



Virginia State Fire Marshal's Office

Handbook version of extracted provisions on:

Explosives and Fireworks

**as contained in the
Virginia Statewide Fire
Prevention Code (SFPC) 2009 Edition
(International Fire Code)**

EFFECTIVE DATE

March 1, 2011

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Important Notice

This handbook is an extract of the Statewide Fire Prevention Code (SFPC) as it relates to regulating the storage, use, manufacture and sale of explosives and fireworks. It was produced by the State Fire Marshal's Office as a courtesy to the limited user of the code and as a Blaster Certification Test reference. The SFPC is built upon the International Fire Code published by the International Code Council, Inc., 500 New Jersey Ave, NW, 6th Floor, Washington, DC 20001-2070.

For regulatory compliance issues, it does not contain all of the provisions of the SFPC. It contains only those parts or chapters that are most often referred to for compliance purposes. Therefore, it does not relieve the user from having to conduct additional research to determine what needs to be done in order to comply with all of the appropriate provisions the code. As an example, it does not contain the provisions of Chapter 27, Hazardous Materials – General Provisions, which also applies to explosives and fireworks.

This extract contains:

- Chapter 1 Administration
- Chapter 2 Definitions (only those words or terms related to explosives and fireworks)
- Chapter 4 General Precautions Against Fire (Only that portion related to the indoor display of Smokeless Powder and Small Arms Primers inside Exhibition Halls.)
- Chapter 33 Explosives and Fireworks

Also, this extract includes only a portion of NFPA 495, Explosive Materials Code, as referenced by SFPC Section 3301.1.1. Nor does it contain the following:

| NFPA Standard... | ...as referenced in Section(s)... |
|---|--|
| 490 Storage of Ammonium Nitrate | 3301.1.5 |
| 498 Safe Havens and Interchange Lots for Vehicles Transporting Explosives | 3301.1.2 |
| 1122 Model Rocketry | 3301.1.4 |
| 1123 Fireworks Displays | 3302.1, 3304.2, 3308.1, 3308.2.2, 3308.5, 3308.6 |
| 1124 Manufacture, Transportation, and Storage of Fireworks and Pyrotechnic Articles | 3302.1, 3304.2, 3305.1, 3305.3, 3305.4, 3305.5 |
| 1125 Manufacture of Model Rocket and High Power Rocket Motors | 3301.1.4 |
| 1126 Use of Pyrotechnics Before a Proximate Audience | 3304.2, 3305.1, 3308.1, 3308.2.2, 3308.4, 3308.5 |
| 1127 High Power Rocketry | 3301.1.4 |

A complete copy of the Virginia Statewide Fire Prevention Code may be ordered directly from ICC at 1-800-214-4321 or over the internet at: <http://www.iccsafe.org> (There's a specific page for state and local codes under the link (heading) titled "ICC Store").

The NFPA standards may be ordered directly from NFPA at 1-800-344-3555 or at <http://www.nfpacatalog.org>.

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PREFACE

Introduction

The Virginia Statewide Fire Prevention Code (SFPC) is a state regulation promulgated by the Virginia Board of Housing and Community Development in cooperation with the Virginia Fire Services Board, both Governor-appointed boards, for the purpose of establishing statewide standards to safeguard life and property from the hazards of fire or explosion arising from the improper maintenance of life safety and fire prevention and protection materials, devices, systems and structures and the unsafe storage handling, and use of substances, materials and devices, including fireworks, explosives and blasting agents, wherever located.

The provisions of the SFPC are based on a nationally recognized model code published by the International Code Council, Inc. and fire protection and prevention standards published by the National Fire Protection Association. Such code and standards are made part of the SFPC through a regulatory process known as incorporation by reference. The SFPC also contains administrative provisions governing the use of the model code and standards and establishing requirements for the enforcement of the code by the local and state enforcing agencies.

In keeping with the designations of the SFPC used previously, since the 2009 edition of the International Codes are incorporated by reference into this version of the SFPC, it is known as the 2009 edition of the SFPC.

Arrangement

The SFPC is part of the Virginia Administrative Code (VAC), the official compilation of state regulations published under the authority and guidance of the Virginia Code Commission. Due to the difference in the section numbering system between the VAC and the model codes incorporated by reference into the SFPC, the SFPC utilizes a dual section numbering system. In the SFPC, the VAC section numbers are listed first, followed by a section number matching the model code system. In this printing of the SFPC, the VAC section numbers are omitted and only the model code numbering system is utilized. The version of the SFPC containing both the VAC section numbers and the model code numbering is available from the Virginia Department of Housing and Community Development and may also be accessed through the website of the Virginia Code Commission or by subscription to the VAC.

Overview

Local governments are authorized to adopt fire prevention regulations that are more restrictive or extensive in scope than the SFPC provided, such local regulations do not affect the manner of construction, or the materials to be used in the erection, alteration, repair, maintenance, or use of a building or structure.

Enforcement of the SFPC by local government is optional. The State Fire Marshal is authorized to enforce the SFPC in those jurisdictions in which the local government does not enforce the SFPC.

The local fire prevention department should be consulted for information and assistance regarding application of the SFPC. Additional technical assistance may be obtained by contacting a regional State Fire Marshal's Office.

Northern Regional Office
P O Box 1140
205 Caroline Street
Orange, VA 22960
(540)661-4661
Fax (540) 672-1560

Southwest Regional Office
945 H. North Main Street
Marion, VA 24354
(276)783-1446
Fax (276)783-1842

Central Regional Office
1043 Technology Park Drive
Glen Allen, VA 23059
(804)371-0220
Fax (804)371-3444

Tidewater Regional Office
1300 Thomas Street
Hampton, VA 23669
(757)727-4710
Fax (757)727-4704

Western Regional Office
6744 Thirlane Road
Roanoke, VA 24019
(540)561-7033
Fax (540)561-7544

The SFPC contains enforcement procedures that must be used by the enforcing agency. An administrative appeals system has been established to resolve any disagreements that may occur between the enforcing agency and the aggrieved party.

Codes Purchased from ICC

The 2009 edition of the SFPC is being made available in pamphlet form as in past editions of the SFPC. New for the 2009 edition are versions of the Virginia Statewide Fire Prevention Code published by the International Code Council (ICC). In the ICC published versions, marginal markings are provided to distinguish between text which is part of the International Codes and text which is part of the state regulations. Double vertical lines in the margins within the body of the codes indicate state amendments to the International Codes. As in the standard printings of the International Codes, a single vertical line in the margins within the body of the code indicates a technical change from the previous edition of the

International Codes. Deletions from the previous editions of the International Codes are indicated in the form of an arrow (→) in the margin where an entire section, paragraph, exception or table has been deleted or an item in a list of items or a table has been deleted.

Table of Contents

| | |
|--|---------|
| Chapter 1, Administration | Page 9 |
| Chapter 2, Definitions | Page 25 |
| Chapter 3, General Precautions Against Fire | Page 27 |
| Chapter 33, Explosives and Fireworks | Page 29 |
| Chapter 45, Referenced Standards (NFPA 495-06 extract) | Page 55 |
| Statutory authority from the Code of Virginia | Page 59 |

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Chapter 1

Administration

Section 101.0. Scope.

101.1. Title: These regulations shall be known as the Virginia Statewide Fire Prevention Code (SFPC), hereinafter referred to as "this code" or "SFPC." The term "chapter" means a chapter in the SFPC. The SFPC was cooperatively developed by the Virginia Fire Services Board and the Virginia Board of Housing and Community Development.

101.2. Scope: The SFPC prescribes regulations affecting or relating to maintenance of structures, processes and premises and safeguards to be complied with for the protection of life and property from the hazards of fire or explosion and for the handling, storage and use of fireworks, explosives or blasting agents, and provides for the administration and enforcement of such regulations. The SFPC also establishes regulations for obtaining permits for the manufacturing, storage, handling, use, or sales of explosives. Inspections under the SFPC are a governmental responsibility.

101.3. Purpose: The purposes of the SFPC are to provide for statewide standards to safeguard life and property from the hazards of fire or explosion arising from the improper maintenance of life safety and fire prevention and protection materials, devices, systems and structures, and the unsafe storage, handling, and use of substances, materials and devices, including explosives and blasting agents, wherever located.

101.4. Validity: To the extent that any provisions of the SFPC or the referenced codes or standards are not within the scope of this chapter, those provisions are considered to be invalid. When any provision of the SFPC is found to be in conflict with the USBC, OSHA, or statute, that provision of the SFPC shall become invalid.

101.5. Local regulations: Any local governing body may adopt fire prevention regulations that are more restrictive or more extensive in scope than the SFPC provided such regulations do not affect the manner of construction or materials to be used in the erection, alteration, repair, or use of a building or structure, as provided in the USBC, including the voluntary installation of smoke alarms and regulation and inspections thereof in commercial buildings where such smoke alarms are not required under the provisions of the SFPC.

101.6. Non-residential farm structures: Farm structures not used for residential purposes are exempt from the SFPC except when the inspection and

enforcement provisions of the code are exercised by a warrant issued under the authority of §§ 27-98.2 through 27-98.5 of the Code of Virginia.

Section 102.0. Applicability.

102.1. General: The provisions of the SFPC shall apply to all matters affecting or relating to structures, processes and premises as set forth in Section 101.0. The SFPC shall supersede any fire prevention regulations previously adopted by a local government or other political subdivision.

102.1.1. Changes: No change shall be made in the use or occupancy of any structure that would place the structure in a different division of the same group of occupancies, unless such structure is made to comply with the requirements of this code and the USBC.

102.2. Application to pre-1973 buildings and structures: Buildings and structures constructed prior to the USBC (1973) shall comply with the maintenance requirements of the SFPC to the extent that equipment, systems, devices, and safeguards which were provided and approved when constructed shall be maintained. Such buildings and structures, if subject to the state fire and public building regulations (Virginia Public Building Safety Regulations, VR 394-01-05) in effect prior to March 31, 1986, shall also be maintained in accordance with those regulations.

102.3. Application to post-1973 buildings and structures: Buildings and structures constructed under any edition of the USBC shall comply with the maintenance requirements of the SFPC to the extent that equipment, systems, devices, and safeguards which were provided and approved when constructed shall be maintained.

102.4. Referenced codes and standards: The codes and standards referenced in the IFC shall be those listed in Chapter 47 and considered part of the requirements of the SFPC to the prescribed extent of each such reference. Where differences occur between the provisions of this code and the referenced standards, the provisions of this code shall apply.

102.5. State-owned buildings and structures: The SFPC shall be applicable to all state-owned buildings and structures in the manner and extent described in § 27-99 of the Code of Virginia and the State Fire Marshal shall have the authority to enforce this code in state-

owned buildings and structures as is prescribed in Sections 27-98 and 27-99 of the Code of Virginia.

102.6. Relationship to USBC: In accordance with Sections 27-34.4, 36-105.1 and 36-119.1 of the the Code of Virginia, the USBC does not supersede the provisions of this code that prescribe standards to be complied with in existing buildings and structures, provided that this code shall not impose requirements that are more restrictive than those of the USBC under which the buildings or structures were constructed. Subsequent alteration, enlargement, rehabilitation, repair or conversion of the occupancy classification of such buildings and structures shall be subject to the construction and rehabilitation provisions of the USBC. Inspection of buildings other than state-owned buildings under construction and the review and approval of building plans for these structures for enforcement of the USBC shall be the sole responsibility of the appropriate local building inspectors.

Upon completion of such structures, responsibility for fire safety protection shall pass to the local fire marshal or fire designated by the locality to enforce this code in those localities which enforce the SFPC or to the State Fire Marshal in those localities which do not enforce this code.

102.7 Inspections for USBC requirements: The fire official shall require that existing structures subject to the requirements of the applicable retrofitting provisions relating to the fire protection equipment and system requirements of the USBC, Part 1, Construction, Sections 103.7 and 3411, comply with the provisions located therein.

Section 103.0. Incorporation by reference.

103.1. General: The following document is adopted and incorporated by reference to be an enforceable part of the SFPC:

The International Fire Code – 2009 Edition, hereinafter referred to as "IFC," published by the International Code Council, Inc., 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001-2070, 1-888-422-7233.

103.1.1. Deletion: Delete IFC Chapter 1.

103.1.2. Appendices. The appendices in the IFC are not considered part of the IFC for the purposes of Section 103.1.

Note: Section 101.5 references authority contained in the Code of Virginia for local fire prevention regulations which may be evaluated by localities to determine whether provisions of the IFC appendices may be considered for local fire prevention regulations.

103.2. Amendments: All requirements of the referenced codes and standards that relate to fees, permits, unsafe notices, disputes, condemnation, inspections, scope of

enforcement and all other procedural, and administrative matters are deleted and replaced by the provisions of Chapter 1 of the SFPC.

103.2.1. Other amendments: The SFPC contains provisions adopted by the Virginia Board of Housing and Community Development (BHCD), some of which delete, change or amend provisions of the IFC and referenced standards. Where conflicts occur between such changed provisions and the unchanged provisions of the IFC and referenced standards, the provisions changed by the BHCD shall govern.

Note: The IFC and its referenced standards contain some areas of regulation outside of the scope of the SFPC, as established by the BHCD and under state law. Where conflicts have been readily noted, changes have been made to the BNFPC and its referenced standards to bring it within the scope of authority; however, in some areas, judgment will have to be made as to whether the provisions of the IFC and its referenced standards are fully applicable.

103.3. International Fire Code: Retroactive fire protection system requirements contained in the IFC shall not be enforced unless specified by the USBC.

Section 104.0. Enforcement.

104.1. Local enforcement: Any local government may enforce the SFPC following official action by such body. The official action shall (i) require compliance with the provisions of the SFPC in its entirety or with respect only to those provisions of the SFPC relating to open burning, fire lanes, fireworks, and hazardous materials and (ii) assign enforcement responsibility to the local agency or agencies of its choice. Any local governing body may establish such procedures or requirements as may be necessary for the administration and enforcement of this code. If a local governing body elects to enforce only those provisions of the SFPC relating to open burning, it may do so in all or in any designated geographic areas of its jurisdiction. The terms "enforcing agency" and "fire official" are intended to apply to the agency or agencies to which responsibility for enforcement of the SFPC has been assigned. The terms "building official" or "building department" are intended to apply only to the local building official or local building department.

104.1.1 Enforcement of fireworks provisions by law-enforcement officers: In accordance with Section 27-100.1 of the Code of Virginia, law-enforcement officers may enforce certain provisions of this code relating to fireworks. Such law-enforcement officers shall not be subject to the certification requirements of Sections 105.2 or 105.3.2.

104.2. State enforcement: In accordance with Section 27-98 of the Code of Virginia, the State Fire

Marshal shall also have the authority, in cooperation with any local governing body, to enforce the SFPC. The State Fire Marshal shall also have authority to enforce the SFPC in those jurisdictions in which the local governments do not enforce the SFPC and may establish such procedures or requirements as may be necessary for the administration and enforcement of the SFPC in such jurisdictions.

104.3. State structures: Every agency, commission or institution of this Commonwealth, including all institutions of higher education, shall permit, at all reasonable hours, the fire official reasonable access to existing structures or a structure under construction or renovation, for the purpose of performing an informational and advisory fire safety inspection. The fire official is permitted to submit, subsequent to performing such inspection, his findings and recommendations, including a list of corrective actions necessary to ensure that such structure is reasonably safe from the hazards of fire, to the appropriate official of such agency, commission, or institution and the State Fire Marshal. Such agency, commission or institution shall notify, within 60 days of receipt of such findings and recommendations, the State Fire Marshal and the fire official of the corrective measures taken to eliminate the hazards reported by the fire official. The State Fire Marshal shall have the same power in the enforcement of this section as is provided for in §27-98 of the Code of Virginia. The State Fire Marshal may enter into an agreement as is provided for in §36-139.4 of the Code of Virginia with any local enforcement agency that enforces the SFPC to enforce this section and to take immediate enforcement action upon verification of a complaint of an imminent hazard such as a chained or blocked exit door, improper storage of flammable liquids, use of decorative materials, and overcrowding.

Section 105.0. Enforcing agency.

105.1. Fire official: Each enforcing agency shall have an executive official in charge, hereinafter referred to as the "fire official."

Note: Fire officials are subject to sanctions in accordance with the Virginia Certification Standards (13 VAC 5-21).

105.1.1. Appointment: The fire official shall be appointed in a manner selected by the local government having jurisdiction. After permanent appointment, the fire official shall not be removed from office except for cause after having been afforded a full opportunity to be heard on specific and relevant charges by and before the appointing authority.

105.1.2. Notification of appointment: The appointing authority of the local governing body shall notify the DHCD and the State Fire Marshal's Office

(SFMO) within 30 days of the appointment or release of the permanent or acting fire official.

105.1.3. Qualifications: The *fire code official* shall have at least five years of fire-related experience as a firefighter, fire officer, licensed professional engineer or architect, fire or building inspector, contractor or superintendent of fire protection-related or building construction or at least five years of fire-related experience after obtaining a degree in architecture or engineering, with at least three years in responsible charge of work. Any combination of education and experience that would confer equivalent knowledge and ability shall be deemed to satisfy this requirement. The *fire code official* shall have general knowledge of sound engineering practice with respect to the design and construction of structures, the basic principles of fire prevention and protection, the accepted requirements for means of egress and the installation of elevators and other service equipment necessary for the health, safety and general welfare of the occupants and the public. The local governing body may establish additional qualification requirements.

105.2. Certification: The permanent or acting *fire official* shall obtain certification from the BHCD in accordance with the Virginia Certification Standards (13 VAC 5-21) within one year after permanent or acting appointment.

Exception: A *fire official* appointed prior to April 1, 1994, continuously employed by the same local governing body as the fire official shall comply with required DHCD training under the Virginia Certification Standards (13 VAC 5-21).

105.2.1. Non-certified fire official: Except for a *fire official* exempt from certification under the exception to Section 105.2, any acting or permanent *fire official* who is not certified as a *fire official* in accordance with the Virginia Certification Standards (13 VAC 5-21) shall attend the core module of the Virginia Building Code Academy or an equivalent course in an individual or regional code academy accredited by DHCD within 180 days of appointment. This requirement is in addition to meeting the certification requirement of Section 105.2.

105.3. Technical Assistant: The local governing body or its designee may utilize one or more technical assistants who, in the absence of the fire official, shall have the powers and perform the duties of the fire official.

Note: Technical Assistants are subject to sanctions in accordance with the Virginia Certification Standards (13 VAC 5-21).

105.3.1. Notification: The fire official shall notify the DHCD within 60 days of the employment,

contract or termination of all technical assistants for enforcement of the SFPC.

105.3.2. Qualifications. A technical assistant shall have at least three years of experience and general knowledge in at least one of the following areas: fire protection, firefighting, electrical, building, plumbing or mechanical trades. Any combination of education and experience which would confer equivalent knowledge and ability shall be deemed to satisfy this requirement. The locality may establish additional qualification requirements.

105.3.3. Certification: All technical assistants employed by or under contract to an enforcing agency for enforcing the SFPC shall be certified in the appropriate subject area in accordance with the Virginia Certification Standards (13 VAC 5-21) within one and one-half years after permanent or acting appointment. When required by a locality to have two or more certifications, the remaining certifications shall be obtained within three years from the date of such requirement.

Exception: Any technical assistant continuously employed by or continuously under contract to the same enforcing agency for enforcing the SFPC since before April 1, 1994, shall be exempt from the provisions of this section; however, such exempt technical assistant shall comply with required DHCD training under Virginia Certification Standards (13 VAC 5-21).

105.4. Continuing education: Fire officials and technical assistants enforcing the SFPC shall attend periodic training courses as designated by the DHCD.

105.5. Control of conflict of interest: The standards of conduct for officials and employees of the enforcing agency shall be in accordance with the provisions of the State and Local Government Conflict of Interests Act, Chapter 31 (§2.2-3100 et seq.) of Title 2.2 of the Code of Virginia.

Section 106.0. Duties and powers of the fire official.

106.1. General: The fire official shall enforce the provisions of the SFPC as provided herein and as interpreted by the State Building Code Technical Review Board (TRB) in accordance with § 36-118 of the Code of Virginia.

106.2. Delegation of duties and powers: The fire official may delegate duties and powers subject to any limitations imposed by the local governing body. The fire official shall be responsible that any powers and duties delegated are carried out in accordance with this code.

106.3. Inspections: The fire official is authorized to conduct such inspections as are deemed necessary to determine the extent of compliance with the provisions

of this code and to approve reports of inspection by approved agencies or individuals. All reports of such inspections by approved agencies and individuals shall be prepared and submitted in writing for review and approval. Inspection reports shall be certified by a responsible officer of such approved agency or by the responsible individual. The fire official is authorized to engage such expert opinion as deemed necessary to report upon unusual, detailed or complex technical issues in accordance with local policies.

106.3.1. Observations: When, during an inspection, the fire official or an authorized representative observes an apparent or actual violation of another law, ordinance or code not within the official's authority to enforce, such official shall report the findings to the official having jurisdiction in order that such official may institute the necessary measures.

106.4. Alternatives: The SFPC provisions are not intended to prevent the use of any safeguards used to protect life and property from the hazards of fire or explosion that are not specifically prescribed by the SFPC, provided that such alternative safeguards comply with the intent of the SFPC. The alternative safeguard offered shall be, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

106.5. Modifications: The fire official may grant modifications to any provision of the SFPC upon application by the owner or the owner's agent provided the spirit and intent of the SFPC are observed and public health, welfare, and safety are assured.

Note: The current editions of many nationally recognized model codes and standards are referenced by the SFPC. Future amendments to such codes and standards do not automatically become part of the SFPC; however, the fire official should consider such amendments in deciding whether a modification request should be granted.

106.5.1. Supporting data: The fire official shall require that sufficient technical data be submitted to substantiate the proposed use of any alternative. If it is determined that the evidence presented is satisfactory proof of performance for the use intended, the fire official shall approve the use of such alternative subject to the requirements of this code. The fire official may require and consider a statement from a professional engineer, architect or other competent person as to the equivalency of the proposed modification.

106.5.2. Decision: The application for modification and the final decision of the fire official shall be in

writing and shall be recorded in the permanent records of the local enforcing agency.

106.6. Notices and orders: The fire official shall issue all necessary notices or orders to ensure compliance with the SFPC.

106.7. Department records: The fire official shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained in the official records or disposed of in accordance with General Schedule Number Ten available from The Library of Virginia.

Section 107.0. Permits.

107.1. Prior notification: The fire official may require notification prior to (i) activities involving the handling, storage or use of substances, materials or devices regulated by the SFPC; (ii) conducting processes which produce conditions hazardous to life or property; or (iii) establishing a place of assembly.

107.2 Permits required: Permits may be required by the fire official as permitted under the SFPC in accordance with Table 107.2, except that the fire official shall require permits for the manufacturing, storage, handling, use, and sale of explosives. In accordance with Section 3301.2.3.1, an application for a permit to manufacture, store, handle, use, or sell explosives shall only be made by a designated individual.

Exception: Such permits shall not be required for the storage of explosives or blasting agents by the Virginia Department of State Police provided notification to the fire official is made annually by the Chief Arson Investigator listing all storage locations.

107.3 Application for permit: Application for a permit shall be made on forms prescribed by the fire official.

107.4 Issuance of permits: Before a permit is issued, the fire official shall make such inspections or tests as are necessary to assure that the use and activities for which application is made comply with the provisions of this code.

107.5 Conditions of permit: A permit shall constitute permission to store or handle materials or to conduct processes in accordance with the SFPC, and shall not be construed as authority to omit or amend any of the provisions of this code. Permits shall remain in effect until revoked or for such period as specified on the permit. Permits are not transferable.

