FIRE DEPARTMENT • CITY OF NEW YORK

STUDY MATERIAL FOR THE EXAMINATION FOR

CERTIFICATE OF FITNESS

FOR

# Special Effects (SPFX) Fire Safety

# E-30

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## NOTICE OF EXAMINATION

**Title: Certificate of Fitness for Special Effects (SPFX) Fire Safety (E-30)**

**Applicants must make an appointment with the Explosive Unit at 718-999-1595 prior to arriving at 9 Metrotech, Brooklyn.**

**To qualify and make an appointment: paperwork must be submitted in advance to Explosives Unit: Explounit@fdny.nyc.gov**

**DATE OF EXAM:** By appointment only Monday through Friday (except legal holidays) 8:00 AM to 12:00 PM.

**REQUIREMENTS FOR WRITTEN EXAM**

Applicants who need to take the exam must apply in person and bring the following documents:

1. Applicants must have a reasonable understanding of the English language.
2. Applicant must provide two forms of identifications; at least one form of identification must be government issued photo identification, such as a State-issued Drivers' License or Non Driver's License or a passport.
3. Applicants must present a letter of recommendation from a union and/or employer (Theatre, pyrotechnician, studio, etc…) acceptable to the FDNY Explosives Unit. The letter must be on official letterhead, and must state the applicant's full name, experience and the address where the applicant will work. If the applicants are self-employed or the principal of the company, they must submit a notarized letter attesting to their qualifications. For more info:
   - Sample of recommendation letter: http://www1.nyc.gov/assets/fdny/downloads/pdf/business/cof-samplerec-letter.pdf
   - Sample of self-employed letter: http://www1.nyc.gov/assets/fdny/downloads/pdf/business/cof-sample-selfrec-letter.pdf
4. Applicants must present a completed application for certificate of fitness (A-20 Form). http://www1.nyc.gov/assets/fdny/downloads/pdf/business/cof-application-form.pdf
5. 2 Passport Size photos
6. Fee for Certificate of Fitness: $25
7. Resume detailing experience
8. Copies of any Explosives related licenses, training courses/certificates or other Certificate of Fitness from NYC or alternate jurisdictions.
9. Special requirement for the E- 30 Certificate of Fitness:
   a. Must be a US Citizen
   b. Must be 18 years of age
   c. Must have F-03/F-04 Certificate of Fitness for at least 1 year
   d. Must pass a background check.
   e. Recommendation letter from an E-series Certificate of Fitness holder or proof of completion of an acceptable safety course.

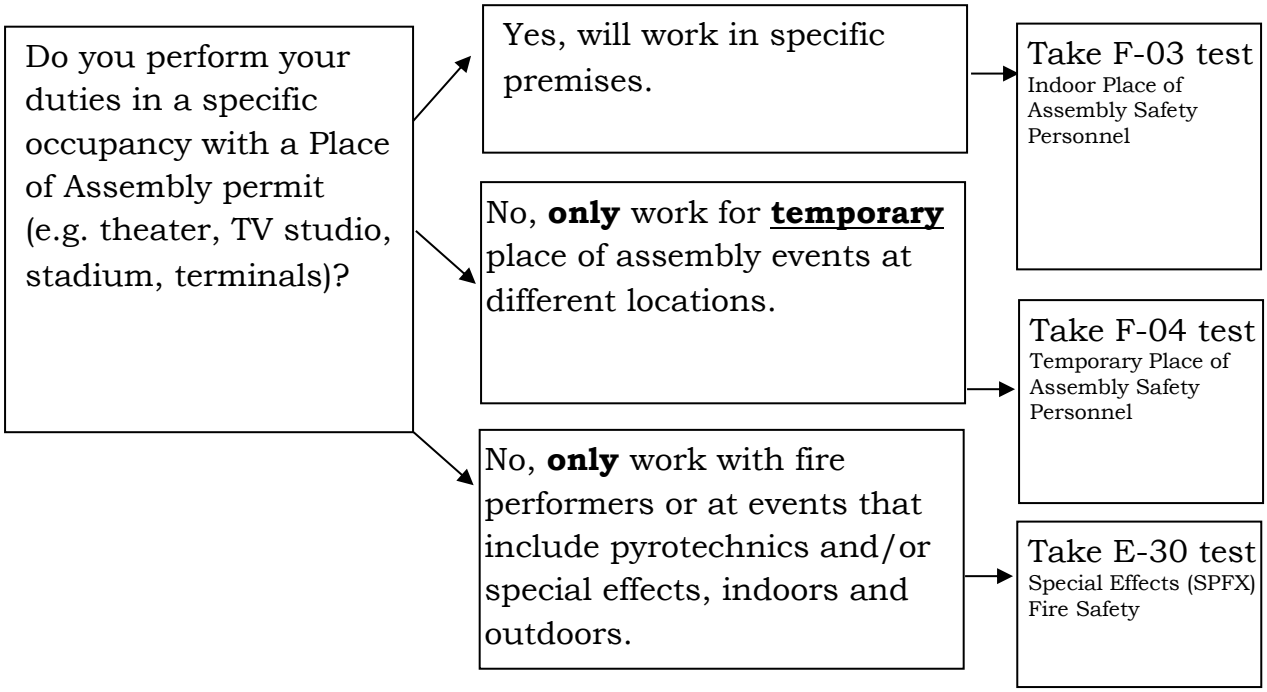
*Special note:*
E-30 can cover the duties of F-03 indoor and F-04 outdoor for Special Effects only. When serving in the capacity of an E-30 for Special Effects candidate must be dedicated to the effect only. An E-30 Certificate of Fitness holder can only serve as F-03/F-04 when there is no effect occurring.

**E-30 Certificate of Fitness holders** working under the direction of a licensed pyrotechnician are responsible to monitor the safety of pyrotechnic and flame effects/acts and assist in the extinguishing of such effects/acts.

**F-03 Certificate of Fitness is a premises-related certification** and it is designed for the occupancies with Place of Assembly Certificate of Operation (PA). The F-03 C of F holders are responsible for maintaining fire safety in **any approved place of assembly (PA) or temporary place of assembly (TPA) activities held in the premises**.

**F-04 Certificate of Fitness holders** are responsible to assist in maintaining fire safety in any **TEMPORARY** place of assembly events with a TPA permit. F-04 can be purchased once F-03 CBT test is passed.

For applicants who want to take fire safety C of F tests:



**10. APPLICATION FEE:**

Pay the **$25** application fee in person by one of the following methods:

- Cash
- Credit card (*American Express, Discover, MasterCard, or Visa*)
- Debit card (*MasterCard or Visa*)
- Personal or company check or money order (*made payable to the New York City Fire Department)*

A convenience fee of 2.49% will be applied to all credit card payments.

**11. EXAM INFORMATION**

The **E-30** exam will consist of **20** 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 **30** minutes to complete the test. A passing score of at least 70% is required in order to secure a Certificate of Fitness.

**Special Note:** Exam will also consist of a series of verbal questions.

Call (718) 999-1988 for additional information and forms.

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-e30-noe-study-materials.pdf**

**12.** If all the requirements are meet and pass the exam a certificate will be issued the same day. Applicant who fails the exam will receive a failure report. To retake the exam applicants will need to submit a new application and payment.

**RENEWAL REQUIREMENTS**

All renewals must go through the Explosives Unit in order to verify criminal background.

Please note that in person renewals are not recommended. Call the Explosives Unit for more information.

