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FIRE DEPARTMENT • CITY OF NEW YORK

STUDY MATERIAL FOR THE EXAMINATION FOR
CERTIFICATE OF FITNESS
FOR

Supervision of Flame Retardant Treatment (Citywide)

C-15

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NOTICE OF EXAMINATION

Title: Supervision of Flame Retardant Treatment (Citywide) (C-15)

Date of Exam: Written exams are conducted Monday through Friday (except legal holidays) 8:00 AM to 2:30 PM.

REQUIREMENTS FOR WRITTEN EXAM

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

1. Applicants must be at least 18 years of age.
2. Applicants must have a reasonable understanding of the English language.
3. 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.
4. Applicants must present a letter of recommendation from his/her employer. 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
5. 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
6. Applicants not currently employed may take the exam without the recommendation letter. If the applicants pass the exam, FDNY will issue a temporary letter with picture for the job seeking purpose. The C of F card will not be issued unless the applicants are employed and provide the recommendation letter from his/her employer.
7. Special requirement for the C-15 Certificate of Fitness: None
8. **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)*

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

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

9. **EXAM INFORMATION**

The **C-15** exam will consist of **25** multiple-choice questions, administered on a "touch screen" computer monitor. It is a time-limit exam. Based on the amount of the questions, you will have **37** minutes to complete the test. A passing score of at least 70% is required in order to secure a Certificate of Fitness.

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-c15-noe-study-materials.pdf

10. 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

This Certificate of Fitness must be renewed every ***THREE YEARS***. The renewal fee is **$15**. FDNY also reserves the right to require the applicants to take a re-examination upon submission of renewal applications.

You will 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. 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**, **by Mail** or **in Person**.

- **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

A fee exempted applicants cannot renew online only by mail or in person.

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**

- **Renewal by mail**

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.

- **Renewal in person**

Submit your Renewal Notice (or if you did not receive a Renewal Notice, a copy of your certificate), along with your fee payment 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)*

For fee waivers submit: ***(Only government employees who will use their C of F for his or her work-related responsibilities are eligible for fee waivers.)***

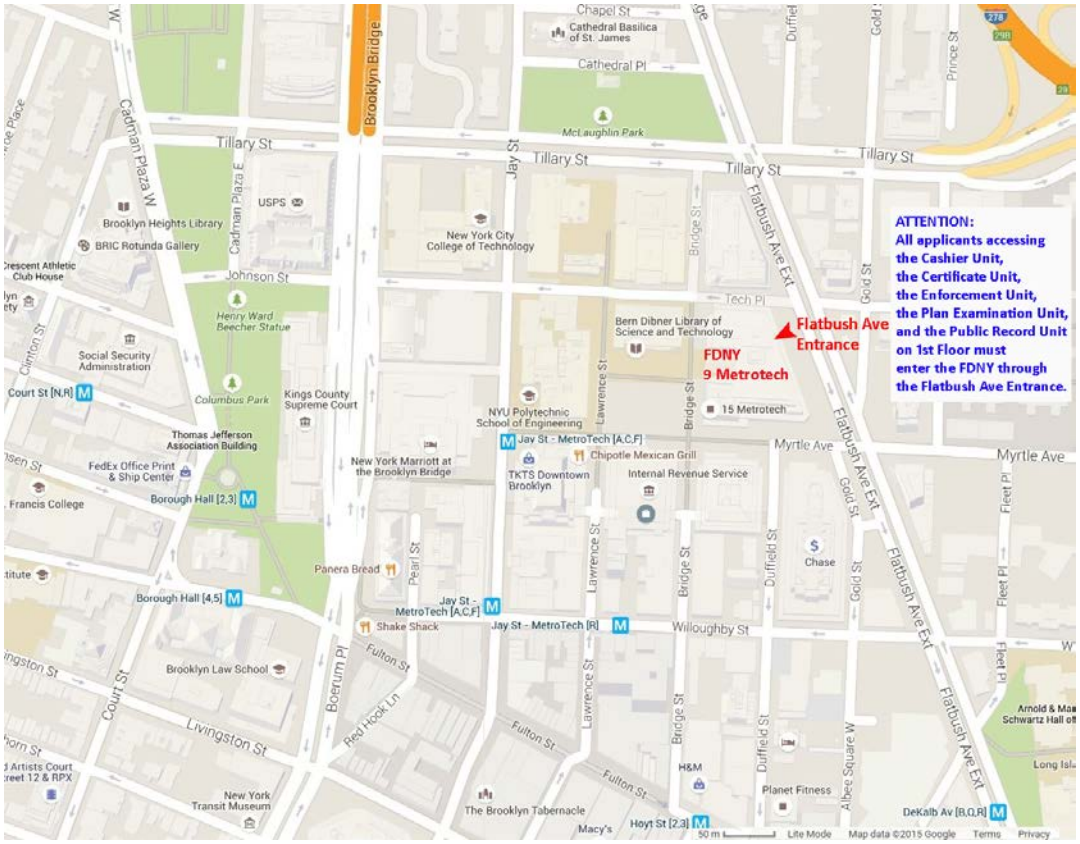
- A letter requesting fee waiver on the Agency's official letterhead stating applicant full name, exam type and address of premises; ***AND***
- Copy of identification card issued by the agency and if applicable, your supporting documents to:

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 issued the same day.

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

<u>EXAM SITE:</u> **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 contains information you will need to prepare for the examination for the C-15 Certificate of Fitness for Flame-retardant Treatment.

This study material will not be provided to you during the test. It is critical that you read and understand this booklet to help increase your chance of passing this examination. The study material does not include all of the information you need to know in order to work efficiently and safely when treating and flame testing decorative materials. This study material includes information taken from *Chapter 8* of the *New York City Fire Code*, *NFPA Standard 701, NFPA 705,* the *New York City Building Code* and *Sections 805-01 and 805-02* of the *Rules of the Fire Department of the City of New York (FDNY).*

It is your responsibility to become familiar with all applicable rules and regulations of the City of New York. **You are responsible for checking the Certificate of Fitness page on the FDNY website for the most current study materials prior to taking the examination since the study material is updated frequently.**

About the Test

All questions on the Certificate of Fitness examination are of the multiple choice type with four alternative answers to each question. Only one answer is most correct for each question. If you do not answer a question or if you mark more than one alternative your answer will be scored as incorrect. Read each question carefully before marking your answer. There is no penalty for guessing. You will take the examination on a touch screen computer monitor. Applicants will receive their scores immediately at the conclusion of the test. A passing score of at least 70% is required in order to secure a Certificate of Fitness. Call (718) 999-1988 or visit the FDNY website for additional information and forms.

SAMPLE QUESTIONS

1. 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.

2. 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.

3. 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.

1. INTRODUCTION

C-15 Certificate of Fitness for Supervision of Flame-Retardant Treatment

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 and scenery used in a variety of occupancies are flame retardant or inherently flame resistant.

Where are C of F holders employed?

C-15 holders often work for large companies whose clients can range from small schools to massive theaters, concert halls or department store. The FDNY requires that all decorations in certain occupancies such as Group A, E, I and M occupancies, and Group R-1 college and university dormitories, common areas in Group B, R-1 and R-2 occupancies, and any building or structure used as a place of public gathering, decorations shall be flame resistant. (See next page for examples of these occupancies)

The C-15 Certificate of Fitness holders may perform a flame-retardant treatment on-site at the request of their client or at their place of employment. C-15 holders verify that materials or items are flame retardant or inherently flame resistant prior to their display. Therefore, the safety of tens of thousands of people is often in the hands of the C-15 C of F holder.

The FDNY recommends that consumers should hire those C-15 Certificate of Fitness holders who have liability insurance, or are working for a reputable company that has liability insurance.

Please note that the C-15 Certificate of Fitness does not grant the holder the right to use any trademark associated with the New York City Fire Department (for example, the letters FDNY, the FDNY Shield design, the FDNY Maltese Cross design and the seal of the City of New York). The unauthorized use of trademarks in connection with the sale of commercial goods or services violates federal and state laws.

The examples in this chart are not meant to be all-inclusive. Please refer to the New York City Building Code for more information.

Occupancy	**Examples**
Group A	Theaters, concert halls, restaurants, night clubs and indoor/outdoor catering.
Group A (temporary and special effects)	Temporary Structures (tents, canopies, other membrane structures), Film: TV/movie/remote set locations, stadiums, entertainment venues, film studios, special events
Group *B	Offices and businesses
Group E educational	Schools, academies, day care facilities
Group I-1	Rehabilitation centers, assisted living facilities
Group I-2	Hospitals, nursing homes, mental hospitals
Group I-3	Jails, correctional centers, mental hospitals with restrained patients
Group *M	Department stores
Group R-1	Dormitories, homeless shelters, and sorority and fraternity houses
Group R-2	Apartment houses, apartment hotels (non-transient)

**In Group B and M occupancies, fabric partitions suspended from the ceiling and not supported by the floor shall be inherently noncombustible or shall be treated to meet the flame propagation performance criteria in accordance with the Fire Code and NFPA 701.*

Denial, Non-Renewal, Suspension and Revocation of Certificates

Certificate of Fitness holders should be aware that they may be required to demonstrate their knowledge and proficiency in their duties related to their certificate at the time of original and renewal application, and at any time Fire Department representatives are conducting an inspection of the premises. The Fire Department can deny, not renew, suspend or revoke a certificate for misconduct, which would include the failure of the certificate holder to properly fulfill his or her duties for any reason.

