



Introduction/ Contact Information

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Program Objectives

- Defining Illegal Fireworks and Special Effects, Firework Exemptions, commercial versus consumer pyrotechnic products
- Fireworks Seizures Procedures for the Local Fire Marshal
- Commercial Fireworks Displays Application Process
- Duties and Responsibilities of the Local Fire Marshal, reviewing permit applications, conducting site inspections and statutory obligation to be on-site at all "displays" for Special Effects and Firework Displays within their jurisdiction

References:
CGS 29-356 – 366, <http://www.cpa.ct.gov/asp/menu/Statutes.asp>

Connecticut Fireworks and Special Effects Code,
http://www.ct.gov/dcs/lib/dcs/office_of_state_fire_marshall_files/regs-files/firewks1.pdf

Fireworks Defined

CGS 29-356

- "Fireworks" means and includes **any combustible or explosive composition**, or any substance or combination of substances or article prepared for the purpose of producing a visible or an audible effect by combustion, explosion, deflagration or detonation, and includes blank cartridges, toy pistols, toy cannons, toy canes or toy guns in which explosives are used, **the type of balloons which require fire underneath to propel the same**, firecrackers, torpedoes, skyrockets, Roman candles, Daygo bombs, and any fireworks containing any explosive or flammable compound, or any tablets or other device containing any explosive substance, except that **the term "fireworks" shall not include sparklers and fountains and toy pistols, toy canes, toy guns or other devices** in which paper caps manufactured in accordance with the regulations of the United States Interstate Commerce Commission or its successor agency for packing and shipping of toy paper caps are used and toy pistol paper caps manufactured as provided therein.

Special Effects Defined

FIREWORKS AND SPECIAL EFFECTS CODE

Any article containing pyrotechnic composition manufactured and assembled, designed, or discharged in connection with television, theater, or motion picture productions, which may or may not be presented before live audiences. The definition of special effects may also encompass other articles containing any pyrotechnic used for education, recreation or entertainment purposes, which may or may not be presented before live audiences, **indoors or outdoors**.

Adopts the Standard for the Use of Pyrotechnics before a Proximate Audience, NFPA 1126 (1996)

Firework Exemptions Defined

CGS 29-356 Continued

- "Sparklers" means a wire or stick coated with pyrotechnic composition that produces a **shower of sparks** upon ignition.
- "Fountain" means any cardboard or heavy paper cone or cylindrical tube containing pyrotechnic mixture that upon ignition produces a **shower of colored sparks or smoke**. "Fountain" includes, but is not limited to, (A) a spike fountain, which provides a spike for insertion into the ground, (B) a base fountain which has a wooden or plastic base for placing on the ground, or (C) a handle fountain which is a handheld device with a wooden or cardboard handle.

Non-Explosive and Non-Aerial

Illegal to Sell, Use or Posses

CGS 29-357

- (a) Except as provided in subsection (b) of this section, no person, firm or corporation shall offer for sale, expose for sale, sell at retail or use or explode or possess with intent to sell, use or explode **any fireworks**. A person who is **sixteen years of age or older** may offer for sale, expose for sale, sell at retail, purchase, use or possess with intent to sell or use **sparklers or fountains** of not more than **one hundred grams of pyrotechnic mixture per item**, which are **nonexplosive and nonaerial**, provided (1) such sparklers and fountains do not contain magnesium, except for magnalium or magnesium-aluminum alloy, (2) such sparklers and fountains containing any chlorate or perchlorate salts do not exceed five grams of composition per item, and (3) when more than one fountain is mounted on a common base, the total pyrotechnic composition does not exceed two hundred grams.
- Novelties, and trick noise makers such as *smoke bombs, party poppers and snappers and the "snake"*, are considered explosive and are banned by Connecticut General Statute 29-357. *Certain novelties may use air or water and do not contain explosive material.*
- (d) Penalty is a Misdemeanor unless death or injury results from such violation

Fireworks as an Ignition Source

Fire Investigation

- If a *fire caused by fireworks* is determined to be arson, first degree (CGS 53a-111), it is a Class A felony; 53a-112 arson second degree, Class B felony; arson, third degree, Class C felony
- If such a *fire caused by a fireworks* is determined to be reckless burning, (53a-114), it is a Class D felony
- Same statues apply as with any intentionally set fire - your incendiary ignition source is the fireworks caused by human hand

Consumer Fireworks





Consumer Fireworks Case Study

Bridgeport

05-27-14

Charges

- Illegal Possession/Use of Fireworks
- Risk of Injury to a Child
- Reckless Endangerment 2nd Degree