E-30 Certificates of Fitness are valid for a period of **one year** from the date of issuance. At the end of this period, the certificate expires unless the commissioner approves its renewal. Please be advised that certificate renewals shall be at the discretion of the commissioner in the interest of public safety. The department may review the certificate holder's qualifications and fitness. E-30 holders must ensure that their original Certificate of Fitness card is available for inspection at all times by the FDNY.

The renewal fee is $5. FDNY also reserves the right to require the applicants to take a re-examination upon submission of renewal applications. Certificate of Fitness can be revoked at any time.

You may receive a courtesy notice of renewal 90 days before the expiration date. However, it is your responsibility to renew your Certificate. It is very important to renew your C of F before it expires. Renewals submitted 90 days (up to one year) after the expiration date will incur a $25 penalty in addition to the renewal fee. Certificates expired over one year past expiration date will not be renewed a new exams will be required.

**To change a mailing address:**

- Submit a letter requesting the change of mailing address and a copy of your C of F with $5.00 fee.

**To change a work location**,

- Submit a letter from your current employer (on company letterhead) confirming that you are an employee and stating your new work location with a copy of your C of F and a $5.00 fee

**To request a replacement certificate:**

- Submit a driver's license or passport, social security number, mailing address and a $5.00 fee.

The certificate can be renewed **On-line** or **by Mail**

- **Renewal online**

If you are an individual, make sure you have your 12 digit Certificate of Fitness Access ID. This can be found on your Renewal Notice. If you do not have your Renewal Notice, your Access ID is your 8 digit Certificate of Fitness number and the last four digits of your social security number. If you are submitting renewals on behalf of a company's employees, the company must be approved by FDNY and have an 8 digit Company Code. To request approval, email pubrenew@fdny.nyc.gov.

Renewal fee can be paid by one of the following methods:

- Credit card (American Express, Discover, MasterCard, or Visa)
- Debit card (MasterCard or Visa)
- E-check

If all the requirements are met, the certificate of fitness will be mailed out within 10 days.

For online renewal go to: **https://a836-citypay.nyc.gov/citypay/FDNYCOF**

- **<u>Renewal by mail</u>**

Mail your Renewal Notice (or if you did not receive a Renewal Notice, a copy of your certificate), along with your fee payment, Personal or company check or money order (made payable to the New York City Fire Department)

For fee waivers submit: ***(Only government employees who will use their C of F 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 and if applicable, supporting documents to:

**NYC Fire Department (FDNY)**

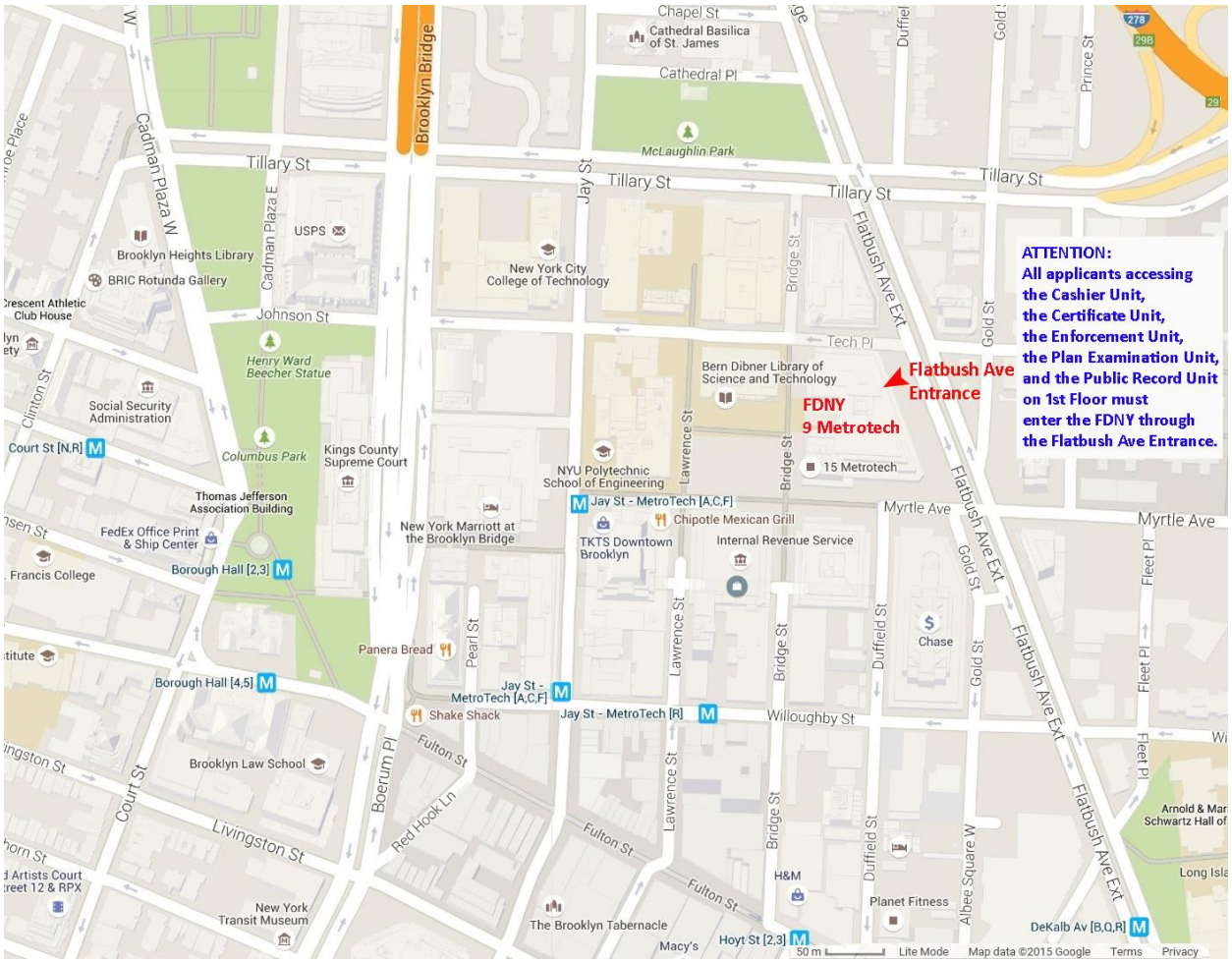
Cashier's Unit
9 MetroTech Center, 1st Floor
Brooklyn, NY 11201

If all the requirements are met, the certificate of fitness will be mailed out within four to six weeks.

**FDNY Explosives Unit reserves the right to require applicants to take a re-examination upon submission of renewal applications.**

**A convenience fee of 2.49% will be applied to all credit card payments for original or renewal certificates.**

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



## ABOUT THE STUDY MATERIAL

This study material will help you to prepare for the written examination for the E-30 Certificate of Fitness exam for Special Effects (SPFX) Fire Safety Personnel. This study material includes information taken from the New York City Fire Code as well as industry safety best practice standards. The study material does not contain all the information you need to know in order to perform the responsibilities of SPFX

fire safety. It is your responsibility to become familiar with all applicable laws, rules and regulations of the federal, state and city agencies having jurisdiction, even though such requirements are not included in this study material. You need to be familiar with NFPA 160, NFPA 1126, and New York City Fire Code Chapter 33, which regulates the use of special effects. **It is critical that you read AND understand this booklet to help increase you chance of passing this exam.**

## ABOUT THE TEST

You must pass a multiple choice and verbal test to qualify for the certificate of fitness. A score of 70% correct is required in order to pass the multiple choice section of the test. All questions have four answer options. Only ***one*** answer is correct 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

**Which of the following are allowed to be used 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.

**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

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.