In addition to civil liabilities, criminal liabilities any other penalties provided by law, misconduct on the part of an applicant or holder of a certificate of fitness shall be grounds for denial, non-renewal, suspension or revocation of a certificate, and denial of an application for a certificate or the opportunity to take a certificate examination. In addition, the safety of others will be seriously jeopardized. Such misconduct includes, but is not limited to:

- the failure of certificate holders to properly fulfill their duties, which can include but is not limited to the following:
  - signing an affidavit of flame retardant treatment without performing or personally supervising the treatment and testing of said material
  - signing an affidavit of inherent flame resistance without testing said material for flame resistance
  - signing an affidavit of flame retardant treatment or inherent flame resistance if decorations or scenery fail a flame test

- any false and fraudulent conduct in connection with an application for a certificate or the duties of a certificate holder, including:

  - false or fraudulent statements or submissions
  - unauthorized changes to or use of a certificate or possession of a fraudulent certificate
  - cheating on an examination
  - impersonating another person or allowing oneself to be impersonated

- the failure to promptly notify the Fire Department of any change in the applicant's or certificate holder's residence address, or work location

- any other conduct that decreases the integrity or reliability of an applicant or certificate holder

- compromising the integrity or confidentiality of a Fire Department examination

The use of the word **“should”** throughout these study materials generally refers to policies, procedures and/or best practices recommended by the FDNY, and may not be a codified requirement.

The use of the word **“shall”** throughout these study materials generally refers to a requirement of the Fire Code or the FDNY.

Past Tragic Fires

Station Nightclub Fire, West Warwick, RI, USA. 2003

Disaster Summary

More than two-thirds of the 462 people in attendance were either killed or injured (100 dead, 230 injured). A live band that was using fireworks as part of its act ignited foam insulation that had been installed around and over the stage. The flames quickly moved to the ceiling, creating billows of smoke and a panicked race for the front door.

Lessons Learned

- Flammable decorations: **building or structure used as a place for public gathering, curtains draperies, hangings and decorations shall be flame resistant.**
- No sprinkler system: The club did not have an automatic fire sprinkler system to extinguish the fire.
- Inadequate signs and directions: Club was at capacity, it was not overcrowded, but most of the victims died at the primary entrance where the rush of frantic spectators created a logjam at the front door. No proper signs or directions to direct the panic people to use exit routes other than the front door.

Iroquois Theatre Fire, Chicago, NY, USA. 1903

Disaster Summary

A lamp shorted out and caught a muslin curtain on fire. The fire quickly spread to the fly gallery high above the stage where several thousand square feet of highly flammable painted canvas scenery flats were hung. Full panic was on as flames and smoke began licking out from under the half lowered fire curtain. Some patrons panicked, crushing or trampling others in a desperate attempt to escape the fire. Many were killed while trapped in dead ends or while attempting to open windows that were designed to look like doors.

There are also a lot of patrons unable to reach the foyer because the iron grates that barred the stairways were still in place. The largest death toll was at the base of these stairways, where hundreds of people were trampled, crushed, or asphyxiated. At least 605 people died as a result of the fire. It is the deadliest theater fire and the deadliest single-building fire in United States history.

Lessons Learned

- **Flammable decorations and scenery: curtains draperies, hangings and decorations shall be flame resistant in theater.**
- Evacuation was delayed while stagehands attempted to extinguish the fire: Evacuation shall be administered in a timely manner.
- No sprinkler system: The theater did not have an automatic fire sprinkler system to extinguish the fire.
- Improper exits: Many of the exit routes were confusing.
- Blocked egress routes: Large iron gates blocked off the stairways during performances to prevent patrons from moving down from the gallery to the dress circle or orchestra.
- The standing room areas were so crowded that some patrons instead sat in the aisles, blocking the exits.

Brooklyn Theater Fire, Brooklyn, NY, USA. 1876

Disaster Summary

A gas light ignited scenery in the fly space behind the stage. The fire quickly grew and communicated with other sceneries. The smoke filled the theatre and the whole machinery and scenery were upon fire. A panic ensued, all exits were overwhelmed. A narrow staircase was the only the exit from the balcony (there were no fire escapes) and panic resulted in a stampede in which many were crushed and others remained trapped. The fire destroyed the entire building and when the flames died down, an estimated 278 people lost their lives.

Lessons Learned

- **Flammable decorations and scenery: curtains draperies, hangings and decorations shall be flame resistant in theater.**
- Evacuation was delayed while stagehands attempted to extinguish the fire: Evacuation shall be administered in a timely manner.
- No sprinkler system: The theater did not have an automatic fire sprinkler system to extinguish the fire.
- Improper exits: Exits and exit routes were designed for orderly, non-emergent evacuation, not panicking patrons.

2. DEFINITIONS

Several terms are used when discussing flame-retardant treatment of decorative materials and scenery. The definitions of these terms are listed below.

AFFIDAVIT OF FLAME RESISTANCE – Affidavit that must be filed with the Fire Department prior to the installation or maintenance of any decoration on the premises

AFFIDAVIT OF FLAME-RETARDANT TREATMENT – An affidavit that must be filed with the Bureau of Fire Prevention not later than ten (10) days after the installation or reinstallation of the decoration in the premises following the flame-retardant treatment and/or testing of the decoration in accordance with the Rules of the City of New York.

AFFIDAVIT OF INHERENTLY FLAME-RESISTANT MATERIAL – An affidavit that must be filed with the Bureau of Fire Prevention not later than ten (10) days after the installation or reinstallation of inherently flame resistant material on the premises. This may also be referred to as a "certificate of flame resistance."

BUREAU OF FIRE PREVENTION – The Bureau of Fire Prevention is a unit within the FDNY that provides fire prevention services to the public and businesses through a series of programs. More information regarding the Bureau of Fire Prevention is available at the following link: http://www.nyc.gov/html/fdny/html/units/fire_prevention/fire_prev_index.shtml

CERTIFICATE OF APPROVAL – A written statement issued by the commissioner, certifying that an article, device or equipment, or type, class or kind thereof, has been examined, tested and approved for a specific purpose or use in conformity with the requirements of the construction codes, this code or the rules.

CONIFER – Any tree, plant or shrub containing pitch, including hemlock, balsam, pine and fir.

DECORATION – Any item that is used for acoustical, aesthetic or artistic enhancement of an interior space, including artwork, banners, curtains, draperies and decorative greens, fabrics, hangings, and streamers, but not including acoustical materials regulated by the Building Code as an interior finish.

FLAME-RETARDANT COATING – An approved coating that, when applied to the surface of scenery in an approved manner, imparts flame resistance and reduces flame spread. Such coating and its method of application shall be approved by the FDNY. Flame-retardant coatings shall be maintained so as to retain the effectiveness of the coating under conditions encountered in actual use.

FLAME-RETARDANT TREATMENT – An approved chemical that, when applied to a material in an approved manner, imparts flame resistance to a material. Treatments need to soak or absorb into the material. Such chemical and its method of application shall be approved by the FDNY. Flame-retardant treatments shall be maintained so as to retain the effectiveness of the treatment under conditions encountered in actual use.

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.

FLAME SPREAD – The propagation of flame over a surface.

The NFPA groups flame spread ratings into three main categories (A-C), A being the lowest and C being the highest flame spread with a smoke developed index not exceeding 450 (other organizations use Roman Numerals (I-III).)

Class	Flame Spread Index
A (I)	0-25
B (II)	26-75
C (III)	76-200

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

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

MEMBRANE STRUCTURE – An air-inflated, air-supported, cable or frame-covered structure or tent, as defined in Chapter 31 of the Building Code.

NATURAL DECORATIVE GREEN – A bough of a natural tree or part thereof.

NATURAL TREE – Any live tree, plant or shrub, including conifer that is rooted in soil.

OCCUPANCY – The purpose or activity for which a building or space is used or designed to be used. References to occupancy classification shall be deemed to include the equivalent occupancy classifications under the 1968 Building Code and all prior Building Codes or other applicable laws, rules and regulations. (See Appendix A for examples)

PERSONAL SUPERVISION – Supervision by the holder of any Fire Department Certificate of Fitness who is required to be personally present on the premises, or other proximate location acceptable to the department, while performing the duties for which the certificate is required.

SCENERY – Any or all of those devices ordinarily used on a stage in the presentation of a theatrical, artistic, musical or other similar live performance, such as back drops, side tabs, teasers, borders or scrim, rigid flats, set pieces, and all properties, except costumes**.**

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.

TENT – A non-pressurized membrane structure of a fabric weather barrier supported by poles and guys in which the fabric weather barrier does not impart stability to the structure. Tents need not be fully enclosed on the sides.

3. FLAME-RETARDANT TREATMENT OF MATERIALS

Flame-retardant treatment must be conducted under the ***personal supervision*** of a Certificate of Fitness C-15 holder. The C-15 Certificate of Fitness holder is responsible for making sure that the correct procedures are followed during the flame-retardant treatment process.

A decoration or a piece of scenery that is not inherently flame-resistant or retardant shall be subjected to a flame-retardant treatment via soaking or coating in all of the following situations:

1. Prior to being installed in the premises

2. After each washing, dry cleaning, ironing, sewing or other processing of the decoration that might impair the effectiveness of its flame resistance, unless otherwise stated in the certificate of approval for the flame-retardant treatment

3. At the end of the time period following each flame-retardant treatment or coating that the manufacturer of the flame-retardant chemical states that the treatment will be effective. For example, if the manufacturer states on the affidavit of flame resistance that the chemical is effective for two years, a flame-retardant treatment must take place at a minimum of every two years.

4. At a minimum of every three years from the date of the last flame-retardant treatment. For example, even if the manufacturer of the flame-retardant chemical states that the treatment will be effective for five years; the FDNY requires that the material receive a flame-retardant treatment after three years.

