



**Virginia State Fire Marshal's Office**

**Extracted provisions on:**

# **Explosives and Fireworks**

**as contained in the  
Virginia Statewide Fire  
Prevention Code (SFPC) 2012 Edition  
(International Fire Code)**

**EFFECTIVE DATE**

**July 14, 2014**

Chapter 1, Chapter 2, Chapter 56 and Sections 313, 314, 315, 316. Excerpted from  
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2012 Virginia Statewide Fire Prevention Code

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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 a limited user of the code and as a Blaster and Pyrotechnician Certification exam reference. The SFPC is built upon the International Fire Code published by the International Code Council, Inc., 500 New Jersey Ave, NW, 6<sup>th</sup> 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 50, Hazardous Materials – General Provisions, which also applies to explosives and fireworks.

This extract contains:

Chapter 1	Administration
Chapter 2	Definitions (selected portions)
Chapter 3	General Precautions Against Fire (Only that portion related to the indoor display of Smokeless Powder and Small Arms Primers inside Exhibition Halls.)
Chapter 56	Explosives and Fireworks

This extract DOES NOT contain the following:

<b>NFPA Standard...</b>	<b>...as referenced in Section(s)...</b>
490 Storage of Ammonium Nitrate	5601.1.5
495 Explosives Materials Code	202, 5601.1.1, 5601.1.5, 5604.2, 5604.6.2, 5604.6.3, 5604.7.1, 5605.1, 5606.1, 5606.5.2.1, 5606.5.2.3, 5607.1, 5607.9, 5607.11, 5607.15
498 Safe Havens and Interchange Lots for Vehicles Transporting Explosives	5601.1.2
1122 Model Rocketry	5601.1.4
1123 Fireworks Displays	5604.2, 5608.1, 5608.2.2, 5608.5, 5608.6
1124 Manufacture, Transportation, and Storage of Fireworks and Pyrotechnic Articles	5602.1, 5604.2, 5605.1, 5605.3, 5605.4, 5605.5
1125 Manufacture of Model Rocket and High Power Rocket Motors	5601.1.4
1126 Use of Pyrotechnics Before a Proximate Audience	5604.2, 5605.1, 5608.1, 5608.2.2, 5608.4, 5608.5
1127 High Power Rocketry	5601.1.4

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 2012 edition of the *International Fire Code*<sup>®</sup> is incorporated by reference into this version of the SFPC, it is known as the 2012 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 code 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 (DHCD) and may also be accessed through the website of the Virginia Code Commission or by subscription to the VAC.

## Codes Purchased from ICC

The 2012 edition of the SFPC is being made available in pamphlet form as in past editions of the SFPC. In addition to the pamphlet form of the SFPC published by DHCD, the International Code Council (ICC) publishes a version of the SFPC. In the ICC published versions, marginal markings are provided to distinguish between text that is part of the *International Codes* and text that 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.

## Technical Assistance

DHCD, the State Fire Marshal's Central and Regional Offices and local enforcing agencies may be contacted for further information concerning the SFPC. Contact information for DHCD and the State Fire Marshal's Office is below. Additional contact information, including the regional State Fire Marshal's Offices, is available at the websites.

**DHCD, Division of Building and Fire Regulation**  
State Building Codes Office  
600 East Main Street, Suite 300  
Richmond, Virginia 23219  
Phone: (804) 371-7150  
Email: sbco@dhcd.virginia.gov  
Website: www.dhcd.virginia.gov

**Virginia Department of Fire Programs**  
State Fire Marshal's Office  
1005 Technology Park Drive  
Glen Allen, Virginia 23059  
Phone: (804) 371-0220  
Email: statefiremarshal@vdfp.virginia.gov  
Website: www.vafire.com

## **Enforcement 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.

If a local government has appointed a local fire official to enforce the SFPC, the local fire prevention department should be consulted for information and assistance regarding application of the SFPC. Otherwise, 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  
1165 E. Lee Highway  
Chilhowie, VA 24319  
(276)646-0266  
Fax (276)646-0269

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

Tidewater Regional Office  
102 Pratt Street  
Fort Monroe, VA 23651  
(757)848-5828  
Fax (757)848-5813

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.

# CHAPTER 1

## ADMINISTRATION

### SECTION 101 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 Nonresidential 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 Sections 27-98.2 through 27-98.5 of the Code of Virginia.

### SECTION 102 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 super-

sede 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 80 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 Section 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 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 official designated by the locality to enforce this code in those localities that enforce the SFPC or to the State Fire Marshal in those localities that 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 I, Construction, Section 103.7, comply with the provisions located therein.

### SECTION 103 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* -- 2012 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 that may be evaluated by localities to determine whether provisions in 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, non-operational permits not specifically required by Section 107.2, 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.