Consumer Fireworks Case Study

- July 2013, Groton
- Discovered by Local FM during storefront inspection
- Illegal Fireworks "Novelty" Items package with legal "Fountains and Sparklers"
- Resulted in two Arrests for violation of CGS 29-357, Illegal Possession of Fireworks
- Seizure of 19 Different Items in 39 Boxes containing 1,120 Pieces

Commercial "Fireworks" = Explosives



Possession of Explosives

CGS 29-348

- Any person, having in his possession **any explosive** for which he has not a bill of sale or who cannot produce legal evidence showing that he obtained such explosive by a legal transfer, shall be fined not more than ten thousand dollars or imprisoned not more than ten years or both for each offense.
- Larger so-called "fire crackers" are actually explosive devices which are banned by both state and federal law. They include M-80's, M-100's, M-250's and larger, cherry bombs, quarter sticks, block busters and other similar devices.



Possession of Explosives Case Study

07-02-12
Waterbury
Prospect
Wolcott

Charges

4 Arrests

- Illegal Possession of Explosives
- Illegal Storage of Explosives
- Illegal Possession of Fireworks
- Reckless Endangerment

Manufacturing of Bombs

CGS 53a-80a

Any person, other than one engaged in the manufacture of firearms or explosives or incendiary devices for lawful purposes, who fabricates, in any manner, any type of an explosive, incendiary or other device designed to be dropped, hurled, or set in place to be exploded by a timing device, shall be guilty of a class B felony.

- Violation of CGS 53-80a (*manufacture of bombs*) is a Class B felony

Case Study 53a-80

- July 2012, North Branford
- FBI Informant reported manufacturing of explosives at a residence
- Homeowner gave consent to search to show investigators his "homemade fireworks"
- Resulted in an Arrest for violation of CGS 53a-80, Manufacturing of Bombs, 29-348, Illegal Possession of Explosives and 29-349(c), Illegal Storage of Explosives
- Seizure of 11 explosive (M) devices in 48 pre-cursor chemicals

Seizures of Fireworks

Sec. 29-362

The Commissioner of Emergency Services and Public Protection or a local fire marshal shall seize, take, store, remove or cause to be removed, at the expense of the owner, all stocks of fireworks or combustibles offered or exposed for sale, stored, held or kept in violation of sections 29-356 to 29-366, inclusive.

Help with Identification

Connecticut State Police Fire & Explosion Investigation Unit

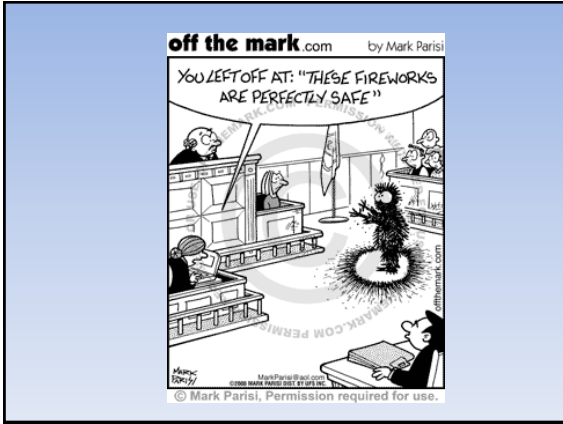
Transportation, Storage and Destruction

Connecticut State Police Bomb Squad

Transportation, Storage and Destruction

CGS29-363

- Expense of transportation and storage of seized fireworks. In any proceeding under section 29-362, if the judgment is against one defendant only, he shall pay the expense of the transportation and storage incurred in the seizure and detention of the fireworks claimed by him; but if the judgment is against more than one defendant, claiming distinct interests in such fireworks, such expense shall be apportioned among them by the court, and execution on such judgment may be issued against the accused. If judgment is rendered that such fireworks do not constitute a nuisance, the court shall issue a warrant to some proper officer, directing him to restore such fireworks, with the containers thereof, to the place where they were seized, as nearly as possible, or to the person entitled to receive them. All such proceedings shall be proceedings in rem and may be issued and served at any time and shall be conducted as civil actions, and the defendant shall have the same right of appeal.



Application to Display Fireworks or Special Effects

Application to Display Fireworks or Special Effects

CGS29-357 (b)

Application Process (15 Days Prior to Event)

- Sponsoring Organization (Applicant)

Location Date and Time of Display, Rain Date

No fireworks display shall be conducted on any day between midnight and 8:00am, except on July 3, July 4, December 31 and January 1.

- Fireworks Company

Number and **Type** (Shell Size) of Fireworks/Special Effects to be Fired
 Name of technician(s) to fire display, Certificate of Competency Number

Surety Bond 29-358 Repealed January 1, 2013 Not Required
 29-359 Proof of Financial Responsibility . Liability Insurance Policy.