5. Any time the flame-resistant material or scenery fails to pass a field flame test conducted in accordance with the New York City fire code and the Rules of the City of New York.

Methods of Flame-Retardant Treatment

There is no standardized flame-retardant treatment or coating method for C-15 C of F holders to follow. Depending on the material being treated, the person or person(s) responsible for treating it and the size of the task, methods will vary. The method will also vary depending on which flame proofing company the C-15 holder is employed by.

There are two basic methods used to treat materials to be flame resistive:

(a) Soaking:
Soaking the material in flame-retardant chemicals is considered to be the most effective method. This procedure saturates the material and allows the chemicals to seep into the fibers.

(b) Coating:
Coating is done by simply brushing or spraying the chemicals on to the material.

Regardless of the procedure used to impart flame resistance on decorations or scenery, the material must pass either NFPA 705 or Test 1 or Test 2 as outlined in NFPA 701 after being treated.

Examples of fabric being sprayed with a flame retardant chemical

Certificate of Approval

Several different types of flame retardant treatments are available; however, only a few are widely used because many of the treatments have undesirable properties. For example, some treatments change the color of the material and/or damage the material.

The type of treatment used depends on the nature of the materials and how the materials are used. Water soluble treatments are the least expensive and are the most easily applied. However, they lose their effectiveness when washed or exposed to the weather. Some treatments lose their effectiveness when exposed to the solvents used in certain dry cleaning operations. Still other treatments have short lived effectiveness and should only be used for short periods of time. It is important to understand that not all materials may be treated to be flame resistive (e.g., hemlock, balsam, Spanish moss, and Christmas trees that contain pitch).

All chemicals used during the flame-retardant treatment process must be approved by the FDNY and have a Certificate of Approval. The manufacturer of the chemical or product used in the flame-retardant treatment should obtain a Certificate of Approval from the FDNY. The application process is outlined in Section 112 of the 2014 New York City Fire Code (Reference Appendix A for information regarding the application process). A current list of approved flame-resistant chemicals, their certificate of approval numbers, and their expiration dates is maintained by the FDNY and is available to the public. The link to this list is below:

http://www.nyc.gov/html/fdny/pdf/fire_prevention/list_fireret.pdf

Please reference Appendix B for the complete list of approved chemicals.

Chemicals or products that have not received a Certificate of Approval from the FDNY may not be used to treat combustible materials to be made flame resistant by the C-15 Certificate of Fitness holder. Each chemical that has a certificate of approval must have the certificate of approval number plainly stamped or otherwise affixed upon it.

3. DECORATIONS AND SCENERY

The New York City Fire Department enforces regulations that require all decorations in certain occupancies, including public assembly occupancies, be flame resistant.

Draperies, area rugs and decorative greens shall be installed and maintained in building hallway corridors in compliance with the requirements that they be inherently noncombustible or flame proofed in an approved method, and the prohibition against the display in building hallway corridors of Christmas trees and other conifers, and wreaths made of conifers.

- The FDNY requires that in Group A, E, I and M occupancies, and Group R-1 college and university dormitories, common areas in Group B, R-1 and R-2 occupancies, and any building or structure used as a place of public gathering, decorations shall be flame resistant.

Exceptions to these regulations are listed below:

Exceptions:

1. Artwork in a museum or art gallery.

2. Artwork on the walls of building hallway corridors in Group B office and Group R-2 occupancies, provided that the wall area covered by such artwork does not exceed 20 percent of any wall in any occupancy not protected throughout by a sprinkler system or 50 percent of any wall in any occupancy protected throughout by a sprinkler system, and the artwork is affixed in a manner that prevents it from moving freely.
3. Artwork and educational materials in classrooms in Group E and I-4 occupancies, and on the walls of corridors in such occupancies, provided that the corridor wall area covered by such artwork and materials does not exceed 20 percent of any wall, and the artwork and materials are affixed in a manner that prevents them from moving freely.
4. Curtains, draperies, hangings and other decorative materials suspended from walls of sleeping units and dwelling units in Occupancy Group R-1 dormitories protected throughout by a sprinkler system, where the total amount of such materials does not exceed 25 percent of the aggregate area of walls.
5. Decorations displayed for sale.
6. Guest rooms in hotels and motels.
7. Decorations in houses of worship, including wood used for screening or ornamental purposes.
8. Decorations in private offices in commercial buildings.

A. Decorations

Fabric Partitions

In Group B and M occupancies, fabric partitions suspended from the ceiling and not supported by the floor shall be inherently noncombustible or shall be treated to meet the flame propagation performance criteria in accordance with the Fire Code and NFPA 701.

Trim and Decorative Materials

The type and quantity of interior trim allowed shall be as set forth in Chapter 8 of the Building Code. The quantity of flame resistant materials used in decorations when combined with combustible trim shall not exceed 10 percent of the specific wall or ceiling area to which it is attached.

Natural decorative greens. Natural decorative greens shall be stored and displayed in a building in accordance with the following:

Storage. It shall be unlawful to store natural decorative greens in any building, except merchandise for sale or displayed for sale which does not contain conifers.

Display. Natural decorative greens may be displayed in buildings on a temporary basis. The display of natural decorative greens in Group A, E, I,

and M occupancies, in common areas of Group R-1, R-2 and B occupancies, and any building or structure used for a public gathering, except display of works of art in museums and houses of worship, shall comply with the restrictions below:

Restrictions on display. It shall be unlawful to display in any building natural decorative greens that:

1. Contain pitch, such as hemlock, balsam, pine or Spanish moss.
2. Are displayed at a location less than 3 feet (914 mm) from stuffed furniture, rugs, or other combustible material or contain combustible decorations.
3. Are on a combustible framework or displayed in conjunction with combustible material unless such material is flame resistant.

Dryness. Any natural decorative green shall be removed from a building at the first sign of deterioration or dryness. Natural decorative greens shall be checked at least daily for dryness.

Artificial vegetation

Artificial decorative vegetation, including artificial trees, shall be flame resistant. Alternatively, the artificial decorative vegetation shall have a maximum heat release rate of 100 kW when tested in accordance with NFPA 289, using a 20 kW ignition source. Such flame resistance or maximum heat release rate shall be certified by a testing laboratory or by the manufacturer in an approved manner. Documentation of such certification shall be submitted to the department upon request and as required by the rules.

Some synthetic materials resist absorbing flame retardant treatment. As a general rule, if the material does not absorb water, it probably will not take the flame retardant either.

B. Scenery

The FDNY requires that all scenery in Group A (Public Assembly) occupancies shall be made of materials that are inherently noncombustible, have a Class-A flame spread rating, or have been rendered flame resistant by the application of a fire-retardant coating. The commissioner may authorize the use of scenery not complying with any of those requirements where provision is made to ensure an equivalent level of fire safety. Foam plastic materials used for scenery shall comply with the maximum heat release rate of 100 kW when tested in accordance with UL 1975. At the conclusion of the performance or audience event in a performing arts theater, the flame-

resistant stage curtain and stage trap doors are closed, and stage elevators are returned to the stage floor level.

For sets, it is usually a better to apply the flame retardant before painting or sealing the surface. Often when wood is painted, it can resist absorbing the flame retardant treatment. If the set has already been painted, there may be flame retardants available that can be mixed with clear acrylic sealer and applied over the paint. Always check the FDNY Certificate of Approval List to determine which flame retardant treatment is best.

Additionally, fabric awnings, canopies, decorations and umbrellas installed or used in any sidewalk café or other similar public gathering place required to obtain a permit from the Department of Consumer Affairs or other New York State of New York City agency shall be treated to be flame-resistant or made of inherently non-combustible materials. An affidavit signed by the C-15 C of F holder attesting to such flame-retardant treatment or inherently non-combustible material shall be filed with the Fire Department prior to the installation or use of such articles as per the Rules of the City of New York.

C. Other materials

Marine vessel covers
Shrink-wrapped plastic or other material used to cover marine vessels in storage shall be flame-resistant.

Curtains and drapes in a laboratory
Curtains and drapes installed in a laboratory unit shall comply with the flame resistance requirements.

Scenery or curtains in special effect display sites
The set, scenery, curtains, rigging materials, and soft goods (such as tablecloths, clothing, drops) used in a special effects display site and its surroundings must be provided with certifications indicating they are inherently flame-retardant or have been treated to achieve flame resistance.

4. TEMPORARY STRUCTURES, DECORATIONS AND SCENERY

Temporary Structures

(Tents, Canopies, other Membrane Structures)
The owner or agent shall file with the commissioner a certificate issued by an approved testing laboratory, certifying that the tent materials and their appurtenances, sidewalls, drops and tarpaulins, floor coverings, bunting, combustible decorative materials and effects, including sawdust when used on

floors or passageways, are composed of flame-resistant material meeting the flame propagation performance criteria of NFPA 701 or shall be treated with a flame retardant in an approved manner and meet the flame propagation performance criteria of NFPA 701, and that such flame resistance is effective for the period specified by the permit.
Exit openings from tents shall remain open unless covered by a flame-resistant curtain. The curtain shall comply with the following requirements:

1. Curtains shall be free sliding on a metal support. The support shall be a minimum of 80 inches above the floor level at the exit. The curtains shall be so arranged that, when open, no part of the curtain obstructs the exit.
2. Curtains shall be of a color, or colors, that contrast with the color of the tent.
3. Curtains shall be flame resistant in accordance with Fire Code.