**Exception:** The scope of referenced codes and standards referenced by the SFPC that relate to the maintenance, testing and inspection requirements or limitations shall be enforceable.

**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 IFC 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 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, fire-works, 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 who are otherwise authorized to enforce certain provisions of this code 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 Section 27-98 of the Code of Virginia. The State Fire Marshal may enter into an agreement as is provided for in Section 9.1-208 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 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 (13VAC5-21).

**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 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 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 (13VAC5-21) 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 (13VAC5-21).

**105.2.1 Noncertified 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 (13VAC5-21) 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 in 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 (13VAC5-21).

**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 that 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 (13VAC5-21) 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 (13VAC5-21).

**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 (Section 2.2-3100 et seq.) of Title 2.2 of the Code of Virginia.

## SECTION 106 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 Section 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 in accordance with the fire official's written policy. All reports of such inspections by approved agencies or 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 PERMITS AND FEES

**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.** Operational 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 5601.2.3.1, 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.

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

DESCRIPTION	PERMIT REQUIRED (yes or no)	PERMIT FEE	INSPECTION FEE															
<b>Aerosol products.</b> 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.																		
<b>Amusement buildings.</b> An operational permit is required to operate a special amusement building.																		
<b>Aviation facilities.</b> 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																		
<b>Carnivals and fairs.</b> An operational permit is required to conduct a carnival or fair.																		
<b>Cellulose nitrate film.</b> An operational permit is required to store, handle or use cellulose nitrate film in a Group A occupancy.																		
<b>Combustible dust-producing operations.</b> 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.																		
<b>Combustible fibers.</b> An operational permit is required for the storage and handling of combustible fibers in quantities greater than 100 cubic feet (2.8 m <sup>3</sup> ). <b>Exception:</b> An operational permit is not required for agricultural storage.																		
<b>Compressed gas.</b> An operational permit is required for the storage, use or handling at normal temperature and pressure (NTP) of compressed gases in excess of the amounts listed below. <b>Exception:</b> Vehicles equipped for and using compressed gas as a fuel for propelling the vehicle.																		
<b>PERMIT AMOUNTS FOR COMPRESSED GASES</b>																		
<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">TYPE OF GAS</th> <th style="text-align: right;">AMOUNT (cubic feet at NTP)</th> </tr> </thead> <tbody> <tr> <td>Corrosive</td> <td style="text-align: right;">200</td> </tr> <tr> <td>Flammable (except cryogenic fluids and liquefied petroleum gases)</td> <td style="text-align: right;">200</td> </tr> <tr> <td>Highly toxic</td> <td style="text-align: right;">Any Amount</td> </tr> <tr> <td>Inert and simple asphyxiant</td> <td style="text-align: right;">6,000</td> </tr> <tr> <td>Oxidizing (including oxygen)</td> <td style="text-align: right;">504</td> </tr> <tr> <td>Toxic</td> <td style="text-align: right;">Any Amount</td> </tr> </tbody> </table>				TYPE OF GAS	AMOUNT (cubic feet at NTP)	Corrosive	200	Flammable (except cryogenic fluids and liquefied petroleum gases)	200	Highly toxic	Any Amount	Inert and simple asphyxiant	6,000	Oxidizing (including oxygen)	504	Toxic	Any Amount	
TYPE OF GAS	AMOUNT (cubic feet at NTP)																	
Corrosive	200																	
Flammable (except cryogenic fluids and liquefied petroleum gases)	200																	
Highly toxic	Any Amount																	
Inert and simple asphyxiant	6,000																	
Oxidizing (including oxygen)	504																	
Toxic	Any Amount																	
For SI: 1 cubic foot = 0.02832 m <sup>3</sup> .																		
<b>Covered mall buildings.</b> 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-fired or gas-fired equipment in the mall. 3. The use of open-flame or flame-producing equipment in the mall.																		
<b>Cryogenic fluids.</b> An operational permit is required to produce, store, transport on site, use, handle or dispense cryogenic fluids in excess of the amounts listed below. <b>Exception:</b> 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.																		
<b>PERMIT AMOUNTS FOR CRYOGENIC GASES</b>																		
<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">TYPE OF CRYOGENIC FLUID</th> <th style="text-align: center;">INSIDE BUILDING (gallons)</th> <th style="text-align: center;">OUTSIDE BUILDING (gallons)</th> </tr> </thead> <tbody> <tr> <td>Flammable</td> <td style="text-align: center;">More than 1</td> <td style="text-align: center;">60</td> </tr> <tr> <td>Inert</td> <td style="text-align: center;">60</td> <td style="text-align: center;">500</td> </tr> <tr> <td>Oxidizing (includes oxygen)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">50</td> </tr> <tr> <td>Physical or health hazard not indicated above</td> <td style="text-align: center;">Any Amount</td> <td style="text-align: center;">Any Amount</td> </tr> </tbody> </table>				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
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.																		
<b>Cutting and welding.</b> An operational permit is required to conduct cutting or welding operations within the jurisdiction.																		

