



7. **Blast site:** The area in which explosive materials are being or have been loaded and which includes all holes loaded or to be loaded for the same blast and a distance of 50 feet in all directions.
8. **Blaster (Qualified):** The person in charge of magazines and blasting. They must be 21 years of age; they shall demonstrate the knowledge required for the safe handling, storage, and use of explosives and related materials. At no time may the Blaster be under the influence of alcohol or drugs, which may impair sensory or motor skills.
9. **Blasting agent:** A material or mixture consisting of fuel and oxidizer, intended for blasting provided that the finished product, as mixed for use or shipment, cannot be detonated by means of No. 8 test detonator when unconfined. Blasting agents are labeled and placarded as Class 1.5 material by US DOT.
10. **Detonating cord:** A flexible cord containing a center core of high explosive used to initiate other explosives.
11. **Detonation:** An exothermic reaction characterized by the presence of a shock wave in the material, which establishes and maintains the reaction. The reaction zone progresses through the material at a rate greater than the velocity of sound. The principal heating mechanism is one of shock compression. Detonations have an explosive effect.
12. **Detonator:** A device containing any initiating or primary explosive that is used for initiating detonation. A detonator shall not contain more than 154.32 grains (10 gr) of total explosives by weight, excluding ignition or delay charges. The term includes, but is not limited to, electric blasting caps of instantaneous and delay types, blasting caps for use with safety fuses, detonating cord delay connectors, and non-instantaneous and delay blasting caps which use detonating cord, shock type or any other replacement for electric leg wires. All types of detonators in strengths through No. 8 cap should be rated at 1.5 pounds of explosives per 1,000 caps. For strengths higher than No. 8 cap, consult the manufacturer.
13. **Explosive:** A chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion. The term includes, but is not limited to, dynamite, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord, igniters, and display fireworks, 1.3 G (Class B, Special).

The term "explosive" includes any material determined to be within the scope of USC Title 18: Ch. 40 and also includes any material classified as an explosive other than consumer fireworks, 1.4G (Class C, Common) by the hazardous materials regulations of DOT 49 CFR.

  - a. **High explosive:** Explosive material, such as dynamite, which can be caused to detonate by means of No 8 test blasting cap when unconfined.
  - b. **Low explosive:** Explosive material that will burn or deflagrate when ignited. It is characterized by a rate of reaction that is less than the speed of sound. Examples of low explosives include, but are not limited to, black powder, safety fuse, igniters, igniter cord, fuse lighters, fireworks, 1.3G (Class B special) and propellants, 1.3C.

- c. **Mass-detonating explosives:** Division 1.1., 1.2 and 1.5 explosives alone or in combination, or loaded into various types of ammunition or containers, most of which can be expected to explode virtually instantaneously when a small portion is subjected to fire, severe concussion, impact, the impulse of an initiating agent, or the effect of a considerable discharge of energy from without. Materials that react in this manner represent a mass explosion hazard. Such an explosive will normally cause severe structural damage to adjacent objects. Explosive propagation could occur immediately to other items of ammunition and explosives stored sufficiently close to and not adequately protected from the initially exploding pile with a time interval short enough so that two or more quantities must be considered as one for quantity-distance purposes.
- d. **UN/DOT Class I explosives:** The former classification system used by DOT included the terms "high" and "low" explosives as defined herein. The following terms further define explosives under the current system applied by DOT for all explosive materials defined as hazard Class 1 materials. Compatibility group letters are used in concert with the Division to specify further limitations on each division noted, (i.e., the letter G identifies the material as a pyrotechnic substance or article containing a pyrotechnic substance and similar materials).
1. **Division 1.1:** Explosives that have a mass explosion hazard. A mass explosion is one, which affects almost the entire load instantaneously.
  2. **Division 1.2:** Explosives that have a projection hazard but not a mass explosion hazard.
  3. **Division 1.3:** Explosives that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.
  4. **Division 1.4:** Explosives that pose a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package.
  5. **Division 1.5:** Very insensitive explosives. This division is comprised of substances that have a mass explosion hazard but which are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport.
  6. **Division 1.6:** Extremely insensitive articles, which do not have a mass explosion hazard. This division is comprised of articles that contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation.
- e. **Explosive material:** The term "explosive" material means explosives, blasting agents, and detonators.
- f. **Highway:** A public street, public alley or public road.
- g. **Inhabited building:** A building regularly occupied in whole or part as a habitation for people, or any place of religious worship, schoolhouse, store or other structure where people are accustomed to assemble, except any building or structure