Requirements for Temporary Decorations

In lieu of an affidavit of flame-retardant treatment or inherently flame-resistant material, the FDNY may choose to accept either a testing report from a nationally recognized laboratory or a certification from other qualified flame-retardant treatment professionals if all of the following is true:

1. The testing report or certification must indicate that the material has passed Test 1 or Test 2 as set forth in NFPA 701; and
2. The decoration is installed or maintained in a premise on a temporary basis not to exceed 30 days (for example, during a trade show or concert tour); and
3. The applicant must show that it would be an undue hardship to submit an affidavit of flame-retardant treatment or inherently flame-resistant material

Requirements for Temporary Scenery

In lieu of an affidavit of flame-retardant coating or inherently flame-retardant scenery, the FDNY may choose to accept either a testing report from a nationally recognized laboratory or a certification from other qualified flame-retardant treatment professionals if all of the following is true:

1. The testing report or certification must indicate that the material used in the scenery is either made of noncombustible materials, materials having a Class A flame-spread rating, or materials that have been rendered flame resistant by the application of a fire-retardant coating

2. The decoration is installed or maintained in a premise on a temporary basis not to exceed 30 days (for example, during a trade show or concert tour)
3. The applicant must show that it would be an undue hardship to submit an affidavit of flame-retardant coating or inherently flame-retardant scenery

5. FDNY ENFORCEMENT

In addition to the other penalties that may be applicable for failing to comply with these requirements, the Fire Department may:

1. order an owner of any premises containing a decoration or scenery for which no affidavit has been filed with the Department or that fails a flame test to remove such decoration or scenery immediately.

   The owner shall not reinstall or maintain the decoration or scenery in any affected occupancy until the decoration has been subjected to a flame-retardant treatment or coating and passed a test and an affidavit has been filed.

2. take appropriate action against the C-15 Certificate of Fitness holder for misconduct for improperly completing an affidavit of flame-retardant treatment or inherently flame-resistant material.

6. HANDLING, USING AND STORING FLAME-RETARDANT CHEMICALS

The chemicals used during the flame-retardant treatment process must be handled with great care. The manufacturer's storage and handling recommendations must be followed carefully to reduce the likelihood of personal injury and property damage. It is required that Material Safety Data Sheets/Safety Data Sheets (MSDS/SDS), which describe the nature of the chemicals and how they must be stored and handled, be available on the premises, and should be positioned close to the chemical storage area. (Reference Appendix D for an example of an MSDS/SDS sheet.)

The MSDS/SDS also lists the potential hazards associated with the stored chemicals and what steps should be taken in case of an emergency (e.g., what should be done if the compound comes in contact with a person's eye, skin, or is spilled). When there is doubt concerning the nature of the chemicals, the manufacturer should be contacted directly. When handling the chemicals, protective gloves, goggles and masks must be worn when recommended by the

manufacturer and/or the United States Occupational Safety and Health Administration (OSHA). For more information on chemical safety, please refer to OSHA's website: http://www.osha.gov/

The chemicals used for flame-retardant treatment should be stored inside clearly labeled containers in a well ventilated room. All required Fire Department permits for this storage location must be secured and posted. Additional Certificates of Fitness may be required depending on the types and amounts of chemicals used and stored on the premises. The C-15 C of F holder is encouraged to be familiar with these requirements to avoid the issuance of a notice of violation.

7. FIELD FLAME TESTS

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. It is extremely important that only qualified individuals perform the field flame test to avoid unnecessary property damage and the risk of starting an actual fire.

It is recommended by the Fire Department that if the material has received a flame-retardant treatment or is inherently flame-resistant, it should undergo **annual** field flame testing. If the material fails an annual field flame test, it should immediately undergo another flame-retardant treatment.

The field flame testing process is as follows:

1. The material should be tested using a **sample** of the existing material that is dry and unless impossible to obtain, approximately one and one-half (1.5) inches wide by four (4) inches long. C-15 holders should NEVER attempt to field flame test material or scenery that is intact. **ONLY SAMPLES SHOULD BE FIELD FLAME TESTED.**

2. The flame test shall be performed in a draft-free, safe location, outdoors where practicable, and within ten (10) feet of a portable fire extinguisher with at least a 2-A rating.

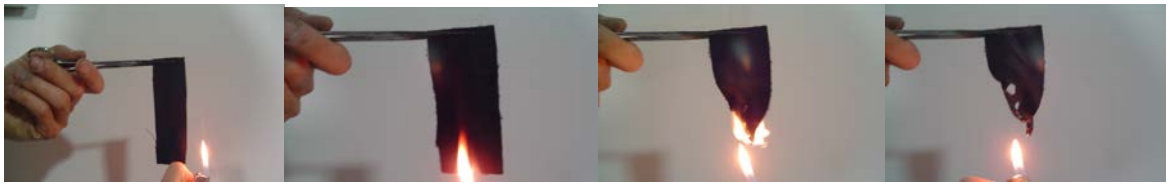
3. The sample shall be suspended (preferably with tongs) with the long axis vertical. The flame from a common wood kitchen match shall be applied to the center of the bottom edge of the sample for 12 seconds, before it is gently removed away from the sample.

4. The sample shall be deemed to be satisfactorily flame-resistant only when all of the following requirements are met:

    A. the flaming does not spread rapidly over the sample
    B. the sample does not continue to burn for more than 2 seconds after the match has been withdrawn; and
    C. the flaming material does not break or drip from the sample and continue to burn

The photos below show what a field flame test looks like on two different types of material:

Field Flame Test on cotton



Field Flame Test on polyester

FDNY representatives may choose to conduct an on-site field flame test at any time. If decorations or scenery fail the field flame test, the FDNY representative has the discretion to order the decoration or scenery removed from the premises until it is retreated, passes a flame test, and an affidavit of flame resistance is filed with the FDNY.

Challenges of performing a Field Flame Test

Field flame tests are important in demonstrating whether or not material is flame resistant. However, due to the lack of scientific validity or reliability of the test, results can vary (Please reference NFPA 705 for more detailed information). The person performing the field flame test, whether a C-15 holder or FDNY representative, should take all relevant information into account when making a determination if a decoration or scenery is flame resistant.

Information that should be taken into account includes the following:

- Date of the most recent flame-retardant treatment

- If the chemicals used to treat the material have an FDNY certificate of approval
- If the material has been dry cleaned or washed after the flame-retardant treatment.

The person performing the field flame test should use their discretion in determining how many samples it is appropriate to test. A general guideline is the more samples tested the better. Additionally, larger samples seem to yield more accurate field flame test results than smaller samples do especially when testing synthetic fabrics. However, in certain situations, when the material being tested for flame resistance is extremely expensive (i.e. when taking samples from a stage curtain in a theater on Broadway), taking several large samples may be impossible.

The person performing the field flame test should carefully choose the type of tool they use to cut the sample to be tested. If a knife or razor is used to cut the sample, sometimes strings from the inside of the sample emerge. These errant strings may not be flame retardant because they originate from the interior of the material and can cause the sample to fail the field flame test even if the material is in fact flame resistant. Using sharp scissors to cut the sample is recommended to avoid this issue.

Certain types of fabrics will react differently to the field flame test. NFPA 705 states that there are only two types of material for which the field flame test method can be deemed foolproof and totally accurate. These two types of material are as follows:

1. Materials made entirely of noncombustible inorganic material or materials that are inherently flame resistant

2. Materials that ignite and burn readily

Between these two extremes, the field flame test method has a limited and varying degree of reliability. The least reliable results are found with synthetic fibers and flexible films and laminates. These materials are subject to a variety of changes when exposed to fire, such as shrinking, curling, melting, elongating, and similar distortions, making the examination of small samples quite difficult and the results ambiguous.

When testing synthetic or blended fabrics, it is recommended that they should be tested at least once in each dimensional direction of the fabric. For example, if a C-15 holder cuts two samples of the fabric, the second sample should be cut at a right angle to the first. It is important to note that sometimes the unequal number of threads in each direction of the weave of the fabric as well as the

unequal types of thread in each direction will usually yield different results in the match test.

Decorations and scenery can easily accumulate organic material (such as dust and oil) on their surface. Organic material is highly combustible and will hinder inherently flame resistant and flame-retardant treated fabrics. Good housekeeping can help reduce the risk of the accumulation of this material. Decorations and scenery must be retreated for flame resistance after each instance of washing or dry cleaning, since washing or dry cleaning can reduce the flame retardant properties of the material.

It is important to understand that no decoration or scenery can ever be deemed completely flame proof. The goal in utilizing inherently flame resistant materials and flame retardant treatments is to slow down the spread of flame as long as possible during a fire emergency. Slowing the spread of flame can allow time to extinguish the fire or enough time for all occupants to evacuate from the area and out of harm's way.

8. AFFIDAVITS OF FLAME RESISTANCE

a. Affidavit of Flame-Retardant Treatment

covers fabrics that are not inherently flame retardant and:

- have had an initial treatment **or**
- need re-treatment after washing, dry cleaning, etc…; unless the certificate of approval used states otherwise **or**
- need re-treatment after failing a field flame test **or**
- must be re-treated at the end of the warranty period or the application validity has exceeded three (3) years

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.

The owner must then:

1. File the affidavit with the Bureau of Fire Prevention no later than ten days after the installation or reinstallation of the decoration or scenery in the premises following the flame-retardant treatment and/or testing of the scenery or decoration

2. Maintain a copy of the affidavit on the premises for inspection by a Fire Department representative

3. Maintain a record of each washing, dry cleaning, or other processing of the decoration that might impair the effectiveness of its flame resistance

The affidavit must be signed by the C-15 certificate of fitness holder who performed or personally supervised the flame-retardant treatment and the testing of the flame-resistant material or flame-retardant scenery.