107.5.1 Specials conditions for the State Fire Marshal's Office: Permits issued by the State Fire Marshal's Office for the use of explosives in special operations or under emergency conditions shall be valid for 1 week from the date of issuance and shall not be renewable.

107.6 State Fire Marshal: Permits will not be required by the State Fire Marshal except those permits listed in Section 107.13 and 107.14 of this code.

Exception: Such permits shall not be required for the storage of explosives or blasting agents by the Virginia Department of State Police provided notification to the State Fire Marshal is made annually by the Chief Arson Investigator listing all storage locations within areas where enforcement is provided by the State Fire Marshal's office.

107.7 Annual: The enforcing agency may issue annual permits for the manufacturing, storage, handling, use, or sales of explosives to any state regulated public utility.

107.8 Approved plans: Plans approved by the fire official are approved with the intent that they comply in all respects to this code. Any omissions or errors on the plans do not relieve the applicant of complying with all applicable requirements of this code.

107.9 Posting: Issued permits shall be kept on the premises designated therein at all times and shall be readily available for inspection by the fire official.

107.10 Suspension of permit: A permit shall become invalid if the authorized activity is not commenced within six months after issuance of the permit, or if the authorized activity is suspended or abandoned for a period of six months after the time of commencement.

107.11 Revocation of permit: The fire official may revoke a permit or approval issued under the SFPC if conditions of the permit have been violated, or if the approved application, data or plans contain misrepresentation as to material fact.

107.12. Local permit fees: Fees may be levied by the local governing body in order to defray the cost of enforcement and appeals under the SFPC.

107.13. State explosives, blasting agents, theatrical flame effects and firework permit fees: Applications for firework or pyrotechnic displays shall be submitted to and received by the State Fire Marshal's Office not less than 15 days prior to the planned event. Fees for permits issued by the State Fire Marshal's office for the storage, use, sale or manufacture of explosives or blasting agents, and for the display of fireworks and flame effects on state-owned property shall be as follows:

1. \$125 per year per magazine to store explosives and blasting agents.
2. \$200 per year per city or county to use explosives and blasting agents.
3. \$150 per year to sell explosives and blasting agents.
4. \$200 per year to manufacture explosives, blasting agents and fireworks.

5. \$350 the first day of fireworks, pyrotechnics or proximate audience displays conducted in any state-owned building and \$150 per day for each consecutive day for identical multi-day events. If an application is received by the SFMO less than 15 days prior to the planned event, the permit fee shall be \$450 per day and \$150 per day for each consecutive day for identical multi-day events. If an application is received by the SFMO less than 7 days prior to the planned event, the permit fee shall be \$550 per day and \$150 per day for each consecutive day for identical multi-day events.

6. \$250 the first day of fireworks, pyrotechnics or proximate audience displays conducted out-of-doors on any state-owned property and \$150 per day for each consecutive day for identical multi-day events. If an application is received by the SFMO less than 15 days prior to the planned event, the permit fee shall be \$450 per day and \$150 per day for each consecutive day for identical multi-day events. If an application is received by the SFMO less than 7 days prior to the planned event, the permit fee shall be \$550 per day and \$150 per day for each consecutive day for identical multi-day events.

7. \$100 per event for the use of explosives in special operations or emergency conditions.

8. \$300 the first day for flame effects conducted in accordance with Section 308.3.6 indoors of any state-owned building or outdoors on state-owned property and \$150 per day for each consecutive day for identical multi-day events, or, if conducted as part of a firework (pyrotechnic) display, \$100 the first day and \$75 per day for each consecutive day for identical multi-day events. If an application for flame effects is received by the SFMO less than 15 days prior to the planned event, the permit fee shall be \$450 per day and \$150 per day for each consecutive day for identical multi-day events. If an application is received by the SFMO less than 7 days prior to the planned event, the permit fee shall be \$550 per day and \$150 per day for each consecutive day for identical multi-day events.

107.14 State annual inspection permit fees. Annual fees for inspection permits issued by the State Fire Marshal's Office for the inspection of buildings shall be as follows:

1. Night clubs

- 1.1. \$350 for occupant load of 100 or less.
- 1.2. \$450 for occupant load of 101 to 200.
- 1.3. \$500 for occupant load of 201 to 300.
- 1.4. \$500 plus \$50 for each 100 occupants where occupant load exceed 300.

2. Private Schools (kindergarten through 12th grade) and private college dormitories with or without assembly areas. If containing assembly areas, such assembly areas are not included in the computation of square footage.

- 2.1. \$150 for 3500 square feet or less.
- 2.2. \$200 for greater than 3500 square feet up to 7000 square feet.
- 2.3. \$250 for greater than 7000 square feet up to 10,000 square feet.
- 2.4. \$250 plus \$50 for each additional 3000 square feet where square footage exceeds 10,000.

3. Assembly areas which are part of private schools (kindergarten through 12th grade) or private college dormitories.

- 3.1. \$50 for 10,000 square feet or less provided the assembly area is within or attached to a school or dormitory building.
- 3.2. \$100 for greater than 10,000 square feet up to 25,000 square feet provided the assembly area is within or attached to a school or dormitory building, such as gymnasiums, auditoriums or cafeterias.
- 3.3. \$100 for up to 25,000 square feet provided the assembly area is in a separate or separate buildings such as gymnasiums, auditoriums or cafeterias.
- 3.4. \$150 for greater than 25,000 square feet for assembly areas within or attached to a school or dormitory building or in a separate or separate buildings such as gymnasiums, auditoriums or cafeterias.

4. Hospitals.

- 4.1. \$300 for 1 to 50 beds.
- 4.2. \$400 for 51 to 100 beds.
- 4.3. \$500 for 101 to 150 beds.
- 4.4. \$600 for 151 to 200 beds.
- 4.5. \$600 plus \$100 for each additional 100 beds where the number of beds exceeds 200.

Exception: Annual fees for any building or groups of buildings on the same site may not exceed \$2500.

5. Child day centers, assisted living facilities and adult day care centers licensed by the Virginia Department of Social Services based on licensed capacity as follow:

- 5.1. \$50 for 1 to 8.
- 5.2. \$75 for 9 to 20.
- 5.3. \$100 for 21 to 50.
- 5.4. \$200 for 51 to 100.
- 5.5. \$400 for 101 or more.

107.15. Fee schedule: The local governing body may establish a fee schedule. The schedule shall incorporate unit rates, which may be based on square footage, cubic footage, estimated cost of inspection or other appropriate criteria.

107.16. Payment of fees: A permit shall not be issued until the designated fees have been paid.

Exception: The fire official may authorize delayed payment of fees.

**Table 107.2
OPERATIONAL PERMIT REQUIREMENTS
(to be filled in by local jurisdiction)**

| Description | | | Permit Required (yes or no) | Permit fee | Inspection fee |
|---|----------------------------------|-----------------------------------|--------------------------------|------------|----------------|
| Aerosol products. An operational permit is required to manufacture, store, or handle an aggregate quantity of Level 2 or Level 3 aerosol products in excess of 500 pounds (227 kg) net weight. | | | | | |
| Amusement buildings. An operational permit is required to operate a special amusement building. | | | | | |
| Aviation facilities. An operational permit is required to use a Group H or Group S occupancy for aircraft servicing or repair and aircraft fuel-servicing vehicles. Additional permits required by other sections of this code include, but are not limited to, hot work, hazardous materials and flammable or combustible finishes. | | | | | |
| Carnivals and fairs. An operational permit is required to conduct a carnival or fair. | | | | | |
| Battery systems. A permit is required to install stationary lead-acid battery systems having a liquid capacity of more than 50 gallons (189 L). | | | | | |
| Cellulose nitrate film. An operational permit is required to store, handle or use cellulose nitrate film in a Group A occupancy. | | | | | |
| Combustible dust-producing operations. An operational permit is required to operate a grain elevator, flour starch mill, feed mill, or a plant pulverizing aluminum, coal, cocoa, magnesium, spices or sugar, or other operations producing combustible dusts as defined in Chapter 2. | | | | | |
| Combustible fibers. An operational permit is required for the storage and handling of combustible fibers in quantities greater than 100 cubic feet (2.8 m3). Exception: A permit is not required for agricultural storage. | | | | | |
| Compressed gases. Except for vehicles equipped for and using compressed gas as a fuel for propelling the vehicle, an operational permit is required for the storage, use or handling of compressed gases in excess of the amounts listed as follows: | | | | | |
| Type of gas | | Amount (Cubic feet @ NTP) | | | |
| Corrosive | | 200 | | | |
| Flammable (except cryogenic fluids and LPG) | | 200 | | | |
| Highly toxic | | Any amount | | | |
| Inert and simple asphyxiant | | 6,000 | | | |
| Oxidizing (including oxygen) | | 504 | | | |
| Toxic | | Any amount | | | |
| Covered mall buildings. An operational permit is required for: 1. The placement of retail fixtures and displays, concession equipment, displays of highly combustible goods and similar items in the mall. 2. The display of liquid- or gas-fired equipment in the mall. 3. The use of open-flame or flame-producing equipment in the mall. | | | | | |
| Cryogenic fluids. An operational permit is required to produce, store, transport on site, use, handle or dispense cryogenic fluids in excess of the amounts listed below. Exception: Operational permits are not required for vehicles equipped for and using cryogenic fluids as a fuel for propelling the vehicle or for refrigerating the lading. | | | | | |
| Type of Cryogenic Fluid | Inside Building (gallons) | Outside Building (gallons) | | | |
| Flammable | More than 1 | 60 | | | |
| Inert | 60 | 500 | | | |
| Oxidizing (includes oxygen) | 10 | 50 | | | |
| Physical or health hazard not indicated above | Any amount | Any amount | | | |
| For SI: 1 gallon = 3.785 L. | | | | | |
| Cutting and welding. An operational permit is required to conduct cutting or welding operations within the jurisdiction. | | | | | |
| Dry cleaning plants. An operational permit is required to engage in the business of dry cleaning or to change to a more hazardous cleaning solvent used in existing dry cleaning equipment. | | | | | |

| | | | |
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| Exhibits and trade shows. An operational permit is required to operate exhibits and trade shows. | | | |
| Explosives. An operational permit is required for the manufacture, storage, handling, sale or use of any quantity of explosive, explosive material, fireworks, or pyrotechnic special effects within the scope of Chapter 33. | | | |
| Fire hydrants and valves. An operational permit is required to use or operate fire hydrants or valves intended for fire suppression purposes which are installed on water systems and accessible to a fire apparatus access road that is open to or generally used by the public. Exception: An operational permit is not required for authorized employees of the water company that supplies the system or the fire department to use or operate fire hydrants or valves. | | | |
| Flammable and combustible liquids. An operational permit is required: 1. To use or operate a pipeline for the transportation within facilities of flammable or combustible liquids. This requirement shall not apply to the off-site transportation in pipelines regulated by the Department of Transportation (DOTn) (see Section 3501.1.2) nor does it apply to piping systems (see Section 3503.6). 2. To store, handle or use Class I liquids in excess of 5 gallons (19 L) in a building or in excess of 10 gallons (37.9 L) outside of a building, except that a permit is not required for the following: 2.1. The storage or use of Class I liquids in the fuel tank of a motor vehicle, aircraft, motorboat, mobile power plant or mobile heating plant, unless such storage, in the opinion of the code official, would cause an unsafe condition. 2.2. The storage or use of paints, oils, varnishes or similar flammable mixtures when such liquids are stored for maintenance, painting or similar purposes for a period of not more than 30 days. 3. To store, handle or use Class II or Class IIIA liquids in excess of 25 gallons (95 L) in a building or in excess of 60 gallons (227 L) outside a building, except for fuel oil used in connection with oil-burning equipment. 4. To remove Class I or Class II liquids from an underground storage tank used for fueling motor vehicles by any means other than the approved, stationary on-site pumps normally used for dispensing purposes. 5. To operate tank vehicles, equipment, tanks, plants, terminals, wells, fuel-dispensing stations, refineries, distilleries and similar facilities where flammable and combustible liquids are produced, processed, transported, stored, dispensed or used. 6. To install, alter, remove, abandon, place temporarily out of service (for more than 90 days) or otherwise dispose of an underground, protected above-ground or above-ground flammable or combustible liquid tank. 7. To change the type of contents stored in a flammable or combustible liquid tank to a material which poses a greater hazard than that for which the tank was designed and constructed. 8. To manufacture, process, blend or refine flammable or combustible liquids. | | | |
| Floor finishing. An operational permit is required for floor finishing or surfacing operations exceeding 350 square feet (33 m ²) using Class I or Class II liquids. | | | |
| Fruit and crop ripening. An operational permit is required to operate a fruit-, or crop-ripening facility or conduct a fruit-ripening process using ethylene gas. | | | |
| Fumigation and thermal insecticidal fogging. An operational permit is required to operate a business of fumigation or thermal insecticidal fogging and to maintain a room, vault or chamber in which a toxic or flammable fumigant is used. | | | |
| Hazardous materials. An operational permit is required to store, transport on site, dispense, use or handle hazardous materials in excess of the following amounts: | | | |
| Type of material | Amount | | |
| Combustible liquids | See Flammable and Combustible Liquids | | |
| Corrosive materials Gases Liquids Solids | See Compressed Gases 55 gallons 1000 pounds | | |
| Explosive materials | See Explosives | | |
| Flammable materials Gases Liquids Solids | See Compressed Gases See Flammable and Combustible Liquids 100 pounds | | |
| Highly toxic materials Gases Liquids Solids | See Compressed Gases Any amount Any amount | | |

| | | | | |
|---|---|--|--|--|
| Oxidizing materials Gases Liquids Class 4 Class 3 Class 2 Class 1 Solids Class 4 Class 3 Class 2 Class 1 | See Compressed Gases Any amount 1 gallon 10 gallons 55 gallons Any amount 10 pounds 100 pounds 500 pounds | | | |
| Organic peroxides Liquids Class I Class II Class III Class IV Class V Solids Class I Class II Class III Class IV Class V | Any amount Any amount 1 gallon 2 gallons No permit required Any amount Any amount 10 pounds 20 pounds No permit required | | | |
| Pyrophoric materials Gases Liquids Solids | See Compressed Gases Any amount Any amount | | | |
| Toxic materials Gases Liquids Solids | See Compressed Gases 10 gallons 100 pounds | | | |
| Unstable (reactive) materials Liquids Class 4 Class 3 Class 2 Class 1 Solids Class 4 Class 3 Class 2 Class 1 | Any amount Any amount 5 gallons 10 gallons Any amount Any amount 50 pounds 100 pounds | | | |
| Water-reactive Materials Liquids Class 3 Class 2 Class 1 Solids Class 3 Class 2 Class 1 | Any amount 5 gallons 55 gallons Any amount 50 pounds 500 pounds | | | |
| HPM facilities. An operational permit is required to store, handle or use hazardous production materials. | | | | |
| High-piled storage. An operational permit is required to use a building or portion thereof as a high-piled storage area exceeding 500 square feet (46 m2). | | | | |
| Hot work operations. An operational permit is required for hot work including, but not limited to: 1. Public exhibitions and demonstrations where hot work is conducted. 2. Use of portable hot work equipment inside a structure. Exception: Work that is conducted under a construction permit. 3. Fixed-site hot work equipment such as welding booths. 4. Hot work conducted within a hazardous fire area. 5. Application of roof coverings with the use of an open-flame device. 6. When approved, the code official shall issue a permit to carry out a Hot Work Program. This program allows approved personnel to regulate their facility's hot work operations. The approved personnel shall be trained in the fire safety aspects denoted in this chapter and shall be responsible for issuing permits requiring compliance with the requirements found in this chapter. These permits shall be issued only to their employees or hot work operations under their supervision. | | | | |
| Industrial ovens. An operational permit is required for operation of industrial ovens regulated by Chapter 21. | | | | |
| Lumber yards and woodworking plants. An operational permit is required for the storage or processing of lumber exceeding 100,000 board feet (8,333 ft3) (236 m3). | | | | |

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|--|--|--|--|
| Liquid- or gas-fueled vehicles or equipment in assembly buildings. An operational permit is required to display, operate or demonstrate liquid- or gas-fueled vehicles or equipment in assembly buildings. | | | |
| LP-gas. An operational permit is required for: 1. Storage and use of LP-gas. Exception: An operational permit is not required for individual containers with a 500-gallon (1893 L) water capacity or less serving occupancies in Group R-3. 2. Operation of cargo tankers that transport LP-gas. | | | |
| Magnesium. An operational permit is required to melt, cast, heat treat or grind more than 10 pounds (4.54 kg) of magnesium. | | | |
| Miscellaneous combustible storage. An operational permit is required to store in any building or upon any premises in excess of 2,500 cubic feet (71 m3) gross volume of combustible empty packing cases, boxes, barrels or similar containers, rubber tires, rubber, cork or similar combustible material. | | | |
| Open burning. An operational permit is required for the kindling or maintaining of an open fire or a fire on any public street, alley, road, or other public or private ground. Instructions and stipulations of the permit shall be adhered to. Exception: Recreational fires. | | | |
| Open flames and candles. An operational permit is required to remove paint with a torch; use a torch or open-flame device in a hazardous fire area; or to use open flames or candles in connection with assembly areas, dining areas of restaurants or drinking establishments. | | | |
| Organic coatings. An operational permit is required for any organic-coating manufacturing operation producing more than 1 gallon (4 L) of an organic coating in one day. | | | |
| Assembly/educational. An operational permit is required to operate a place of assembly/educational occupancy. | | | |
| Private fire hydrants. An operational permit is required for the removal from service, use or operation of private fire hydrants. Exception: An operational permit is not required for private industry with trained maintenance personnel, private fire brigade or fire departments that maintain, test and use private hydrants. | | | |
| Pyrotechnic special effects material. An operational permit is required for use and handling of pyrotechnic special effects material. | | | |
| Pyroxylin plastics. An operational permit is required for storage or handling of more than 25 pounds (11 kg) of cellulose nitrate (pyroxylin) plastics and for the assembly or manufacture of articles involving pyroxylin plastics. | | | |
| Refrigeration equipment. An operational permit is required to operate a mechanical refrigeration unit or system regulated by Chapter 6. | | | |
| Repair garages and service stations. An operational permit is required for operation of repair garages and automotive, marine and fleet service stations. | | | |
| Rooftop heliports. An operational permit is required for the operation of a rooftop heliport. | | | |
| Spraying or dipping. An operational permit is required to conduct a spraying or dipping operation utilizing flammable or combustible liquids or the application of combustible powders regulated by Chapter 15. | | | |
| Storage of scrap tires and tire byproducts. An operational permit is required to establish, conduct or maintain storage of scrap tires and tire byproducts that exceeds 2,500 cubic feet (71 m3) of total volume of scrap tires and for indoor storage of tires and tire byproducts. | | | |
| Temporary membrane structures, tents and canopies. An operational permit is required to operate an air-supported temporary membrane structure or a tent. Exceptions: 1. Tents used exclusively for recreational camping purposes. 2. Tents and air-supported structures that cover an area of 900 square feet (84m ²) or less, including all connecting areas or spaces with a common means of egress or entrance and with an occupant load of 50 or less persons. | | | |
| Tire-rebuilding plants. An operational permit is required for the operation and maintenance of a tire-rebuilding plant. | | | |
| Waste handling. An operational permit is required for the operation of wrecking yards, junk yards and waste material-handling facilities. | | | |
| Wood products. An operational permit is required to store chips, hogged material, lumber or plywood in excess of 200 cubic feet (6 m3). | | | |

Section 108.0. Operational permits.

108.1 General. Operational permits shall be in accordance with Section 108. The fire official may require notification prior to (i) activities involving the handling, storage or use of substances, materials or devices regulated by the SFPC; (ii) conducting processes

which produce conditions hazardous to life or property; or (iii) establishing a place of assembly.

108.1.1 Permits required. Operational permits may be required by the fire official in accordance with Table 107.2. The fire official shall require operational permits for the manufacturing, storage, handling, use

and sale of explosives. Issued permits shall be kept on the premises designated therein at all times and shall be readily available for inspection by the fire official.

Exceptions:

1. Operational permits will not be required by the State Fire Marshal except for the manufacturing, storage, handling, use and sale of explosives in localities not enforcing the SFPC.
2. Operational permits will not be required for the manufacturing, storage, handling or use of explosives or blasting agents by the Virginia Department of State Police provided notification to the fire official is made annually by the Chief Arson Investigator listing all storage locations.

108.1.2 Types of permits. There shall be two types of permits as follows:

1. Operational permit. An operational permit allows the applicant to conduct an operation or a business for which a permit is required by Section 108.1.1 for either:
 - 1.1. A prescribed period.
 - 1.2. Until renewed or revoked.
2. Construction permit. Construction permit are required, and shall be issued in accordance with the USBC and shall be issued by the building official. A construction permit allows the applicant to install or modify systems and equipment for which a permit is required by section 108.5.

108.1.3 Operational permits for the same location. When more than one operational permit is required for the same location, the fire official is authorized to consolidate such permits into a single permit provided that each provision is listed in the permit.

108.2 Application. Application for an operational permit required by this code shall be made to the fire official in such form and detail as prescribed by the fire official. Applications for permits shall be accompanied by such plans as prescribed by the fire official.

108.2.1 Refusal to issue permit. If the application for an operational permit describes a use that does not conform to the requirements of this code and other pertinent laws and ordinances, the fire official shall not issue a permit, but shall return the application to the applicant with the refusal to issue such permit. Such refusal shall, when requested, be in writing and shall contain the reasons for refusal.

108.2.2 Inspection authorized. Before a new operational permit is approved, the fire official is authorized to inspect the receptacles, vehicles, buildings, devices, premises, storage spaces or areas

to be used to determine compliance with this code or any operational constraints required.

108.2.3 Time limitation of application. An application for an operational permit for any proposed work or operation shall be deemed to have been abandoned six months after the date of filing, unless such application has been diligently prosecuted or a permit shall have been issued; except that the fire official is authorized to grant one or more extensions of time for additional periods not exceeding 90 days each if there is reasonable cause.

108.2.4 Action on application. The fire official shall examine or cause to be examined applications for operational permits and amendments thereto within a reasonable time after filing. If the application does not conform to the requirements of pertinent laws, the fire official shall reject such application in writing, stating the reasons. If the fire official is satisfied that the proposed work or operation conforms to the requirements of this code and laws and ordinances applicable thereto, the fire official shall issue a permit as soon as practicable.

108.3 Conditions of a permit. An operational permit shall constitute permission to maintain, store or handle materials; or to conduct processes in accordance with the SFPC, and shall not be construed as authority to omit or amend any of the provisions of this code. The building official shall issue permits to install equipment utilized in connection with such activities; or to install or modify any fire protection system or equipment or any other construction, equipment installation or modification in accordance with the provisions of this code where a permit is required by section 108.5. Such permission shall not be construed as authority to omit or amend any of the provisions of this code.

108.3.1 Expiration. An operational permit shall remain in effect until reissued, renewed, or revoked for such a period of time as specified in the permit. Permits are not transferable and any change in occupancy, operation, tenancy or ownership shall require that a new permit be issued.

108.3.2 Extensions. A permittee holding an unexpired permit shall have the right to apply for an extension of the time within which the permittee will commence work under that permit when work is unable to be commenced within the time required by this section for good and satisfactory reasons. The fire official is authorized to grant, in writing, one or more extensions of the time period of a permit for periods of not more than 90 days each. Such extensions shall be requested by the permit holder in writing and justifiable cause demonstrated.