(continued)

**TABLE 107.2—continued**  
**OPERATIONAL PERMIT REQUIREMENTS (to be filled in by local jurisdiction)**

DESCRIPTION	PERMIT REQUIRED (yes or no)	PERMIT FEE	INSPECTION FEE
<b>Dry cleaning plants.</b> 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.			
<b>Exhibits and trade shows.</b> An operational permit is required to operate exhibits and trade shows.			
<b>Explosives, fireworks and pyrotechnics.</b> An operational permit is required for the manufacture, storage, handling, sale or use of any quantity of explosive, explosive materials, fireworks, pyrotechnic special effects, or pyrotechnic special effects material within the scope of Chapter 56. <b>Exception:</b> Storage in Group R-3 or R-5 occupancies of smokeless propellant, black powder and small arms primers for personal use, not for resale and in accordance with the quantity limitations and conditions set forth in Section 5601.1, exception numbers four and twelve.			
<b>Fire hydrants and valves.</b> An operational permit is required to use or operate fire hydrants or valves intended for fire suppression purposes that are installed on water systems and accessible to a fire apparatus access road that is open to or generally used by the public. <b>Exception:</b> 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.			
<b>Flammable and combustible liquids.</b> An operational permit is required:  <ol style="list-style-type: none"> <li>1. To use or operate a pipeline for the transportation within facilities of flammable or combustible liquids. This requirement shall not apply to the offsite transportation in pipelines regulated by the Department of Transportation (DOTn) nor does it apply to piping systems.</li> <li>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: <ol style="list-style-type: none"> <li>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 fire official, would cause an unsafe condition.</li> <li>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.</li> </ol> </li> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>7. To change the type of contents stored in a flammable or combustible liquid tank to a material that poses a greater hazard than that for which the tank was designed and constructed.</li> <li>8. To manufacture, process, blend or refine flammable or combustible liquids.</li> </ol>			
<b>Floor finishing.</b> An operational permit is required for floor finishing or surfacing operations exceeding 350 square feet (33 m <sup>2</sup> ) using Class I or Class II liquids.			
<b>Fruit and crop ripening.</b> An operational permit is required to operate a fruit- or crop-ripening facility or conduct a fruit-ripening process using ethylene gas.			
<b>Fumigation and thermal insecticidal fogging.</b> 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.			

*(continued)*

TABLE 107.2—continued  
 OPERATIONAL PERMIT REQUIREMENTS (to be filled in by local jurisdiction)

DESCRIPTION	PERMIT REQUIRED (yes or no)	PERMIT FEE	INSPECTION FEE
<b>Hazardous materials.</b> An operational permit is required to store, transport on site, dispense, use or handle hazardous materials in excess of the amounts listed below.			
<b>PERMIT AMOUNTS FOR HAZARDOUS MATERIALS</b>			
<b>TYPE OF MATERIAL</b>			
<b>AMOUNT</b>			
Combustible liquids			
Corrosive materials			
Gases			
Liquids			
Solids			
Explosive materials			
Flammable materials			
Gases			
Liquids			
Solids			
Highly toxic materials			
Gases			
Liquids			
Solids			
Oxidizing materials			
Gases			
Liquids			
Class 4			
Class 3			
Class 2			
Class 1			
Solids			
Class 4			
Class 3			
Class 2			
Class 1			
Organic peroxides			
Liquids			
Class I			
Class II			
Class III			
Class IV			
Class V			
Solids			
Class I			
Class II			
Class III			
Class IV			
Class V			
Pyrophoric materials			
Gases			
Liquids			
Solids			
Toxic materials			
Gases			
Liquids			
Solids			
Unstable (reactive) materials			
Liquids			
Class 4			
Class 3			
Class 2			
Class 1			
Solids			
Class 4			
Class 3			
Class 2			
Class 1			

(continued)