The affidavit must contain the following information:

1. The name of the person who performed the flame-retardant treatment or coating, and the number and expiration date of his or her C-15 certificate of fitness
2. The date of the treatment and/or testing
3. The name of the manufacturer of the flame-retardant chemical or coating, its trade name and its Certificate of Approval number
4. A detailed description of the materials treated and a statement indicating that the flame-retardant treatment or coating used has been approved under the certificate of approval for the materials treated
5. The period of time that the manufacturer of the flame-retardant chemical or coating warrants that the material's flame resistance will be effective
6. The name of the person who performed the flame-retardant treatment's certification that the material, and that the flame-retardant treatment or coating comply with the Rules of the City of New York and that he or she personally subjected a sample of the treated material to a test in accordance with the requirements of the Rules, or personally supervised such test, and the material or scenery passed the test

b. Affidavit of Inherently Flame-Resistant Material

covers fabrics that meet NFPA 701 tests without any additional treatment

The owner of a premise in which there is any decoration made of inherently flame-resistant material, or scenery made of inherently flame-retardant material must:

1. File an affidavit with the Bureau of Fire Prevention signed by a C-15 Certificate of Fitness holder for each such decoration or scenery attesting to its inherently flame-resistant or flame-retardant properties.

The affidavit must be filed no later than ten (10) days after the installation or reinstallation of the decorations on the premises.

2. Maintain a copy of the affidavit on the premises for inspection by any Fire Department representative.

The affidavit of inherently flame-resistant material or flame-retardant scenery shall contain the following information:

1. The name of the person who personally inspected and/or tested the decoration/scenery, and the number and expiration date of his or her C-15 certificate of fitness

2. The name of the manufacturer of the material

3. An exact description of the material, and a description of the properties of the material that render it inherently flame-resistant

The FDNY may reject any affidavit of flame-retardant treatment or inherently flame-resistant material that it determines is not in compliance with the requirements of the New York City Fire Code and the Rules of the City of New York. If the affidavit is rejected:

- The FDNY must give written notice to the owner of the occupancy containing the decoration
- The FDNY must give written notice to the certificate of fitness holder who executed the affidavit.
- The decoration or scenery shall be removed from the affected occupancy and will not be reinstalled until it has been subjected to a flame-retardant treatment and a satisfactory affidavit of flame-retardant treatment has been filed with the Fire Department

c. Affidavit of Flame Retardant Coating
covers scenery in any Group A occupancy ordinarily used on stage during theatrical, musical or other performances. The material include back drops, side tabs, teasers, borders, scrims, rigid flats, set pieces and all properties except costumes.

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.

The owner must then:

4. File the affidavit with the Bureau of Fire Prevention no later than ten days after the installation or reinstallation of the decoration or scenery in the premises following the flame-retardant treatment and/or testing of the scenery or decoration

5. Maintain a copy of the affidavit on the premises for inspection by a Fire Department representative

6. Maintain a record of each washing, dry cleaning, or other processing of the decoration that might impair the effectiveness of its flame resistance

The affidavit must be signed by the C-15 certificate of fitness holder who performed or personally supervised the flame-retardant treatment and the testing of the flame-resistant material or flame-retardant scenery.

The affidavit must contain the following information:

7. The name of the person who performed the flame-retardant treatment or coating, and the number and expiration date of his or her C-15 certificate of fitness

8. The date of the treatment and/or testing

9. The name of the manufacturer of the flame-retardant chemical or coating, its trade name and its Certificate of Approval number

10. A detailed description of the materials treated and a statement indicating that the flame-retardant treatment or coating used has been approved under the certificate of approval for the materials treated

11. The period of time that the manufacturer of the flame-retardant chemical or coating warrants that the material's flame resistance will be effective

12. The name of the person who performed the flame-retardant treatment's certification that the material, and that the flame-retardant treatment or coating comply with the Rules of the City of New York and that he or she personally subjected a sample of the treated material to a test in accordance with the requirements of the Rules, or personally supervised such test, and the material or scenery passed the test

d. Affidavit of Flame Retardant Scenery

covers scenery made of materials that inherently comply with flame retardant requirements of FC 805.2 for example: noncombustible, class A flame spread rating)

9. HAZARDS IDENTIFICATION

Material Safety Data Sheet/ Safety Data Sheet (MSDS/SDS)

The material safety data sheet (MSDS) contains specific information about the health and physical hazards of the material used, as well as safe work practices and required protective equipment. It may also describe the material's physical characteristics and procedures that should be followed in case of an emergency. For example, the MSDS may list appropriate and inappropriate extinguishing agents. The Certificate of Fitness holder must refer to the MSDS when questions arise about how to handle, use, or store hazardous chemicals or materials.

The MSDS/SDS will commonly include the Hazardous Materials Identification System rating (HMIS) and/or the NFPA 704 Hazard Diamond which is described in detail below.

Hazardous Materials Identification System (HMIS)

The system was been developed by the National Paint and Coatings Association (NPCA) in response to the requirement by the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (HCS) that all chemicals in the workplace be labeled. It is broken down into 4 hazard categories:

- **Health (blue):** The Health section conveys the health hazards of the material. In the latest version of HMIS®, the blue Health bar has two spaces, one for an asterisk and one for a numeric hazard rating. If present, the asterisk signifies a chronic health hazard, meaning that long-term exposure to the material could cause a health problem such as emphysema or kidney damage.
- **Flammability (red),**
- **Reactivity/Instability (yellow)**, and
- **Personal Protective Equipment, PPE (white).**

Hazardous Materials Identification System (HMIS) Explanation

TYPE OF HAZARD

- HEALTH — blue
- FLAMMABILITY — red
- REACTIVITY — yellow
- PROTECTIVE EQUIPMENT — white

DEGREE

- 4- EXTREME
- 3- SERIOUS
- 2- MODERATE
- 1- SLIGHT
- 0- MINIMAL

HAZARD RATING

HEALTH	FLAMMABILITY	REACTIVITY
4- EXTREME: Highly toxic – May be fatal on short term exposure. Special protective equipment required **3- SERIOUS:** Toxic – Avoid inhalation or skin contact. **2- MODERATE:** May be harmful if inhaled or absorbed **1- SLIGHT:** Slightly toxic – May cause slight irritation **0- MINIMAL:** All chemicals have some degree of toxicity	**4- EXTREME:** Extremely flammable gas or liquid. Flash point below 73° F. **3- SERIOUS:** Flammable – Flash point 73 ° F to 100° F **2- MODERATE:** Combustible – Requires moderate heating to ignite. Flash point 100° F to 200° F **1- SLIGHT:** Slightly combustible – Requires strong heating to ignite **0- MINIMAL:** Will not burn under normal conditions	**4- EXTREME:** Explosive at room temperature **3- SERIOUS:** May explode if shocked, heated under confinement or mixed with water **2- MODERATE:** Unstable, may react with water **1- SLIGHT:** May react if heated or mixed with water **0- MINIMAL:** Normally stable, does not react with water
blue	red	yellow

PERSONAL PROTECTIVE EQUIP.

A	Safety Glasses, Gloves
B	Safety Glasses, Gloves
C	Safety Glasses, Gloves, Protective Apron
D	Face Shield, Gloves, Protective Apron
E	Safety Glasses, Gloves, Dust Respirator
F	Safety Glasses, Gloves, Dust Respirator, Protective Apron
G	Safety Glasses, Gloves, Vapor Respirator
H	Face Shield, Gloves, Protective Apron, Vapor Respirator
I	Safety Glasses, Gloves, Vapor Respirator, Dust Respirator
J	Splash Goggles, Gloves, Dust Respirator, Protective Apron, Vapor Respirator
K	Air Line Mask or Hood, Gloves, Full Suit, Boots
X	ASK YOUR SUPERVISOR FOR SPECIAL HANDLING INSTRUCTIONS

Example of a HMIS Label

- 1 HEALTH — blue
- 2 FLAMMABILITY — red
- 1 REACTIVITY — yellow
- K PROTECTIVE EQUIPMENT — white

NFPA Hazard Diamond Sign

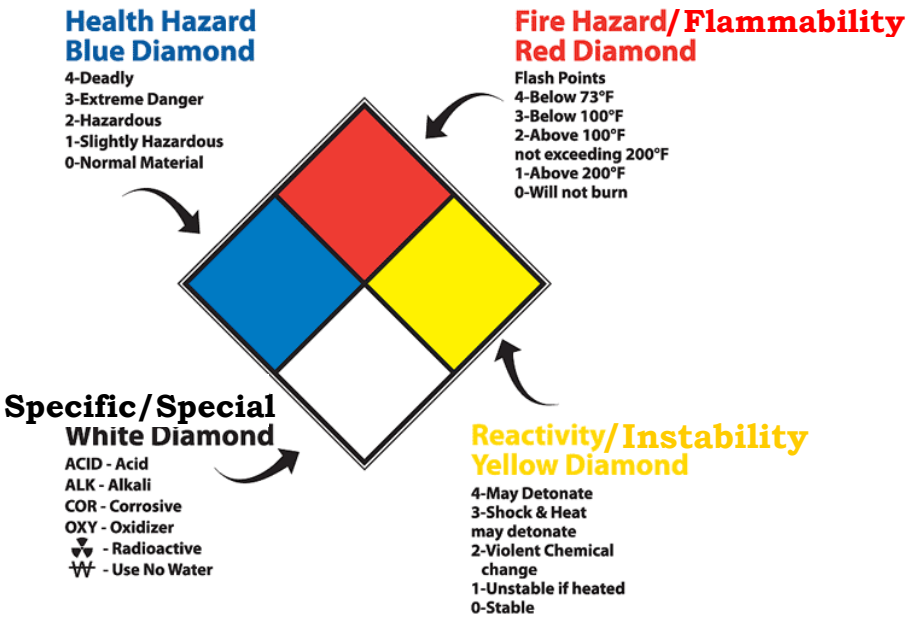
The *transport* of hazardous materials is accompanied by the use of US DOT compliant placards and labels to assist identification of hazardous materials on the roadway, railway, waterway and in the air. In a similar manner the *storage, handling and use* of hazardous materials is accompanied in the Fire Code by a requirement for the use of consistent signage to alert people, including first responders, to the presence of hazardous materials in a facility. The intent of the signage is to provide an indication of both the *type* of hazardous material present and the relative *degree of harm* that the material may pose. This simplistic system uses symbols, colors and numbers to readily communicate these concerns in a visual manner, and recognizes the fact that a material may pose more than one type of hazard.