**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

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.

## Introduction

This study material outlines the Fire Code and Bureau of Fire Prevention Explosive Unit best practice policies regarding individuals that are responsible to assist in maintaining fire safety at events and locations that are conducting Special Effects using flame and pyrotechnic devices.

Special Effects (SPFX) Fire Safety Personnel (E-30) are needed for all events using Special effects including events where the public is gathered. Their primary responsibility is to maintain watch and safety over pyrotechnic and flame effects used in concerts, film (television and movie), sporting events, fireworks shows, fire performances, theatres, etc. Prior to the event they are also responsible to be aware of and verify that all exits are unobstructed, accessible, and appropriately identified in order to achieve optimal public safety. It is also the E-30's responsibility to make sure all fire extinguishers are tagged, and accessible.

Special Effects safety personnel are on the "front line" and are the first to alert if there is something wrong occurring in the effect.

Most occupancies hosting events that include Special Effects are required to have a fire safety evacuation plan and are more than likely to have a Fire and Life Safety Director (and staff) or a Fire and Emergency Preparedness Coordinator (and staff). This staff along with the plan must consider the number and capability of the people present, the type, location and arrangements of occupancy exits, as well as the size and type of effect being conducted.

The types of occupancies and events required to have special effects (SPFX) safety personnel present and the number of such persons required, will be determined by the event taking place and prescribed in the permit and at the site inspection.

The E-30 **CANNOT** replace an E-27, E-19 or an E-18 pyrotechnican on any event.

This document should be used for guidance on how to maintain optimal safety while monitoring events that include different special effects. The FDNY expects E-30 COF holders to follow this document unless otherwise directed by Inspectors of the FDNY Explosives Unit.

### When and where are the Special Effects Fire Safety Personnel required?

As a matter of public safety, FDNY may require at least one Special Effects Fire Safety personnel on the premises where Fire Acts, Special Effects, or fireworks are being used; including but not limited to theatres, sports arenas, television/movie studios, and on location filming.

**How many Special Effects Fire Safety Personnel will be required?**

This is dependent on the event, effect and size of audience. The amount will be determined at the pre-site inspection at the inspector's discretion.

**How many Assembly safety personnel will be required when there are Special Effects Fire Safety personnel present?**

See previous question/answer.

**How does the E-30 Special Effects Fire Safety Personnel work with the F-03/F-04 Assembly Safety Personnel?**

The main functions of the E-30 Special Effects Fire Safety Personnel is to monitor immediate surroundings of pyrotechnic or fire effects and be prepared for extinguishment if and when necessary.

The F-03/F-04 Assembly Safety personnel's main function is crowd control. F-03/F-04 may be required where the Certificate of Occupancy indicates that 75 or more members of the public may gather indoors or 200 or more may gather outdoors.

Both E-30 Special Effects Fire Safety and F-03/F04 assembly safety personnel should be familiar with the procedures of evacuation and the evacuation routes for the areas where they are performing their duties. They should also be familiar with the obligations for notifying the Fire Department in the event of a fire or other emergency.

**<u>Worst Case Scenarios</u>**

**Undertaker burned by his pyro during the Elimination Chamber pay-per-view**
*Feb 21, 2010*

Mark William Calaway, the 44-year-old Texan who wrestles under the name The Undertaker for the WWE, was injured by flames during a pay-per-view special. Part of The Undertaker's grand entrance includes flames shooting up from the stage. Unfortunately, one of those flames was ignited while he was standing in that spot. The Undertaker removed his jacket after being burned and tossed it to the floor where it burst into flames.

***A miscue of the pyrotechnics caused the accident during the Elimination Chamber event.***

In spite of his injuries, The Undertaker chose to continue his performance at the Elimination Chamber event. He wrestled for a full 30 minutes while dousing himself with water off camera.

**Fire-breather catches fire at Florida high school pep rally.**
March 2016

Daredevil Ricky Charles suffered first-degree burns on Thursday, and the stunt gone wrong led to nearly 20 Atlantic Community High School students needing treatment, with seven getting rushed to hospitals for smoke inhalation, officials said.

**Teachers had to grab fire extinguishers** and students posted videos on social media showing the chaotic scene as screaming teens ran away from the fire blazing in the middle of the packed gymnasium.

**Charles said that he'd done the trick dozens of time before it went wrong.**

<u>Worst Case Scenario with proper responses and different results</u>

**Fine Line Music Cafe Fire**
February 2003

Fine Line fire, which left $1.8 million in property damage, was started when a band's pyrotechnics ignited a fire in the ceiling, as it was at The Station Nightclub Fire. But unlike The Station, The Fine Line was prepared for the emergency, not overcrowded and fitted with proper emergency exits. Once the fire was discovered, management and staff evacuated patrons from the building to safety. 120 patrons were escorted to safety within two minutes. There were no injuries.

**Definitions**

**ASSEMBLY AREAS.** A designated area outside of a building to which building occupants are directed to report upon implementation of a partial evacuation or evacuation in accordance with a fire safety and evacuation plan or an emergency action plan.

**BLANK AMMUNITION.** (*Theatrical Ammunition*). A type of ammunition for a firearm that contains gunpowder but no bullet or shot.

**BUILDING OCCUPANTS.** All persons in the building, including employees, building personnel and visitors.

**COMBUSTIBLE.** Capable of being burned. Can be fiber or liquid.

**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).

**DANGER AREA.** The immediate area surrounding the special effect or pyrotechnic performance. The distance of the danger area depends on the actual effect that is taking place.

**DISCHARGE SITE.** The immediate area surrounding the mortars or other devices discharging fireworks for purposes of an outdoor fireworks display.

**DISPLAY SITE.** The area in which an outdoor fireworks display is conducted, including the discharge site, the fallout area, and the required separation distance from the discharge site to spectator viewing areas, but excluding spectator viewing areas.

**EXPLOSIVE.** A chemical compound, mixture or device, the primary or common purpose of which is to function by explosion. The term includes, but is not limited to, dynamite, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord and igniters. The term “explosive” includes any material determined to be within the scope of Chapter 40 of Title 18 of the United

States Codes, and any material classified as an explosive by the hazardous materials regulations of the United States Department of Transportation, as set forth in 49 CFR Section 173.52, except fireworks. Explosives are classified in accordance with the following United States Department of Transportation classification and other terms in common usage:

**United States Department of Transportation Class 1 explosives.**

> **Division 1.3.** Explosives that present a fire hazard and either a minor blast hazard or a minor projection hazard, or both, but not a mass explosion hazard.
>
> **Division 1.4.** Explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. Such explosives are not subject to mass explosion when exposed to fire.

**Low explosive.** Explosives that will burn or deflagrate when ignited, and which are characterized by a rate of reaction that is less than the speed of sound, and low pressure development. Examples of low explosives include black powder, igniter cords, igniters, safety fuses, small arms ammunition and primers, and propellants, 1.3C.

**ELECTRIC MATCH.** is a device that uses an externally applied electric current to ignite a combustible compound.

**EXCESS FUEL.** More fuel than necessary for performance.

**EVACUATION.** The emptying of a building of all building occupants in response to a fire or an emergency.

**FALLOUT AREA.** The area over which aerial shells or other aerial fireworks are fired and intended to combust, deflagrate or detonate, including the area into which debris and unexploded aerial fireworks are expected to fall given the direction and strength of the wind, and the angle or placement of the mortars or other devices discharging fireworks.

