinkler system may be manually activated, most sprinkler systems are activated automatically. Sprinkler systems consist of a series of sprinkler heads and pipes connected to a water supply source. When a fire occurs the water travels through the pipes out of the sprinkler heads.

The automatic sprinkler system is most commonly used. The sprinkler heads in the automatic system are temperature sensitive. They are designed to open when the temperature in the room reaches dangerous levels. This system allows the water to be discharged in the areas close to the fire.

A replacement supply of at 6 extra sprinkler heads and the appropriate wrench must be kept on the premises at all times. They must be used to replace defective or damaged sprinkler heads.

Standpipe Systems

Standpipe systems are commonly installed in many buildings. They consist of a series of pipes and hoses connected to a water supply source. The hoses may be used to spray water on the fire. The water is controlled by using a special nozzle connected to the end of the hose. Water is discharged from the hose when the nozzle is rotated into the open position.

INSPECTIONS

The fire guard must make sure that all fire protection devices are kept in good working order. When a problem is suspected with any of the fire extinguishing devices or systems, the fire guard must report it immediately to his supervisor. Then arrangements must be made to have the problem corrected.

Fire Extinguisher Inspections

The extinguishers must be inspected and maintained at least once every 6 months. The inspection should evaluate possible damage to the extinguisher, hoses, nozzle and gauge. Inspections may be conducted by a representative of the company that holds the maintenance contract for the fire extinguishers or by the fire guards themselves. The fire guard must record the testing date and the name of the person who did the inspection in the inspection log. All inspections must also be recorded on a tag attached to the extinguisher.

In addition, a fire guard must visually examine the fire extinguishers daily. The fire guard must make sure that they are positioned in the correct locations and clearly visible. When a damaged extinguisher is discovered it must be repaired or replaced immediately. The fire guard must make sure that the fire extinguishers are fully charged. This is checked by looking at the gauge connected to the top of the extinguisher. A needle indicating the condition of the extinguisher is positioned inside the gauge. When the needle points to the green area the extinguisher is fully charged. When the needle points to the red area the extinguisher must be recharged. The fire guard must make arrangements to recharge the extinguisher when necessary. All extinguishers must be recharged every six months or after each use. The testing date and the technicians name must be recorded on a tag attached to the extinguisher. All inspections must be recorded in the fire guard’s log book.
Sprinkler/Standpipe System Inspections

When a sprinkler and/or standpipe system is installed the fire guard must make sure that the **OS & Y valve** is sealed in the *open* position. The OS & Y valve controls the main supply of water into the sprinkler and/or standpipe system. The position of the valve is easily determined. When the stem of the OS & Y valve stem is raised the valve is open. When the stem is not raised the valve is closed. These valves are commonly sealed in the open position using a padlock and chain. A typical OS&Y valve is shown below:

![A Typical OS&Y Valve](image)

The fire guard must visually inspect the condition of the sprinkler and standpipe systems. If the fire guard discovers any defects they must be reported immediately to his supervisor and to the Fire Department. Both the sprinkler and standpipe systems must be inspected **monthly** by the appropriate certificate of fitness holder. Some locations (e.g., cabarets) must be inspected more often. It is recommended that the fire guard visually examine the control valves on these systems to ensure that they are in the open position.
GENERAL SAFEGUARDS

Flammable and combustible materials must be stored in a safe location. This location must be free of sources of heat and ignition. It is recommended that these materials be stored in an outdoor enclosure.

Trash and garbage must not be allowed to accumulate on the premises. Trash is a fire hazard as it is easily ignited. The fire guard must make sure that trash and garbage is promptly removed from the premises.

The fire guard must make sure that no smoking is permitted in designated NO SMOKING areas. This is especially important in areas where flammable or combustible materials are stored.

The fire guard must make sure that only approved electrical devices are used. Frayed wires, defective appliances and other potential sources of electrical fire must be repaired or replaced. Fire guards must report any life threatening fire hazards to the Fire Department immediately.

FIRE GUARDS AT FIELD CONSTRUCTION SITES

Fire guards are required on construction, alteration and demolition sites when work is not in progress, except between the hours of 12 midnight and 8:00 AM. The number of fire guards required depends on the size and location of the field site. If the site fronts on one street, one fire guard is required for each 10,000 square feet or where the building exceeds 75 feet in height.

Additionally, a fire guard must be on duty when the fire protection system in a building under construction is not working. A summons will be issued if the required fire guards are not on duty during the required hours. The building owner will then have 72 hours to hire the necessary fire guards to patrol the premises.

Fire Guard Duties

The fire guard must be familiar with the layout of the entire field construction site. The fire guard must make sure that all flammable or combustible materials at the site are stored in safe locations. Fire extinguishers must be provided next to these storage locations. Instructions for using the fire extinguishers must be posted on the fire extinguishers. The fire guard must make sure that the instructions are clearly visible at all times. The fire guard must know the location of all manual and automatic fire protection devices on the field site and the location of the nearest street fire alarm pull stations (if available). Fire guards must also know how to operate all of the fire protection equipment and devices in case of an emergency.