The basis of the system is a diamond-shaped sign that is divided into four color-coded quadrants. The left-most quadrant is colored blue and represents the *health* hazard posed by the material. The upper quadrant is red in color and indicates the relative *fire* hazard. The right-most quadrant is yellow and conveys the relative potential for *reactivity* of the material. The last quadrant, at the bottom, is white in color and serves to convey *"special"* or *"specific"* information such as "~~W~~" for use no water.

The diamond-shaped sign is required by the Fire Code to be conspicuously displayed at the entrance to locations where hazardous materials are stored, handled and used, and on stationary containers and aboveground tanks containing hazardous materials. Note that the sign requirement also applies to locations at which a hazardous material is dispensed. The triggering amount for the sign requirement is the **amount required for a permit**.

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

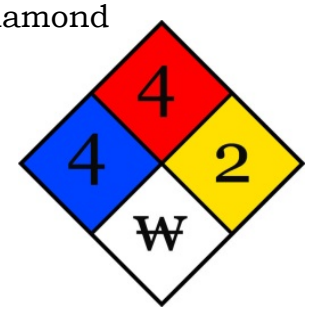
NFPA HAZARD DIAMOND SIGN EXPLANATION



Sign with Hazards Indicated

Personal Protection

NFPA 704 Hazard Diamond



HMIS

This is by far the largest area of difference between the NFPA and HMIS® systems. In the NFPA system, the white area is used to convey special or specific hazards whereas HMIS® uses the white section to indicate what personal protective equipment (PPE) should be used when working with the material.

10. BEST PRACTICES

The tips below are best practices recommended by the FDNY.

- Material that has been treated with a flame-retardant coating should be allowed to dry for at least 24 hours prior to undergoing any flame test. Failing to wait 24 hours could render inaccurate flame test results, depending on the chemical type.

- After purchasing decorations or scenery that is inherently flame resistant or has been treated to be flame-retardant, the FDNY encourages consumers to verify the flame resistance of these materials. The FDNY suggests that upon delivery of these materials, consumers should ask to witness a field flame test performed by the C-15 holder who signed the affidavit of flame resistance. This will help to avoid any surprises when a fire inspector arrives on site to conduct a field flame test. Even if an affidavit of flame resistance has been filed with the department, the consumer should be confident that the material will pass the flame test.

- C-15 Certificate of Fitness holders are encouraged to visit the FDNY website often to stay up to date and current with any new Fire Code regulations and requirements. This can help to avoid the issuance of violations and to keep occupants safe.

- C-15 Certificate of Fitness holders should advise their clients regarding how to maintain their inherently flame resistant or treated materials on-site. Specifically, C-15 holders should inform their clients of any practices (such as dry cleaning, washing, allowing the accumulation of dust) which could potentially lower the flame resistance of the materials.

- C-15 Certificate of Fitness holders should be aware that even if decorations or scenery are deemed inherently flame resistant or have undergone a flame retardant treatment AND pass a flame test, these materials will burn in a fire situation. The most reasonable assumption is that decorations or scenery that meet the requirements outlined in this study material will not contribute to the fire, but will burn slow enough that the fire could be successfully extinguished or controlled long enough that occupants will have enough time to evacuate safely.

11. FIRE EXTINGUISHERS

At least one portable fire extinguisher with at least a 2-A rating within 10 feet of flame proofing operations must be provided.

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.

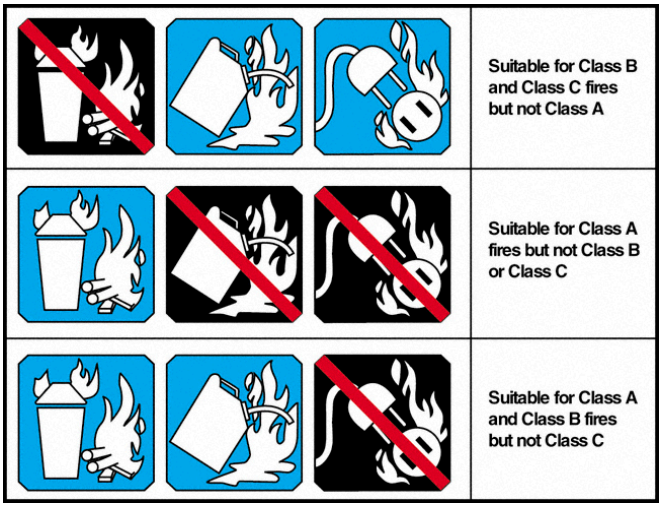
Classes of Fire Extinguishers

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

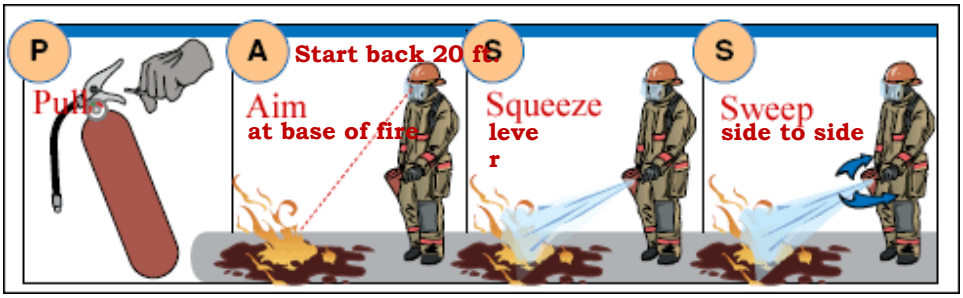
The symbol with the shaded background and the slash indicate when the extinguisher must not be used. Symbols may also be painted on the extinguisher. The symbols indicate what kind of fires the extinguishers may be used on. The COF holder and watch person must understand these symbols. Examples of these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

Sample Affidavit and Checklist

The following information will be included on the exam.

Sample Format for Affidavit

Certificate of Flame Resistance

For: _____

Certificate Holder: _____

_____

_____

Certificate Number: _____

Certificate Date: _____

Expiration Date: _____

This is to certify that the following items have been treated with a fire retardant chemical approved by the FDNY and in accordance with NYC Fire Code Section 805, NYC Fire Rule § 805-01. The items have been tested and meet or exceed the guidelines of the NYC Bureau of Standards and Appeals for Fire Resistive Materials and NFPA (701 or 705).

FDNY Certificate of Approval # _____

(Please list items below, if more space is need use additional paper)

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

The warranted period of effectiveness is one (1) year. The application is valid for up to three (3) years, with annual testing recommended. Any washing, cleaning or alteration of any kind of this material will void this certificate.

Sworn before me on

_____

_____
Signature of Certificate of Fitness holder

_____
COF Number

_____
COF Expiration Date

Notary

Checklist for city wide Application

The purpose of the **FDNY CHECKLIST** is to ensure that standardized processes are followed at all times by Certificate of Fitness holders. Many of the steps are commonly known by technicians but relying simply on memory can lead to significant errors or forgotten steps by C of F holders. The checklist also allows C of F holders to document their actions at the work site. After completion of the CHECKLIST, one C of F holder must sign the final report. All items on the checklist must be completed.

The blank space appears when the answer in non-applicable. On the back of the checklist, there is space for additional comments.

All C of F holders must complete this Checklist. If any Items have an (**M**-Mandatory), they have high safety importance. All M's must performed as required by the NYC code regulations. This check list is important since public safety may be jeopardized by not following the required actions. The check list will be covered in the exam.

It is recommended after flame proofing materials or sending materials inherently flame resistant that you provide the full written instructions to the client about post operations. Checklist items 15-18 can be provided in a separate sheet.

You do not need provide the entire checklist to the client. The client should sign that they received they received the instructions. If the clients refuse to sign it or chose not to sign, simply note it on the checklist.