108.3.3 Annual: The enforcing agency may issue annual operational permits for the manufacturing,

storage, handling, use, or sales of explosives to any state regulated public utility.

108.3.4 Suspension of permit: An operational permit shall become invalid if the authorized activity is not commenced within six months after issuance of the permit, or if the authorized activity is suspended or abandoned for a period of six months after the time of commencement.

108.3.5 Posting: Issued operational permits shall be kept on the premises designated therein at all times and shall be readily available for inspection by the fire official.

108.3.6 Compliance with code. The issuance or granting of an operational permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinance of the jurisdiction. Operational permits presuming to give authority to violate or cancel the provisions of this code or other ordinances of the jurisdiction shall not be valid. The issuance of a permit based on other data shall not prevent the fire official from requiring the correction of errors in the provided documents and other data. Any addition to or alteration of approved provided documents shall be approved in advance by the fire official, as evidenced by the issuance of a new or amended permit.

108.3.7 Information on the permit. The fire official shall issue all operational permits required by this code on an approved form furnished for that purpose. The operational permit shall contain a general description of the operation or occupancy and its location and any other information required by the fire official. Issued permits shall bear the signature of the fire official.

108.4 Revocation. The fire official is authorized to revoke an operational permit issued under the provisions of this code when it is found by inspection or otherwise that there has been a false statement or misrepresentation as to the material facts in the application or documents on which the permit or approval was based including, but not limited to, any one of the following:

1. The permit is used for a location or establishment other than that for which it was issued.
2. The permit is used for a condition or activity other than that listed in the permit.
3. Conditions and limitations set forth in the permit have been violated.
4. There have been any false statements or misrepresentations as to the material fact in the application for permit or plans submitted or a condition of the permit.

5. The permit is used by a different person or firm than the name for which it was issued.

6. The permittee failed, refused or neglected to comply with orders or notices duly served in accordance with the provisions of this code within the time provided therein.

7. The permit was issued in error or in violation of an ordinance, regulation or this code.

108.5 Required construction permits. The building official is authorized to issue construction permits in accordance with the USBC for work as set forth in Sections 108.5.1 through 108.5.12.

108.5.1 Automatic fire-extinguishing systems. A construction permit is required for installation of or modification to an automatic fire-extinguishing system. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

108.5.2 Compressed gases. When the compressed gases in use or storage exceed the amounts listed in Table 107.2, a construction permit is required to install, repair damage to, abandon, remove, place temporarily out of service, or close or substantially modify a compressed gas system.

Exceptions:

1. Routine maintenance.
2. For emergency repair work performed on an emergency basis, application for permit shall be made within two working days of commencement of work.

The permit applicant shall apply for approval to close storage, use or handling facilities at least 30 days prior to the termination of the storage, use or handling of compressed or liquefied gases. Such application shall include any change or alteration of the facility closure plan filed pursuant to Section 2701.5.3. The 30-day period is not applicable when approved based on special circumstances requiring such waiver.

108.5.3 Fire alarm and detection systems and related equipment. A construction permit is required for installation of or modification to fire alarm and detection systems and related equipment. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

108.5.4 Fire pumps and related equipment. A construction permit is required for installation of or modification to fire pumps and related fuel tanks, jockey pumps, controllers, and generators. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

108.5.5 Flammable and combustible liquids. A construction permit is required:

1. To repair or modify a pipeline for the transportation of flammable or combustible liquids.
2. To install, construct or alter tank vehicles, equipment, tanks, plants, terminals, wells, fuel-dispensing stations, refineries, distilleries and similar facilities where flammable and combustible liquids are produced, processed, transported, stored, dispensed or used.
3. To install, alter, remove, abandon, place temporarily out of service or otherwise dispose of a flammable or combustible liquid tank.

108.5.6 Hazardous materials. A construction permit is required to install, repair damage to, abandon, remove, place temporarily out of service, or close or substantially modify a storage facility or other area regulated by Chapter 27 when the hazardous materials in use or storage exceed the amounts listed in Table 107.2.

Exceptions:

1. Routine maintenance.
2. For emergency repair work performed on an emergency basis, application for permit shall be made within two working days of commencement of work.

108.5.7 Industrial ovens. A construction permit is required for installation of industrial ovens covered by Chapter 21.

Exceptions:

1. Routine maintenance.
2. For repair work performed on an emergency basis, application for permit shall be made within two working days of commencement of work.

108.5.8 LP-gas. A construction permit is required for installation of or modification to an LP-gas system.

108.5.9 Private fire hydrants. A construction permit is required for the installation or modification of private fire hydrants.

108.5.10 Spraying or dipping. A construction permit is required to install or modify a spray room, dip tank or booth.

108.5.11 Standpipe systems. A construction permit is required for the installation, modification, or removal from service of a standpipe system. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

108.5.12 Temporary membrane structures, tents and canopies. A construction permit is required to erect all membrane structures or any tent or air-supported structure that covers an area greater than

900 square feet (84 m²), including within that area all connecting areas or spaces with a common means of egress or entrance, provided such tents or structures have an occupant load of greater than 50 persons. Tents used exclusively for recreational camping shall not be required to obtain a construction permit.

Section 109 Inspection.

109.1 Inspection: The fire official may inspect all structures and premises for the purposes of ascertaining and causing to be corrected any conditions liable to cause fire, contribute to the spread of fire, interfere with firefighting operations, endanger life, or any violations of the provisions or intent of the SFPC.

Exception: Single family dwellings and dwelling units in two family and multiple family dwellings and farm structures shall be exempt from routine inspections. This exemption shall not preclude the fire official from conducting routine inspections in Group R-3 or Group R-5 occupancies operating as a commercial bed and breakfast as outlined in Section 310.1 of the USBC or inspecting under §27-98.2 of the Code of Virginia for hazardous conditions relating to explosives, flammable and combustible conditions, and hazardous materials.

109.1.1 Right to entry: The fire official may enter any structure or premises at any reasonable time to inspect subject to constitutional restrictions on unreasonable searches and seizures. If entry is refused or not obtained, the fire official may pursue recourse as provided by law.

Note: Specific authorization and procedures for inspections and issuing warrants are set out in §§27-98.1 through 27-98.5 of the Code of Virginia and shall be taken into consideration.

109.1.2. Credentials: The fire official and technical assistants shall carry proper credentials of office when inspecting in the performance of their duties under the SFPC.

109.2 Coordinated inspections: The fire official shall coordinate inspections and administrative orders with any other state and local agencies having related inspection authority, and shall coordinate those inspections required by the USBC for new construction when involving provisions of the amended IFC, so that the owners and occupants will not be subjected to numerous inspections or conflicting orders.

Note: The USBC requires the building official to coordinate such inspections with the fire official.

109.3 Other inspections: In accordance with § 36-139.3 of the Code of Virginia, the State Fire Marshal, upon presenting proper credentials, shall make annual inspections for hazards incident to fire in all (i) residential care facilities operated by any state agency, (ii) assisted living facilities licensed or subject to

licensure pursuant to Chapter 18 (§ 63.2-1800 et seq.) of Title 63.2 of the Code of Virginia which are not inspected by a local fire marshal, (iii) student-residence facilities owned or operated by the public institutions of higher education in the Commonwealth, and (iv) public schools in the Commonwealth which are not inspected by a local fire marshal. In the event that any such facility or residence is found to be nonconforming to the SFPC, the State Fire Marshal or local fire marshal may petition any court of competent jurisdiction for the issuance of an injunction.

Section 110.0 Unsafe conditions.

110.1 General: The fire official shall order the following dangerous or hazardous conditions or materials to be removed or remedied in accordance with the SFPC:

1. Dangerous conditions which are liable to cause or contribute to the spread of fire in or on said premises, building or structure, or to endanger the occupants thereof.
2. Conditions which would interfere with the efficiency and use of any fire protection equipment.
3. Obstructions to or on fire escapes, stairs, passageways, doors or windows, which are liable to interfere with the egress of occupants or the operation of the fire department in case of fire.
4. Accumulations of dust or waste material in air conditioning or ventilating systems or grease in kitchen or other exhaust ducts.
5. Accumulations of grease on kitchen cooking equipment, or oil, grease or dirt upon, under or around any mechanical equipment.
6. Accumulations of rubbish, waste, paper, boxes, shavings, or other combustible materials, or excessive storage of any combustible material.
7. Hazardous conditions arising from defective or improperly used or installed electrical wiring, equipment or appliances.
8. Hazardous conditions arising from defective or improperly used or installed equipment for handling or using combustible, explosive or otherwise hazardous materials.
9. Dangerous or unlawful amounts of combustible, explosive or otherwise hazardous materials.
10. All equipment, materials, processes or operations which are in violation of the provisions and intent of this code.

110.2 Maintenance: The owner shall be responsible for the safe and proper maintenance of any structure, premises or lot. In all structures, the fire protection equipment, means of egress, alarms, devices and safeguards shall be maintained in a safe and proper

operating condition as required by the SFPC and applicable referenced standards.

110.3 Occupant responsibility: If a building occupant creates conditions in violation of this code, by virtue of storage, handling and use of substances, materials, devices and appliances, such occupant shall be held responsible for the abatement of said hazardous conditions.

110.4 Unsafe structures: All structures that are or shall hereafter become unsafe or deficient in adequate exit facilities or which constitute a fire hazard, or are otherwise dangerous to human life or the public welfare, or by reason of illegal or improper use, occupancy or maintenance or which have sustained structural damage by reason of fire, explosion, or natural disaster shall be deemed unsafe structures. A vacant structure, or portion of a structure, unguarded or open at door or window shall be deemed a fire hazard and unsafe within the meaning of this code. Unsafe structures shall be reported to the building official or building maintenance official who shall take appropriate action under the provisions of the USBC to secure abatement. Subsequently, the fire official may request the legal counsel of the local governing body to institute the appropriate legal proceedings for an injunction against the continued use and occupancy of the structure until such time as conditions have been remedied.

110.5 Evacuation: When, in the fire official's opinion, there is actual and potential danger to the occupants or those in the proximity of any structure or premises because of unsafe structural conditions, or inadequacy of any means of egress, the presence of explosives, explosive fumes or vapors, or the presence of toxic fumes, gases or materials, the fire official may order the immediate evacuation of the structure or premises. All notified occupants shall immediately leave the structure or premises and no person shall enter until authorized by the fire official.

110.6 Unlawful continuance: Any person who refuses to leave, interferes with the evacuation of other occupants or continues any operation after having been given an evacuation order shall be in violation of this code.

Exception: Any person performing work directed by the fire official to be performed to remove an alleged violation or unsafe condition.

Section 111.0 Violations.

111.1 Notice: When the fire official discovers an alleged violation of a provision of the SFPC or other codes or ordinances under the fire official's jurisdiction, the fire official shall prepare a written notice citing the section allegedly violated, describing the condition deemed unsafe and specifying time limitations for the required

abatements to be made to render the structure or premises safe and secure.

111.2 Service: The written notice of violation of this code shall be served upon the owner, a duly authorized agent or upon the occupant or other person responsible for the conditions under violation. Such notice shall be served either by delivering a copy of same to such persons by mail to the last known post office address, by delivering in person or by delivering it to and leaving it in the possession of any person in charge of the premises, or, in the case such person is not found upon the premises, by affixing a copy thereof in a conspicuous place at the entrance door or avenue of access. Such procedure shall be deemed the equivalent of personal notice.

111.3 Failure to correct violations: If the notice of violation is not complied with within the time specified, the fire official shall request the legal counsel of the local governing body to institute the appropriate legal proceedings to restrain, correct or abate such alleged violation.

111.4 Penalty: Penalties upon conviction of violating the SFPC shall be as set out in §27-100 of the Code of Virginia.

111.5 Summons: When authorized and certified in accordance with §27-34.2 of the Code of Virginia, the fire official may, subject to any limitations imposed by the local governing body, issue a summons in lieu of a notice of violation. Fire officials not certified in accordance with §27-34.2 of the Code of Virginia may request the law-enforcement agency of the local governing body to make arrests for any alleged violations of the SFPC or orders affecting the immediate public safety.

Section 112.0 Appeals.

112.1 Local Board of Fire Prevention Code Appeals (BFPCA): Each local governing body which enforces the SFPC shall have a BFPCA to hear appeals as authorized herein or it shall enter into an agreement with the governing body of another county or municipality, with some other agency, or with a state agency approved by the DHCD to act on appeals. An appeal case decided by some other approved agency shall constitute an appeal in accordance with this section and shall be final unless appealed to the State Building Code Technical Review Board (TRB).

112.2 Membership: The BFPCA shall consist of at least five members appointed by the local governing body and having terms of office established by written policy. Alternate members may be appointed to serve in the absence of any regular members and as such, shall have the full power and authority of the regular members. Regular and alternate members may be reappointed. Written records of current membership, including a

record of the current chairman and secretary shall be maintained in the office of the local governing body. In order to provide continuity, the terms of the members may be of different length so that less than half will expire in any one-year period. The BFPCA shall meet at least once annually to assure a duly constituted board, appoint officers as necessary and receive such training on the code as may be appropriate or necessary from staff of the locality.

112.2.1 Chairman: The BFPCA shall annually select one of its regular members to serve as chairman. In case of the absence of the chairman at a hearing, the members present shall select an acting chairman.

112.2.2 Secretary: The local governing body shall appoint a secretary to the BFPCA to maintain a detailed record of all proceedings.

112.3 Qualifications of members: BFPCA members shall be selected by the local governing body on the basis of their ability to render fair and competent decisions regarding application of the SFPC and shall, to the extent possible, represent different occupational or professional fields relating to building construction or fire prevention. At least one member should be an experienced builder and one member a licensed professional engineer or architect. Employees or officials of the local governing body shall not serve as members of the BFPCA.

112.4 Disqualification of member: A member shall not hear an appeal in which that member has conflict of interest in accordance with the State and Local Government Conflict of Interests Act, Chapter 31 (§2.2-3100 et seq.) of Title 2.2 of the Code of Virginia.

112.5 Application for appeal: The owner of a structure, the owner's agent or any other person involved in the design, construction or maintenance of the structure may appeal a decision of the fire official concerning the application of the SFPC or the fire official's refusal to grant modification under Section 106.5 to the provisions of the SFPC. The appeal shall first lie to the local board of fire prevention code appeals (BFPCA) and then to the TRB except that appeals concerning the application of the SFPC or refusal to grant modifications by the State Fire Marshal shall be made directly to the TRB. The appeal shall be submitted to the BFPCA within 14 calendar days of the application of the SFPC. The application shall contain the name and address of the owner of the structure and the person appealing if not the owner. A copy of the written decision of the fire official shall be submitted along with the application for appeal and maintained as part of the record. The application shall be stamped or otherwise marked by the BFPCA to indicate the date received. Failure to submit an application for appeal within the time limit established

by this section shall constitute acceptance of the fire official's decision.

Note: In accordance with § 27-98 of the Code of Virginia, any local fire code may provide for an appeal to a local board of appeals. If no local board of appeals exists, the TRB shall hear appeals of any local fire code violation.

112.6 Notice of meeting: The BFPCA shall meet within 30 calendar days after the date of receipt of the application for appeal. Notice indicating the time and place of the hearing shall be sent to the parties in writing to the addresses listed on the application at least 14 calendar days prior to the date of the hearing. Less notice may be given if agreed upon by the applicant.

112.7 Hearing procedures: All hearings before the BFPCA shall be open to the public. The appellant, the appellant's representative, the local governing body's representative and any person whose interests are affected shall be given an opportunity to be heard. The chairman shall have the power and duty to direct the hearing, rule upon the acceptance of evidence and oversee the record of all proceedings.

112.7.1 Postponement: When a quorum of the BFPCA is not present to hear an appeal, either the appellant or the appellant's representative shall have the right to request a postponement of the hearing. The BFPCA shall reschedule the appeal within 30 calendar days of the postponement.

112.8 Decision: The BFPCA shall have the power to uphold, reverse or modify the decision of the fire official by a concurring vote of a majority of those present. Decisions of the BFPCA shall be final if no appeal is made therefrom and the appellant and the fire official shall act accordingly.

112.8.1 Resolution: The BFPCA's decision shall be by resolution signed by the chairman and retained as part of the record by the BFPCA. The following wording shall be part of the resolution: "Any person who was a party to the appeal may appeal to the State Building Code Technical Review Board (TRB) by

submitting an application to the TRB within 21 calendar days upon receipt by registered mail of this resolution. Application forms are available from the Office of the TRB, 501 North Second Street, Richmond, Virginia 23219, (804) 371-7150." Copies of the resolution shall be furnished to all parties.

112.9 Appeal to the TRB: After final determination by the BFPCA, any person who was a party to the local appeal may appeal to the TRB. Application shall be made to the TRB within 21 calendar days of receipt of the decision to be appealed. Application for appeal to the TRB rising from the SFMO's enforcement of the code shall be made to the TRB within 14 calendar days of receipt of the decision to be appealed and be accompanied with copies of inspection reports and other relevant information. Failure to submit an application for appeal within the time limit established by this section shall constitute an acceptance of the BFPCA's resolution or fire official's decision.

112.9.1 Information to be submitted: Copies of the fire official's decision and the resolution of the BFPCA shall be submitted with the application for appeal. Upon request by the office of the TRB, the BFPCA shall submit a copy of all inspection reports and all pertinent information from the record of the BFPCA.

112.9.2 Decision of TRB: Procedures of the TRB are in accordance with Article 2 (§36-108 et seq.) of Chapter 6 of Title 36 of the Code of Virginia. Decisions of the TRB shall be final if no appeal is made therefrom and the appellant and the fire official shall act accordingly.

Chapter 2

Definitions

IFC Section 202.0 Definitions.

Approved. Acceptable to the *fire code official*.

Background clearance card: See Section 3302.0

Blaster, restricted: See Section 3302.1

Blaster, unrestricted: See Section 3302.1

Designated individual: See Section 3302.1

Fire code official: The officer or other designated authority charged with administration and enforcement of this code, or a duly authorized representative. For the purpose of this code, the terms "code official" and "fire official," or "fire code official" shall have the same meaning as used in §27-98.1 of the Code of Virginia.

DHCD: The Virginia Department of Housing and Community Development.

Local government, local governing body or locality: The governing body of any county, city, or town, other political subdivision and state agency in this Commonwealth charged with the enforcement of the SFPC under state law.

Pyrotechnician (firework operator): See Section 3302.1.

Responsible management. See Section 3302.1.

Sole proprietor. See Section 3302.1.

State Fire Marshal (SFMO): The State Fire Marshal as provided for by §36-139.2 of the Code of Virginia.

TRB: The Virginia State Building Code Technical Review Board.

USBC: The Virginia Uniform Statewide Building Code.

Chapter 3

General Requirements

Section 314 Indoor Displays

314.1 General. Indoor displays constructed within any occupancy shall comply with Sections 314.2 through 314.5.

314.2 Fixtures and displays. Fixtures and displays of goods for sale to the public shall be arranged so as to maintain free, immediate and unobstructed access to exits as required by Chapter 10.

314.3 Highly combustible goods. The display of highly combustible goods, including but not limited to fireworks, flammable or combustible liquids, liquefied flammable gases, oxidizing materials, pyroxylin plastics and agricultural goods, in main exit access aisles, corridors, covered malls, or within 5 feet (1524 mm) of entrances to exits and exterior exit doors is prohibited when a fire involving such goods would rapidly prevent or obstruct egress.

314.4 Vehicles. Liquid- or gas-fueled vehicles, boats or other motorcraft shall not be located indoors except as follows:

1. Batteries are disconnected.
2. Fuel in fuel tanks does not exceed one-quarter tank or 5 gallons (19 L) (whichever is least).
3. Fuel tanks and fill openings are closed and sealed to prevent tampering.
4. Vehicles, boats or other motorcraft equipment are not fueled or defueled within the building.

314.5 Smokeless Powder and Small Arms Primers. Venders shall not store, display or sell smokeless powder or small arms primers during trade shows inside exhibition halls except as follows:

1. The amount of smokeless powder displayed by each vender is limited to the amount established in Section 3306.5.1.1.
2. The amount of smokeless powder each vender may store is limited to the storage arrangements and storage amounts established in Section 3306.5.2.1. Smokeless powder shall remain in the manufacturer's original sealed container and the container shall remain sealed while inside the building. The repackaging of smokeless powder shall not be performed inside the building. Damaged containers shall not be repackaged inside the building and shall be immediately removed from the building in such manner to avoid spilling any powder.
3. There shall be at least 50 feet separation between venders and 20 feet from any exit.
4. Small arms primers shall be displayed and stored in the manufacturer's original packaging and in accordance with the requirements of Section 3306.5.2.3.

CHAPTER 33

EXPLOSIVES AND FIREWORKS

3301.1 Scope. The provisions of this chapter shall govern the possession, manufacture, storage, handling, sale and use of *explosives*, *explosive materials*, *fireworks* and *small arms ammunition*.

Exceptions:

1. The Armed Forces of the United States, Coast Guard or National Guard.
2. *Explosives* in forms prescribed by the official United States Pharmacopoeia.
3. The possession, storage and use of *small arms ammunition* when packaged in accordance with DOTn packaging requirements.
4. The possession, storage, and use of not more than 15 pounds (6.81 kg) of commercially manufactured sporting black powder, 20 pounds (9 kg) of smokeless powder and any amount of small arms primers for hand loading of small arms ammunition for personal consumption.
5. The use of explosive materials by federal, state and local regulatory, law enforcement and fire agencies acting in their official capacities.
6. Special industrial explosive devices which in the aggregate contain less than 50 pounds (23 kg) of explosive materials.
7. The possession, storage and use of blank industrial-power load cartridges when packaged in accordance with DOTn packaging regulations.
8. Transportation in accordance with DOTn 49 CFR Parts 100-185.
9. Items preempted by federal regulations.
10. The storage, handling, or use of explosives or blasting agents pursuant to the provisions of Title 45.1 of the Code of Virginia.
11. The display of *small arms primers* in Group M when in the original manufacturer's packaging.
12. The possession, storage and use of not more than 50 pounds (23 kg) of commercially manufactured sporting black powder, 100 pounds (45 kg) of smokeless powder, and *small arms primers* for hand loading of small arms ammunition for personal consumption in Group R-3 or R-5, or 200 pounds of smokeless powder when stored in the manufacturer's original containers in detached Group U structures at least 10 feet from inhabited buildings and are accessory to Group R-3 or R-5.

3301.1.1 Explosive material standard. In addition to the requirements of this chapter, NFPA 495 shall govern the manufacture, transportation, storage,

sale, handling and use of *explosive materials*.

3301.1.2 Explosive material terminals. In addition to the requirements of this chapter, the operation of *explosive material* terminals shall conform to the provisions of NFPA 498.

3301.1.3 Fireworks. The possession, manufacture, storage, sale, handling and use of *fireworks* are prohibited.

Exceptions:

1. Storage and handling of *fireworks* as permitted in Section 3304.
2. Manufacture, assembly and testing of *fireworks* as permitted in Section 3305.
3. The use of *fireworks* for fireworks displays as permitted in Section 3308.
4. The possession, storage, sale, handling and use of *permissible fireworks* where allowed by applicable local or state laws, ordinances and regulations provided such fireworks comply with CPSC 16 CFR, Parts 1500-1507, and DOTn 49 CFR, Parts 100-185, for consumer fireworks.
5. The sale or use of materials or equipment when such materials or equipment is used or to be used by any person for signaling or other emergency use in the operation of any boat, railroad train or other vehicle for the transportation of persons or property.