- occupied in connection with the manufacture, transportation, storage or use of explosive materials.
- h. **Magazine:** A building, structure, or container, other than an operating building, approved for storage of explosive materials.
1. **Type 3:** A fire-resistant, theft-resistant and weather-resistant "day box" or portable structure constructed in accordance with NFPA 495, NFPA 1124, or DOT 27 CFR Part 55 used for the temporary storage of explosive materials.
14. **Net explosive weight (net weight):** The weight of explosive material expressed in pounds. The net explosive weight is the aggregate amount of explosive material contained within buildings, magazines, structures or portions thereof, used to establish Q-D relationships.
15. **Operating building:** A building occupied in conjunction with the manufacture, transportation, or use of explosive materials. Operating buildings are separated from one another with the use of intraplant or intraline distances.
16. **Phosphoric material:** Two or more unmixed, commercially manufactured, pre-packaged chemical substances including oxidizers, flammable liquids or solids, or similar substances that are not independently classified as explosives but which, when mixed or combined, form an explosive that is intended for blasting.
17. **Quantity-Distance (Q-D):** The quantity of explosive material and separation distance relationships providing protection. These relationships are based on levels of risk considered acceptable for the stipulated exposures and are tabulated in the appropriate Q-D tables. The separation distances specified afford less than absolute safety:
- a. **Minimum separation distance (D<sub>0</sub>):** The minimum separation distance between adjacent buildings occupied in conjunction with the manufacture, transportation, storage, or use of explosives and the other building does not.
- b. **Intraline distance (ILD) or Intraplant distance (IPD):** The distance to be maintained between any two operating buildings on an explosives manufacturing site when at least one contains or is designed to contain explosives, or the distance between a magazine and an operating building.
- c. **Inhabited building distance (IBD):** The minimum separation distance between an operating building or magazine containing explosive materials and an inhabited building or site boundary.
- d. **Intermagazine distance (IMD):** The minimum separation distance between magazines.
18. **Possessor of Explosives:** Is someone who has actual physical possession or constructive possession, which means the person has dominion or control over explosives. For example, persons who are physically handling explosive materials would be considered to be possessors of explosives. This would include employees who handle explosive materials as part of the production process; employees who handle explosive materials in order to ship, transport, or sell them; and employees, such as blasters, who actually use explosive materials. Other examples of possessors include a supervisor at a construction site who keeps keys for magazines in which explosives are stored, or who directs the use of explosive materials by other employees;

and, and employee of a licensee or permittee transporting explosive materials by other employees; and, an employee of a licensee or permittee transporting explosive materials from a licensed distributor to a purchaser. *Definition per the Federal BATF&E.*

19. **Special industrial explosive device:** An explosive power pack containing an explosive charge in the form of a cartridge or construction device. The term includes but is not limited to explosive rivets, explosive bolts, explosive charges for driving pins or studs, cartridges for explosive-actuated power tools, and charges of explosives used in automotive air bag inflators, jet tapping, open-hearth furnaces, and jet perforation of oil well casings.
20. **Theft resistant:** Construction designed to deter illegal entry into facilities for the storage of explosive materials.

## **PERMITS**

An LHCFD operational permit for Explosives is required for the manufacture, storage, handling, sale, or use of any quantity of *explosives, explosive materials*, fireworks, or pyrotechnic special effects within the scope of IFC Chapter 56 and its referenced standards.

## **REQUIREMENTS**

Compliance with all applicable documented references above.

See LHCFD *Explosives (Blasting) Permit Application #23A & Checklist.*

## **PROCEDURE**

Obtain an *Explosive (Blasting) Permit Application #23A & Checklist*, which is part of the policy, from the LHCFD Fire Prevention Division. Complete the form and follow the directions provided on the application, then sign the last page. Submit the completed application and copies to the Fire Prevention Division Office at least 15 working days prior to the first requested blast date.

## **REFERENCES**


2018 International Fire Code (IFC) **Chapter 56 Explosives and Fireworks**

Current U.S. Department of Justice - Bureau of Alcohol, Tobacco, Firearms and Explosives (BATF&E) *Federal Explosives Law and Regulations*

2018 National Fire Protection Association Standard 495 *Explosives Materials Code*

Current State of Arizona Registrar of Contractors Licensee as **CR-15 BLASTING**

**Note:** This FD Specification is intended to be a guide only. For full compliance and additional requirements, refer to the references above. Where conflicts exist between this document and the applicable codes and standards, the above references must supersede.

APPROVED:   
Scott Hartman, Fire Marshal

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