Revised 3-24-16

C-15 Checklist

Re: Business name: _____
Address: _____
City & State: _____
Phone: _____

Company Name_____
Address_____
City, ST, Zip Code_____

Date:_____
Technician Name: _____
Signature: _____
C of F #:_____
Exp. Date: _____

A. Before you start		Responses	Comments
1. Is your COF C-15 up to date?	**M**	☐ Yes ☐ No	**If yes**, make sure COF # is listed above **If no**, <STOP>
2. Is the product being used on the FDNY approved list?	**M**	☐ Yes ☐ No	**If yes**, name of product _____ **If no** <STOP>
3. Are all materials appropriately labeled?	**M**	☐ Yes ☐ No	
4. Have you reviewed the MSDS for the product being used?	**M**	☐ Yes ☐ No	
B. Pre-Treatment Safety		**Responses**	**Comments**
5. Is the proper PPE (according to the MSDS) available for use?	**M**	☐ Yes ☐ No ☐ N/A	**If yes,** make sure to use **If no**, do not begin until you have been properly protected.
6. Is there proper fire extinguishing equipment available?	**M**	☐ Yes ☐ No	
7. Is there an eyewash station available in case of emergency?	**M**	☐ Yes ☐ No	
8. Do you have a method of disposing contaminated clothing	**M**	☐ Yes ☐ No	
9. Is area to be used for treatment well-ventilated and protected from the public?	**M**	☐ Yes ☐ No	
C. Procedures		**Responses**	**Comments**
10. Is the product double layered?		☐ Yes ☐ No	**If yes:** ☐Soak **If no:** ☐ Spray
D. Post- Treatment Safety		**Responses**	**Comments**
11. Has waste been disposed of according to local regulations?	**M**	☐ Yes ☐ No	☐ N/A
12. Have the products being used been stored safely?	**M**	☐ Yes ☐ No	
13. Have you adhered to proper housekeeping and good maintenance practices after flame-proofing?	**M**	☐ Yes ☐ No	
14. Have you performed a field flame test on material after treatment?	**M**	☐ Yes ☐ No	
E. Instructions to Owner		**Responses**	**Comments**
15. Have you explained proper maintenance of flame-proofed materials to owner?	**M**	☐ Yes ☐ No	
16. Have you notified owner not to modify materials (i.e.: no cutting washing, etc…)	**M**	☐ Yes ☐ No	Instructions given:
17. Have you notified owner of recertification and retreatment process?	**M**	☐ Yes ☐ No	If no, explain reasons on back of page in comments section.
18. Have you provided the owner with the flame proof affidavit?	**M**	☐ Yes ☐ No	If no, explain reasons on back of page in comments section.

Owner/Representative name: _____ Signature_____
Date: _____

M *– Mandatory, Any NO answer on M items requires immediate notification to the FDNY, Explosives Unit*

N/A – *Not applicable*
Note: A record of this service shall be maintained on premise and be made available for inspection by any member of the New York City Fire Department.
For any deficiencies described above, a follow-up letter will be sent to you listing any corrective action necessary. It is your responsibility to maintain your equipment in good working order.

Additional Comments:

Section / Item #	Description of Deficiencies

APPENDIX

Appendix A. Applying for Certificate of Approval

(1) Fire Code Section FC 112

CERTIFICATE OF APPROVAL

112.1 Approval of articles, equipment and devices. Where required by this code, the manufacturer of any article, equipment or device installed in any facility or used in connection with any material or operation shall obtain a certificate of approval for the design, installation, operation and/or maintenance of such article, equipment or device.

112.2 Conditions of approval. The commissioner may set forth in the certificate of approval conditions on the approved purpose or use of such article, equipment or device, or type, class or kind thereof, as may be necessary in the interest of public safety. The commissioner may include under a single certificate of approval more than one type, class or kind of article, equipment or device of a similar design or common characteristic.

112.3 Markings. Each article, equipment or device, or type, class or kind thereof, for which a certificate of approval has been issued shall have the number of such certificate plainly stamped or otherwise affixed upon it.

112.4 List of acceptable laboratories, articles and devices. A current list of all testing services and laboratories acceptable to the commissioner for the purpose of testing articles, equipment and devices, and a current list of all acceptable articles, equipment and devices shall be maintained by the department and made available for public inspection.

112.5 Application. Applications for a new or renewal certificate of approval required by the provisions of this code or the rules shall be made to the commissioner, in such form and detail as the commissioner may prescribe, including such information and documentation as the commissioner may require. An application for a certificate of approval shall include complete drawings of and specifications for the article, equipment or device for which approval is sought and, unless the commissioner determines that it is impracticable, the article, equipment or device itself shall be attached to or submitted with the application. The commissioner may require that the article, equipment or device be examined, tested or demonstrated at the applicant's expense in a manner prescribed by the commissioner, including examination and testing by a testing laboratory acceptable to the commissioner. In those instances where a testing or performance standard is not prescribed by this code or the rules, the article, equipment or device or type, class or kind of article, equipment or device shall have been examined and tested in a manner acceptable to the commissioner.

112.6 Issuance. The commissioner may grant an application for a certificate of approval upon a determination that the application article, equipment or device

is designed for the purpose for which it is to be used and can be safely operated in accordance with this code, the rules and other applicable laws, rules and regulations.

112.6.1 Term of certificate. Every certificate or renewal thereof granted by the commissioner shall be for a period as specified therein, not to exceed 3 years, and shall expire at the end of such period unless the commissioner approves its renewal.

112.6.2 Time for submission of renewal applications. Applicants may apply for renewal during the period from 60 days prior to a certificate's expiration date to not more than one year after such date. The commissioner shall not renew certificates that have been expired for more than one year. Applicants holding such certificates must apply for an original certificate and comply with all the original certificate requirements.

112.6.3 Renewal. Certificate renewals shall be at the discretion of the commissioner in the interest of public safety. The department may reevaluate the design and safety of the article, equipment or device in light of changes in applicable laws, rules or regulations, new technology, and safety concerns arising from the use of the article, equipment or device.

112.7 Expired certificates. It shall be unlawful to install articles, equipment or devices authorized by a certificate after the term of such certificate has expired.

112.8 Certificate revocation and suspension. The commissioner may, at any time, revoke or suspend a certificate for good cause. The certificate holder shall be afforded notice and an opportunity to be heard prior to any such suspension or revocation except that, in the circumstance of an imminent threat to public safety, such notice and opportunity to be heard may be given promptly after such revocation or suspension.

(2) Fire Rule 112-01 Certificates of Approval

(a) Scope. This section sets forth standards, requirements and procedures for the issuance of *certificates of approval* for articles, equipment and devices required by the Fire Code to be of a type for which such certificate has been issued.

(b) General Provisions

(1) Certificate of approval required. The following articles, equipment and devices are required to be of a type for which a *certificate of approval* has been issued:

(A) Flame-retardant chemicals and treatments, as set forth in FC801.8.

(B) Bars, grills, grates or similar devices placed over emergency escape and rescue openings, and openings onto fire escapes, as set forth in FC1025.5.

(C) Pre-engineered non-water *fire extinguishing systems*, including foam *fire extinguishing systems*, as set forth in FC901.4.5(1).

(D) Prefabricated hoods and grease filters installed in connection with *commercial cooking systems*, as set forth in FC901.4.5(2).

(E) Fire Department connections, *standpipe system* hose outlets and pressure reducing valves, as set forth in FC901.4.5(3).

(F) *Fire alarm system* control panels, as set forth in FC901.4.5(4).

(G) Pre-manufactured spray rooms and pre-manufactured spray booths, as set forth in FC 1504.1.1.2 and 1504.1.2.6, respectively.

(H) Ventilated metal lockers used for the storage of *liquefied petroleum gases*, as set forth in this section.

(2) Revocation of New York City Board of Standards and Appeal Approvals. Articles, equipment and devices regulated by the Fire Code as to which there was a New York City Board of Standards and Appeals approval in effect on July 1, 2008, may continue to be installed and used, provided that such article, equipment or device is installed and used in compliance with the Fire Code and the rules, except as follows:

(A) Flame proofing chemicals. Approvals for all flame proofing chemicals given by the New York City Board of Standards and Appeals were revoked on January 1, 2001.

(B) Fire escape window gates. Approvals of all bars, grilles, grates or similar devices designed to be placed over openings onto fire escapes that were given by the New York City Board of Standards and Appeals are revoked as of the effective date of this section, except that pre-existing installations may continue to be used in compliance with the requirements of R102-01 and the operational and maintenance requirements of R1025-01.

(c) General Application Requirements. Applicants for a certificate of approval shall submit all information and documentation necessary or appropriate to establish their eligibility for issuance of such certificate in accordance with FC112 and this section.

(1) Application forms and information. Information relating to certificates of approval and application procedures, including application forms, may be obtained from the Department's web site, www.nyc.gov/fdny, and from the Technology Management Unit of the Bureau of Fire Prevention, Fire Department Headquarters, 9 Metrotech Center, 1st Floor, Brooklyn, NY 11201-3857.

(2) Submission. Applications for certificates of approval shall be made by a principal or officer of the manufacturer of the article, equipment or device for which such certificate is sought, or other person or company authorized to represent the manufacturer. Original and renewal applications may be filed with the Department in person or by mail, together with the non-refundable application fee.

(3) Abandoned applications. An application for a certificate of approval shall be deemed to have been abandoned six (6) months after the date of filing,

unless such application has been diligently prosecuted or a certificate of approval has been issued. The Department may, in its discretion, grant one (1) or more extensions of time for additional periods not exceeding 90 days each, if there is good cause.

(4) Original applications. Applications for certificates of approval shall include the following information and documentation, and such other information and documentation as the Department may require:
   (A) the corporate and trade names of the manufacturer of the article, equipment and device, its principal address and any New York City address, and contact information;
   (B) the name and contact information of the manufacturer's authorized representative, if any;
   (C) a detailed description of the design and the intended installation and/or use of the article, equipment or device; and
   (D) the report of a nationally recognized testing laboratory or other approved organization approving the listing of the article, equipment or device, if such listing is required.

(5) Examination, demonstration and testing. The Department will notify the applicant if examination, demonstration or further testing of the article, equipment or device will be required.

(6) Renewal applications. An application for renewal of a certificate of approval shall disclose any changes in the design or intended installation and/or use of the article, equipment or device, and the following information and documentation:
   (A) Evidence demonstrating that the article, equipment or device complies with the requirements of all applicable Fire Code and rule provisions enacted or adopted after the date of approval of the original application or prior renewal.
   (B) Where required as a condition of approval, evidence that the article, equipment or device has a current listing.