3301.1.4 Rocketry. The storage, handling and use of model and high-power rockets shall comply with the requirements of NFPA 1122, NFPA 1125, and NFPA 1127.

3301.1.5 Ammonium nitrate. The storage and handling of ammonium nitrate shall comply with the requirements of NFPA 490 and Chapter 40.

Exception: Storage of ammonium nitrate in magazines with blasting agents shall comply with the requirements of NFPA 495.

3301.2 Permit required. Permits shall be required as set forth in Section 107.2 and regulated in accordance with this section. The manufacture, storage, possession, sale and use of *fireworks* or *explosives* shall not take place without first applying for and obtaining a permit.

3301.2.1 Residential uses. No person shall keep or store, nor shall any permit be issued to keep, possess or store, any *fireworks* or *explosives* at any place of habitation, or within 100 feet (30 480 mm) thereof.

Exception: Storage of smokeless propellant, black powder, and *small arms primers* for personal use and not for resale in accordance with Section 3306.

3301.2.2 Sale and retail display. Except for the Armed Forces of the United States, Coast Guard, National Guard, federal, state and local regulatory, law enforcement and fire agencies acting in their official capacities, *explosives* shall not be sold, given, delivered, or transferred to any person or company not in possession of a valid permit. The holder of a permit to sell explosives shall make a record of all transactions involving explosives in conformance with Section 3303.2 and include the signature of any receiver of the explosives. No person shall construct a retail display nor offer for sale explosives, explosive materials, or fireworks upon highways, sidewalks, public property, or in assembly or educational occupancies.

3301.2.3 Permit restrictions. The code official is authorized to limit the quantity of *explosives*, *explosive materials*, or *fireworks* permitted at a given location. No person, possessing a permit for storage of explosives at any place, shall keep or store an amount greater than authorized in such permit. Only the kind of explosive specified in such a permit shall be kept or stored.

3301.2.3.1 Permit applicants. As a condition of permit as provided for in Section 107.5 of the SFPC, the fire official shall not issue a permit to manufacture, store, handle, use or sell *explosives* or *blasting agents* to any applicant who has not provided on the permit application the name and signature of a *designated individual* as representing the applicant. When, as provided for in Section 107.2 or 107.6, a permit is required to conduct a *fireworks* display, as a condition of permit as provided for in Section 107.5, the *fire official* shall not issue a permit to *design*, setup or conduct a *fireworks* display to any applicant who has not provided on the permit application the name and signature of a *designated individual* as representing the applicant.

If the applicant's *designated individual* changes or becomes no longer qualified to represent the applicant as *responsible management* or *designated individual*, the applicant shall notify the *fire official* who issued the permit on the change of status of the *designated individual*. The notice is to be made prior to the use of any *explosives* or conducting a *fireworks* display but in no case shall the notification occur more than seven (7) days after the change of status and shall provide the name of another *designated individual*. The *fire official* may revoke or require

the re-issuance of a permit based on a change of permit conditions or status or inability to provide another *designated individual*.

3301.2.3.1.1 BCC: The *SFMO* shall process all applications for a *BCC* for compliance with § 27-97.2 of the Code of Virginia and will be the sole provider of a *BCC*. Using forms provided by the *SFMO*, a *BCC* may be applied for and issued to any person who submits to the completion of a background investigation by providing fingerprints and personal descriptive information to the *SFMO*. The *SFMO* shall forward the fingerprints and personal descriptive information to the Central Criminal Records Exchange for submission to the Federal Bureau of Investigation for the purpose of obtaining a national criminal history records check regarding such applicant.

3301.2.3.1.2 Issuance of a BCC: The issuance of a *BCC* shall be denied if the applicant or designated person representing an applicant has been convicted of any felony, whether such conviction occurred under the laws of the Commonwealth, or any other state, the District of Columbia, the United States or any territory thereof, unless his civil rights have been restored by the Governor or other appropriate authority.

3301.2.3.1.3 Fee for BCC: The fee for obtaining or renewing a *BCC* from *SFMO* shall be \$150 plus any additional fees charged by other agencies for fingerprinting and for obtaining a national criminal history record check through the Central Criminal Records Exchange to the Federal Bureau of Investigation.

3301.2.3.1.4 Revocation of a BCC: After issuance of a *BCC*, subsequent conviction of a felony will be grounds for immediate revocation of a *BCC*, whether such conviction occurred under the laws of the Commonwealth, or any other state, the District of Columbia, the United States or any territory thereof. The Card shall be returned to the *SFMO* immediately. An individual may reapply for his *BCC* if his civil rights have been restored by the Governor or other appropriate authority.

3301.2.4 Financial responsibility. Before a permit is issued, as required by Section 3301.2, the applicant shall file with the jurisdiction a corporate surety bond in the principal sum of \$500,000 or a public liability insurance policy for the same amount, for the purpose of the payment of all damages to persons or property which arise from, or are caused by, the conduct of any act authorized by the permit upon which any judicial judgment results. The legal department of the jurisdiction may specify a greater amount when conditions at the location of use indicate a greater

amount is required. Government entities shall be exempt from this bond requirement.

3301.2.4.1 Blasting. Before approval to do blasting is issued, the applicant for approval shall file a bond or submit a certificate of insurance in such form, amount, and coverage as determined by the legal department of the jurisdiction to be adequate in each case to indemnify the jurisdiction against any and all damages arising from permitted blasting but in no case shall the value of the coverage be less than \$500,000.

Exception: Filing a bond or submitting a certificate of liability insurance is not required for blasting on real estate parcels of five or more acres conforming to the definition of “real estate devoted to agricultural use” or “real estate devoted to horticultural use” in § 58.1-3230 of the Code of Virginia and conducted by the owner of such real estate.

3301.2.4.2 Fireworks display. The permit holder shall furnish a bond or certificate of insurance in an amount deemed adequate by the legal department of the jurisdiction for the payment of all potential damages to a person or persons or to property by reason of the permitted display, and arising from any acts of the permit holder, the agent, employees or subcontractors, but in no case shall the value of the coverage be less than \$500,000.

3301.3 Prohibited explosives. Permits shall not be issued or renewed for possession, manufacture, storage, handling, sale or use of the following materials and such materials currently in storage or use shall be disposed of in an approved manner.

1. Liquid nitroglycerin.
2. Dynamite containing more than 60-percent liquid explosive ingredient.
3. Dynamite having an unsatisfactory absorbent or one that permits leakage of a liquid explosive ingredient under any conditions liable to exist during storage.
4. Nitrocellulose in a dry and uncompressed condition in a quantity greater than 10 pounds (4.54 kg) of net weight in one package.
5. Fulminate of mercury in a dry condition and fulminate of all other metals in any condition except as a component of manufactured articles not hereinafter forbidden.
6. Explosive compositions that ignite spontaneously or undergo marked decomposition, rendering the products of their use more hazardous, when subjected for 48 consecutive hours or less to a temperature of 167°F (75°C).
7. New explosive materials until approved by DOTn,

except that permits are allowed to be issued to educational, governmental, or industrial laboratories for instructional or research purposes.

8. Explosive materials condemned by DOTn.

9. Explosive materials containing an ammonium salt and a chlorate.

10. Explosives not packed or marked as required by DOTn 49 CFR, Parts 100-185.

Exception: Gelatin dynamite.

3301.4 Qualifications. Persons in charge of magazines, blasting, fireworks display, or pyrotechnic special effect operations shall not be under the influence of alcohol or drugs which impair sensory or motor skills, shall be at least 21 years of age, and possess knowledge of all safety precautions related to the storage, handling or use of explosives, explosive materials or fireworks.

3301.4.1 Certification of blasters and pyrotechnicians. Certificates as a *Restricted Blaster*, *Unrestricted Blaster* or *pyrotechnician* will be issued upon proof of successful completion of an examination approved by the *SFMO* commensurate to the certification sought and completion of a background investigation for compliance with § 27-97.2 of the Code of Virginia. The applicant for certification shall submit proof to the *SFMO* of the following experience:

1. For certification as a *Restricted Blaster*, at least one year under direct supervision by a certified *unrestricted blaster*, certified *restricted blaster* or other person(s) approved by the *SFMO*.
2. For certification as an *Unrestricted Blaster*, at least one year under direct supervision by a certified *unrestricted blaster* or other person(s) approved by the *SFMO*.
3. For certification as a *Pyrotechnician*, *Aerial*, or *Pyrotechnician*, *Proximate*, applicant was in responsible charge of, or has assisted in the documented *design*, setup and conducting of a *fireworks* display on at least 6 occasions within the 24 months immediately preceding the application for certification.

The *SFMO* shall process all certification applicants for compliance with § 27-97.2 of the Code of Virginia and will be the sole provider of *blaster* and *pyrotechnician* certifications.

Exception: The use of *explosives* by the owner of real estate parcels of five or more acres conforming to the definition of “real estate devoted to agricultural use” or “real estate devoted to horticultural use” in § 58.1-3230 of the Code of Virginia when blasting on such real estate.

3301.4.2 Certification issuance. The issuance of a certification as a *blaster* or *pyrotechnician* shall be denied if the applicant has been convicted of any

felony, whether such conviction occurred under the laws of the Commonwealth, or any other state, the District of Columbia, the United States or any territory thereof, unless his civil rights have been restored by the Governor or other appropriate authority, or has not provided acceptable proof or evidence of the experience required in Section 3301.4.1, or has not provided acceptable proof or evidence of the continued training or education required in Section 3301.4.5.

3301.4.3 Fee for certification. The fee for obtaining a certificate or renewal of a *blaster* or *pyrotechnician* certificate from *SFMO* shall be \$150 plus any additional fees charged by other agencies for fingerprinting and for obtaining a national criminal history record check through the Central Criminal Records Exchange to the Federal Bureau of Investigation.

3301.4.4 Revocation of a blaster or pyrotechnician certification. After issuance of a *blaster* or *pyrotechnician* certification, subsequent conviction of a felony will be grounds for immediate revocation of a *blaster* or *pyrotechnician* certification, whether such conviction occurred under the laws of the Commonwealth, or any other state, the District of Columbia, the United States or any territory thereof. The certification card shall be returned to the *SFMO* immediately. An individual may subsequently reapply for his *blaster* or *pyrotechnician* certification if his civil rights have been restored by the Governor or other appropriate authority.

3301.4.5 Expiration and renewal of a BCC, blaster or pyrotechnician certification. A certificate for an *unrestricted blaster*, *restricted blaster* or *pyrotechnician* shall be valid for three years from the date of issuance. A *BCC* shall be valid for three years from the date of issuance. Renewal of the *unrestricted blaster* certificate will be issued upon proof of at least 16 accumulated hours of continued training or education in the use of *explosives* within three consecutive years and a background investigation for compliance with §27-97.2 of the Code of Virginia. Renewal of the *restricted blaster* certificate will be issued upon proof of at least eight accumulated hours of continued training or education in the use of *explosives* within three consecutive years and a background investigation for compliance with §27-97.2 of the Code of Virginia. Renewal of the *pyrotechnician* certificate will be issued upon proof of at least 12 accumulated hours of continued training or education in the subject areas of *explosives* storage, the *design*, setup, or conduct of

a *fireworks* display within three consecutive years and a background investigation for compliance with §27-97.2 of the Code of Virginia. The continued training or education required for renewal of a *blaster* or *pyrotechnician* certificate shall be obtained during the three years immediately prior to the certificate's published expiration date. Failure to renew a *blaster* or *pyrotechnician* certificate in accordance with this section shall cause an individual to obtain another certificate upon compliance with Section 3301.4.1 to continue engaging in the unsupervised use of *explosives* or conducting a *fireworks* display.

3301.5 Supervision. The *code official* is authorized to require operations permitted under the provisions of Section 3301.2 to be supervised at any time by the *code official* in order to determine compliance with all safety and fire regulations.

3301.6 Notification. Whenever a new *explosive* material storage or manufacturing site is established, including a temporary job site, the local law enforcement agency, fire department, and local emergency planning committee shall be notified 48 hours in advance, not including Saturdays, Sundays and holidays, of the type, quantity and location of explosive materials at the site.

3301.7 Seizure. The *fire official* is authorized to remove or cause to be removed or disposed of in an approved manner, at the expense of the owner *fireworks* offered or exposed for sale, stored, possessed or used in violation of this chapter.

3301.8 Establishment of quantity of explosives and distances. The quantity of *explosives* and distances shall be in accordance with Sections 3301.8.1 and 3301.8.1.1.

3301.8.1 Quantity of explosives. The quantity-distance (Q-D) tables in Sections 3304.5 and 3305.3 shall be used to provide the minimum separation distances from potential explosion sites as set forth in Tables 3301.8.1(1) through 3301.8.1(3). The classification of the explosives and the weight of the explosives are primary characteristics governing the use of these tables. The net explosive weight shall be determined in accordance with Sections 3301.8.1.1 through 3301.8.1.4.

3301.8.1.1 Mass-detonating explosives. The total net explosive weight of Division 1.1, 1.2 or 1.5 explosives shall be used. See Table 3304.5.2(1) or Table 3305.3 as appropriate.

Exception: When the TNT equivalence of the explosive material has been determined, the equivalence is allowed to be used to establish the net explosive weight.

3301.8.1.2 Non-mass-detonating explosives (excluding Division 1.4). Non-mass-detonating explosives shall be as follows:

1. Division 1.3 propellants. The total weight of the propellants alone shall be the net explosive weight. The net weight of propellant shall be used. See Table 3304.5.2(2).
2. Combinations of bulk metal powder and pyrotechnic compositions. The sum of the net weights of metal powders and pyrotechnic compositions in the containers shall be the net explosive weight. See Table 3304.5.2(2).

3301.8.1.3 Combinations of mass-detonating and non-mass-detonating explosives (excluding Division 1.4). Combination of mass-detonating and non-mass-detonating explosives shall be as follows:

1. When Division 1.1 and 1.2 explosives are located in the same site, determine the distance for the total quantity considered first as 1.1 and then as 1.2. The required distance is the greater of the two. When the Division 1.1 requirements are controlling and the TNT equivalence of the 1.2 is known, the TNT equivalent weight of the 1.2 items shall be allowed to be added to the total explosive weight of Division 1.1 items to determine the net explosive weight for Division 1.1 distance determination. See Table 3304.5.2(2) or Table 3305.3 as appropriate.
2. When Division 1.1 and 1.3 explosives are located in the same site, determine the distances for the total quantity considered first as 1.1 and then as 1.3. The required

distance is the greater of the two. When the Division 1.1 requirements are controlling and the TNT equivalence of the 1.3 is known, the TNT equivalent weight of the 1.3 items shall be allowed to be added to the total explosive weight of Division 1.1 items to determine the net explosive weight for Division 1.1 distance determination. See Table 3304.5.2(1), 3304.5.2(2) or 3305.3, as appropriate.

3. When Division 1.1, 1.2 and 1.3 explosives are located in the same site, determine the distances for the total quantity considered first as 1.1, next as 1.2 and finally as 1.3. The required distance is the greatest of the three. As permitted by paragraphs 1 and 2 above, TNT equivalent weights for 1.2 and 1.3 items are allowed to be used to determine the net weight of explosives for Division 1.1 distance determination. Table 3304.5.2(1) or 3305.3 shall be used when TNT equivalency is used to establish the net explosive weight.
4. For composite pyrotechnic items Division 1.1 and Division 1.3, the sum of the net weights of the pyrotechnic composition and the explosives involved shall be used. See Tables 3304.5.2(2) and 3304.5.2(3).

3301.8.1.4 Moderate fire —no blast hazards. Division 1.4 explosives. The total weight of the explosive material alone is the net weight. The net weight of the explosive material shall be used. See Table 3304.5.2(4).

Table 3301.8.1(1)

Application of Separation Distances (Q-D) Tables – Division 1.1, 1.2 and 1.5 Explosives^{a,b,c}

| Item | Magazine | Q-D | Operating Building | Q-D | Inhabited Building | Q-D | Public Traffic Route | Q-D |
|----------------------|-------------------|------------|--------------------|------------|--------------------|-----|----------------------|-----|
| Magazine | Table 3304.5.2(1) | IMD | Table 3305.3 | ILD or IPD | Table 3304.5.2(1) | IBD | Table 3304.5.2(1) | PTR |
| Operating Building | Table 3304.5.2(1) | ILD or IPD | Table 3305.3 | ILD or IPD | Table 3304.5.2(1) | IBD | Table 3304.5.2(1) | PTR |
| Inhabited Building | Table 3304.5.2(1) | IBD | Table 3304.5.2(2) | IBD | NA | NA | NA | NA |
| Public Traffic Route | Table 3304.5.2(1) | PTR | Table 3304.5.2(2) | PTR | NA | NA | NA | NA |

For SI: 1 foot = 304.8 mm.

a. The minimum separation distance (D_o) shall be 60 feet. Where a building or magazine containing explosives is barricaded, the minimum distance shall be 30 feet.

b. Linear interpolation between tabular values in the referenced Q-D tables shall not be allowed. Nonlinear interpolation of the values shall be allowed subject to an approved technical opinion and report prepared in accordance with Section 104.7.2.

c. For definitions of Quantity-Distance abbreviations IBD, ILD, IMD, IPD and PTR, see Section 3302.1.

Table 3301.8.1(2)

Application of Separation Distance (Q-D) Tables – Division 1.3 Explosives^{a,b,c}

| Item | Magazine | Q-D | Operating Building | Q-D | Inhabited Building | Q-D | Public Traffic Route | Q-D |
|----------------------|-------------------|------------|--------------------|------------|--------------------|-----|----------------------|-----|
| Magazine | Table 3304.5.2(2) | IMD | Table 3304.5.2(3) | ILD or IPD | Table 3304.5.2(3) | IBD | Table 3304.5.2(2) | PTR |
| Operating Building | Table 3304.5.2(2) | ILD or IPD | Table 3304.5.2(3) | ILD or IPD | Table 3304.5.2(3) | IBD | Table 3304.5.2(2) | PTR |
| Inhabited Building | Table 3304.5.2(2) | IBD | Table 3304.5.2(3) | IBD | NA | NA | NA | NA |
| Public Traffic Route | Table 3304.5.2(2) | PTR | Table 3304.5.2(3) | PTR | NA | NA | NA | NA |

For SI: 1 foot = 304.8 mm.

a. The minimum separation distance (D_o) shall be a minimum of 50 feet.

b. Linear interpolation between tabular values in the referenced Q-D table shall be allowed.

c. For definitions of Quantity-Distance abbreviations IBD, ILD, IMD, IPD and PTR, see Section 3302.1.

Table 3301.8.1(3)

Application of Separation Distance (Q-D) Tables – Division 1.4 Explosives^{a,b,c, d}

| Item | Magazine | Q-D | Operating Building | Q-D | Inhabited Building | Q-D | Public Traffic Route | Q-D |
|----------------------|-------------------|------------|--------------------|------------|--------------------|-----|----------------------|-----|
| Magazine | Table 3304.5.2(3) | IMD | Table 3304.5.2(3) | ILD or IPD | Table 3304.5.2(3) | IBD | Table 3304.5.2(3) | PTR |
| Operating Building | Table 3304.5.2(3) | ILD or IPD | Table 3304.5.2(3) | ILD or IPD | Table 3304.5.2(3) | IBD | Table 3304.5.2(3) | PTR |
| Inhabited Building | Table 3304.5.2(3) | IBD | Table 3304.5.2(3) | IBD | NA | NA | NA | NA |
| Public Traffic Route | Table 3304.5.2(3) | PTR | Table 3304.5.2(3) | PTR | NA | NA | NA | NA |

For SI: 1 foot = 304.8 mm.

a. The minimum separation distance (D_o) shall be a minimum of 50 feet.

b. Linear interpolation between tabular values in the referenced Q-D table shall not be allowed.

c. For definitions of Quantity-Distance abbreviations IBD, ILD, IMD, IPD and PTR, see Section 3302.1.

d. This table shall not apply to consumer fireworks, 1.4G.

**SECTION 3302
DEFINITIONS**

3302.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

AMMONIUM NITRATE. A chemical compound represented by the formula NH₄NO₃.

Background Clearance Card (BCC): An identification card issued to an individual that is not a certified blaster or pyrotechnician and is responsible management or an employee of a company, corporation, firm or other entity, solely for the purpose of submitting an application to the fire code official for a permit to manufacture, use, handle, store, or sell explosive materials, or conduct a fireworks display. A person to whom a BCC has been issued can fulfill the role of a *designated individual* on an application for

permit to manufacture, use, handle, store, or sell explosive materials, or on an application for permit to *design*, setup and conduct a fireworks display.

BARRICADE. A structure that consists of a combination of walls, floor and roof, which is designed to withstand the rapid release of energy in an explosion and which is fully confined, partially vented or fully vented; or other effective method of shielding from explosive materials by a natural or artificial barrier.

Artificial barricade. An artificial mound or revetment a minimum thickness of 3 feet (914 mm).

Natural barricade. Natural features of the ground, such as hills, or timber of sufficient density that the surrounding exposures that require protection cannot be seen from the magazine or building containing explosives when the trees are bare of leaves.

BARRICADED. The effective screening of a building containing explosive materials from the magazine or other

building, railway, or highway by a natural or an artificial barrier. A straight line from the top of any sidewall of the building containing explosive materials to the eave line of any magazine or other building or to a point 12 feet (3658 mm) above the center of a railway or highway shall pass through such barrier.

BLAST AREA. The area including the blast site and the immediate adjacent area within the influence of flying rock, missiles, and concussion.

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 (15 240 mm) in all directions.

BLASTER, RESTRICTED. Any person engaging in the use of explosives or blasting agents utilizing five pounds (2.25 kg) or less per blasting operation and using instantaneous detonators. A certified restricted blaster can fulfill the role of a designated individual on an application for permit to manufacture, use, handle, store, or sell explosive materials.

BLASTER, UNRESTRICTED. Any person engaging in the use of explosives or blasting agents without limit to the amount of explosives or blasting agents or type of detonator. A certified unrestricted blaster can fulfill the role of a designated individual on an application for permit to manufacture, use, handle, store, or sell explosive materials.

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 a No. 8 test detonator when unconfined. Blasting agents are labeled and placarded as Class 1.5 material by US DOTn.

BULLET RESISTANT. Constructed so as to resist penetration of a bullet of 150-grain M2 ball ammunition having a nominal muzzle velocity of 2,700 feet per second (fps) (824 mps) when fired from a 30-caliber rifle at a distance of 100 feet (30 480 mm), measured perpendicular to the target.

DESIGN. For the purposes of a fireworks display, either inside a building or structure or outdoors, it shall mean the pyrotechnician who will be in attendance and makes the final artistic determination for the placement of fireworks and ground display pieces suitable for the display site.

DESIGNATED INDIVIDUAL. A person in possession of a *Background Clearance Card (BCC)* issued by the SFMO, or is certified by the SFMO as a *Pyrotechnician*, or is a *Restricted* or *Unrestricted Blaster*, any of whom are responsible for (i) ensuring compliance with state law and regulations relating to blasting agents and explosives, (ii) applying for explosives or firework permits, (iii) is at least 21 years

of age, and (iv) shall demonstrate the capability to effectively communicate safety messages verbally and in writing in the English language.

DETONATING CORD. A flexible cord containing a center core of high explosive used to initiate other explosives.

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.

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 grams) 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 noninstantaneous and delay blasting caps which use detonating cord, shock tube, 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 (0.68 kg) of explosives per 1,000 caps. For strengths higher than No. 8 cap, consult the manufacturer.

DISCHARGE SITE. The immediate area surrounding the fireworks mortars used for an outdoor fireworks display.