**TABLE 107.2—continued**  
**OPERATIONAL PERMIT REQUIREMENTS (to be filled in by local jurisdiction)**

DESCRIPTION	PERMIT REQUIRED (yes or no)	PERMIT FEE	INSPECTION FEE																		
<b>PERMIT AMOUNTS FOR HAZARDOUS MATERIALS</b>																					
<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"><b>TYPE OF MATERIAL</b></td> <td style="width: 50%;"><b>AMOUNT</b></td> </tr> <tr> <td colspan="2">Water reactive materials</td> </tr> <tr> <td>    Class 3</td> <td>Any amount</td> </tr> <tr> <td>    Class 2</td> <td>5 gallons</td> </tr> <tr> <td>    Class 1</td> <td>55 gallons</td> </tr> <tr> <td colspan="2">Solids</td> </tr> <tr> <td>    Class 3</td> <td>Any amount</td> </tr> <tr> <td>    Class 2</td> <td>50 pounds</td> </tr> <tr> <td>    Class 1</td> <td>500 pounds</td> </tr> </table>	<b>TYPE OF MATERIAL</b>	<b>AMOUNT</b>	Water reactive materials		Class 3	Any amount	Class 2	5 gallons	Class 1	55 gallons	Solids		Class 3	Any amount	Class 2	50 pounds	Class 1	500 pounds			
<b>TYPE OF MATERIAL</b>	<b>AMOUNT</b>																				
Water reactive materials																					
Class 3	Any amount																				
Class 2	5 gallons																				
Class 1	55 gallons																				
Solids																					
Class 3	Any amount																				
Class 2	50 pounds																				
Class 1	500 pounds																				
For SI: 1 gallon = 3.785 L, 1 pound = 0.454 kg.																					
a. Twenty gallons when Table 5003.1.1(1) Note k applies and hazard identification signs in accordance with Section 5003.5 are provided for quantities of 20 gallons or less. b. <del>Twenty pounds</del> when Table 5003.1.1(1) Note k applies and hazard identification signs in accordance with Section 5003.5 are provided for quantities of 200 pounds or less																					
<b>HPM facilities.</b> An operational permit is required to store, handle or use hazardous production materials.																					
<b>High piled storage.</b> An operational permit is required to use a building or portion thereof as a high-piled storage area exceeding 500 square feet (46 m <sup>2</sup> ).																					
<b>Hot work operations.</b> An operational permit is required for hot work including, but not limited to: <ol style="list-style-type: none"> <li>1. Public exhibitions and demonstrations where hot work is conducted.</li> <li>2. Use of portable hot work equipment inside a structure.  <b>Exception:</b> Work that is conducted under a construction permit.</li> <li>3. Fixed-site hot work equipment such as welding booths.</li> <li>4. Hot work conducted within a hazardous fire area.</li> <li>5. Application of roof coverings with the use of an open-flame device.</li> <li>6. When approved, the fire 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.</li> </ol>																					
<b>Industrial ovens.</b> An operational permit is required for operation of industrial ovens regulated by Chapter 30.																					
<b>Lumber yards and woodworking plants.</b> An operational permit is required for the storage or processing of lumber exceeding 100,000 board feet (8,333 ft <sup>3</sup> ) (236 m <sup>3</sup> ).																					
<b>Liquid-fueled or gas-fueled vehicles or equipment in assembly buildings.</b> An operational permit is required to display, operate or demonstrate liquid-fueled or gas-fueled vehicles or equipment in assembly buildings.																					
<b>LP-gas.</b> An operational permit is required for. <ol style="list-style-type: none"> <li>1. Storage and use of LP-gas.  <b>Exception:</b> An operational permit is not required for individual containers with a 500-gallon (1893 L) water capacity or less or multiple container systems having an aggregate quantity not exceeding 500 gallons (1893 L), serving occupancies in Group R-3.</li> <li>2. Operation of cargo tankers that transport LP-gas.</li> </ol>																					
<b>Magnesium.</b> An operational permit is required to melt, cast, heat treat or grind more than 10 pounds (4.54 kg) of magnesium.																					
<b>Miscellaneous combustible storage.</b> An operational permit is required to store in any building or upon any premises in excess of 2,500 cubic feet (71 m <sup>3</sup> ) gross volume of combustible empty packing cases, boxes, barrels or similar containers, rubber tires, rubber, cork or similar combustible material.																					
<b>Open burning.</b> 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. <b>Exception:</b> Recreational fires.																					

(continued)

TABLE 107.2—continued  
 OPERATIONAL PERMIT REQUIREMENTS (to be filled in by local jurisdiction)