**FIREGUARD.** A person holding a certificate of fitness for such purpose, who is trained in and responsible for maintaining a fire watch.

**FIREWORKS.** An article or device that does not present a mass explosion hazard, that is manufactured or used to produce a visible or an audible effect for entertainment or other display purposes by combustion, deflagration or detonation, and that meets the definition of 1.4G fireworks or 1.3G fireworks as set forth herein.

> **Fireworks, 1.4G.** Small fireworks devices, classified as UN 0336 by United States Department of Transportation regulations, containing restricted amounts

of pyrotechnic materials designed primarily to produce visible or audible effects by combustion.

**Fireworks, 1.3G.** Large fireworks devices classified as UN0335 by the United States Department of Transportation regulations, intended for use in fireworks displays and designed to produce audible or visible effects by combustion, deflagration or detonation, including firecrackers containing more than 130 milligrams (2 grains) of explosive composition, aerial shells containing more than 40 grams of pyrotechnic material, and other display pieces which exceed the limits for classification as 1.4G fireworks.

**FIREWORKS DISPLAY.** The discharge of fireworks for an outdoors public display.

**FIRE SAFETY AND EVACUATION PLAN.** A written plan which sets forth the circumstances and procedures for the in-building relocation, partial evacuation or evacuation of building occupants, required or as appropriate for such occupancy or building type, in response to a fire.

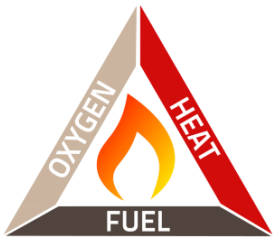
**FSP STAFF.** The individuals identified in a fire safety and evacuation plan as responsible for the implementation of such plan.

**FIRE SAFETY/EAP/FIRE AND LIFE SAFETY DIRECTOR/FIRE AND EMERGENCY PREPAREDNESS COORDINATOR.** The employee designated by the owner to perform duties of such position, and who possesses the requisite qualifications and training, as set forth in Fire Rules.

**FIRE DRILL.** A training exercise by which building occupants.

**FIRE.** A rapid, persistent chemical reaction that releases heat and light, especially the burning of a combustible substance in the presence of oxygen. For purposes of this code, a flame used in any lawful, properly operating device, equipment or system or other controlled setting shall not be considered a fire.

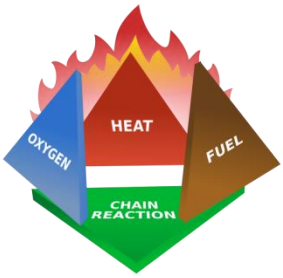
Fire can be explained in two ways, the Fire triangle and the Fire tetrahedron (as seen below).




**Fire Triangle**

The Fire triangle identifies the three needed components for a fire: heat, oxygen and fuel. If one of these components are removed the fire will be extinguished.

**vs.**




**Fire Tetrahedron**

The fire tetrahedron is a four-sided geometric representation of the four factors necessary for fire: fuel, heat, oxygen, and uninhibited chemical chain reaction.

**FLAME-RESISTANT MATERIAL (Fire resistive).** Material that resists burning, delays heat penetration, and can withstand heat. They will burn slowly due to being either inherently flame resistant or by being treated with a flame retardant chemical.

Material that meets the criteria for flame resistance as set forth in NFPA 705 or NFPA 701, either because it is inherently flame-resistant or because it has been subjected to a flame-retardant treatment. Flame resistant material is capable of passing NFPA 705 or Test 1 or Test 2 as described in NFPA 701.

**FLAME RETARTDANT MATERIAL (Fire retardant).** Material that slows burning across the surface of a combustible product.

**FLAMMABLE.** Easily ignited and quick burning. Can be in liquid or solid form.

**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).

**GENERAL SUPERVISION.** Supervision by the Certificate of Fitness holder who is responsible for performing the duties of the certificate holder but need not be personally present on the premises at all times. When using hazardous special effect materials, when COF is not present, material must be ***locked and secured***.

**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.

**HAZARD AREA.** The anticipated area within the venue where a flame effect is ignited, including an appropriate safety perimeter.

**HEALTH HAZARD.** A classification of a chemical for which there is a statistically significant evidence that acute or chronic health effects are capable of occurring in exposed persons. the term “health hazard” includes chemicals that are toxic, highly toxic and corrosive.

**HOLDING AREA.** An area where flame effect material or loaded flame effect devices are held prior to use.

**INERT GAS.** A nonreactive, nonflammable, noncorrosive gas.

**INHERENTLY FLAME RESISTANT FABRIC.** Meet NFPA 701 (Test 1 or 2) or NFPA 705 without a chemical being applied and should retain inherent flame resistance for the life of the product. (Field test done to verify status)

**LINE OF SIGHT**. a line along which an observer has unobstructed view of fireworks, fire performance or pyrotechnic effect.

**MAGAZINE.** A building, structure or container approved for storage of explosives.

**Indoor.** A portable structure, such as a box, bin or other container, constructed as required for Type 2, 4 or 5 magazines in accordance with NFPA 495, NFPA 1124 or the regulations of the Bureau of Alcohol, Tobacco, Firearms and Explosives of the United States Department of Justice, as set forth in 27 CFR Part 555, so as to be fire resistant and theft resistant.

**Type 3.** A portable structure for the temporary storage of explosives, such as a "day box," constructed in accordance with NFPA 495, NFPA 1124, or the regulations of the Bureau of Alcohol, Tobacco, Firearms and Explosives of the United States Department of Justice, as set forth in 27 CFR Part 555, that is fire-resistant, theft-resistant and weather-resistant.

**Type 4.** A permanent, portable or mobile structure such as a building, box, semitrailer or other mobile container constructed in accordance with NFPA 495, NFPA 1124, or the regulations of the Bureau of Alcohol, Tobacco, Firearms and Explosives of the United States Department of Justice, as set forth in 27 CFR Part 555, that is fire-resistant, theft-resistant and weather-resistant.

**SAFETY DATA SHEET (SDS)** *formerly known as MATERIAL SAFETY DATA SHEET (MSDS).* A document prepared in accordance with the regulations of the United Stated 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. It contains health and physical hazards of the material used, procedures that should be followed in case of an emergency and safety work practices. SDS does not show the cost of the hazard.

**OPEN FLAME.** A flame that is generated by any material or device in a sustained and controlled manner and that is not securely enclosed by noncombustible material, such as a candle that is unenclosed or enclosed in a globe or lantern, or a gas light lantern, but not a flame contained in a furnace or other similar approved device, equipment or system. Torches operated in accordance with FC Chapter 26 and lighted smoking paraphernalia shall not be considered an open flame.

**PERMIT.** A written statement issued by the commissioner authorizing the manufacture, storage, handling and use or transportation of hazardous materials, or

other material, or to conduct an operation or to maintain a facility, for which a permit is required by the NYC Fire Code.

**PERSONAL SUPERVISION.** Supervision by a Certificate of Fitness holder who is required to be personally present on the premises, or other proximate location acceptable to the FDNY, while performing the duties for which the certificate is required.

**PERSONAL PROTECTIVE EQUIPMENT (PPE).** Protective clothing, helmets, goggles, or other garments or equipment designed to protect the user from bodily injury or infection. The hazards addressed by protective equipment include physical, electrical, heat, chemicals, biohazards, and airborne matter.