DISPLAY SITE. The immediate area where a fireworks display is conducted. The display area includes the discharge site, the fallout area, and the required separation distance from the mortars to spectator viewing areas. The display area does not include spectator viewing areas or vehicle parking areas.

EXPLOSIVE. A chemical compound, mixture or device, the primary or common purpose of which is to function by explosion. The term includes, but is not limited to, dynamite, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord, igniters and display fireworks, 1.3G (Class B, Special).

The term "Explosive" includes any material determined to be within the scope of USC Title 18: Chapter 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 DOTn 49 CFR Parts 100-185.

High explosive. Explosive material, such as dynamite, which can be caused to detonate by means of a No. 8 test blasting cap when unconfined.

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.

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.

UN/DOTn Class 1 explosives. The former classification system used by DOTn included the terms “high” and “low” explosives as defined herein. The following terms further define explosives under the current system applied by DOTn 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).

Division 1.1. Explosives that have a mass explosion hazard. A mass explosion is one which affects almost the entire load instantaneously.

Division 1.2. Explosives that have a projection hazard but not a mass explosion hazard.

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.

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.

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.

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.

EXPLOSIVE MATERIAL. The term “explosive” material means explosives, blasting agents, and detonators.

FALLOUT AREA. The area over which aerial shells are fired. The shells burst over the area, and unsafe debris and malfunctioning aerial shells fall into this area. The fallout area is the location where a typical aerial shell dud falls to the ground depending on the wind and the angle or mortar placement.

FIREWORKS. Any firecracker, torpedo, skyrocket, or other substance or object, of whatever form or construction, that contains any explosive or inflammable compound or substance, and is intended, or commonly known, as fireworks and which explodes, rises into the air or travels laterally, or fires projectiles into the air. Fireworks shall not include automobile flares, paper caps containing not more than an average of 0.25 grain (16 mg) of explosive content per cap or toy pistols, toy canes, toy guns or other devices utilizing such caps, and items commonly known as party poppers, pop rocks and snap-n-pops. Fireworks may be further delineated and referred to as:

Fireworks, 1.4G. (Formerly known as Class C, Common Fireworks.) Small fireworks devices containing restricted amounts of pyrotechnic composition designed primarily to produce visible or audible effects by combustion. Such 1.4G fireworks which comply with the construction, chemical composition, and labeling regulations of the DOTn for Fireworks, UN 0336, and the U.S. Consumer Product Safety Commission as set forth in CPSC 16 CFR: Parts 1500 and 1507, are not explosive materials for the purpose of this code.

Fireworks, 1.3G. (Formerly Class B, Special Fireworks.) Large fireworks devices, which are explosive materials, intended for use in fireworks displays and designed to produce audible or visible effects by combustion, deflagration, or detonation. Such 1.3G fireworks include, but are not limited to, firecrackers containing more than 130 milligrams (2 grains) of explosive composition, aerial shells containing more than 40 grams of pyrotechnic composition, and other display pieces which exceed the limits for classification as 1.4G fireworks. Such 1.3G fireworks, are also described as Fireworks,

UN0335 by the DOTn.

FIREWORKS DISPLAY. A presentation of fireworks for a public or private gathering.

HIGHWAY. A public street, public alley or public road.

INHABITED BUILDING. A building regularly occupied in whole or in part as a habitation for human beings, or any church, schoolhouse, railroad station, 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.

MAGAZINE. A building, structure or container, other than an explosives manufacturing building, approved for storage of explosive materials.

Indoor. A portable structure, such as a box, bin or other container, constructed as required for Type 2, 4 or 5 magazines in accordance with NFPA 495, NFPA 1124, or DOTy 27 CFR Part 55 so as to be fire resistant and theft resistant.

Type 1. A permanent structure, such as a building or igloo, that is bullet resistant, fire resistant, theft resistant, weather resistant, and ventilated in accordance with the requirements of NFPA 495, NFPA 1124, or DOTy 27 CFR Part 55.

Type 2. A portable or mobile structure, such as a box, skid-magazine, trailer, or semi-trailer, constructed in accordance with the requirements of NFPA 495, NFPA 1124, or DOTy 27 CFR, Part 55 that is fire resistant, theft resistant, weather resistant, and ventilated. If used outdoors, a Type 2 magazine is also bullet resistant.

Type 3. A fire-resistant, theft-resistant, and weather-resistant “day box” or portable structure constructed in accordance with NFPA 495, NFPA 1124, or DOTy 27 CFR, Part 55 used for the temporary storage of explosive materials.

Type 4. A permanent, portable, or mobile structure such as a building, igloo, box, semi-trailer, or other mobile container that is fire resistant, theft resistant, and weather resistant and constructed in accordance with NFPA 495, NFPA 1124, or DOTy 27 CFR, Part 55.

Type 5. A permanent, portable or mobile structure such as a building, igloo, box, bin, tank, semi-trailer, bulk trailer, tank trailer, bulk truck, tank truck, or other mobile container that is theft resistant, which is constructed in accordance with NFPA 495, NFPA 1124, or DOTy 27 CFR, Part 55.

MORTAR. A tube from which fireworks shells are fired into the air.

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 quantity-distance relationships.

OPERATING BUILDING. A building occupied in conjunction with the manufacture, transportation, storage, or use of explosive materials. Operating buildings are separated from one another with the use of intraplant or intraline distances.

OPERATING LINE. A group of buildings, facilities or workstations so arranged as to permit performance of the steps in the manufacture of an explosive or in the loading, assembly, modification and maintenance of ammunition or devices containing explosive materials.

PERMISSIBLE FIREWORKS. Any sparklers, fountains, Pharaoh’s serpents, caps for pistols, or pinwheels commonly known as whirligigs or spinning jennies.

PLOSOPHORIC MATERIAL. Two or more unmixed, commercially manufactured, prepackaged 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.

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

PUBLIC TRAFFIC ROUTE (PTR). Any public street, road, highway, navigable stream or passenger railroad that is used for through traffic by the general public.

PYROTECHNICIAN (Firework Operator) means any person supervising or engaged in the *design*, setup or conducting of any fireworks display, either inside a building or outdoors. A certified pyrotechnician can fulfill the role of a *designated individual* on an application for permit for a fireworks display.

Pyrotechnician, Aerial means a person supervising or engaged in the *design*, setup or conducting of a outdoor aerial fireworks display performed in accordance with the regulations as set forth in the SFPC and NFPA 1123, a reference standard for “Fireworks Display”.

Pyrotechnician, Proximate means a person supervising or engaged in the *design*, setup or conducting of a fireworks display, either inside a building or outdoors, performed in accordance with the regulations as set forth in the SFPC and NFPA 1126, a reference standard for the “Use of Pyrotechnics Before a Proximate Audience”.

PYROTECHNIC ARTICLE. A pyrotechnic device for use in the entertainment industry, which is not classified as fireworks.

PYROTECHNIC COMPOSITION. A chemical mixture

that produces visible light displays or sounds through a self-propagating, heat-releasing chemical reaction which is initiated by ignition.

PYROTECHNIC SPECIAL EFFECT. A visible or audible effect for entertainment created through the use of pyrotechnic materials and devices.

PYROTECHNIC SPECIAL-EFFECT MATERIAL. A chemical mixture used in the entertainment industry, to produce visible or audible effects by combustion, deflagration or detonation. Such a chemical mixture predominantly consists of solids capable of producing a controlled, self-sustaining and self-contained exothermic chemical reaction that results in heat, gas sound, light or a combination of these effects. The chemical reaction functions without external oxygen.

PYROTECNICS. Controlled exothermic chemical reactions timed to create the effects of heat, hot gas, sound, dispersion of aerosols, emission of visible light or a combination of such effects to achieve the maximum effect from the least volume of pyrotechnic composition.

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:

Minimum separation distance (Do). The minimum separation distance between adjacent buildings occupied in conjunction with the manufacture, transportation, storage or use of explosive materials where one of the buildings contains explosive materials and the other building does not.

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.

Inhabited building distance (IBD). The minimum separation distance between an operating building or magazine containing explosive materials and an inhabited building or site boundary.

Intermagazine distance (IMD). The minimum separation distance between magazines.

RAILWAY. A steam, electric or other railroad or railway that carries passengers for hire.

READY BOX. A weather-resistant container with a self-closing or automatic-closing cover that protects

fireworks shells from burning debris. Tarpaulins shall not be considered as ready boxes.

RESPONSIBLE MANAGEMENT. A person who is:

1. The *sole proprietor* of a sole proprietorship;
2. The partners of a general partnership;
3. The managing partners of a limited partnership;
4. The officers of a corporation;
5. The managers of a limited liability company;
6. The officers or directors of an association or both; and
7. Individuals in other business entities recognized under the laws of the Commonwealth as having a fiduciary responsibility to the firm.

SMALL ARMS AMMUNITION. A shotgun, rifle or pistol cartridge for propellant-actuated devices. This definition does not include military ammunition containing bursting charges or incendiary, trace, spotting or pyrotechnic projectiles.

SMALL ARMS PRIMERS. Small percussion-sensitive explosive charges, encased in a cap, used to ignite propellant powder.

SMOKELESS PROPELLANTS. Solid propellants, commonly referred to as smokeless powders or any propellant classified by DOTn as a smokeless propellant in accordance with "NA3178, Smokeless Powder for Small Arms," used in small arms ammunition, firearms, cannons, rockets, propellant-actuated devices, and similar articles.

SOLE PROPRIETOR. A person or individual, not a corporation, who is trading under his own name, or under an assumed or fictitious name pursuant to the provisions of § 59.1-69 through 59.1-76 of the Code of Virginia.

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 of open hearth furnaces and jet perforation of oil well casings.

THEFT RESISTANT. Construction designed to deter illegal entry into facilities for the storage of explosive materials.

SECTION 3303

RECORD KEEPING AND REPORTING

3303.1 General. Records of the receipt, handling, use or disposal of explosive materials, and reports of any accidents, thefts, or unauthorized activities involving explosive materials shall conform to the requirements of this section.

3303.2 Transaction record. The permittee shall maintain

a record of all transactions involving receipt, removal, use, or disposal of explosive materials. Such a record shall be maintained for a period of 5 years, and shall be furnished to the code official for inspection upon request.

Exception: Where only Division 1.4G (consumer fireworks) are handled, records need only be maintained for a period of 3 years.

3303.3 Loss, theft or unauthorized use. The loss, theft or unauthorized removal of explosive materials from a magazine or permitted facility shall be reported to the code official, local law enforcement authorities, and the U.S. Department of Treasury, Bureau of Alcohol, Tobacco and Firearms within 24 hours.

Exception: Loss of Division 1.4G (consumer fireworks) need not be reported to the Bureau of Alcohol, Tobacco and Firearms.

3303.4 Accidents. Accidents involving the use of explosives, explosive materials and fireworks, which result in injuries or property damage, shall be reported to the code official immediately.

3303.5 Misfires. The pyrotechnic display operator or blaster in charge shall keep a record of all aerial shells that fail to fire or charges that fail to detonate.

3303.6 Hazard communication. Manufacturers of explosive materials and fireworks shall maintain records of chemicals, chemical compounds and mixtures required by DOL 29 CFR, Part 1910.1200, and Section 407.

3303.7 Safety rules. Current safety rules covering the operation of magazines, as described in Section 3304.7, shall be posted on the interior of the magazine in a visible location.

SECTION 3304 EXPLOSIVE MATERIALS STORAGE AND HANDLING

3304.1 General. Storage of explosives and explosive materials, small arms ammunition, small arms primers, propellant-actuated cartridges and smokeless propellants in magazines, shall conform to the provisions of this section.

3304.2 Magazine required. Explosives and explosive materials, and Division 1.3G fireworks shall be stored in magazines constructed, located, operated, and maintained in accordance with the provisions of this section and NFPA 495 or NFPA 1124.

1. Storage of fireworks at display sites in accordance with Section 3308.5 and NFPA 1123 or NFPA 1126.
2. Portable or mobile magazines not exceeding 120 square feet (11 m²) in area shall not be required to comply with the requirements of the International Building Code.

3304.3 Magazines. The storage of explosives and explosive materials in magazines shall comply with Table 3304.3.

3304.3.1 High explosives. Explosive materials classified as Division 1.1 or 1.2 or formerly classified as Class A by the U.S. Department of Transportation shall be stored in Type 1, 2 or 3 magazines.

Exceptions:

1. Black powder shall be stored in a Type 1, 2, 3 or 4 magazine.
2. Cap-sensitive explosive material that is demonstrated not to be bullet sensitive, shall be stored in a Type 1, 2, 3, 4 or 5 magazine.

3304.3.2 Low explosives. Explosive materials that are not cap sensitive shall be stored in a Type 1, 2, 3, 4 or 5 magazine.

3304.3.3 Detonating cord. For quantity and distance purposes, detonating cord of 50 grains per foot shall be calculated as equivalent to 8 pounds (4 kg) of high explosives per 1,000 feet (305 m). Heavier or lighter core loads shall be rated proportionally.

3304.4 Prohibited storage. Detonators shall be stored in a separate magazine for blasting supplies and shall not be stored in a magazine with other explosive materials.

3304.5 Location. The use of magazines for storage of explosives and explosive materials shall comply with Sections 3304.5.1 through 3304.5.3.3.

3304.5.1 Indoor magazines. The use of indoor magazines for storage of explosives and explosive materials shall comply with the requirements of this section.

3304.5.1.1 Use. The use of indoor magazines for storage of explosives and explosive materials shall be limited to occupancies of Group F, H, M or S, and research and development laboratories.

3304.5.1.2 Construction. Indoor magazines shall comply with the following construction requirements:

1. Construction shall be fire resistant and theft resistant.
2. Exterior shall be painted red.
3. Base shall be fitted with wheels, casters or rollers to facilitate removal from the building in an emergency.
4. Lid or door shall be marked with conspicuous white lettering not less than 3 inches (76 mm) high and minimum 0.5 inch (12.7 mm) stroke, reading EXPLOSIVES — KEEP FIRE AWAY.
5. The least horizontal dimension shall not exceed the clear width of the entrance door.

3304.5.1.3 Quantity limit. Not more than 50 pounds (23 kg) of explosives or explosive materials shall be stored within an indoor magazine.

Exception: Day boxes used for the storage of in-process material in accordance with Section 3305.6.4.1.

3304.5.1.4 Prohibited use. Indoor magazines shall not be used within buildings containing Group R occupancies.

3304.5.1.5 Location. Indoor magazines shall be located within 10 feet (3048 mm) of an entrance and only on floors at or having ramp access to the exterior grade level.

3304.5.1.6 Number. Not more than two indoor magazines shall be located in the same building. Where two such magazines are located in the same building, one magazine shall be used solely for the storage of not more than 5,000 detonators.

3304.5.1.7 Separation distance. When two magazines are located in the same building, they shall be separated by a distance of not less than 10 feet (3048 mm).

3304.5.2 Outdoor magazines. All outdoor magazines other than Type 3 shall be located so as to comply with Table 3304.5.2(2) or Table 3304.5.2(3) as set forth in Tables 3301.8.1(1) through 3301.8.1(3). Where a magazine or group of magazines, as described in Section 3304.5.2.2, contains different classes of explosive materials, and Division 1.1 materials are present, the required separations for the magazine or magazine group as a whole shall comply with Table 3304.5.2(2).

3304.5.2.1 Separation. Where two or more storage magazines are located on the same property, each magazine shall comply with the minimum distances specified from inhabited buildings, public transportation routes and operating buildings. Magazines shall be separated from each other by not less than the intermagazine distances (IMD) shown for the separation of magazines.

3304.5.2.2 Grouped magazines. Where two or more magazines are separated from each other by less than the intermagazine distances (IMD), such magazines as a group shall be considered as one magazine and the total quantity of explosive materials stored in the group shall be treated as if stored in a single magazine. The location of the group of magazines shall comply with the intermagazine distances (IMD) specified from other magazines or magazine groups, inhabited buildings (IBD), public transportation routes (PTR) and operating buildings (ILD or IPD) as required.

3304.5.3 Special requirements for Type 3 magazines. Type 3 magazines shall comply with

Sections 3304.5.3.1 through 3304.5.3.3.

3304.5.3.1 Location. Wherever practicable, Type 3 magazines shall be located away from neighboring inhabited buildings, railways, highways and other magazines in accordance with Table 3304.5.2(2), Table 3304.5.2(3) or 3304.5.2(4) as applicable.

3304.5.3.2 Supervision. Type 3 magazines shall be attended when explosive materials are stored within. Explosive materials shall be removed to appropriate storage magazines for unattended storage at the end of the work day.

3304.5.3.3 Use. Not more than two Type 3 magazines shall be located at the same blasting site. Where two Type 3 magazines are located at the same blasting site, one magazine shall be used solely for the storage of detonators.

3304.6 Construction. Magazines shall be constructed in accordance with Sections 3304.6.1 through 3304.6.5.2.

3304.6.1 Drainage. The ground around a magazine shall be graded so that water drains away from the magazine.

3304.6.2 Heating. Magazines requiring heat shall be heated as prescribed in NFPA 495 by either hot water radiant heating within the magazine or by indirect warm air heating.

3304.6.3 Lighting. When lighting is necessary within a magazine, electric safety flashlights or electric safety lanterns shall be used, except as provided in NFPA 495.

3304.6.4 Nonsparking materials. In other than Type 5 magazines, there shall be no exposed ferrous metal on the interior of a magazine containing packages of explosives.

3304.6.5 Signs and placards. Property upon which Type 1 magazines and outdoor magazines of Types 2, 4 and 5 are located shall be posted with signs stating: EXPLOSIVES — KEEP OFF. These signs shall be of contrasting colors with a minimum letter height of 3 inches (76 mm) with a minimum brush stroke of 0.5 inch (12.7 mm). The signs shall be located to minimize the possibility of a bullet shot at the sign hitting the magazine.

3304.6.5.1 Access road signs. At the entrance to explosive material manufacturing and storage sites, all access roads shall be posted with the following warning sign or other approved sign:

DANGER!

NEVER FIGHT EXPLOSIVE FIRES.
EXPLOSIVES ARE STORED ON THIS SITE
CALL _____.

The sign shall be weather resistant with a reflective surface and have lettering at least 2 inches (51 mm) high.

**TABLE 3304.3
STORAGE AMOUNTS AND MAGAZINE REQUIREMENTS FOR EXPLOSIVES, EXPLOSIVE
MATERIALS AND FIREWORKS, 1.3G MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA**

| New UN/DOTn Division | Old DOTn Class | ATF/OSHA Class | Indoor ^a (pounds) | | | | Outdoor (pounds) | Magazine Type Required | | | | |
|----------------------|----------------|----------------|------------------------------|---------|-----------|---------------------|------------------|------------------------|---|---|---|---|
| | | | Unprotected | Cabinet | Sprinkler | Sprinkler & Cabinet | | 1 | 2 | 3 | 4 | 5 |
| 1.1 ^b | A | High | 0 | 0 | 1 | 2 | 1 | X | X | X | - | - |
| 1.2 | A | High | 0 | 0 | 1 | 2 | 1 | X | X | X | - | - |
| 1.2 | B | Low | 0 | 0 | 1 | 2 | 1 | X | X | X | X | - |
| 1.3 | B | Low | 0 | 0 | 5 | 10 | 1 | X | X | X | X | - |
| 1.4 ^c | B | Low | 0 | 0 | 50 | 100 | 1 | X | X | X | X | - |
| 1.5 | C | Low | 0 | 0 | 1 | 2 | 1 | X | X | X | X | - |
| 1.5 | Blasting agent | Blasting agent | 0 | 0 | 1 | 2 | 1 | X | X | X | X | X |
| 1.6 | N/A | N/A | 0 | 0 | 1 | 2 | 1 | X | X | X | X | X |

For SI: 1 pound = 0.454 kg, 1 pound per gallon = 0.12 kg per liter, 1 ounce = 28.35 g.

a. A factor of 10 pounds per gallon shall be used for converting pounds (solid) to gallons (liquid) in accordance with Section 2703.1.2.

b. Black powder shall be stored in a Type 1, 2, 3 or 4 magazine as provided for in Section 3304.3.1.

c. This table shall not apply to consumer fireworks 1.4G.

3304.6.5.2 Placards. Type 5 magazines containing Division 1.5 blasting agents shall be prominently placarded as required during transportation by DOTn 49 CFR, Part 172 and DOTy 27 CFR, Part 55.**3304.7 Operation.** Magazines shall be operated in accordance with Sections 3304.7.1 through 3304.7.9.

3304.7.1 Security. Magazines shall be kept locked in the manner prescribed in NFPA 495 at all times except during placement or removal of explosives or inspection.

3304.7.2 Open flames and lights. Smoking, matches, flame-producing devices, open flames, firearms and firearms cartridges shall not be permitted inside of or within 50 feet (15 240 mm) of magazines.

3304.7.3 Brush. The area located around a magazine shall be kept clear of brush, dried grass, leaves, trash, debris, and similar combustible materials for a distance of 25 feet (7620 mm).

3304.7.4 Combustible storage. Combustible materials shall not be stored within 50 feet (15 240 mm) of magazines.

3304.7.5 Unpacking and repacking explosive materials. Containers of explosive materials, except fiberboard containers, and packages of damaged or deteriorated explosive materials or fireworks shall not be unpacked or repacked inside or within 50 feet (15 240 mm) of a magazine or in close proximity to other explosive materials.

3304.7.5.1 Storage of opened packages.

Packages of explosive materials that have been opened shall be closed before being placed in a magazine.

3304.7.5.2 Nonsparking tools. Tools used for the opening and closing of packages of explosive materials, other than metal slitters for opening paper, plastic or fiberboard containers, shall be made of nonsparking materials.

3304.7.5.3 Disposal of packaging. Empty containers and paper and fiber packaging materials that previously contained explosive materials shall be disposed of or reused in a approved manner.

3304.7.6 Tools and equipment. Metal tools, other than nonferrous transfer conveyors and ferrous metal conveyor stands protected by a coat of paint, shall not be stored in a magazine containing explosive materials or detonators.

3304.7.7 Contents. Except as provided in Section 3304.7.4, magazines shall be used exclusively for the storage of explosive materials, blasting materials, and blasting accessories.

3304.7.8 Compatibility. Corresponding grades and brands of explosive materials shall be stored together and in such a manner that the grade and brand marks are visible. Stocks shall be stored so as to be easily counted and checked. Packages of explosive materials shall be stacked in a stable manner not exceeding 8 feet (2438 mm) in height.

3304.7.9 Stock rotation. When explosive material is removed from a magazine for use, the oldest usable

stocks shall be removed first.

3304.8 Maintenance. Maintenance of magazines shall comply with Sections 3304.8.1 through 3304.8.3.

3304.8.1 Housekeeping. Magazine floors shall be regularly swept and be kept clean, dry and free of grit, paper, empty packages and rubbish. Brooms and other cleaning utensils shall not have any spark-producing metal parts. Sweepings from magazine floors shall be disposed of in accordance with the manufacturers' approved instructions.

3304.8.2 Repairs. Explosive materials shall be removed from the magazine before making repairs to the interior of a magazine. Explosive materials shall be removed from the magazine before making repairs to the exterior of the magazine where there is a possibility of causing a fire. Explosive materials removed from a magazine under repair shall either be placed in another magazine or placed a safe distance from the magazine, where they shall be properly guarded and protected until repairs have been completed. Upon completion of repairs, the explosive materials shall be promptly returned to the magazine. Floors shall be cleaned before and after repairs.