DESCRIPTION	PERMIT REQUIRED (yes or no)	PERMIT FEE	INSPECTION FEE
<b>Open flames and candles.</b> An operational permit is required to use open flames or candles in connection with assembly areas, dining areas of restaurants or drinking establishments.			
<b>Open flames and torches.</b> An operational permit is required to remove paint with a torch; or to use a torch or open-flame device in a wildfire risk area.			
<b>Organic coatings.</b> 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.			
<b>Places of assembly.</b> An operational permit is required to operate a place of assembly.			
<b>Private fire hydrants.</b> An operational permit is required for the removal from service, use or operation of private fire hydrants. <b>Exception:</b> An operational permit is not required for private industry with trained maintenance personnel, private fire brigade or fire departments to maintain, test and use private hydrants.			
<b>Pyrotechnic special effects material.</b> An operational permit is required for use and handling of pyrotechnic special effects material.			
<b>Pyroxylin plastics.</b> 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.			
<b>Refrigeration equipment.</b> An operational permit is required to operate a mechanical refrigeration unit or system regulated by Chapter 6.			
<b>Repair garages and service stations.</b> An operational permit is required for operation of repair garages and automotive, marine and fleet service stations.			
<b>Rooftop heliports.</b> An operational permit is required for the operation of a rooftop heliport.			
<b>Spraying or dipping.</b> 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 24.			
<b>Storage of scrap tires and tire byproducts.</b> An operational permit is required to establish, conduct or maintain storage of scrap tires and tire byproducts that exceeds 2,500 cubic feet (71 m <sup>3</sup> ) of total volume of scrap tires and for indoor storage of tires and tire byproducts.			
<b>Temporary membrane structures and tents.</b> An operational permit is required to operate an air-supported temporary membrane structure or a tent. <b>Exceptions:</b> 1. Tents used exclusively for recreational camping purposes. 2. Tents and air-supported structures that cover an area of 900 square feet (84 m <sup>2</sup> ) 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.			
<b>Tire-rebuilding plants.</b> An operational permit is required for the operation and maintenance of a tire-rebuilding plant.			
<b>Waste handling.</b> An operational permit is required for the operation of wrecking yards, junk yards and waste material-handling facilities.			
<b>Wood products.</b> An operational permit is required to store chips, hogged material, lumber or plywood in excess of 200 cubic feet (6 m <sup>3</sup> ).			

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

**107.7 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.

**107.8 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.

**107.9 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.

**107.10 Local fees.** In accordance with Section 27-97 of the Code of Virginia, fees may be levied by the local governing body in order to defray the cost of enforcement and appeals under the SFPC.

**107.11 State Fire Marshal's office permit fees for explosives, blasting agents, theatrical flame effects, and fireworks.** Except as modified herein, 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. State Fire Marshal's Office permit fees shall be as follows:

1. \$150 per year per magazine to store explosives and blasting agents.
2. \$250 per year per city or county to use explosives and blasting agents.
3. \$200 per year to sell explosives and blasting agents.
4. \$250 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 State Fire Marshal's office less than 15 days prior to the planned event, the permit fee shall be \$550 the first day and \$150 per day for each consecutive day for identical multi-day events. If an application is received by the State Fire Marshal's office less than seven days prior to the planned event, the permit fee shall be \$650 the first 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 State Fire Marshal's office less than 15 days prior to the planned event, the permit fee shall be \$550 the first day and \$150 per day for each consecutive day for identical multi-day events. If an application is received by the State Fire Marshal's office less than seven days prior to the planned event,

the permit fee shall be \$650 the first day and \$150 per day for each consecutive day for identical multi-day events.

7. \$100 per nonrenewable permit, valid for one week from the date of issuance, for the use of explosives in special operations or emergency conditions.
8. \$300 the first day for flame effects conducted in accordance with Section 308.3.2 indoors of any state-owned building or outdoors on state-owned property and \$200 per day for each consecutive day for identical multi-day events, or, if conducted as part of a firework (pyrotechnic) display, \$150 the first day and \$125 per day for each consecutive day for identical multi-day events. If an application for flame effects is received by the State Fire Marshal's office less than 15 days prior to the planned event, the permit fee shall be \$550 the first day and \$200 per day for each consecutive day for identical multi-day events or, if conducted as part of a firework (pyrotechnic) display, \$200 the first day and \$100 per day for each consecutive day for identical multi-day events. If an application is received by the State Fire Marshal's office less than 7 days prior to the planned event, the permit fee shall be \$650 the first day and \$150 per day for each consecutive day for identical multi-day events or, if conducted as part of a firework (pyrotechnic) display, \$300 the first day and \$125 per day for each consecutive day for identical multi-day events.

**Exception:** 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.

**107.12 State annual compliance inspection fees.** Fees for compliance inspections performed by the State Fire Marshal's office shall be as follows:

1. Nightclubs.
  - 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 loads exceed 300.
2. 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 that are part of private college dormitories.
  - 3.1. \$50 for 10,000 square feet or less provided the assembly area is within or attached to a 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 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 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.
5. Facilities licensed by the Virginia Department of Social Services based on licensed capacity as follows:
  - 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. \$300 for 101 to 150.
  - 5.6. \$400 for 151 to 200.
  - 5.7. \$500 for 201 or more.