**PROXIMATE AUDIENCE.** An audience closer to pyrotechnic devices than allowed by NFPA 1123.

**PYROTECHNIC ARTICLE OR DEVICE.** Any article or device containing a pyrotechnic material.

**PYROTECHNIC MATERIAL.** A chemical mixture consisting predominantly of solids that, upon ignition, are capable of producing a controlled, self-sustaining, and self-contained exothermic reaction, that functions without external oxygen, resulting in a visible or audible effect by combustion, deflagration, or detonation.

**RECLAMATION.** The process of removing excess fuel from a prop using a spinning motion of an unlit prop in a device or structure to catch the excess, spun off fuel.

**SAFETY ZONE.** Area where audience is able to watch performance. Area is a safety distance from the *danger zone* and set by a FDNY Explosive Unit inspector.

**SEPARATION DISTANCE.** The distance that is to be maintained during the fireworks display from the outer perimeter of the discharge area to each viewing area or protected area. The separation distance represents the distance determined by the department to be necessary and sufficient to secure viewing areas and protected areas from hazards associated with a fireworks display, including but not limited to blast, fire, fallout and noise hazards.

**SMOKELESS PROPELLANTS.** Solid propellants, commonly referred to as smokeless powders, used in small arms ammunition, cannons, rockets, propellant-actuated devices and similar articles.

**SPECIAL EFFECT.** A visible or audible effect used for entertainment or other display purposes, created by any material, article or device of an explosive, flammable or combustible nature, including pyrotechnic materials, articles and devices and fireworks, 1.4G, but excluding fireworks, 1.3G.

**SPIN OFF.** The process of removing excess fuel from a prop by using a spinning motion of an unlit prop or manipulating prop in a way that burns off excess fuel.

**SPONTANEOUS COMBUSTION**. The process of a combustible material being heated to its ignition temperature by a chemical reaction involving the oxygen in the air around the material.

**VIEWING AREA.** Areas designated for viewing a fireworks display, to which spectators are restricted.

## I. Special Effects Safety Procedures

The E-30 Certificate of Fitness holder **MUST** be dedicated to the tasked special effect.

**Line of Sight**
A clear line of sight must be maintained for all effects. Keep in mind that smoke effects as well as other effects that may create smoke greatly decrease line of sight. In these cases, there should be an alternate means including radio contact to ensure all safety personnel are aware of the status of effects taking place.

**Housekeeping**

- **Always** check materials and pyrotechnic devices prior to each use.
- **Always** check devices for leaks
- **Never** point pyrotechnic devices directly at anyone
- **Always** check expiration dates on all materials
- **Always** check for proper signage (i.e. no smoking signs)

***Storage of special effects materials, articles and devices:***

- They must be stored in a ***secured and sprinklered*** area with signage that is visible to first responders.
- They must be in properly labeled containers.
- if needed, store in flammable cabinets.
- flammables and combustibles must never be stored together.
- There are specific storage requirements for particular special effects materials, articles and devices.
- Portable "day boxes" can be used for the temporary storage of materials needed for the day. The "day-box" must be under the *personal (direct) supervision* of a COF holder *at all times*.
- Indoor and outdoor storage of propane is ***strictly prohibited*** unless permitted by the FDNY.
- Storage area must be properly vented.
- In storage area, there should be atleast 3 feet between material and electrical equipment.

In studios (television/movie), all special effects materials, articles and devices must be stored according to the rules.

**Stunt Coordinator Duties**

Stunt coordinator and / or qualified individual (E-18, E-28 or E-30) will determine whether safety requires the removal of nonessential crew member from the stunt area. A safety area or perimeter must be established and maintained through the length of the stunt. When filming, stunt coordinator and/or qualified individual should be involved in the safe placement of cameras and other necessary staff.

The stunt coordinator is also in charge of creating a plan for communication between all participants.

**Safety Meetings**

It is very important that everyone knows exactly what is going to occur with the special effect or stunt. As the E-30 Certificate of Fitness holder you should be present as well.

The Safety meeting should include specific information about the special effect/stunt, emergency plans, and who are the necessary participants. The safety meeting should also include discussion of the site diagram. The site diagram illustrates where the pyrotechnician is located as well as how the effect is designed and/or laid out.

In the safety meeting it should be expressed to all staff that no one is allowed to enter the area of a special effect until the all clear is given by the E-30, pyrotechnician or FDNY inspector.

The Safety meeting is the time to ask questions. NEVER assume or guess. Ask to ensure the safety of all involved including the possible audience.

**Signage and Safety Information**

As an E-30 Certificate of Fitness holder, you are responsible to check and ensure that the areas where effects are occurring have the proper safety signage. Signage must be visible to first responders.

The Safety Data Sheets (SDS) should always be on hand for all products being used.

**Never** assume anything, especially in regards to safety.

## II. Types of Special Effects

### Smoke Effects

Smoke effects can be classified into three categories: smoke, fog and haze.

There are several different ways that smoke can be created for entertainment purposes. Smoke can be created by pyrotechnic materials such as smoke cookies, or smoke cartridges, compressed gases, smoke grenades, flammable substances such as incense or smoke pencils/pens or a combination of chemicals and machines, each with its own degree of hazard.

All smoke and fog effects run the risk of inhalation and asphyxiation dangers. Most are only used for a short period of time, which limits the dangers that come with the length of exposure. When using smoke, fog or haze effects in confined spaces, always keep proper ventilation to avoid potential respiratory issues that can be contributed to long term exposure.

When using smoke effects, it is advised to conduct a smoke test. A smoke test can be used to determine the distance smoke will carry and what smoke detectors may need to be taken offline for the duration of the effect.

When fire alarm systems are disabled it is very important to have the Fire Safety Director along with fireguard(s), special effects safety personnel and/or a Fire Department Representative present in order to maintain the safety of the property and people present. The number of fireguards required varies according to building size, layout, and amount of people present, whereas, the amount of fire extinguishers required will vary according to the effect being conducted. A Fire Department representative will determine the amount of fire safety personnel, special effects safety personnel and extinguishers required to perform the effect safely.

Smoke effects should never obscure egress, exit signs, and pathways must always be visible.

***Safety with smoke effects:***

- **Always** make sure that permits and certificates of fitness are current.
- **Always** ensure the MSDS/SDS for all products are on hand.
- **Always** discuss the hazards and safety precautions that will be taken while the hazards are in use.
- **Only** allow the essential production personnel in the vicinity when smoke, fog or haze are in use. Be mindful that you may have to evacuate areas where smoke, fog or haze can travel
- **Always** use respirators and proper PPE when using chemicals for smoke, fog or haze, especially in enclosed areas

- **Always** maintain adequate ventilation, quickly exhaust excess smoke, fog or haze when indoors.
- **Never** crouch down or lie down in dry ice fog effects. Carbon dioxide gas can cause asphyxiation.
- **Always** ensure that caps are replaced and the straps on the CO2 and nitrogen canisters are secure for safety.
- **Always** ensure surfaces are not slippery due to smoke, fog or haze agents before allowing traffic through the area.
- **Never** allow smoke, fog or haze in areas where open flames exist.

**Compressed and Cryogenic Gas Effects**

Most compressed gases are toxic or highly toxic. Compressed gases are gases and mixtures of gasses stored under pressure in cylinders. There are 3 major groups of compressed gas: liquefied gases, non-liquefied gases, and dissolved gas.

*a. Liquefied Gases*

A liquefied gas is a gas that is kept in a cylinder that is almost full with liquid under pressure. Gas fills the space above the liquid in the cylinder and as the gas is removed enough liquid evaporates to replace it, keeping the pressure constant.