3304.8.3 Floors. Magazine floors stained with liquid shall be dealt with according to instructions obtained from the manufacturer of the explosive material stored in the magazine.

3304.9 Inspection. Magazines containing explosive materials shall be opened and inspected at maximum 7-day intervals. The inspection shall determine whether there has been an unauthorized or attempted entry into a magazine or an unauthorized removal of a magazine or its contents.

3304.10 Disposal of explosive materials. Explosive materials shall be disposed of in accordance with Sections 3304.10.1 through 3304.10.7.

3304.10.1 Notification. The code official shall be notified immediately when deteriorated or leaking explosive materials are determined to be dangerous or unstable and in need of disposal.

3304.10.2 Deteriorated materials. When an explosive material has deteriorated to an extent that it is in an unstable or dangerous condition, or when a liquid has leaked from an explosive material, the person in possession of such material shall immediately contact the material's manufacturer to obtain disposal and handling instructions.

3304.10.3 Qualified person. The work of destroying explosive materials shall be directed by persons experienced in the destruction of explosive materials.

3304.10.4 Storage of misfires. Explosive materials

and fireworks recovered from blasting or display misfires shall be placed in a magazine until an experienced person has determined the proper method for disposal.

3304.10.5 Disposal sites. Sites for the destruction of explosive materials and fireworks shall be approved and located at the maximum practicable safe distance from inhabited buildings, public highways, operating buildings, and all other exposures to ensure keeping air blast and ground vibration to a minimum. The location of disposal sites shall be no closer to magazines, inhabited buildings, railways, highways, and other rights-of-way than is permitted by Tables 3304.5.2(1), 3304.5.2(2) and 3304.5.2(3). When possible, barricades shall be utilized between the destruction site and inhabited buildings. Areas where explosives are detonated or burned shall be posted with adequate warning signs.

3304.10.6 Reuse of site. Unless an approved burning site has been thoroughly saturated with water and has passed a safety inspection, 48 hours shall elapse between the completion of a burn and the placement of scrap explosive materials for a subsequent burn.

3304.10.7 Personnel safeguards. Once an explosive burn operation has been started, personnel shall relocate to a safe location where adequate protection from air blast and flying debris is provided. Personnel shall not return to the burn area until the person in charge has inspected the burn site and determined that it is safe for personnel to return.

SECTION 3305

MANUFACTURE, ASSEMBLY AND TESTING OF EXPLOSIVES, EXPLOSIVE MATERIALS AND FIREWORKS

3305.1 General. The manufacture, assembly and testing of explosives, ammunition, blasting agents and fireworks shall comply with the requirements of this section and NFPA 495 or NFPA 1124.

Exceptions:

1. The hand loading of small arms ammunition prepared for personal use and not offered for resale.
2. The mixing and loading of blasting agents at blasting sites in accordance with NFPA 495.
3. The use of binary explosives or phosphoric materials in blasting or pyrotechnic special effects applications in accordance with NFPA 495 or NFPA 1126.

3305.1.1 Permits. Permits for the manufacture, assembly and testing of explosives of explosives, ammunition, blasting agents and fireworks shall be required as set forth in Section 107.2 and regulated in accordance with this section. A permit to manufacture of any explosive material in any quantity shall be prohibited unless such manufacture is authorized by a

federal license and conducted in accordance with recognized safety practices.

3305.2 Emergency planning and preparedness. Emergency plans, emergency drills, employee training, and hazard communication shall conform to the provisions of this section and Sections 404, 405, 406 and 407.

3305.2.1 Hazardous Materials Management Plans and Inventory Statements required. Detailed Hazardous Materials Management Plans (HMMP) and Hazardous Materials Inventory Statements (HMIS) complying with the requirements of Section 407 shall be prepared and submitted to the local emergency planning committee, the code official, and the local fire department.

3305.2.2 Maintenance of plans. A copy of the required HMMP and HMIS shall be maintained on-site and furnished to the code official for review upon request.

3305.2.3 Employee training. Workers who handle explosives or explosive charges or dispose of explosives shall be trained in the hazards of the materials and processes in which they are to be engaged and with the safety rules governing such materials and processes.

3305.2.4 Emergency procedures. Approved emergency procedures shall be formulated for each plant which will include personal instruction in any emergency that may be anticipated. All personnel shall be made aware of an emergency warning signal.

3305.3 Intraplant separation of operating buildings. Explosives and fireworks manufacturing buildings, including those where explosive charges are assembled, manufactured, prepared or loaded utilizing Division 1.1, 1.2, 1.3, 1.4 or 1.5 explosives, shall be separated from all other buildings, including magazines, within the confines of the manufacturing plant at a distance not less than those shown in Table 3305.3, 3304.5.2(3), or Table 3304.5.2(4), as appropriate.

Exception: Fireworks manufacturing buildings separated in accordance with NFPA 1124.

The quantity of explosives in an operating building shall be the net weight of all explosives contained therein. Distances shall be based on the hazard division requiring the greatest separation, unless the aggregate explosive weight is divided by approved walls or shields designed for that purpose. When dividing a quantity of explosives into smaller stacks, a suitable barrier or adequate separation distance shall be provided to prevent propagation from one stack to

another.

When distance is used as the sole means of separation within a building, such distance shall be established by testing. Testing shall demonstrate that propagation between stacks will not result. Barriers provided to protect against explosive effects shall be designed and installed in accordance with approved standards.

3305.4 Separation of manufacturing operating buildings from inhabited buildings, public traffic routes and magazines. When a operating building on an explosive materials plant site is designed to contain explosive materials, such a building shall be located away from inhabited buildings, public traffic routes and magazines in accordance with Table 3304.5.2(2) or 3304.5.2(3) as appropriate, based on the maximum quantity of explosive materials permitted to be in the building at one time (See Section 3301.8).

Exception: Fireworks-manufacturing buildings constructed and operated in accordance with NFPA 1124.

3305.4.1 Determination of net explosive weight for operating buildings. In addition to the requirements of Section 3301.8 to determine the net explosive weight for materials stored or used in operating buildings, quantities of explosive materials stored in magazines located at distances less than intraline distances from the operating building shall be added to the contents of the operating building to determine the net explosive weight for the operating building.

3305.4.1.1 Indoor magazines. The storage of explosive materials located in indoor magazines in operating buildings shall be limited to a net explosive weight not to exceed 50 pounds (23 kg).

3305.4.1.2 Outdoor magazines with a net explosive weight less than 50 pounds. The storage of explosive materials in outdoor magazines located at less than intraline distances from operating buildings shall be limited to a net explosive weight not to exceed 50 pounds (23 kg).

3305.4.1.3 Outdoor magazines with a net explosive weight greater than 50 pounds. The storage of explosive materials in outdoor magazines in quantities exceeding 50 pounds (23 kg) net explosive weight shall be limited to storage in outdoor magazines located not less than intraline distances from the operating building in accordance with Section 3304.5.2.

3305.4.1.4 Net explosive weight of materials stored in combination indoor and outdoor magazines. The aggregate quantity of explosive materials stored in any combination of indoor magazines or outdoor magazines located at less than the intraline distances from an operating building shall not exceed 50 pounds (23 kg).

3305.5 Buildings and equipment. Buildings or rooms

which exceed the maximum allowable quantity per control area of explosive materials shall be operated in accordance with this section and constructed in accordance with requirements of the International Building Code for Group H Occupancies.

Exception: Fireworks- and explosives-manufacturing buildings constructed and operated in accordance with NFPA 1124.

3305.5.1 Explosives dust. Explosives dust shall not be exhausted to the atmosphere.

3305.5.1.1 Wet collector. When collecting explosives dust, a wet collector system shall be used. Wetting agents shall be compatible with the explosives. Collector systems shall be interlocked with process power supplies so that the process cannot continue without the collector systems also operating.

3305.5.1.2 Waste disposal and maintenance. Explosives dust shall be removed from the collection chamber as often as necessary to prevent overloading. The entire system shall be cleaned at a frequency that will eliminate hazardous concentrations of explosives dust in pipes, tubing and ducts.

3305.5.2 Exhaust fans. Squirrel cage blowers shall not be used for exhausting hazardous fumes, vapors or gases. Only nonferrous fan blades shall be used for fans located within the ductwork and through which hazardous materials are exhausted. Motors shall be located outside the duct.

3305.5.3 Work stations. Work stations shall be separated by distance, barrier or other approved alternatives so that fire in one station will not ignite material in another work station. Where necessary, the operator shall be protected by a personnel shield located between the operator and the explosive device or explosive material being processed. This shield and its support shall be capable of withstanding a blast from the maximum amount of explosives allowed behind it.

3305.6 Operations. Operations involving explosives shall comply with Sections 3305.7.1 through 3305.7.10.

3305.6.1 Isolation of operations. When the type of material and processing warrants, mechanical operations involving explosives in excess of 1 pound (0.454 kg) shall be carried on at isolated stations or at intraplant distances, and machinery

shall be controlled from remote locations behind barricades or at separations so that workers will be at a safe distance while machinery is operating.

3305.6.2 Static controls. The work area where the screening, grinding, blending and other processing of static-sensitive explosives or pyrotechnic materials is done shall be provided with approved static controls.

3305.6.3 Approved containers. Bulk explosives shall be kept in approved, nonsparking containers when not being used or processed. Explosives shall not be stored or transported in open containers.

3305.6.4 Quantity limits. The quantity of explosives at any particular work station shall be limited to that posted on the load limit signs for the individual work station. The total quantity of explosives for multiple workstations shall not exceed that established by the intraplant distances in Table 3305.3, 3304.5.2(3) or 3304.5.2(4), as appropriate.

3305.6.4.1 Magazines. Magazines used for storage in processing areas shall be in accordance with the requirements of Section 3304.5.1. All explosive materials shall be removed to appropriate storage magazines for unattended storage at the end of the work day. The contents of indoor magazines shall be added to the quantity of explosives contained at individual workstations and the total quantity of material stored, processed or used shall be utilized to establish the intraplant separation distances indicated by Table 3305.3, 3304.5.2(3) or 3304.5.2(4), as appropriate.

TABLE 3304.5.2(1)
AMERICAN TABLE OF DISTANCES FOR STORAGE OF EXPLOSIVES AS APPROVED
BY THE INSTITUTE OF MAKERS OF EXPLOSIVES AND REVISED JUNE 1991^a

| Quantity of Explosive Materials ^c | | Distances in feet | | | | | | | |
|--|-----------------|---------------------|--------------|--|--------------|--|--------------|--------------------------------------|--------------|
| | | Inhabited buildings | | Public highways with traffic volume less than 3,000 vehicles per day | | Public highways with traffic volume greater than 3,000 vehicles per day and passenger railways | | Separation of magazines ^d | |
| Pounds over | Pounds not over | Barricaded | Unbarricaded | Barricaded | Unbarricaded | Barricaded | Unbarricaded | Barricaded | Unbarricaded |
| 0 | 5 | 70 | 140 | 30 | 60 | 51 | 102 | 6 | 12 |
| 5 | 10 | 90 | 180 | 35 | 70 | 64 | 128 | 8 | 16 |
| 10 | 20 | 110 | 220 | 45 | 90 | 81 | 162 | 10 | 20 |
| 20 | 30 | 125 | 250 | 50 | 100 | 93 | 186 | 11 | 22 |
| 30 | 40 | 140 | 280 | 55 | 110 | 103 | 206 | 12 | 24 |
| 40 | 50 | 150 | 300 | 60 | 120 | 110 | 220 | 14 | 28 |
| 50 | 75 | 170 | 340 | 70 | 140 | 127 | 254 | 15 | 30 |
| 75 | 100 | 190 | 380 | 75 | 150 | 139 | 278 | 16 | 32 |
| 100 | 125 | 200 | 400 | 80 | 160 | 150 | 300 | 18 | 36 |
| 125 | 150 | 215 | 430 | 85 | 170 | 159 | 318 | 19 | 38 |
| 150 | 200 | 235 | 470 | 95 | 190 | 175 | 350 | 21 | 42 |
| 200 | 250 | 255 | 510 | 105 | 210 | 189 | 378 | 23 | 46 |
| 250 | 300 | 270 | 540 | 110 | 220 | 201 | 402 | 24 | 48 |
| 300 | 400 | 295 | 590 | 120 | 240 | 221 | 442 | 27 | 54 |
| 400 | 500 | 320 | 640 | 130 | 260 | 238 | 476 | 29 | 58 |
| 500 | 600 | 340 | 680 | 135 | 270 | 253 | 506 | 31 | 62 |
| 600 | 700 | 355 | 710 | 145 | 290 | 266 | 532 | 32 | 64 |
| 700 | 800 | 375 | 750 | 150 | 300 | 278 | 556 | 33 | 66 |
| 800 | 900 | 390 | 780 | 155 | 310 | 289 | 578 | 35 | 70 |
| 900 | 1,000 | 400 | 800 | 160 | 320 | 300 | 600 | 36 | 72 |
| 1,000 | 1,200 | 425 | 850 | 165 | 330 | 318 | 636 | 39 | 78 |
| 1,200 | 1,400 | 450 | 900 | 170 | 340 | 336 | 672 | 41 | 82 |
| 1,400 | 1,600 | 470 | 940 | 175 | 350 | 351 | 702 | 43 | 86 |
| 1,600 | 1,800 | 490 | 980 | 180 | 360 | 366 | 732 | 44 | 88 |
| 1,800 | 2,000 | 505 | 1,010 | 185 | 370 | 378 | 756 | 45 | 90 |
| 2,000 | 2,500 | 545 | 1,090 | 190 | 380 | 408 | 816 | 49 | 98 |
| 2,500 | 3,000 | 580 | 1,160 | 195 | 390 | 432 | 864 | 52 | 104 |
| 3,000 | 4,000 | 635 | 1,270 | 210 | 420 | 474 | 948 | 58 | 116 |
| 4,000 | 5,000 | 685 | 1,370 | 225 | 450 | 513 | 1,026 | 61 | 122 |
| 5,000 | 6,000 | 730 | 1,460 | 235 | 470 | 546 | 1,092 | 65 | 130 |
| 6,000 | 7,000 | 770 | 1,540 | 245 | 490 | 573 | 1,146 | 68 | 136 |
| 7,000 | 8,000 | 800 | 1,600 | 250 | 500 | 600 | 1,200 | 72 | 144 |
| 8,000 | 9,000 | 835 | 1,670 | 255 | 510 | 624 | 1,248 | 75 | 150 |
| 9,000 | 10,000 | 865 | 1,730 | 260 | 520 | 645 | 1,290 | 78 | 156 |
| 10,000 | 12,000 | 875 | 1,750 | 270 | 540 | 687 | 1,374 | 82 | 164 |
| 12,000 | 14,000 | 885 | 1,770 | 275 | 550 | 723 | 1,446 | 87 | 174 |
| 14,000 | 16,000 | 900 | 1,800 | 280 | 560 | 756 | 1,512 | 90 | 180 |
| 16,000 | 18,000 | 940 | 1,950 | 285 | 570 | 786 | 1,572 | 94 | 188 |
| 18,000 | 20,000 | 975 | 2,000 | 290 | 580 | 813 | 1,626 | 98 | 196 |
| 20,000 | 25,000 | 1,055 | 2,000 | 315 | 630 | 876 | 1,752 | 105 | 210 |
| 25,000 | 30,000 | 1,130 | 2,000 | 340 | 680 | 933 | 1,866 | 112 | 224 |
| 30,000 | 35,000 | 1,205 | 2,000 | 360 | 720 | 981 | 1,962 | 119 | 238 |
| 35,000 | 40,000 | 1,275 | 2,000 | 380 | 760 | 1,026 | 2,000 | 124 | 248 |
| 40,000 | 45,000 | 1,340 | 2,000 | 400 | 800 | 1,068 | 2,000 | 129 | 258 |
| 45,000 | 50,000 | 1,400 | 2,000 | 420 | 840 | 1,104 | 2,000 | 135 | 270 |
| 50,000 | 55,000 | 1,460 | 2,000 | 440 | 880 | 1,140 | 2,000 | 140 | 280 |
| 55,000 | 60,000 | 1,515 | 2,000 | 455 | 910 | 1,173 | 2,000 | 145 | 290 |
| 60,000 | 65,000 | 1,565 | 2,000 | 470 | 940 | 1,206 | 2,000 | 150 | 300 |
| 65,000 | 70,000 | 1,610 | 2,000 | 485 | 970 | 1,236 | 2,000 | 155 | 310 |
| 70,000 | 75,000 | 1,655 | 2,000 | 500 | 1,000 | 1,263 | 2,000 | 160 | 320 |
| 75,000 | 80,000 | 1,695 | 2,000 | 510 | 1,020 | 1,293 | 2,000 | 165 | 330 |
| 80,000 | 85,000 | 1,730 | 2,000 | 520 | 1,040 | 1,317 | 2,000 | 170 | 340 |
| 85,000 | 90,000 | 1,760 | 2,000 | 530 | 1,060 | 1,344 | 2,000 | 175 | 350 |

| | | | | | | | | | |
|---------|----------------------|-------|-------|-----|-------|-------|-------|-----|-----|
| 90,000 | 95,000 | 1,790 | 2,000 | 540 | 1,080 | 1,368 | 2,000 | 180 | 360 |
| 95,000 | 100,000 | 1,815 | 2,000 | 545 | 1,090 | 1,392 | 2,000 | 185 | 370 |
| 100,000 | 110,000 | 1,835 | 2,000 | 550 | 1,100 | 1,437 | 2,000 | 195 | 390 |
| 110,000 | 120,000 | 1,855 | 2,000 | 555 | 1,110 | 1,479 | 2,000 | 205 | 410 |
| 120,000 | 130,000 | 1,875 | 2,000 | 560 | 1,120 | 1,521 | 2,000 | 215 | 430 |
| 130,000 | 140,000 | 1,890 | 2,000 | 565 | 1,130 | 1,557 | 2,000 | 225 | 450 |
| 140,000 | 150,000 | 1,900 | 2,000 | 570 | 1,140 | 1,593 | 2,000 | 235 | 470 |
| 150,000 | 160,000 | 1,935 | 2,000 | 580 | 1,160 | 1,629 | 2,000 | 245 | 490 |
| 160,000 | 170,000 | 1,965 | 2,000 | 590 | 1,180 | 1,662 | 2,000 | 255 | 510 |
| 170,000 | 180,000 | 1,990 | 2,000 | 600 | 1,200 | 1,695 | 2,000 | 265 | 530 |
| 180,000 | 190,000 | 2,010 | 2,010 | 605 | 1,210 | 1,725 | 2,000 | 275 | 550 |
| 190,000 | 200,000 | 2,030 | 2,030 | 510 | 1,220 | 1,755 | 2,000 | 285 | 570 |
| 200,000 | 210,000 | 2,055 | 2,055 | 620 | 1,240 | 1,782 | 2,000 | 295 | 590 |
| 210,000 | 230,000 | 2,100 | 2,100 | 635 | 1,270 | 1,836 | 2,000 | 315 | 630 |
| 230,000 | 250,000 | 2,155 | 2,155 | 650 | 1,300 | 1,890 | 2,000 | 335 | 670 |
| 250,000 | 275,000 | 2,215 | 2,215 | 670 | 1,340 | 1,950 | 2,000 | 360 | 720 |
| 275,000 | 300,000 ^b | 2,275 | 2,275 | 690 | 1,380 | 2,000 | 2,000 | 385 | 770 |

For SI: 1 foot = 304.8 mm, 1 pound = 0.454 kg.

a. This table applies only to the manufacture and permanent storage of commercial explosive materials. It is not applicable to transportation of explosives or any handling or temporary storage necessary or incident thereto. It is not intended to apply to bombs, projectiles, or other heavily encased explosives.

b. Storage in excess of 300,000 pounds of explosive materials in one magazine is not allowed.

c. Where a manufacturing building on an explosive materials plant site is designed to contain explosive materials, such building shall be located with respect to its proximity to inhabited buildings, public highways, and passenger railways based on the maximum quantity of explosive materials permitted to be in the building at one time.

d. Where two or more storage magazines are located on the same property, each magazine shall comply with the minimum distances specified from inhabited buildings, railways and highways, and, in addition, they should be separated from each other by not less than the distances shown for separation of magazines, except that the quantity of explosives in detonator magazines shall govern in regard to the spacing of said detonator magazines from magazines containing other explosive materials. Where any two or more magazines are separated from each other by less than the specified separation of magazines distances, then two or more such magazines, as a group, shall be considered as one magazine, and the total quantity of explosive materials stored in such group shall be treated as if stored in a single magazine located on the site of any magazine in the group, and shall comply with the minimum distances specified from other magazines, inhabited buildings, railways and highways

TABLE 3304.5.2(2)
TABLE OF DISTANCES (Q-D) FOR BUILDINGS CONTAINING EXPLOSIVES – DIVISION 1.3 MASS-FIRE HAZARD^{a,b,c}

| Quantity of Division 1.3 Explosives (Net Explosives Weight) | | Distances in Feet | | | |
|--|-----------------|---------------------------------------|---|---------------------------------|--|
| Pounds over | Pounds not over | Inhabited buildings Distance (IBD) | Distance to Public Traffic Route (PTR) | Intermagazine Distance (IMD) | Intraline Distance (ILD) or Intraplant Distance (IPD) |
| 0 | 1,000 | 75 | 75 | 50 | 50 |
| 1,000 | 5,000 | 115 | 115 | 75 | 75 |
| 5,000 | 10,000 | 150 | 150 | 100 | 100 |
| 10,000 | 20,000 | 190 | 190 | 125 | 125 |
| 20,000 | 30,000 | 215 | 215 | 145 | 145 |
| 30,000 | 40,000 | 235 | 235 | 155 | 155 |
| 40,000 | 50,000 | 250 | 250 | 165 | 165 |
| 50,000 | 60,000 | 260 | 260 | 175 | 175 |
| 60,000 | 70,000 | 270 | 270 | 185 | 185 |
| 70,000 | 80,000 | 280 | 280 | 190 | 190 |
| 80,000 | 90,000 | 295 | 295 | 195 | 195 |
| 90,000 | 100,000 | 300 | 300 | 200 | 200 |
| 100,000 | 200,000 | 375 | 375 | 250 | 250 |
| 200,000 | 300,000 | 450 | 450 | 300 | 300 |

For SI: 1 foot = 304.8 mm, 1 pound = 0.454 kg.

a. Black powder, when stored in magazines, is defined as low explosive by the Bureau of Alcohol, Tobacco and Firearms (BATF).

b. For quantities less than 1,000 pounds, the required distances are those specified for 1,000 pounds. The use of lesser distances is permitted when supported by approved test data and/or analysis.

c. Linear interpolation of explosive quantities between table entries is permitted.

TABLE 3304.5.2(3)
TABLE OF DISTANCES (Q-D) FOR BUILDINGS CONTAINING EXPLOSIVES – DIVISION 1.4^c

| Quantity of Division 1.4 Explosives (Net Explosives Weight) | | Distances in Feet | | | |
|---|-----------------|--------------------------------------|--|---|---|
| Pounds Over | Pounds Not Over | Inhabited Building Distance (IBD) | Distance to Public Traffic Route (PTR) | Intermagazine Distance ^{a,b} (IMD) | Intraline Distance (ILD) or Intraplant Distance ^a (IPD) |
| 50 | Not limited | 100 | 100 | 50 | 50 |

For SI: 1 foot = 304.8 mm, 1 pound = 0.454 kg.

a. A separation distance of 100 feet is required for buildings of other than Type I or Type II construction as defined in the International Building Code.

b. For earth-covered magazines, no specified separation is required.