**Exception:** Annual compliance inspection fees for any building or groups of buildings on the same site may not exceed \$2500.
6. Registered complaints.
  - 6.1. No charge for first visit (initial complaint), and if violations are found,
  - 6.2. \$51 per hour for each State Fire Marshal's office staff for all subsequent visits.
7. Bonfires (small and large) on state-owned property.
  - 7.1. For a small bonfire pile with a total fuel area more than 3 feet in diameter and more than 2 feet in height, but not more than 9 feet in diameter and not more than 6 feet in height, the permit fee is \$50. If an application for a bonfire permit is received by the State Fire Marshal's office less than 15 days prior to the planned event, the per-

mit fee shall be \$100. If an application for a bonfire permit is received by the State Fire Marshal's office less than 7 days prior to the planned event, the permit fee shall be \$150.

- 7.2. For a large bonfire pile with a total fuel area more than 9 feet in diameter and more than 6 feet in height, the permit fee is \$150. If an application for a bonfire permit is received by the State Fire Marshal's office less than 15 days prior to the planned event, the permit fee shall be \$300. If an application for a bonfire permit is received by the State Fire Marshal's office less than 7 days prior to the planned event, the permit fee shall be \$450.

**107.13 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.

**107.14 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.

**107.14.1 State Fire Marshal's office certification and permit fees not refundable.** No refund of any part of the amount paid as a permit or certification fee will be made where the applicant, permit or certification holder, for any reason, discontinued an activity, changed conditions, or changed circumstances for which the permit or certification was issued. However, the permit or certification fee submitted with an application will be refunded if the permit or certification is cancelled, revoked, or suspended subsequent to having been issued through administrative error, or if a permit being applied for is to be obtained from a locally appointed fire official.

## SECTION 108 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 Duration of operational permits.** 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. A prescribed period.
2. Until renewed, suspended, or revoked.

**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.

**Note:** The building official issues 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.

**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 original or electronic signature of the fire official or other designee approved by 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. Inclusion of any false statements or misrepresentations as to a 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 person or firm 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, a regulation, or this code.

### 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 310.3 of the USBC or inspecting under Section 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 Sections 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 Section 9.1-207 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 (Section 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 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 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 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.

**111.1.1 Right of appeal.** Notices of violation issued under Section 111.1 shall indicate the right of appeal by referencing the appeals section of this code.

### Exceptions:

1. Summons issued in lieu of a notice of violation in accordance with Section 111.5 of this code.
2. Documents reflecting uncorrected violations in subsequent inspections to verify compliance.

**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 Section 27-100 of the Code of Virginia.

**111.5 Summons.** When authorized and certified in accordance with Section 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 Section 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 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 (Section 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 Section 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 certified mail of this resolution. Application forms are available from the Office of the TRB, 600 East Main 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 arising from the SFMO's enforcement of the code or from any local fire code violation if no local board of appeals exists shall be made to the TRB within 14 calendar days of receipt of the decision to be appealed and shall be accompanied by copies of the 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 (Section 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 code official shall act accordingly.

## **Chapter 2**

**Select definitions on following pages.**

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## CHAPTER 2

# DEFINITIONS

### SECTION 201 GENERAL

**201.1 Scope.** Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this chapter.

**201.2 Interchangeability.** Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

**201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in the *International Building Code*, *International Fuel Gas Code*, *International Mechanical Code* or *International Plumbing Code*, such terms shall have the meanings ascribed to them as in those codes.

**201.4 Terms not defined.** Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies. *Merriam Webster's Collegiate Dictionary, 11th Edition*, shall be considered as providing ordinarily accepted meanings.

### SECTION 202 GENERAL DEFINITIONS

**[B] 24-HOUR CARE.** The actual time that a person is an occupant within a facility for the purpose of receiving care. It shall not include a facility that is open for 24 hours and is capable of providing care to someone visiting the facility during any segment of the 24 hours.

**[B] ACCESSIBLE MEANS OF EGRESS.** A continuous and unobstructed way of egress travel from any *accessible* point in a building or facility to a *public way*.

**[B] ACCESSIBLE ROUTE.** A continuous, unobstructed path that complies with Chapter 11 of the *International Building Code*.

**AEROSOL.** A product that is dispensed from an aerosol container by a propellant.

Aerosol products shall be classified by means of the calculation of their chemical heats of combustion and shall be designated Level 1, Level 2 or Level 3.

**Level 1 aerosol products.** Those with a total chemical heat of combustion that is less than or equal to 8,600 British thermal units per pound (Btu/lb) (20 kJ/g).

**Level 2 aerosol products.** Those with a total chemical heat of combustion that is greater than 8,600 Btu/lb (20 kJ/g), but less than or equal to 13,000 Btu/lb (30 kJ/g).