*b. Non- Liquefied Gas*

Non-liquefied gases are also known as compressed gases. At normal temperatures, these gases do not become liquid even at high pressures.

*c. Dissolved Gas*

A gas which when packaged under pressure is dissolved in a liquid phase solvent.

***Safety with Compressed and Cryogenic effects:***

- **Always** make sure propane cylinders have been recertified (every 12 years)
- **Always** make sure that permits and your certificate of fitness are current.
- **Never** allow smoking in the area where compressed and cryogenic gases are being used
- **Always** ensure gas lines are not possible tripping hazard or close to lighting
- **Never** allow the use of natural gas tanks indoors *unless* it has been permanently piped by a licensed master plumber

**Minor pyrotechnic effects**

***Air Cannon or Debris Mortar***

Confetti, debris or any material launched from a canon with a reservoir and pressurized with inert gas.

***Confetti***

*Blower:* A machine that launches confetti by fan or blower

*Blaster: A* machine that launches confetti by an air mover or CO2 tank

***Dust/Sand***
Often, vermiculite is used as a sand substitute. This type of product used in enclosed places can be a hazard if it comes in contact with a spark or any other sources of ignition.

***Snow***
Artificial snow can be made of combustible products such as shredded paper, polypropylene, chemical mixtures, foam or a similar plastic product. It should never be stored, used or handled near flames or other heat/ignition sources although it can be flame-proofed. The MSDS/SDS should always be on hand for any artificial snow product that is used.

Sometimes real snow and crushed ice can be used but not only do the generating machines create high levels of carbon monoxide but it can also be a great hazard to electrical equipment.

**Novelty Fireworks**

*Sparklers* are handheld fireworks that burn slowly. Due to the fact that they can reach up to 1800°-3000°F, sparklers should only be used by those with a great understanding of their inherent risk.

*Poppers/Snaps* do not have any type of visual effects but serve as a fuseless firecracker that makes a loud pop sound when thrown to the ground.

**Fire and Flame**
In New York City the FDNY regulates all fire effects, even things as simple as a lit cigarette in a performance (on stage or in a filmed production).

Fire Effects range from a burning car or person, to a fire place, a cigarette, birthday candles or spark creating devices.

***Safety with Minor Pyro and Fire Effects:***

- **Always** make sure that all permits and certificate of fitness' are current.
- **Always** discuss the hazards and safety precautions that will be taken while the hazards are in use.
- **Always** be present for the dry-run with all of the production staff.
- **Always** review emergency escape routes.
- **Never** allow smoking in the area of any pyrotechnics
- **Always** remove unnecessary personnel from the "danger area."
- **Always** make sure costumes, and all material in the vicinity of the flame/fire effects are **removed, noncombustible or have been flame-proofed.**
- **Always** maintain adequate ventilation, quickly exhaust excess smoke.
- **Always** make sure that performers close to flames wear proper protective clothing.

- **Always** keep combustible materials at a *safe distance* when using products that require oxygen for combustion.
- **Always** keep hair spray and hair extensions away from fire/flame effects.
- **Never** spray (or allow spraying of ) any type of aerosol product in the vicinity of minor pyro, fire/flame effects.
- **Always** properly use a fire extinguisher to help prevent spreading of the fire associated with the fire effect.
- **Never** use water to extinguish a torch.
- **Always** dispose of cigarettes and candles outside the theatre. Keep extinguished items in bucket of sand or water
- **Never** pour any other flammable liquid products in the vicinity of a fire effect.

***Flame***

Flame Effects include Flame bars and fireplaces that use 20lb propane tanks. The tanks must be stored in a sand bagged bunker. Propane is heavier than air and will stay low so bunkers must be equipped with a sniffer located at the bottom.

***Safety with Flame Effects:***

- **Never** leave propane effects unattended
- **Always** check for leaks on propane effects using soap and water solution or a sensor/sniffer

***Fire Acts and performances***

Fire performances involve the control, use and handling of fire. These performances can include fire breathing, fire eating, fire sticks, juggling, poi, fans, and many other forms of fire manipulation.

The performance area should be set up a safe distance from the audience, electrical panels and gas lines.

On occasion, fire performers do breathe flames. With this act there is a risk of swallowing or ingesting fuel. Blurred vision, cold sweats, fever and shakes all are symptoms of chemical poisoning. If you suspect that someone has ingested fuel, call 911 as well as poison control.

***Safety with Fire Performances:***

- **Never** allow fire to be blown if the wind is too strong or in the direction of the wind at any time.
- **Always** watch out for the audience being too close to the torches and/or performers.
- **Always** watch for safety signals: verbal and physical.
- **Always** have fire extinguishers extremely close.
- **Never** spray a fire extinguisher at a person's face.

- **Always** remove all trip hazards.
- **Never** have additional people around the fire performance. **ONLY** those necessary for the performance.
- **Always** check for hot spots once the fire performance has been extinguished.
- **Never** use pat or fan method to extinguish props.
- **Always** extinguish 1 prop at a time
- **Always** make sure accidental spills are immediately cleaned up.

Wet towels, fire extinguishers, or flame resistant cloth (duvetyne) are all acceptable ways to extinguish props.

***Body Burns***

Body Burns are one of the most dangerous stunts performed. Stunts involving fire have to be subject to the highest safety preparations. The performer needs to be able to fully trust the safety crew and know they will be taken care of before, during and after a burn.

***Safety with Body burns:***

- **Always** have a minimum of two (2) safeties for every person that will be burned.
- **Never** serve as fuel person and safety. Fuel may have dripped and can cause safety person to ignite when trying to attend to performer.
- **Always** watch for safety signals: verbal and physical.
- **Always** have fire extinguishers extremely close with safety personnel designated to use.
- **Always** make sure there is an ambulance present before body burn is performed.
- **Always** designate which safety will attend to the performer first so that they can be in agreement regarding safety signals.
- **Always** have performer change clothes immediately after burn.
- **Always** have a "just in case"/ "what-if" plan when dealing with fire stunts
- **Always** be present at rehearsal.

****<u>Always</u> <u>extinguish from top to bottom</u>****

*Starting at performer's head and working down to their feet.*

***<u>Always</u>** <u>extinguish (snuff) fire effects props with fire retardant material (e.g. duvetyne)</u>*

**Gasoline powered vehicles**

***Car on stage***

Sometimes the use of vehicles for visual effect is often not only necessary to the production but also a vital prop. In the theatre, real car driven (or even pushed) on

stage will always cause either a gasp or a loud round of applause from the audience. FDNY regulates vehicles normally powered by gasoline when they are being used for film or theatrical purposes.

***General Safety with Gasoline Powered vehicles:***

- **Always** maintain minimum amount of fuel (preferably <1 gal.)
- **Always** have a competent/responsible person in charge of vehicle keys (or key fob).
- **Never** allow smoking in the area of the vehicle.
- **Always** have crash barriers in place when car is in motion.
- **Always** have 2 CO2 extinguishers on site.
- **Never** move vehicle without a spotter present
- **Always** push or tow a car to location (when possible)
- **Never** use alternate power sources (i.e. battery packs) without prior approval from FDNY Explosives Unit.
- **Always** set up safety zone.
- **Never** leave car in studio overnight.
- **Always** announce when vehicle is going to be moved.

***Vehicle (Car) crash with motion***

Cars used for crash scenes must be equipped with a built in suppression system and fuel cell.