(1) Earth cover material used for magazines shall be relatively cohesive. Solid or wet clay and similar types of soil are to cohesive and shall not be used. Soil shall be free from unsanitary organic matter, trash, debris and stones heavier than 10 pounds or larger than 6 inches in diameter. Compaction and surface preparation shall be provided, as necessary, to maintain structural integrity and avoid erosion. Where cohesive material cannot be used, as in sandy soil, the earth cover over magazines shall be finished with a suitable material to ensure structural integrity.

(2) The earth fill or earth cover between earth-covered magazines shall be either solid or sloped, in accordance with the requirements of other construction features, but a minimum of 2 feet of earth cover shall be maintained over the top of each magazines. To reduce erosion and facilitate maintenance operations, the cover shall have a slope of 2 horizontal to 1 vertical.

c. Restricted to articles, including articles packaged for shipment, that are not regulated as an explosive under Bureau of Alcohol, Tobacco and Firearms regulations, or unpacked articles used in process operations that do not propagate a detonation or deflagration between articles. This table shall not apply to consumer fireworks, 1.4G.

**TABLE 3305.3
MINIMUM INTERLINE (INTRAPLANT) SEPARATION DISTANCES (ILD OR IPD) BETWEEN BARRICADED
OPERATING BUILDINGS CONTAINING EXPLOSIVES – DIVISION 1.1, 1.2 OR 1.5 – MASS EXPLOSION HAZARD^a**

| NET EXPLOSIVES WEIGHT | | | NET EXPLOSIVES WEIGHT | | |
|-----------------------|-----------------|--|-----------------------|-----------------|--|
| Pounds over | Pounds not over | Intraline Distance (ILD) or Intraplant Distance (IPD) (feet) | Pounds over | Pounds not over | Intraline Distance (ILD) or Intraplant Distance (IPD) (feet) |
| 0 | 50 | 30 | 20,000 | 25,000 | 265 |
| 50 | 100 | 40 | 25,000 | 30,000 | 280 |
| 100 | 200 | 50 | 30,000 | 35,000 | 295 |
| 200 | 300 | 60 | 35,000 | 40,000 | 310 |
| 300 | 400 | 65 | 40,000 | 45,000 | 320 |
| 400 | 500 | 70 | 45,000 | 50,000 | 330 |
| 500 | 600 | 75 | 50,000 | 55,000 | 340 |
| 600 | 700 | 80 | 55,000 | 60,000 | 350 |
| 700 | 800 | 85 | 60,000 | 65,000 | 360 |
| 800 | 900 | 90 | 65,000 | 70,000 | 370 |
| 900 | 1,000 | 95 | 70,000 | 75,000 | 385 |
| 1,000 | 1,500 | 105 | 75,000 | 80,000 | 390 |
| 1,500 | 2,000 | 115 | 80,000 | 85,000 | 395 |
| 2,000 | 3,000 | 130 | 85,000 | 90,000 | 400 |
| 3,000 | 4,000 | 140 | 90,000 | 95,000 | 410 |
| 4,000 | 5,000 | 150 | 95,000 | 100,000 | 415 |
| 5,000 | 6,000 | 160 | 100,000 | 125,000 | 450 |
| 6,000 | 7,000 | 170 | 125,000 | 150,000 | 475 |
| 7,000 | 8,000 | 180 | 150,000 | 175,000 | 500 |
| 8,000 | 9,000 | 190 | 175,000 | 200,000 | 525 |
| 9,000 | 10,000 | 200 | 200,000 | 225,000 | 550 |
| 10,000 | 15,000 | 225 | 225,000 | 250,000 | 575 |
| 15,000 | 20,000 | 245 | 250,000 | 275,000 | 600 |
| — | — | — | 275,000 | 300,000 | 635 |

For SI: 1 foot = 304.8 mm, 1 pound = 0.454 kg.

a. Where a building or magazine containing explosives is not barricaded, the intraline distances shown in this table shall be doubled.

3305.6.5 Waste disposal. Approved receptacles with covers shall be provided for each location for disposing of waste material and debris. These waste receptacles shall be emptied and cleaned as often as necessary but not less than once each day or at the end of each shift.

3305.6.6 Safety rules. General safety rules and operating instructions governing the particular operation or process conducted at that location shall be available at each location.

3305.6.7 Personnel limits. The number of occupants in each process building and in each magazine shall not exceed the number necessary for proper conduct of production operations.

3305.6.8 Pyrotechnic and explosive composition quantity limits. Not more than 500 pounds (227 kg) of pyrotechnic or explosive composition, including not more than 10 pounds (5 kg) of salute powder shall be permitted at one time in any process building or area. All compositions not in current use shall be kept in covered nonferrous containers.

Exception: Composition that has been loaded or pressed into tubes or other containers as consumer fireworks.

3305.6.9 Posting limits. The maximum number of occupants and maximum weight of pyrotechnic and explosive composition permitted in each process building shall be posted in a conspicuous location in each process building or magazine.

3305.6.10 Heat sources. Fireworks, explosives or explosive charges in explosive materials manufacturing, assembly or testing shall not be stored near any source of heat.

Exception: Approved drying or curing operations.

3305.7 Maintenance. Maintenance and repair of explosives-manufacturing facilities and areas shall comply with Section 3304.8.

3305.8 Explosive materials testing sites. Detonation of explosive materials or ignition of fireworks for testing purposes shall be done only in isolated areas at sites where distance, protection from missiles, shrapnel or flyrock, and other safeguards provides protection against injury to personnel or damage to property.

3305.8.1 Protective clothing and equipment. Protective clothing and equipment shall be provided to protect persons engaged in the testing, ignition or detonation of explosive materials.

3305.8.2 Site security. When tests are being conducted or explosives are being detonated, only authorized persons shall be present. Areas where explosives are regularly or frequently detonated or burned shall be approved and posted with adequate warning signs. Warning devices shall be activated before burning or detonating explosives to alert persons approaching from any direction that they are approaching a danger zone.

3305.9 Waste disposal. Disposal of explosive materials waste from manufacturing, assembly or testing operations shall be in accordance with Section 3304.10.

SECTION 3306 SMALL ARMS AMMUNITION

3306.1 General. Indoor storage and display of black powder, smokeless propellants and small arms ammunition shall comply with this section and NFPA 495.

3306.2 Prohibited storage. Small arms ammunition shall not be stored together with Division 1.1, Division 1.2 or Division 1.3 explosives unless the storage facility is suitable for the storage of explosive materials.

3306.3 Packages. Smokeless propellants shall be stored in approved shipping containers conforming to

DOTn 49 CFR, Part 173.

3306.3.1 Repackaging. The bulk repackaging of smokeless propellants, black powder, and small arms primers shall not be performed in retail establishments.

3306.3.2 Damaged packages. Damaged containers shall not be repackaged.

Exception: Approved repackaging of damaged containers of smokeless propellant into containers of the same type and size as the original container.

3306.4 Storage in residences. Propellants for personal use in quantities not exceeding 50 pounds (23 kg) of black powder or 100 pounds (45 kg) of smokeless powder shall be stored in original containers in occupancies limited to Group R-3 and R-5, or 200 pounds (91 kg) of smokeless powder when stored in the manufacturer's original containers in detached Group U structures that are at least 10 feet from inhabited buildings and are accessory to Group R-3 or R-5. In other than Group R-3 or R-5, smokeless powder in quantities exceeding 20 pounds (9 kg) but not exceeding 50 pounds (23 kg) shall be kept in a wooden box or cabinet having walls of at least 1 inch (25 mm) nominal thickness or equivalent.

3306.5 Display and storage in Group M occupancies. The display and storage of small arms ammunition in Group M occupancies shall comply with this section.

3306.5.1 Display. Display of small arms ammunition in Group M occupancies shall comply with Sections 3306.5.1.1 through 3306.5.1.2.

3306.5.1.1 Smokeless propellant. No more than 100 pounds (45 kg) of smokeless propellants, in containers of 8 pounds (3.6 kg) or less capacity, shall be displayed in Group M occupancies.

3306.5.1.2 Black powder. No more than 1 pound (0.454 kg) of black powder shall be displayed in Group M occupancies.

3306.5.2 Storage. Storage of small arms ammunition shall comply with Sections 3306.5.2.1 through 3306.5.2.3.

3306.5.2.1 Smokeless propellant. Commercial stocks of smokeless propellants shall be stored as follows:

1. Quantities exceeding 20 pounds (9 kg), but not exceeding 100 pounds (45 kg) shall be stored in portable wooden boxes having walls of at least 1 inch (25 mm) nominal thickness or equivalent.

2. Quantities exceeding 100 pounds (45 kg), but not exceeding 800 pounds (363 kg), shall be stored in storage cabinets having walls at least 1 inch (25 mm) nominal thickness or equivalent. Not more than 400 pounds (182 kg) shall be stored in any one cabinet, and cabinets shall be separated by a distance of at

least 25 feet (7620 mm) or by a fire partition having a fire-resistance rating of at least 1 hour.

3. Storage of quantities exceeding 800 pounds (363 kg), but not exceeding 5,000 pounds (2270 kg) in a building shall comply with all of the following:

3.1. The storage is inaccessible to unauthorized personnel.

3.2. Smokeless propellant shall be stored in nonportable storage cabinets having wood walls at least 1 inch (25 mm) nominal thickness or equivalent and having shelves with no more than 3 feet (914 mm) of vertical separation between shelves.

3.3. No more than 400 pounds (182 kg) is stored in any one cabinet.

3.4. Cabinets shall be located against walls with at least 40 feet (12 192 mm) between cabinets. The minimum required separation between cabinets may be reduced to 20 feet (6096 mm) provided that barricades twice the height of the cabinets are attached to the wall, midway between each cabinet. The barricades must extend a minimum of 10 feet (3048 mm) outward, be firmly attached to the wall, and be constructed of steel not less than 0.25 inch thick (6.4 mm), 2-inch (51 mm) nominal thickness wood, brick, or concrete block.

3.6. Smokeless propellant shall be separated from materials classified as combustible liquids, flammable liquids, flammable solids, or oxidizing materials by a distance of 25 feet (7620 mm) by a fire partition having a fire-resistance rating of 1 hour.

3.7. The building shall be equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

4. Smokeless propellants not stored according to Item 1, 2, or 3 above shall be stored in a Type 2 or 4 magazine in accordance with Section 3304 and NFPA 495.

3306.5.2.2 Black powder. Commercial stocks of black powder in quantities less than 50 pounds (23 kg) shall be permitted to be stored in Type 2 or 4 indoor or outdoor magazines. Quantities greater than 50 pounds (23 kg) shall be stored in outdoor Type 2 or 4 magazines. When black powder and smokeless propellants are stored together in the same magazine, the total quantity shall not exceed that permitted for black powder.

3306.5.2.3 Small arms primers. Commercial stocks of small arms primers shall be stored as follows.

1. Quantities not to exceed 750,000 small arms primers stored in a building shall be arranged such that not more than 100,000 small arms primers are stored in any one pile and piles are at least 15 feet (4572 mm) apart.

2. Quantities exceeding 750,000 small arms primers stored in a building shall comply with all of the following:

2.1. The warehouse or storage building shall not be accessible to unauthorized personnel.

2.2. Small arms primers shall be stored in cabinets. No more than 200,000 small arms primers shall be stored in any one cabinet.

2.3. Shelves in cabinets shall have vertical separation of at least 2 feet (610 mm).

2.4. Cabinets shall be located against walls of the warehouse or storage room with at least 40 feet (12 192 mm) between cabinets. The minimum required separation between cabinets shall be allowed to be reduced to 20 feet (6096 mm) provided that barricades twice the height of the cabinets are attached to the wall, midway between each cabinet. The barricades shall be firmly attached to the wall, and shall be constructed of steel not less than 0.25 inch thick (6.4 mm), 2-inch (51 mm) nominal thickness wood, brick, or concrete block.

2.6. Small arms primers shall be separated from materials classified as combustible liquids, flammable liquids, flammable solids, or oxidizing materials by a distance of 25 feet (7620 mm) by a fire partition having a fire-resistance rating of 1 hour.

2.7. The building shall be protected throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

3. Small arms primers not stored in accordance with Item 1 or 2 of this section shall be stored in a magazine meeting the requirements of Section 3304 and NFPA 495.

SECTION 3307 BLASTING

3307.1 General. Blasting operations shall be conducted only by persons certified by the *SFMO* as a *restricted* or *unrestricted blaster* or shall be supervised on-site by a person properly certified by the *SFMO* as a *restricted* or *unrestricted blaster*.

3307.2 Manufacturer's instructions. Blasting operations shall be performed in accordance with the instructions of the manufacturer of the explosive materials being used.

3307.3 Blasting in congested areas. When blasting is done in a congested area or in close proximity to a structure, railway, or highway, or any other installation,

precautions shall be taken to minimize earth vibrations and air blast effects. Blasting mats or other protective means shall be used to prevent fragments from being thrown.

3307.4 Restricted hours. Surface-blasting operations shall only be conducted during daylight hours between sunrise and sunset. Other blasting shall be performed during daylight hours unless otherwise approved by the fire code official.

3307.5 Utility notification. Whenever blasting is being conducted in the vicinity of utility lines or rights-of-way, the *blaster* shall notify the appropriate representatives of the utilities at least 24 hours in advance of blasting, specifying the location and intended time of such blasting. Verbal notices shall be confirmed with written notice.

Exception: In an emergency situation, the time limit shall not apply when approved.

3307.6 Electric detonator precautions. Precautions shall be taken to prevent accidental discharge of electric detonators from currents induced by radar and radio transmitters, lightning, adjacent power lines, dust and snow storms, or other sources of extraneous electricity.

3307.7 Nonelectric detonator precautions. Precautions shall be taken to prevent accidental initiation of nonelectric detonators from stray currents induced by lightning or static electricity.

3307.8 Blasting area security. During the time that holes are being loaded or are loaded with explosive materials, blasting agents or detonators, only authorized persons engaged in drilling and loading operations or otherwise authorized to enter the site shall be allowed at the blast site. The blast site shall be guarded or barricaded and posted. Blast site security shall be maintained until after the post-blast inspection has been completed.

3307.9 Drill holes. Holes drilled for the loading of explosive charges shall be made and loaded in accordance with NFPA 495.

3307.10 Removal of excess explosive materials. After loading for a blast is completed and before firing, excess explosive materials shall be removed from the area and returned to the proper storage facilities.

3307.11 Initiation means. The initiation of blasts shall be by means conforming to the provisions of NFPA 495.

3307.12 Connections. The blaster shall supervise the connecting of the blastholes and the connection of the loadline to the power source or initiation point. Connections shall be made progressively from the blasthole back to the initiation point. Blasting lead lines shall remain shunted (shorted) and shall not be

connected to the blasting machine or other source of current until the blast is to be fired.

3307.13 Firing control. No blast shall be fired until the *blaster* has made certain that all surplus explosive materials are in a safe place in accordance with Section 3307.10, all persons and equipment are at a safe distance or under sufficient cover, and that an adequate warning signal has been given.

3307.14 Post-blast procedures. After the blast, the following procedures shall be observed.

1. No person shall return to the blast area until allowed to do so by the *blaster* in charge.
2. The blaster shall allow sufficient time for smoke and fumes to dissipate and for dust to settle before returning to or approaching the blast area.
3. The *blaster* shall inspect the entire blast site for misfires before allowing other personnel to return to the blast area.

3307.15 Misfires. Where a misfire is suspected, all initiating circuits shall be traced and a search made for unexploded charges. Where a misfire is found, the *blaster* shall provide proper safeguards for excluding all personnel from the blast area. Misfires shall be reported to the blasting supervisor immediately. Misfires shall be handled under the direction of the person in charge of the blasting operation in accordance with NFPA 495.

3307.16 Blast records: A record of each blast shall be kept and retained for at least five years and shall be available for inspection by the *fire code official*. The record shall contain the following minimum data:

1. Name of contractor;
2. Location and time of blast;
3. Name of certified blaster in charge;
4. Type of material blasted;
5. Number of holes bored and spacing;
6. Diameter and depth of holes;
7. Type and amount of explosives;
8. Amount of explosive per delay of 8 milliseconds or greater;
9. Method of firing and type of circuit;
10. Direction and distance in feet to nearest dwelling, public building, school, church, commercial or institutional building;
11. Weather conditions;
12. Whether or not mats or other precautions were used;
13. Type of detonator and delay period;
14. Type and height of stemming; and
15. Seismograph record when utilized.

Exception: Subdivisions 8 and 13 of this section are not applicable to *restricted blasters*.

SECTION 3308 FIREWORKS DISPLAY

3308.1 General. Outdoor fireworks displays, use of pyrotechnics before a *proximate audience* and pyrotechnic special effects in motion picture, television, theatrical and group entertainment productions shall comply with Sections 3308.2 through 3308.10 and NFPA 1123 or NFPA 1126.

3308.2 Permit application. Prior to issuing permits for a fireworks display, plans for the fireworks display, inspections of the display site and demonstrations of the display operations shall be approved. A plan establishing procedures to follow and actions to be taken in the event that a shell fails to ignite in, or discharge from, a mortar or fails to function over the fallout area or other malfunctions shall be provided to the *fire code official*.

In addition to the requirements of Section 3301.2.3.1, a permit to conduct a fireworks display shall not be issued to any applicant without the applicant identifying on the application the *pyrotechnician* who will be in responsible charge of the fireworks display and who is appropriately certified as a *pyrotechnician* in accordance with Section 3301.4.1.

Prior to issuing permits for a fireworks display, plans for the fireworks display, inspections of the display site and demonstrations of the display operations shall be approved. A plan establishing procedures to follow and actions to be taken in the event that a shell fails to ignite in, or discharge from, a mortar or fails to function over the fallout area or other malfunctions shall be provided to the fire code official.

Exception: Permits are not required for the use or display of *permissible fireworks* on private property with the consent of the owner of such property.

3308.2.1 Outdoor fireworks displays. In addition to the requirements of Section 403, permit applications for outdoor fireworks displays using Division 1.3G fireworks shall include a diagram of the location at which the display will be conducted, including the site from which fireworks will be discharged; the location of buildings, highways, overhead obstructions and utilities; and the lines behind which the audience will be restrained.

3308.2.2 Use of pyrotechnics before a proximate audience. Where the separation distances required by Section 3308.4 and NFPA 1123 are unavailable or cannot be secured, fireworks displays shall be conducted in accordance with NFPA 1126 for *proximate audiences*. Applications for use of pyrotechnics before a *proximate audience* shall include plans indicating the required clearances for

spectators and combustibles, crowd control measures, smoke control measures, and requirements for standby personnel and equipment when provision of such personnel or equipment is required by the *fire code official*.

3308.3 Approved displays. *Approved* fireworks displays shall include only the *approved* fireworks 1.3G, fireworks 1.4G, and fireworks 1.4S fireworks and pyrotechnic articles, 1.4G. The *design*, setup, conducting or direct on-site supervision of the *design*, setup and conducting of any fireworks display, either inside a building or outdoors, shall be performed only by persons properly certified by the *SFMO* in accordance with Section 3301.4.1 as a *pyrotechnician (firework operator)* and at least one person properly certified by the *SFMO* as a *pyrotechnician* shall be present at the site where the fireworks display is being conducted. The *approved* fireworks shall be arranged, located, discharged and fired in a manner that will not pose a hazard to property or endanger any person.

Exception: Certification as a *pyrotechnician* is not required for the use or display of *permissible fireworks* when conducted on private property with the consent of the owner of such property.

3308.4 Clearance. Spectators, spectator parking areas, and dwellings, buildings, or structures shall not be located within the display site. The site for the outdoor land or water display shall have at least 100-ft/in. (31-m/2.5 mm) radius of internal mortar diameter of the largest shell to be fired as shown in Table 3308.4.

Exceptions:

1. This provision shall not apply to pyrotechnic special effects and fireworks displays using Division 1.4G materials before a *proximate audience* in accordance with NFPA 1126.
2. This provision shall not apply to unoccupied *dwellings*, buildings and structures of Types I or II construction with the permission of the building *owner* and the *fire code official*.

3308.5 Storage of fireworks at display site. The storage of fireworks at the display site shall comply with the requirements of this section and NFPA 1123 or NFPA 1126.

3308.5.1 Supervision and weather protection. Beginning as soon as fireworks have been delivered to the display site, they shall not be left unattended.

3308.5.2 Weather protection. Fireworks shall be kept dry after delivery to the display site.

3308.5.3 Inspection. Shells shall be inspected by the operator or assistants after delivery to the display site. Shells having tears, leaks, broken fuses, or signs of having been wet shall be set aside and shall not be fired. Aerial shells shall be checked for proper fit in

Table 3308.4

Distances for Outdoor Fireworks Display Sites: Minimum Separation Distances from Mortars to Spectators for Land or Water Displays

| Mortar Size ¹ | | Minimum Secured Diameter of Site | | Vertical Mortars ² | | Angled Mortars ³ 1/3 offset | | Mortars to Special Hazards ⁴ | |
|--------------------------|---|----------------------------------|-----|-------------------------------|-----|---|-----|---|-----|
| in. | mm | ft | m | ft | m | ft | m | ft | m |
| <3 | <76 | 300 | 92 | 150 | 46 | 100 | 31 | 300 | 92 |
| 3 | 76 | 600 | 183 | 300 | 92 | 200 | 61 | 600 | 183 |
| 4 | 102 | 800 | 244 | 400 | 122 | 266 | 81 | 800 | 244 |
| 5 | 127 | 1000 | 305 | 500 | 152 | 334 | 102 | 1000 | 305 |
| 6 | 152 | 1200 | 366 | 600 | 183 | 400 | 122 | 1200 | 366 |
| 7 | 178 | 1400 | 427 | 700 | 213 | 467 | 142 | 1400 | 427 |
| 8 | 203 | 1600 | 488 | 800 | 244 | 534 | 163 | 1600 | 488 |
| 10 | 254 | 2000 | 610 | 1000 | 305 | 667 | 203 | 2000 | 610 |
| 12 | 305 | 2400 | 732 | 1200 | 366 | 800 | 244 | 2400 | 732 |
| >12 | Requires the approval of the fire official. | | | | | | | | |

1 Aerial shells, mines, and comets shall be classified and described only in terms of the inside diameter of the mortar from which they are fired [e.g., 3-in. (76-mm) aerial shells, mines, and comets are only for use in 3-in. (76-mm) mortars].

2 Where the mortars are positioned vertically, the mortars shall be placed at the approximate center of the display site.

3 Mortars shall be permitted to be angled during a display to allow for wind and to carry shells away from the main spectator viewing areas. For angled mortars, the minimum secured diameter of the display site does not change. Only the location of the mortars within the secured area changes when the mortars are angled.

4 Note that this is only the distance to the special hazards. The minimum secured diameter of the display site does not change.

mortars prior to discharge. Aerial shells that do not fit properly shall not be fired. After the display, damaged, deteriorated or dud shells shall either be returned to the supplier or destroyed in accordance with the supplier’s instructions and Section 3304.10.

Exception: Minor repairs to fuses shall be permitted. For electrically ignited displays, attachment of electric matches and similar tasks shall be allowed.

3308.5.4 Sorting and separation. After delivery to the display site and prior to the display, all shells shall be separated according to size and their designation as salutes.

Exception: For electrically fired displays, or displays where all shells are loaded into mortars prior to the show, there is no requirement for separation of shells according to size or their designation as salutes.

3308.5.5 Ready boxes. Display fireworks, 1.3G, that will be temporarily stored at the site during the fireworks display shall be stored in ready boxes located upwind and at least 25 feet (7620 mm) from the mortar placement and separated according to size and their designation as salutes.