Application to Display Fireworks or Special Effects

For Fireworks Displays

- For FIREWORKS displays, please submit a diagram of the display site indicating the discharge site, location of the spectator viewing area(s), buildings, highways, nearby utilities, trees and any overhead obstructions, compass heading indicating north, the date the diagram was produced and who produced the diagram.

For Special Effects Displays

- For SPECIAL EFFECTS displays, please submit a diagram of the display site indicating the location and type of devices to be used, location of the audience, a list of all special effects and type of detonation mechanism(s) to be used. Also, include distances and measurements of the display area including audience location as well as between the effects and equipment/fixtures used.

Approved US Coast Guard Marine Permit if Applicable

Application to Display Fireworks or Special Effects

Application Page 2 Continued

Reviewed by

Local Police Chief or First Selectperson

Local Fire Chief

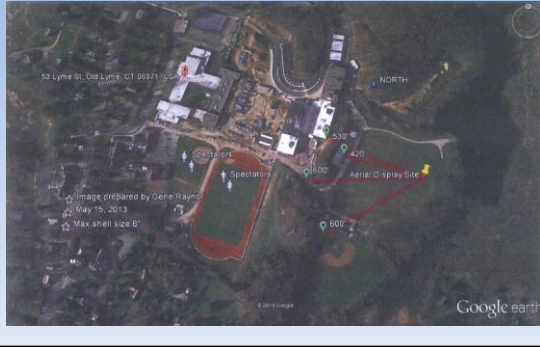
Local Fire Marshal

- Ensure: Diagram is complete (Up to Date)
- Distances are appropriate for shell sizes requested
- Physical Location is accurate (Site Inspection)
- Able to provide adequate covering at display

Shell Sizes and Distances

Mortar size in inches	Minimum distance from spectators and inhabited buildings	Other buildings, public highways, rail roads	Inhabited school, hospital, church, doctor, post institution or similar storage facilities of explosives, flammable or toxic materials.
0" to 4"	300 feet	200 feet	500 feet
5"	350 feet	200 feet	500 feet
6"	420 feet	250 feet	600 feet
7"	490 feet	300 feet	700 feet
8"	560 feet	300 feet	800 feet
9"	630 feet	400 feet	900 feet
10"	700 feet	400 feet	1000 feet
11"	770 feet	400 feet	1100 feet
12"	840 feet	400 feet	1200 feet
Over 12"	70 feet per mortar bore inch		100 feet per mortar bore inch

Site Diagram



Final Application Process

- Reviewed and signed off by CSP-FEIU at Special Licensing at State Police HQ
- Permit to Display issued by the (AHJ) Commissioner, Department of Emergency Services and Public Protection
- Permit will list date and time of display, applicable rain date, Fireworks Company and "ANY CONNECTICUT LICENSED PYROTECHNICS SHOOTER"
- Rain date will be next applicable day – not for a display 6 months away

Display of Fireworks or Special Effects

"Display" means the set up, firing or deflagration of fireworks, including ground or aerial displays

The local fire marshal or his certified designee shall be present at all fireworks/special effects displays

Ensure Connecticut Licensed Shooter is on scene for the "display"

Assistants shall be at least 18 years of age and not have had a Certificate of Competency suspended or revoked at the time of the display, not under the influence. The state or local fire marshal or senior fire official at the scene may limit the number of persons in the safety fallout zone in the interest of safety.

Currently one (1) suspended shooter in Connecticut

Distance Considerations

Ensure separation distances and shell size presented with application are adhered to

Discharge Site

50' or more from overhead obstructions, 25' of trees

Ground Displays of Common Fireworks with Moving Parts

- Functioning height no more than 100'
- Distance of 200' from the general public or any inhabited building

Static Set Pieces with No Moving Parts

Distance of 75' from the general public or any inhabited building

No vehicles, watercraft, amusement rides, portable structures or equipment in Fallout Zone. Exceptions Necessary Emergency Equipment or display equipment, Amusement rides 300' from discharge site shut down one hour before scheduled firing time.