***Safety with vehicle crash with motion: (general gasoline safety above included)***

- **Always** make sure roll cages, helmets and harnesses are used.
- **Always** make sure "Jaws of Life" has been requested and is available on site.
- **Always** have an FDNY Engine Company and charged water line available.

***Vehicle (car) on fire***

When vehicles are used for fire scenes, all upholstery must be removed due to off gases that can cause fire. All hydraulics must be drilled and drained of any fluids. Paint may have to be stripped from car and tires must not be full of air. All grease, oil and fuel must be removed and their areas power-washed to eliminate residue.

***Safety with vehicle on fire: (general gasoline safety above included)***

- **Only** uses copper lines for propane within 10 ft. of car
- **Always** have an FDNY Engine Company and charged water line available.

**Theatrical ammunition**
Theatrical firearms have been specifically modified for blank fire. The firearm is created to look real in its appearance as well as its function but its only purpose is fire blanks.

Blank cartridges may contain gun powder but no bullets. Blanks use paper or plastic wadding in the cartridge to seal in the gunpowder. When blanks are fired, the wadding is propelled from the barrel of the gun and it makes a flash and an explosive sound (to imitate the sound of real gun fire).

Often, there is a false sense of safety when using blank cartridges. Even though they do not contain a real bullet, the amount of force exerted when blank cartridges are fired, especially at close range, can cause severe injury and even death.

***Safety with Theatrical Firearms:***

- **Always** treat firearms as though they are loaded. Blanks can kill.
- **Never** point a firearm (loaded or unloaded) at anyone, including yourself
- **Never** engage in or allow "horseplay" with any weapons.
- **Always** wait at least 15 seconds after a misfire before clearing the unfired blank. Keep firearm pointed in a safe direction during the "waiting period" as well as when clearing the unfired blank and loading a new one.
- **Always** protect your eyes and ears.
- **Never** leave a firearm unattended.
- **Never** use live ammunition
- **Always** store firearms unloaded and locked
- **Always** clean theatrical firearms after each use

**Fireworks**
Fireworks are a class of low explosive pyrotechnic devices that are used for aesthetic and entertainment purposes. The most common use of fireworks is for a fireworks display. Fireworks take many forms to produce four primary effects: noise, light, smoke, and floating materials. They can be designed to burn with colored flames and sparks. Some fireworks use a paper or pasteboard tube or casing filled with the combustible material and some are designed to be shot into the air by a mortar.

***Safety with Fireworks:***

- **Always** wear safety glasses when shooting fireworks.
- **Never** use fireworks indoors.
- **Always** make sure you are in a clear area; away from buildings, vehicles and people.
- **Never** relight a "dud" firework. Wait 20 minutes and then soak it in a bucket of water.
- **Always** have a bucket of water and charged water hose nearby to extinguish fireworks that don't go off or in case of fire.

- **Always** dispose of spent fireworks by wetting them down and place in a metal trash can away from any building or combustible materials until the next day.
- **Always** soak unused fireworks in water for a few hours before transporting.
- **Never** wear loose clothing while around fireworks

**Generators**

Generators are essential production support equipment used to provide necessary power to lights, air conditioning, heating and other needs possibly required for an event.

E-30 Certificate of Fitness holders must be aware that:

- Storage of 10 gallons of fuel or more (for SPFX purposes) require a permit from the FDNY Explosives Unit.
- Generators that hold more than 5 gallons require a permit from the Bureau of Fire Prevention Hazardous Cargo Unit.
- Only 2.5 gallon gasoline containers are allowed for re-fueling.
- Fuel storage containers must be metal, self-closing and vented.

***Safety with Generators:***

- **Always** get fresh air right away if you start to feel sick, dizzy or weak while in the presence of a generator.
- **Always** keep generator dry.
- **Never** use generator in rain or wet conditions.
- **Always** make sure a generator has 3 to 4 feet of clear space on all sides and above it to ensure adequate ventilation.
- **Always** shut down generator and allow it to cool before refueling.
- **Always** store gasoline and other generator fuels in approved containers (properly designed, marked, and vented).
- **Always** keep fuel away from flame and heat generating devices.
- **Never** allow smoking around fuel containers
- **Always** read and follow manufacturer's instructions before using generator
- **Never** operate generator near combustible materials

## III. Post Discharge Safety

All areas in which special effects are taking place must be policed, monitored and canvassed to ensure there are no remaining burning embers, debris, or unfired product. Ventilation must be provided until ignition and cleanup have been completed.

Proper equipment such as heat guns, range finders, infrared thermometers, and sniffers are strongly recommended for use on special effects.

E-30 Certificate of Fitness holders must be aware that:

- Pyrotechnic materials that has been used, and swept up should NEVER be reused as they may have been contaminated with moisture and/or other debris from the floor. This contamination can cause misfires and uncontrollable burns.
- All Special Effects Materials must be properly disposed of according to SDS and/or manufacturer's guidelines.
- Chemicals used to generate some of these effects are hazardous and it is important to dispose of the waste as directed by the manufacturer and in accordance with local laws and regulations (Department of Environmental Conservation (DEC)).
- An "all clear "must be issued by the FDNY or Certificate of Fitness holder responsible for the effect (or extinguishing of such effect) before anyone enters the special effects area.

    - **Oily rag disposal** (for body burns and fire performances)
      Oily rags left in closed containers can present a serious fire risk. Oily rags stored in a regular waste can or even in a pile on the floor, can ignite without any help from a separate ignition source; this is called spontaneous combustion.

The possibility of spontaneous combustion can increase if the surrounding air is warm and dry. Heat from nearby sources, such as machinery, steam line, radiator, vent, etc… can cause the self-heating process by heating the combustible materials (oily rags) and the surrounding air.

Oily rags must never be disposed of in trash dumpsters or ordinary trash cans.

**Oily rags must be disposed of in an approved metal safety container with a self-closing lid and should be removed and disposed as soon as possible.** NFPA recommends that the rags be thoroughly dried before collection or transport.

## IV. Review of Duties of Temporary Place of Assembly

It is very important to consider the following details when serving as a Special Effects Safety Person:

1. Occupants may be unfamiliar with the occupancy.

- They may not be aware of all exits. It is important that you familiarize yourself with not only the closest exits but all the exits available.

2. Potential for overcrowding.
   - Certain occupancies have a tendency to have issues with overcrowding. As the Special Effects Safety Person you are not responsible to count each person that walks through the door but it is important that you always make sure that you coordinate with other E-30s as well as F-03/F-04 to maintain aisles and exits clear.
   - You should always be aware of situations that could lead to challenges in the event of an emergency.
3. Consumption of alcohol.
   - Many of the events that you may be monitoring may have alcohol present which can cloud the judgment of the audience. It is important that has the Special Effects Safety, you stay alert to the effect occurring and maintain contact with the F-03/F-04.
4. Poor Lighting.
   - Due to the nature of some special effects, some venues may not be brightly lit. It is important that as the Explosives Safety Personnel you maintain a line of sight of the effects and are aware of all emergency exits.
5. Compromised Exits.
   - Can be caused by overcrowding
6. Temporary Decorations and other combustibles.
   - Flame Certificate of Fitness

     - The C-15 Certificate of Fitness for supervision of flame-retardant treatment is imperative in ensuring the fire safety of others.
     When a material or item is treated with a certified flame-retardant chemical to meet FDNY requirements, the application of the chemical shall be conducted by or under the personal supervision of a C-15 Certificate of Fitness holder. The C-15 holder certifies that decorations, scenery, soft goods, and costumes used in a variety of venues are flame retardant or inherently flame resistant.