Exception: For electrically fired displays, or displays where all shells are loaded into mortars prior to the show, there is no requirement for separation of shells according to size, their designation as salutes, or for the use of ready boxes.

3308.6 Installation of mortars. Mortars for firing fireworks shells shall be installed in accordance with NFPA 1123 and shall be positioned so that shells are propelled away from spectators and over the fallout area. Under no circumstances shall mortars be angled toward the spectator viewing area. Prior to placement, mortars shall be inspected for defects, such as dents, bent ends, damaged interiors, and damaged plugs. Defective mortars shall not be used.

3308.7 Handling. Aerial shells shall be carried to mortars by the shell body. For the purpose of loading mortars, aerial shells shall be held by the thick portion of the fuse and carefully loaded into mortars.

3308.8 Fireworks display supervision. Whenever in the opinion of the *fire code official* or the operator a hazardous condition exists, the fireworks display shall be discontinued immediately until such time as the dangerous situation is corrected.

3308.9 Post-fireworks display inspection. After the display, the firing crew shall conduct an inspection of the fallout area for the purpose of locating unexploded aerial shells or live components. This inspection shall be conducted before public access to the site shall be allowed. Where fireworks are displayed at night and it is not possible to inspect the site thoroughly, the operator or designated assistant shall inspect the entire site at first light.

A report identifying any shells that fail to ignite in, or discharge from, a mortar or fail to function over the fallout area or otherwise malfunction shall be filed with the fire code official.

3308.10 Disposal. Any shells found during the inspection required in Section 3308.9 shall not be handled until at least 15 minutes have elapsed from the time the shells were fired. The fireworks shall then be doused with water and allowed to remain for at least 5 additional minutes before being placed in a plastic bucket or fiberboard box. The disposal instructions of the manufacturer as provided by the fireworks supplier shall then be followed in disposing of the fireworks in accordance with Section 3304.10.

**SECTION 3309
TEMPORARY STORAGE OF
CONSUMER FIREWORKS**

3309.1 General. Where the temporary storage of consumer fireworks, 1.4G is allowed by Section 3301.1.3, Exception 4, such storage shall comply with the applicable requirements of NFPA 1124.

10.6.2 All personnel shall remain at a safe distance from the disposal area.

10.6.3 All explosive materials that are obviously deteriorated or damaged shall not be used and shall be destroyed in accordance with the requirements of 9.7.17 and 9.7.18.

10.6.4* Destroying Explosives.

10.6.4.1 In the event that it becomes necessary to destroy any explosives, because of damage to containers, deterioration, or for any other reason, all handling of explosives shall cease and the manufacturer shall be contacted for assistance immediately.

10.6.4.2 The manufacturers' advice shall be followed without deviation.

Figure 11.1.2.1 (b) to limit peak particle velocity based upon the frequency of the blast vibration.

11.1.2.2 If either graph in Figure 11.1.2.1(a) or Figure 11.1.2.1(b) is used to limit vibration levels, the methods for monitoring vibration and calculating frequency shall be approved by the AHJ.

11.1.3 Scaled Distance Equations. Unless a blasting operation uses a seismograph to monitor a blast to ensure compliance with Table 11.1.1 or Figure 11.1.2.1(a) or Figure 11.1.2.1(b), or has been granted special permission by the AHJ to utilize a modified scaled distance factor, the operation shall comply with the scaled distance equations shown in Table 11.1.3.

Chapter 11 Ground Vibration, Airblast, and Flyrock

11.1 Ground Vibration.

11.1.1 At all blasting operations, the maximum ground vibration at any dwelling, public building, school, church, or commercial or institutional building adjacent to the blasting site shall not exceed the limitations specified in Table 11.1.1, except as otherwise authorized or restricted by the AHJ.

11.1.2 Frequency Versus Particle Velocity Graphs.

11.1.2.1 In lieu of Table 11.1.1, a blasting operation shall have the option to use the graphs shown in either Figure 11.1.2.1(a) or

Table 11.1.1 Peak Particle Velocity Limits

| Distance from Blasting Site | | Maximum Allowable Peak Particle Velocity* | |
|-----------------------------|----------|---|---------|
| m | ft | mm/sec | in./sec |
| 0-91.4 | 0-300 | 31.75 | 1.25 |
| 91.5-1524 | 301-5000 | 25.40 | 1.00 |
| ≥1525 | ≥5001 | 19.00 | 0.75 |

*Peak particle velocity shall be measured in three mutually perpendicular directions, and the maximum allowable limits shall apply to each of these measurements.

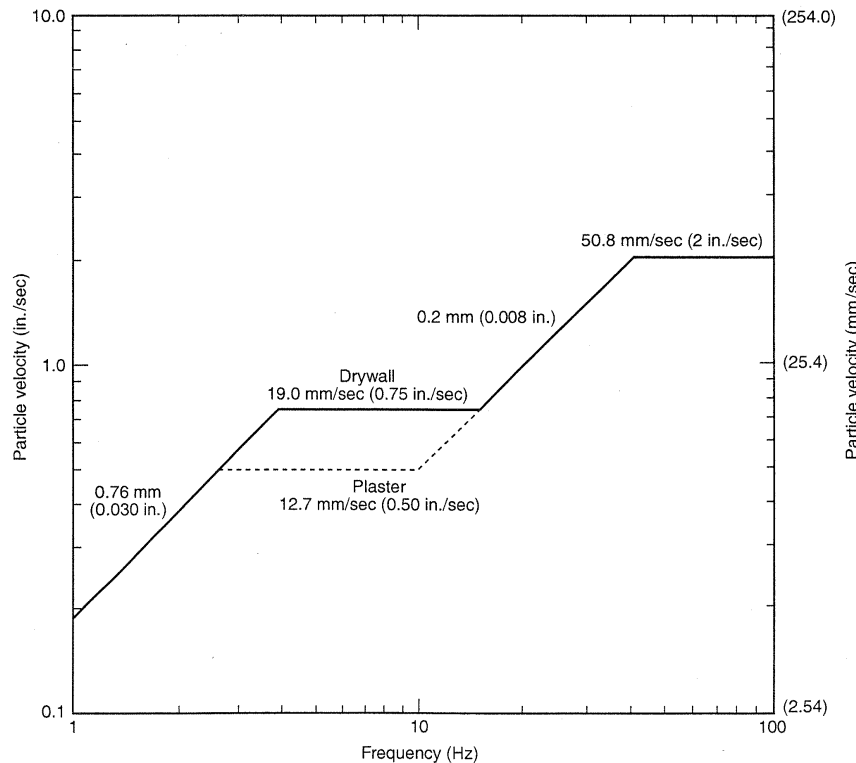


FIGURE 11.1.2.1(a) Frequency vs. Particle Velocity Graph.

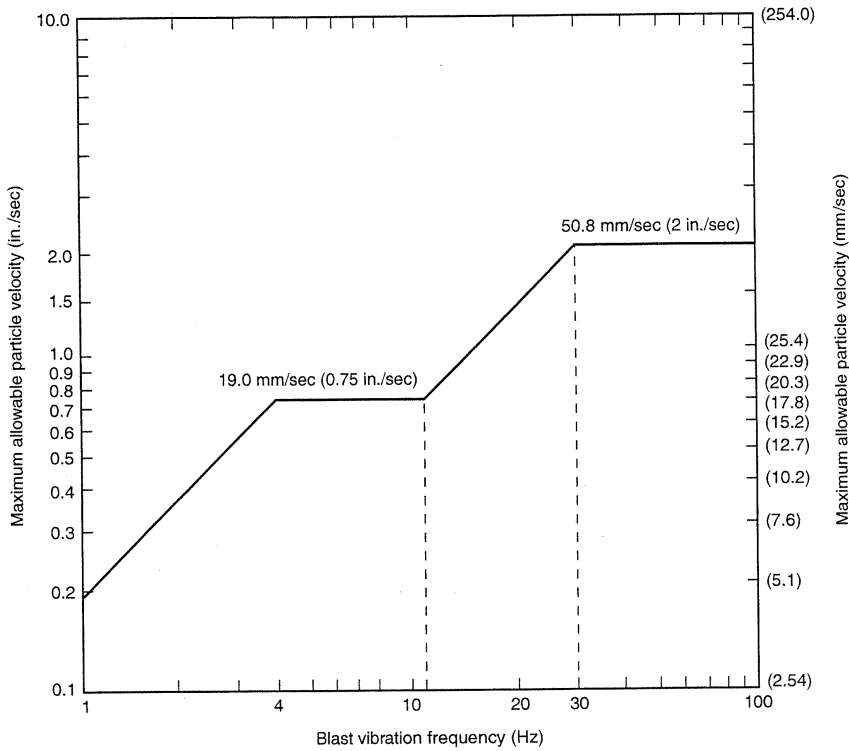


FIGURE 11.1.2.1(b) Maximum Allowable Particle Velocity vs. Blast Vibration Frequency Graph.

Table 11.1.3 Scaled Distance Equations

| Distance from Blasting Site | | Scaled Distance Equation* | |
|-----------------------------|----------|---------------------------|------------------------|
| m | ft | kg | lb |
| 0-91.4 | 0-300 | $W(kg) = [D(m)/22.6]^2$ | $W(lb) = [D(ft)/50]^2$ |
| 92-1524 | 301-5000 | $W(kg) = [D(m)/24.9]^2$ | $W(lb) = [D(ft)/55]^2$ |
| ≥1525 | ≥5001 | $W(kg) = [D(m)/29.4]^2$ | $W(lb) = [D(ft)/65]^2$ |

Notes:

(1) *W* equals the maximum weight of explosives in pounds (or kilograms) that can be detonated per delay interval of 8 milliseconds or longer.

(2) *D* equals the distance in feet (or meters) from the blast to the nearest dwelling, public building, school, church, or commercial or institutional building not owned, leased, or contracted by the blasting operation, or on property for which the owner has not provided a written waiver to the blasting operation.

*To convert English units of scaled distances (ft/lb²) to metric units (m/kg²), divide by a factor of 2.21.

11.1.4 Where the blasting operation considers the scaled distance equations of Table 11.1.3 as being too restrictive, the operation shall have the right to petition the AHJ to use a modified scaled distance equation.

11.1.4.1 Such a petition shall demonstrate that the use of the modified scaled distance equation would not cause predicted ground vibration that exceeds the peak particle velocity limits specified in Table 11.1.1.

11.1.4.2 Any petition for modification of the scaled distance equations of Table 11.1.3 shall be substantiated thoroughly by seismograph recordings to show that the limitations of Table 11.1.1 cannot be exceeded.

11.2 **Airblast.** Airblast at the location of any dwelling, public building, school, church, or commercial or institutional building that is not owned, leased, or contracted by the blasting operation, or on property for which the owner has not provided a written waiver to the blasting operation, shall not exceed the maximum limits specified in Table 11.2.

11.3 **Flyrock.**

11.3.1 Flyrock traveling in the air or along the ground shall not be cast from the blast site in an uncontrolled manner that could result in personal injury or property damage.

Table 11.2 Airblast Limits

| Lower Frequency of Measuring System [Hz (± 3 dcb)] | Measurement Level (dcb) |
|---|-------------------------|
| 0.1 Hz or lower — flat response* | 134 peak |
| 2 Hz or lower — flat response | 133 peak |
| 6 Hz or lower — flat response | 129 peak |
| C-Weighted — slow response* | 105 peak |

*Only where approved by the AHJ.

11.3.2 Flyrock shall not be propelled from the blast site onto property not contracted by the blasting operation or onto property for which the owner has not provided a written waiver to the blasting operation.

11.3.3 Where blasting operations do not conform to 11.3.1 and 11.3.2, the AHJ shall require that special precautions be employed to reduce or control flyrock.

Chapter 12 Explosive Materials at Piers and Railway, Truck, and Air Terminals

12.1 Basic Requirements.

12.1.1 Railway Cars.

12.1.1.1 Explosive materials shall not be kept in a railway car unless the car, its contents, and methods of loading comply with the regulations of the U.S. Department of Transportation.

12.1.1.2 The requirement in 12.1.1.1 shall be permitted to be waived in an emergency with the approval of the AHJ.

12.1.2 Explosive materials shall not be delivered to any carrier unless the explosives comply in all respects, including marking and packing, to the regulations of the U.S. Department of Transportation.

12.1.3 Every railway car containing explosive materials that has reached its destination, or has stopped in transit so it no longer is considered in interstate commerce, shall remain placarded in accordance with U.S. Department of Transportation regulations.

12.1.4 Any explosive materials at a railway facility, truck terminal, pier, wharf, harbor facility, or airport terminal, whether for delivery to a consignee or forwarded to some other destination, shall be kept in a safe place and isolated as far as practicable and in such a manner that they can be removed easily and quickly.

12.1.5 Truck terminals for explosives vehicles shall meet the requirements of NFPA 498, *Standard for Safe Havens and Interchange Lots for Vehicles Transporting Explosives*.

12.2 Notifications. A consignee, having been notified that a shipment of explosives is in the hands of any carrier, shall remove the explosives within 48 hours, excluding Saturdays, Sundays, and holidays, to a storage area meeting the requirements of this code.

12.3 Facilities for Trailer-on-Flatcar and Container-on-Flatcar. Rail shipments of explosives by trailer-on-flatcar (TOFC) or container-on-flatcar (COFC) shall meet the following requirements:

- (1) Shipments by TOFC or COFC shall be unloaded at a nonagency station only where a consignee is present to receive them or where properly locked and secure storage facilities are available.
 - (2) If delivery cannot be made, the shipment shall be taken to the next or nearest agency station for delivery.
 - (3)*Carriers shall require the consignee to remove TOFC and COFC shipments from the carrier's property within 48 hours after notice of arrival, excluding Saturdays, Sundays, and holidays.
 - (4) If the trailers or containers are not so removed, the carrier shall dispose of the shipment immediately by means of storage, disposal, or, where necessary for safety, destruction under the supervision of a competent person.
 - (5) If storage is required to comply with 12.3(3), it shall be located in an interchange lot meeting the requirements of Chapters 4 and 5 of NFPA 498, *Standard for Safe Havens and Interchange Lots for Vehicles Transporting Explosives*, or in a location that provides equivalent safety to the public.
 - (6) Where local conditions make the acceptance, transportation, or delivery of explosive materials unusually hazardous, applicable local restrictions shall be imposed by the carrier.
 - (7) All rail carriers shall report complete information on their restrictions regarding the acceptance, delivery, or transportation of explosive materials over any portion of their lines to the Bureau of Explosives of the Association of American Railroads for publication by the Bureau.
 - (8) Where shipping explosives, regularly scheduled days for receiving trailers and containers for shipment shall be assigned wherever it is practicable to do so.
 - (9) To enable the carrier to provide suitable flatcars for the shipment of Division 1.1 or Division 1.2 explosives, the shipper shall give the carrier at least 24 hours notice of the shipments and their destinations.
 - (10) Where a regularly scheduled day has been appointed for receipt of trailers and containers for shipment, the notice required by 12.3(9) shall be permitted to be waived by the carrier, and in such cases, the shipments shall be delivered on the assigned days in time to allow inspection, billing, and loading on that day.
 - (11) Carriers shall forward shipments promptly within 48 hours after acceptance at the originating point or after receipt at any yard transfer station or interchange point, excluding Saturdays, Sundays, and holidays, except that where biweekly or weekly service is provided, shipments shall be forwarded on the next train.
 - (12) The Bureau of Explosives of the Association of American Railroads shall be consulted by rail carriers to determine that the storage facility required by 12.3(3) is safe, adequate, and complies with Chapter 4 of NFPA 498, *Standard for Safe Havens and Interchange Lots for Vehicles Transporting Explosives*.
 - (13) Cars loaded with explosive materials shall be placed so that they are safe from all probable danger from fire — they shall not be placed under bridges or overhead highway crossings, or in or alongside passenger sheds or stations.
- 12.4 Designation of Facilities.** The local AHJ shall have the authority to designate the location for, and limit the quantity of, explosive materials that are loaded, unloaded, reloaded, or temporarily retained at any facility within the jurisdiction.

Extract from the Code of Virginia

§ 15.2-974. Permits for display of fireworks; use and exhibitions.

The governing bodies of the several counties, cities and towns shall have the power to provide for the issuance of permits for the display of fireworks by fair associations, amusement parks, or by any organization or group of individuals, under the minimum terms and conditions set forth in the Virginia Statewide Fire Prevention Code (§ 27-94 et seq.) and any additional terms and conditions as may be prescribed by the locality. Any association, organization, or group that has been issued a permit may purchase and make use of fireworks under the terms and conditions of such permit.

Extracts from the Statewide Fire Prevention Code Act contained in the Code of Virginia

§ 27-96. Statewide standards.

The purposes of this chapter are to provide for statewide standards for optional local enforcement to safeguard life and property from the hazards of fire or explosion arising from the improper maintenance of life safety and fire prevention and protection materials, devices, systems and structures, and the unsafe storage, handling, and use of substances, materials and devices, including fireworks, explosives and blasting agents, wherever located.

§ 27-96.1. Chapter inapplicable to certain uses of fireworks.

Unless prohibited by a local ordinance, the provisions of this chapter pertaining to fireworks shall not apply to the sale of or to any person using, igniting or exploding permissible fireworks on private property with the consent of the owner of such property.

§ 27-96.2. Exemptions generally.

The provisions of this chapter concerning fireworks shall have no application to any officer or member of the armed forces of this Commonwealth, or of the United States, while acting within the scope of his authority and duties as such, nor to any offer of sale or sale of fireworks to any authorized agent of such armed forces; nor shall it be applicable to the sale or use of materials or equipment, otherwise prohibited by this chapter, when such materials or equipment is used or to be used by any person for signaling or other emergency use in the operation of any boat, railroad train or other vehicle for the transportation of persons or property.

§ 27-97. Adoption of Fire Prevention Code.

The Board of Housing and Community Development is hereby empowered to adopt and promulgate a Statewide Fire Prevention Code which shall be cooperatively developed with the Fire Services Board pursuant to procedures agreed to by the two Boards. The Fire Prevention Code shall prescribe regulations to be complied with for the protection of life and property from the hazards of fire or explosion and for the handling, storage, sale and use of fireworks, explosives or blasting agents, and shall provide for the administration and enforcement of such regulations. The Fire Prevention Code shall require manufacturers of fireworks or explosives, as defined in the Code, to register and report information concerning their manufacturing facilities and methods of operation within the Commonwealth in accordance with regulations adopted by the Board. In addition to conducting criminal background checks pursuant to § 27-97.2, the Board shall also establish regulations for obtaining permits for the manufacturing, storage, handling, use, or sales of fireworks or explosives. In the enforcement of such regulations, the enforcing agency may issue annual permits for such activities to any state regulated public utility. Such permits shall not apply to the storage, handling, or use of explosives or blasting agents pursuant to the provisions of Title 45.1.

The Fire Prevention Code shall prohibit any person, firm, or corporation from transporting, manufacturing, storing, selling, offering for sale, exposing for sale, or buying, using, igniting, or exploding any fireworks except for those persons, firms, or corporations that manufacture, store, market and distribute fireworks for the sole purpose of fireworks displays permitted by an enforcement agency or by any locality.

The Fire Prevention Code shall supersede fire prevention regulations heretofore adopted by local governments or other political subdivisions. Local governments are hereby empowered to adopt fire prevention regulations that are more restrictive or more extensive in scope than the Fire Prevention Code provided such regulations do not affect the manner of construction, or materials to be used in the erection, alteration, repair, or use of a building or structure, including the voluntary installation of smoke alarms and regulation and inspections thereof in commercial buildings where such smoke alarms are not required under the provisions of the Code. The Fire Prevention Code shall prohibit any person not certified by the State Fire Marshal's Office as a fireworks operator or pyrotechnician to design, set up, or conduct or supervise the design, setup, or conducting of any fireworks display, either inside a building or structure or outdoors and shall require that at least one person holding a valid certification is present at the site where the fireworks display is being conducted. Certification shall not be required for the design, storage, sale, use, conduct, transportation, and set up of permissible fireworks or the supervision thereof or in connection with any fireworks display conducted by a volunteer fire department provided one member of the volunteer fire department holds a valid certification.

In formulating the Fire Prevention Code, the Board shall have due regard for generally accepted standards as recommended by nationally recognized organizations including, but not limited to, standards of the International Code Council, the National Fire Protection Association, and recognized organizations issuing standards for the protection of the public from the hazards of explosives and blasting agents. Such standards shall be based on the companion document to the model building code referenced by the Uniform Statewide Building Code.

The Fire Prevention Code shall require that buildings constructed prior to 1973 be maintained in accordance with state fire and public building regulations in effect prior to March 31, 1986, and that any building which is (i) more than 75 feet or more than six stories high and (ii) used, in whole or in part, as a dormitory to house students by any public or private institution of higher education shall be required to comply with the provisions of § 36-99.3. The Fire Prevention Code shall also require annual fire drills in all buildings having floors used for human occupancy located more than 75 feet above the lowest level of fire department vehicle access. The drills shall be conducted by building staff personnel or the owner of the building in accordance with a plan approved by the appropriate fire official and shall not affect other current occupants. The Board may modify, amend or repeal any Code provisions as the public interest requires. Any such Code changes shall be developed in cooperation with the Fire Services Board pursuant to procedures agreed to by the two Boards.

§ 27-97.2. Issuance of permit; background investigations.

A. The State Fire Marshal or other issuing authority shall consider all permit applications for manufacturing, storage, handling, use or sales of explosives and applications for certification as a blaster or as a fireworks operator or pyrotechnician, and may grant a valid permit or certification to applicants who meet the criteria established in the Statewide Fire Prevention Code. The State Fire Marshal shall require a background investigation, to include a national criminal history record information check, of all individual applicants and all designated persons representing an applicant that is not an individual, for a permit to manufacture, store, handle, use or sell explosives, and for any applicant for certification as a blaster or as a fireworks operator or pyrotechnician. Each such applicant shall submit his fingerprints to the State Fire Marshal on a form provided by the State Fire Marshal and provide personal descriptive

information to be forwarded along with the applicant's fingerprints through the Central Criminal Records Exchange to the Federal Bureau of Investigation for the purpose of obtaining a national criminal history record check regarding such applicant. Any firm or company manufacturing, storing, using, or selling explosives shall provide to the enforcement agency, the State Fire Marshal or other issuing authority the name of a representative responsible for (i) ensuring compliance with state law and regulations relating to blasting agents and explosives and (ii) applying for permits. The State Fire Marshal or other issuing authority shall deny any application for a permit or for certification as a blaster or as a fireworks operator or pyrotechnician if the applicant or designated person representing an applicant has been convicted of any felony, whether such conviction occurred under the laws of the Commonwealth, or any other state, the District of Columbia, the United States or any territory thereof, unless his civil rights have been restored by the Governor or other appropriate authority. The provisions of this section shall not apply to the manufacturing, storage, handling, use or sales of permissible fireworks or in connection with any fireworks display conducted by a volunteer fire department provided one member of the volunteer fire department holds a valid certification.

B. No permit under this section shall be required of any person holding a certification or permit issued pursuant to the provisions of Title 45.1.

§ 27-100.1. Seizure and destruction of certain fireworks.

Any law-enforcement officer arresting any person for a violation of this chapter related to fireworks shall seize any article of fireworks in the possession or under the control of the person so arrested and shall hold the same until final disposition of any criminal proceedings against such person. If a judgment of conviction be entered against such person, the court shall order destruction of such articles upon expiration of the time allowed for appeal of such judgment of conviction.