(7) Conditions of approval. An original or renewal application will not be granted and a certificate of approval will not be issued unless the applicant acknowledges and accepts the conditions of approval. Such acknowledgement and acceptance shall be in the form of an affidavit or other form prescribed by the Department.

(8) Appeals. Any applicant aggrieved by a determination rendered upon an application for a certificate of approval may appeal such determination in accordance with the provisions of R104-01.

(d) Special Application Requirements. In addition to the general application requirements set forth in R112-01(c), applications for the following certificates of approval shall include the following information and documentation:

(1) Flame-retardant chemicals and treatments. Applications for a certificate of approval for flame-retardant chemicals and treatments shall include the following information and documentation:

(A) a copy of the Material Safety Data Sheet for the flame-retardant chemical;

(B) a report approving the listing of the flame-resistance chemicals and treatments that certifies that such chemicals and treatments have passed either Test 1 or Test 2 of NFPA 701. Such report shall indicate the flame retardant chemicals tested, the manner in which they were applied, the materials to which they were applied, and such other information or documentation as the Department may require to demonstrate the flame resistance imparted by such chemicals and treatments; and

(C) an affidavit, executed by a principal or officer of the applicant, setting forth the following information:

(1) the chemical's trade name;

(2) the types of material that may be satisfactorily treated with the chemical;

(3) the required or recommended manner in which such chemical shall be applied;

(4) the period of time that the flame-resistant chemical will impart flame resistance to the material; and

(5) a certification as to the effect, if any, that normal handling of the decoration (including washing, dry cleaning, ironing and sewing), will have on the effectiveness of the *flame-resistant material*.

(2) Fire escapes and emergency escape and rescue openings window gates. Applications for a certificate of approval for a window gate for a fire escape or emergency escape and rescue opening, or similar device, shall demonstrate to the satisfaction of the Department that such device complies the requirements of R1025-01.

(e) Revocation. A certificate of approval shall be automatically revoked upon the happening of any of the following events:

(1) the article, equipment or device cannot be installed or used in compliance with the Fire Code or the rules;

(2) change of ownership or corporate name;

(3) change in manufacturing process;

(4) change of product name;

(5) change of product model number;

(6) change in design;

(7) change in testing laboratory listing (including amendment or approval conditions, or revocation); or

(8) noncompliance with any of the original conditions of acceptance as specified in the certificate of approval.

Appendix B. Certificate of Approval List (Example)

This list will be updated periodically. Please check the FDNY website below for the most current one:
http://www.nyc.gov/html/fdny/pdf/fire_prevention/list_fireret.pdf

CITY OF NEW YORK FIRE DEPARTMENT
BUREAU OF FIRE PREVENTION
9 MetroTech Center
BROOKLYN, NEW YORK 11201-3857

The below list of flame-resistant chemicals included those that have a current Certificate of Approval issued by this Department as of May 18, 2015.

COMPANY'S NAME	MODEL NUMBER/ PRODUCT NAME	TELEPHONE	CERTIFICATE OF APPROVAL NUMBER	Expiration Date
Northeast Fire-Shield	Inspecta Shield+	800-734-5906	**5027** (cotton,cotton/polyester)	**In Proceeing**
NY Fire-Shield	Inspecta Shield+	800-513-5134	**5024** (100% Nylon)	**In Proceeing**
Turning star	Synthetic/Natural Fabrics Ret	877-849-3182	**5022**	11/14/17
NY Fire-Shield	Inspecta Shield+	800-513-5134	**5020** (cotton,cotton/polyester)	
Turning star	FLAMEXX CLS FLAMEXX MMS	877-849-3182 718-254-0534	**5013** (cotton or polyester)	02/28/17
American FlameCoat Inc.	FLAME CHECK (cotton,silk or polyester)	212-721-8586	**5161**	08/13/17
KM Fabrics	Pyrono KM II	800-845-1896	**5012**	02/19/17
Caled Chemical	Flame Fighter	800-652-2533	5009 **(Not Renewed)**	***Expired**
Legend Brands	**Unflame/Unsmoke**	412-461-8686	**4995**	04/14/17
Kiesling-Hess Finish	Advantage FR	513-561-5223	4993 **(Not Renewed)**	***Expired**
Fabric Flameproofing	**FF4/ FF3/FF2/ FF6**	323 245-1701	**5127, 5523,24,25**	**Various Exp Dates Pls Contact Mfger**
Rose Brand	Treated Cotton / Polyester, Darvella Sharkstooth,Rayon Metallics/Vinyls Matte & Textured Event Fabrics	800-223-1624	5135/38, 5142/44/49, 5154/56, 5160/62, 5173 **In Processing**	**Various Exp Dates Pls Contact Mfger**
Firetect	Safe-T-Guard	800-380-8801	**5069**	03/23/17
Imperial	Freeze Flame/Poly(Liquid)	347-386-9996	5072/5074 **(Not Renewed)**	***Expired**
Turning star	For Paper/Cardboard	718-254-0534	5075	08/07/17
Dazian	Treated Cotton / Polyester, Darvella Sharkstooth,Rayon	877-232-9426	**5520& 5064& 5107 Renewed 5054/55/56 Renewed**	**Various Exp Dates Pls Contact Mfger**
Piedmont Chemical	Flame Retardant FH	336 885-5131	**5625**	12/31/15
StarChem, LLC	StarTex FR DSH	864 439-6333	**5628**	12/03/15
ML & N	Fireshield 911	718-522-1800	**4862**	5/17/15
Mid Atlantic Fire Shield	Flame Out II	800-466-5525	5049 **(Not Renewed)**	***Expired**

PAGE 1 OF 1

Appendix C. Example of a Material Safety Data Sheet

MATERIAL SAFETY DATA SHEET

COF, Inc. 123 Metro Court Woodstock, Florida 12345
Day Telephone:(123)222-2015 Emergency Telephone: 1-899-987-6543

NoFire Flame Retardant for Fabrics

Section I Product Identification
Product ID: NFF Ret
Chemical Family: Organic Ammonium Salt (Aqueous Solution)
Last Revision Date: 05/22/15
Preparer: COF Unit

Section II Hazardous Ingredients
This product contains no hazardous ingredients as per OSHA Communication Standard, CFR 1910.1200.
All ingredients in this product are non-photochemically active.

HMIS Rating: Health-1 Flammability-0 Reactivity-0 PPE-X
PPE rating to be supplied by user depending upon use conditions.

Section III Physical Data
Boiling Point: 100 ^{0}C pH: 7.0 to 7.5
Water Solubility: Soluble
Specific Gravity: 1.08 +/- 0.02 Weight Per Gallon: 8.98 lbs.
Odor: Mild Appearance: Pale Yellow Liquid

Section IV Fire and Explosion Hazard Data
Flash Point: None
Extinguishing Media: Dry Chemical, Carbon Dioxide, Water Spray, and Foam
Special Fire Fighting Procedures: Evacuate personnel to a safe area, avoid breathing decomposition products, fire fighting personnel should wear respiratory protection.

Section V Health Hazard Data
Primary Route(s) of Entry: Inhalation: Y Ingestion: Y Skin: Y Eyes: Y
Effects of Acute Overexposure:
Eye: May cause stinging of eyes followed by irritation.
Skin: Prolonged and repeated skin exposure may be irritating to some people.
Ingestion: Effects are unknown. Seek medical attention as needed. Inhalation: Over exposure can cause nasal and respiratory irritation.
Carcinogenicity Information: IARC, NTP, OSHA or ACGIH lists none of the components present in this material as a carcinogen.
First Aid Procedures: **Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult or if respiratory tract is irritated, consult a physician.
Skin Contact: Remove contaminated clothing. Flush skin with soap and water.
Eye Contact: Flush eyes at least 15 minutes with fresh water. Consult a physician if irritation persists.
Ingestion: Seek medical attention immediately.

NoFire- Flame Retardant for Fabrics

Section VI Reactivity Data

Instability: Stable

Incompatible Materials: None Known.

Hazardous Decomposition Products: Thermal decomposition and burning may produce Oxides of Carbon and Nitrogen.

Hazardous Polymerization: None will occur.

Section VII Spill or Leak Procedures

Spill, Leak, or Release: Contain spill and salvage as much material as possible. Pick up the remaining with absorbent.

Waste Disposal: Dispose of only by methods approved by and used in accordance with local, state, and federal regulations.

Section VIII Special Protection Information

Engineering Controls: Use adequate ventilation. Vent fumes outside work area. Use NIOSH approved respirator if airborne concentrations pose a health hazard.

Respiratory: None required with adequate ventilation.

Protective Gloves: Use rubber or plastic gloves to prevent prolonged contact.

Eye: Use safety eye wear where splashing is likely.

Protective Clothing: None required.

Section IX Special Precautions

Storage: Store above 32^0F in a well-ventilated area. Keep container tightly closed to prevent leakage or evaporation. Keep out of reach of children. Do not consume food, drink, or tobacco in areas where they may become contaminated by this material. Always wash hands thoroughly with soap and water prior to eating, drinking, or smoking.

Section X Regulatory Information

EPA Regulations: SARA Section 311/312 Hazards Categories: None

DOT Shipping Name: Not Regulated

Disclaimer: As the handling and use of products under user's conditions are beyond our control, no warranty, expressed or implied, including, but not limited to merchantability or fitness for a particular use, is made concerning this product. The user assumes all risk of use or handling whether or not in accordance with any directions or suggestions of the supplier. Seller shall not be liable to purchaser or any other person for loss or damages directly or indirectly arising from the use of our products, from breach of any warranty or from any other cause, the exclusive remedy against the seller being to require replacement or repair of defective goods.