Display of Fireworks or Special Effects

Rack and Mortar Setup

- Most Common - HDPE with appropriate Standard Dimensional Ratios
 - Reloaded one time only if buried 75 %
- Steel - May be reloaded (ready box)
- Mortar shall have a base plug in good condition
- Damaged mortars shall not be used for firing
- Common modifications include but are not limited to fiberglass mortars, aluminum racks, sideboard size and dense pack firing systems
- Mortars shall be cleaned of burning material after firing

Modifications from DESPP must be on site

Drums & Troughs

- May be constructed of heavy steel or plastic
- Diameter of the drum or the width of the trough shall not be less than three times the diameter of the largest mortar tube
(55 Gallon Drum 22 1/2 inches - 6 inch mortar x 3 = 18)
- Spacing between mortars shall equal the diameter of the largest mortar
- Buried in clean sand not less than 75 % of the mortar
- Space between the bottom of the mortar and the container filled with heavy wood blocking at least 2 inches thick
- Trough specifications Mortars: Special Settings

Display of Fireworks or Special Effects

Angle of Projectile

- Nearly vertical as possible, may be directed over water or modification

Loading

- Mortars shall be cleared of burning material after firing
- Shells inspected tears, leaks or showing signs of having been wet shall not be fired (minor tears on fuses may be repaired by tape)
- Staple gun for securing quick match is Prohibited

Display of Fireworks or Special Effects

Cancellations

The local fire chief, local fire marshal, or senior law enforcement or fire officer at the display site shall be authorized to cancel any fireworks or special effects display when the behavior or condition of the operator or one or more of his assistants threatens public safety or when any condition exists which threatens public safety.

Shall not be held during any electrical storm or at any time when the wind consistently reaches a velocity of more than 20 miles per hour during the period the display is to be fired. Operator shall have at all times a anemometer or device for measuring wind velocity.

Personnel Protection During Presentation of Fireworks

Electric Fire Shows: Hearing, Eye and Head Protection
 Hand Fired Shows: Additionally long sleeves and pants, gloves, sturdy shoes

Shells above 8" diameter must be fired at least 100' remotely

Safety Caps protecting the fuse shall not be removed until immediately before the shell is to be hand fired

Display of Fireworks or Special Effects

Disposal of Unfired Shells and Debris

- Search shall begin at the earliest possible time following the conclusion of the display, but in no event later than the first period of daylight which follows the display
- Unfired Shells shall be immediately disposed of or removed from the display site in a safe manner (left alone for at least 30 minutes)
 - Disposal via firing or destroyed according to manufacturer's instructions
- Debris from discharge site shall be properly disposed of by the operator before leaving the display site

Display of Fireworks or Special Effects

Special Situations

- Arrival of Product in one Jurisdiction for a display in another
- Barges under the jurisdiction of the US Coast Guard

Variations , Exemptions or Modifications

CGS-29-357

(c) The Commissioner of Emergency Services and Public Protection **may** grant variations or exemptions from, or approve equivalent or alternate compliance with, particular provisions of any regulation issued under the provisions of subsection (b) of this section where strict compliance with such provisions would entail practical difficulty or unnecessary hardship or is otherwise adjudged unwarranted, provided any such variation, exemption, approved equivalent or alternate compliance **shall, in the opinion of the commissioner, secure the public safety and shall be made in writing.**

Modification for requirement of a Fire Safety Regulation

Must be submitted by the pyrotechnics applicant to and approved by the State Fire Marshal prior to DESPP granting a permit

Accidents

Reporting

- All accidents involving fireworks or special effects that cause personal injury or property damage **shall** be reported to DESPP **FEIU and the local Fire Marshal**

Personal Injury

- Local Fire Marshal **shall immediately report to DESPP** of such accident and submit a detailed written report to DESPP within 48 hours of the occurrence of such accident
- All equipment and items used in the display **shall be secured** in place until the accident scene is released

Property Damage

- Property other than operator's equipment, no written report for local fire marshal

Report all accidents immediately
to FEIU via the
State Police Message Center

1-800-842-0200

Accident Case Study

- July, 2010 Barge Off of East Wharf, Madison
- With approximately 60 % of the show completed, lift charge of a 5-inch shell deflagrates inside of an HDPE Mortar
- Shell blew out the bottom plug of the mortar, shreds the HDPE, fragments nails and strapping
- Experience Licensed Shooter hand-firing show in accordance with regulations takes fragmentation in the back of the leg

Accident Case Study Continued

- LFM responds to the barge, renders aid to the shooter and has him evacuated from the barge
- Local Fire Marshal Documents the Scene with photographs, notifies FEIU and the US Coast Guard
- Second Licensed Shooter finishes the show and secures equipment
- FEIU responds to the scene and the hospital to initiate investigation

Fireworks and Special Effects Code Revisions being Considered

- Adopting definitions or parts of definitions outlined in NFPA 1123, Code for Firework Displays
- Aligning the regulation to read as the Statutes (DESPP)
- Reviewing common modification requests to be allowed within the guidelines of the regulation (i.e., dense pack firing trailers)
- Incorporate distances relative to Outdoor Special Effects
- There is **NO** anticipated changes that will affect the duties and responsibilities of the Local Fire Marshal
- These revisions are in the early stages

END