     C-15 holders often work for large companies whose clients can range from small schools to massive theaters, concert halls or department stores. The FDNY requires that all decorations in certain occupancies and buildings or structures used as a place of public gathering, shall be flame resistant prior to their use or display.

     This includes Draperies, area rugs and decorative greens, temporary scenery and temporary decorations.

Keep in mind that Field flame tests are conducted by C-15 Certificate of Fitness holders and may be conducted by Fire Department representatives to determine the adequacy of a flame-retardant treatment or to determine whether a material is inherently flame-resistant.

The owner of the premises where the treated decoration or scenery will be located must obtain an affidavit of flame-retardant treatment from the C-15 certificate of fitness holder. Specifically, the C-15 holder who performed the treatment on the decoration or scenery must be the signee on the affidavit.

**See C-15 Study material for more information.**

**http://www1.nyc.gov/assets/fdny/downloads/pdf/business/cof-c15-noe-study-materials.pdf**

**Fire safety and evacuation plan**

To be an effective place of assembly safety personnel, it is recommended that you have a working knowledge of Fire Safety Plan (FSP). The personnel should be provided with an orientation from the fire safety director/fire safety coordinator, building owner, or other on-site personnel familiar with and responsible for the fire safety and evacuation plan before starting to perform their duties.

Generally, the safety personnel should know the location of fire extinguishers, exits and the means of communication with FDNY and occupants in case of emergency.

## V. Fire Protection Systems, Emergency Procedures and Fire Extinguishers

At least two (2) portable fire extinguishers of the proper classification and size for the hazard present must be readily accessible while special effects, materials and devices are being handled. Often CO2 and water extinguishers are used, but always refer to the SDS for proper extinguisher for product being used.

The Certificate of Fitness (COF) holder or watchperson must be familiar with the different types of fire extinguishers that are present. The COF holder or watchperson must know how to operate the extinguishers in a safe and efficient manner. He/she must know the difference between the various types of fires and the extinguishers appropriate for use in that particular fire. The different classes of fires are described below.

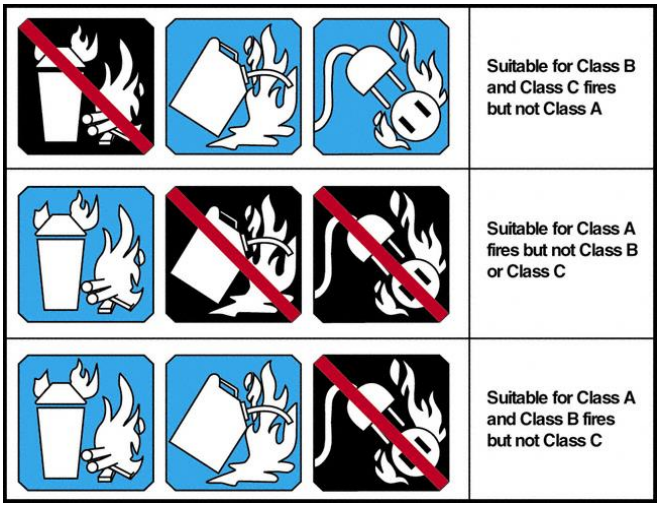
**Classes of Fire Extinguishers**

| 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) |  |

A **<u>Multipurpose dry chemical</u>** fire extinguisher may be used to extinguish Class A, B, or C fires.

**Typical Symbols Painted on Fire Extinguishers**

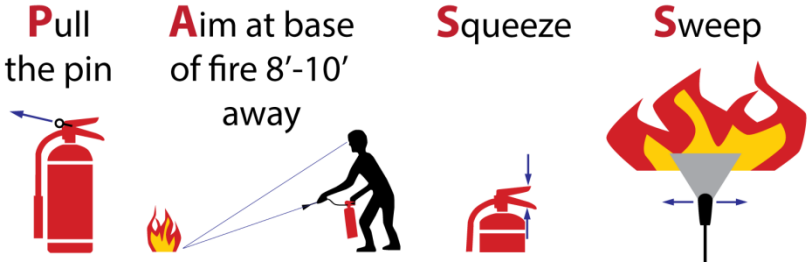
The symbol with the shaded background and the slash indicate when the extinguisher must not be used. Symbols may also be painted on the extinguisher. The symbols indicate what kind of fires the extinguishers may be used on. The COF holder and watch person must understand these symbols. Examples of these symbols are shown below.



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 is shown below.

**In case of any fire, 911 must be called.**

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 or watchperson 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 Pull, Aim, Squeeze, Sweep.** An example of these instructions is depicted in the picture below.




**Monthly Inspection**

A monthly inspection is a "quick check" that a portable fire extinguisher is available and will operate. It is intended to give reasonable assurance that the portable fire extinguisher is fully charged and operable.

This is done by verifying that:

- Fire extinguishers are in their assigned place;
- Fire extinguishers are not blocked or hidden;
- Fire Extinguishers have not been actuated or tampered with;
- Fire extinguishers show no visual sign of damage or abuse that prevents its operation;
- Pressure gauge reading or indicator on the fire extinguisher are all in the operable range or position;
- Ensure that the fire extinguishers tags are current;
- Pin and seals are in place;
- Nozzles are free of blockage.
- A basic inspection is a *visual examination* of the portable fire extinguisher.

**Annual Inspection**

In addition, fire extinguisher maintenance should be performed once per year. It is a "thorough check" of the extinguisher. It is intended to give maximum guarantee that an extinguisher will operate successfully and safely in the event of a fire. It includes a thorough examination, any necessary repair, recharging and/or replacement. This annual inspection must be performed by W-96 Certificate of Fitness holder employed by a FDNY approved portable fire extinguisher company.

**Notification of unsafe condition**

The person responsible for Special Effects Safety should notify their supervisor or site safety manager if an unsafe condition has been created. Any person who becomes aware of a fire, explosion, large spill, leak or any other emergency shall immediately report such emergency to the Fire Department (Call 911). No owner or other person shall issue any directive or take any action to prevent or delay the reporting of a fire or other emergency to the Fire Department. After calling the Fire Department, the supervisor or the site safety manager or other designated person should also be notified.

The Certificate of Fitness holder must know the locations of and how to operate all fire extinguishing devices, control devices, and fire alarm stations installed at the facility. In case of a fire, explosion, or emergency, the Certificate of Fitness (C of F) holder must notify the Fire Department by phone immediately. The Certificate of Fitness holder must know the telephone number of the Fire Department Borough Communication Office. The borough phone numbers are listed as follows. These phone numbers must be posted near the phones most likely to be used in case of an emergency.

Manhattan (212) 999-2222

Bronx (718) 999-3333

Brooklyn (718) 999-4444

Queens (718) 999-5555

Staten Island (718) 999-6666

After notification by phone, the local fire alarm must be sounded. In some cases, the activation of the fire alarm will transmit a signal to the Fire Department via a FDNY approved central station company. The C of F holder shall initiate an orderly evacuation when necessary following a hazardous incident, and take reasonable steps to isolate the hazard until the Fire Department arrives. The Certificate of Fitness holder must answer any questions asked by Firefighters and officers when they arrive. For example, he or she must indicate the location of the fire, describe the type of fire protection devices available, and describe the materials stored on the fire floor. The Bureau of Fire Prevention must be notified as soon as possible after an explosion or fire has occurred. The Bureau of Fire Prevention may require a detailed report on the causes and the consequences of the explosion or fire. Generally, this report must be filed within ten days after the incident.