**Level 3 aerosol products.** Those with a total chemical heat of combustion that is greater than 13,000 Btu/lb (30 kJ/g).

**AEROSOL CONTAINER.** A metal can, or a glass or plastic bottle designed to dispense an aerosol. Metal cans shall be limited to a maximum size of 33.8 fluid ounces (1000 ml). Glass or plastic bottles shall be limited to a maximum size of 4 fluid ounces (118 ml).

**AEROSOL WAREHOUSE.** A building used for warehousing aerosol products.

**AGENCY.** Any emergency responder department within the jurisdiction that utilizes radio frequencies for communication. This could include, but not be limited to, various public safety agencies such as fire departments, emergency medical services and law enforcement.

**AGENT.** A person who shall have charge, care or control of any structure as *owner*, or agent of the *owner*, or as executor, executrix, administrator, administratrix, trustee or guardian of the estate of the *owner*. Any such person representing the actual *owner* shall be bound to comply with the provisions of this code to the same extent as if that person was the *owner*.

**[B] AGRICULTURAL BUILDING.** A structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products. This structure shall not be a place of human habitation or a place of employment where agricultural products are processed, treated or packaged, nor shall it be a place used by the public.

**[B] AIR-INFLATED STRUCTURE.** A structure that uses air-pressurized membrane beams, arches or other elements to enclose space. Occupants of such a structure do not occupy the pressurized areas used to support the structure.

**[B] AIR-SUPPORTED STRUCTURE.** A structure wherein the shape of the structure is attained by air pressure, and occupants of the structure are within the elevated pressure area. Air supported structures are of two basic types:

**Double skin.** Similar to a single skin, but with an attached liner that is separated from the outer skin and provides an airspace which serves for insulation, acoustic, aesthetic or similar purposes.

**Single skin.** Where there is only the single outer skin and the air pressure is directly against that skin.

**AIRCRAFT MOTOR-VEHICLE FUEL-DISPENSING FACILITY.** That portion of property where flammable or *combustible liquids* or gases used as motor fuels are stored and dispensed from fixed automotive-type equipment into the fuel tanks of aircraft.

**AIRCRAFT OPERATION AREA (AOA).** Any area used or intended for use for the parking, taxiing, takeoff, landing or other ground-based aircraft activity.

**AIRPORT.** An area of land or structural surface that is used, or intended for use, for the landing and taking off of aircraft with an overall length greater than 39 feet (11 887 mm) and an overall exterior fuselage width greater than 6.6 feet (2012

## DEFINITIONS

mm), and any appurtenant areas that are used or intended for use for airport buildings and other airport facilities.

[B] **AISLE.** An unenclosed *exit access* component that defines and provides a path of egress travel.

[B] **AISLE ACCESSWAY.** That portion of an *exit access* that leads to an *aisle*.

**ALARM, NUISANCE.** See "Nuisance alarm."

**ALARM DEVICE, MULTIPLE STATION.** See "Multiple Station Alarm Device."

**ALARM NOTIFICATION APPLIANCE.** A fire alarm system component such as a bell, horn, speaker, light or text display that provides audible, tactile or visible outputs, or any combination thereof. See also "Audible Alarm Notification Appliance" or "Visible Alarm Notification Appliance."

**ALARM SIGNAL.** A signal indicating an emergency requiring immediate action, such as a signal indicative of fire.

**ALARM VERIFICATION FEATURE.** A feature of automatic fire detection and alarm systems to reduce unwanted alarms wherein smoke detectors report alarm conditions for a minimum period of time, or confirm alarm conditions within a given time period, after being automatically reset, in order to be accepted as a valid alarm-initiation signal.

**ALCOHOL-BASED HAND RUB.** An alcohol-containing preparation designed for application to the hands for reducing the number of viable microorganisms on the hands and containing ethanol or isopropanol in an amount not exceeding 95-percent by volume.

**ALCOHOL-BLENDED FUELS.** Flammable liquids consisting of 10-percent or greater, by volume, ethanol or other alcohols blended with gasoline.

[A] **ALTERATION.** Any construction or renovation to an existing structure other than a repair or addition.

[B] **ALTERNATING TREAD DEVICE.** A device that has a series of steps between 50 and 70 degrees (0.87 and 1.22 rad) from horizontal, usually attached to a center support rail in an alternating manner so that the user does not have both feet on the same level at the same time.

[B] **AMBULATORY CARE FACILITY.** Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less-than-24-hour basis to persons who are rendered incapable of self-preservation by the services provided.