The entire field site must be enclosed by a secure fence. The fire guard must patrol the area inside the fence at least once every hour. During the patrols the fire guard must remain alert for fire safety violations. If a violation is discovered, the fire guard must correct the situation immediately. For example, if gas cylinders were found left lying on the ground they must be placed in an upright position in the designated storage area.

Another example is sparking or smoking electrical wires and/or machinery that may cause a fire. If a fire is discovered, the fire guard must notify the Fire Department and sound the fire alarm.

When the fire guards observes accumulation of waste or rubbish they must notify the person in charge of the field site. The person in charge must then make arrangements to have the waste removed. The waste or garbage must be removed since it could be easily ignited by an open flame or a stray spark.
The fire guard must make sure that all employees obey the fire safety regulations for the field site. The fire guard must report any fire safety violations to the site supervisor. A record of each patrol must be noted in a patrol log. This record must include time, date and results of each patrol. The fire guard must sign each patrol record. The patrol log must be made available to any representative of the Fire Department upon request.

**FIRE GUARD FOR TORCH OPERATIONS**

Torches are commonly used in heating, cutting, and welding operations. When in use, the torches are connected to gas cylinders by hoses. The gases inside the cylinders are used to fuel the torch. The gasses are required to generate a high temperature flame. Several different gases may be used to fuel the torch. However, acetylene and propane are the most commonly used fuel gases. Acetylene and propane are highly explosive and must be used with caution. These fuel gases must be mixed with oxygen to intensify and control the flame. The color of the gas cylinders most commonly used are shown below:

- Oxygen  Green
- Acetylene  Black
- Propane  Red

All cylinders are equipped with protective caps. The caps must be replaced when the cylinders are not in use. These caps are designed to prevent physical damage to the cylinders. Care should be taken so that the hoses are not exposed to any possible damage. An example of a typical gas welding system is shown below.

A Typical Gas Welding System

A fire guard is required to monitor all torch operations. The fire guard must pay particular attention to the sparks generated when the torch is in use. These sparks are potential sources of ignition and must be observed closely. The sparks can travel several feet away from the place of work and start a fire.

When possible, torch operations must be conducted at a designated work station. The designated work station must be set up to prevent the occurrence of fire. All combustible and flammable
materials must be removed from the area. A shield must be erected around the work area to prevent stray sparks from causing a fire. An example of a designated work area is shown below.

A Designated Work Station

Work with torches must be done in well-ventilated areas only. Fans may be used to forcefully ventilate an area. Work with torches may never be done next to explosive and/or flammable materials. Torches must not be used in areas where flammable or hazardous vapors are present. Possible sources of flammable vapors should be removed from the work area. The flammable vapors are easily ignited and may cause an explosion.

When in use, the gas cylinders must be secured in an upright position. This is especially important for the acetylene cylinders. The acetylene cylinders have a special safety device installed to prevent explosions. This device will only work when the cylinder is in the upright position. The cylinders must be located at a safe distance from the torch operations. It is extremely important that the cylinders are not exposed to any oil or grease. The oil and grease can cause an explosion when mixed with oxygen under pressure. These explosions may cause serious injury and damage.
Fire Guard Duties

At least one fire guard is required for each torch operator. The fire guard must observe the torch operations to make sure that stray sparks do not cause a fire. The fire guard must extinguish all stray sparks immediately. A second fire guard is required when the torch is used in a multilevel building. The second fire guard must be positioned on the floor below the torch operations and extinguish any stray sparks that fall to that floor. The fire guards must concentrate in on preventing fires. They may not be assigned any other duty while acting as a fire guard.

The fire guards must be equipped with the appropriate fire extinguishing devices. Generally, water type fire extinguishers, several pails of water, and fully charged fire hoses are considered acceptable fire extinguishing devices. However, dry chemicals or CO₂ fire extinguishers may be required in areas exposed to flammable liquids or oils.

The fire guard must remove all combustible materials located within 25 feet of the torch operations. When this is not possible the combustible materials must be covered with a protective shield. The shield must be fire resistant.

After the torch operations are completed the fire guard must make two inspections of the work area. The first inspection must be made 30 minutes after the torch was last used. The second inspection must be made 30 minutes after the first inspection. Both inspections are conducted to detect any smoldering fires. If a small fire is discovered it must be extinguished by the fire guard. When a major fire is discovered the fire guard must contact the Fire Department immediately. The Fire Department may be reached by dialing 911.

The fire guard must keep a detailed inspection log. This log must record the names and signatures of the fire guards, the dates, and the number of inspections conducted. The log must also include any fires that were discovered. A copy of the log must be given to the torch operations supervisor. The log must be made available to any representative of the Fire Department upon request.