**AMMONIUM NITRATE.** A chemical compound represented by the formula  $\text{NH}_4\text{NO}_3$ .

**ANNUNCIATOR.** A unit containing one or more indicator lamps, alphanumeric displays or other equivalent means in which each indication provides status information about a circuit, condition or location.

[A] **APPROVED.** Acceptable to the *fire code official*.

[B] **AREA, BUILDING.** The area included within surrounding *exterior walls* (or *exterior walls* and *fire walls*) exclusive of vent shafts and *courts*. Areas of the building not provided with surrounding walls shall be included in the building area

if such areas are included within the horizontal projection of the roof or floor above.

[B] **AREA OF REFUGE.** An area where persons unable to use *stairways* can remain temporarily to await instructions or assistance during emergency evacuation.

**ARRAY.** The configuration of storage. Characteristics considered in defining an array include the type of packaging, flue spaces, height of storage and compactness of storage.

**ARRAY, CLOSED.** A storage configuration having a 6-inch (152 mm) or smaller width vertical flue space that restricts air movement through the stored commodity.

[B] **ATRIUM.** An opening connecting two or more stories other than enclosed *stairways*, elevators, hoistways, escalators, plumbing, electrical, air-conditioning or other equipment, which is closed at the top and not defined as a mall. Stories, as used in this definition, do not include balconies within assembly groups or mezzanines that comply with Section 505 of the *International Building Code*.

[B] **ATTIC.** The space between the ceiling beams of the top story and the roof rafters.

**AUDIBLE ALARM NOTIFICATION APPLIANCE.** A notification appliance that alerts by the sense of hearing.

**AUTOMATED RACK STORAGE.** Automated rack storage is a stocking method whereby the movement of pallets, products, apparatus or systems are automatically controlled by mechanical or electronic devices.

**AUTOMATIC.** As applied to fire protection devices, a device or system providing an emergency function without the necessity for human intervention and activated as a result of a predetermined temperature rise, rate of temperature rise or combustion products.

**AUTOMATIC FIRE-EXTINGUISHING SYSTEM.** An approved system of devices and equipment that automatically detects a fire and discharges an approved fire-extinguishing agent onto or in the area of a fire. Such system shall include an automatic sprinkler system, unless otherwise expressly stated.

**AUTOMATIC SMOKE DETECTION SYSTEM.** A fire alarm system that has initiation devices that utilize smoke detectors for protection of an area such as a room or space with detectors to provide early warning of fire.

**AUTOMATIC SPRINKLER SYSTEM.** An *automatic sprinkler system*, for fire protection purposes, is an integrated system of underground and overhead piping designed in accordance with fire protection engineering standards. The system includes a suitable water supply. The portion of the system above the ground is a network of specially sized or hydraulically designed piping installed in a structure or area, generally overhead, and to which automatic sprinklers are connected in a systematic pattern. The system is usually activated by heat from a fire and discharges water over the fire area.

**AUTOMOTIVE MOTOR FUEL-DISPENSING FACILITY.** That portion of property where flammable or *combustible liquids* or gases used as motor fuels are stored and

dispensed from fixed equipment into the fuel tanks of motor vehicles.

**AVERAGE AMBIENT SOUND LEVEL.** The root mean square, A-weighted sound pressure level measured over a 24-hour period, or the time any person is present, whichever time period is less.

**[B] AWNING.** An architectural projection that provides weather protection, identity or decoration and is partially or wholly supported by the building to which it is attached. An awning is comprised of a lightweight frame structure over which a covering is attached.

**BACKGROUND CLEARANCE CARD OR BCC.** An identification card issued to an individual who 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 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 a permit to manufacture, use, handle, store, or sell explosive materials; or on an application for a permit to design, setup, and conduct a fireworks display.

**BALED COTTON.** See "Cotton."

**BALED COTTON, DENSELY PACKED.** See "Cotton."

**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 with 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.

**[B] BASEMENT.** A story that is not a story above grade plane.

**BATTERY SYSTEM, STATIONARY LEAD ACID.** A system which consists of three interconnected subsystems:

1. A lead-acid battery.
2. A battery charger.
3. A collection of rectifiers, inverters, converters and associated electrical equipment as required for a particular application.

## BATTERY TYPES.

**Lithium-ion battery.** A storage battery that consists of lithium ions embedded in a carbon graphite or nickel metal-oxide substrate. The electrolyte is a carbonate mixture or a gelled polymer. The lithium ions are the charge carriers of the battery.

**Lithium metal polymer battery.** A storage battery that is comprised of nonaqueous liquid or polymerized electrolytes, which provide ionic conductivity between lithiated positive active material electrically separated from metallic lithium or lithiated negative active material.

**Nickel cadmium (Ni-Cd) battery.** An alkaline storage battery in which the positive active material is nickel oxide, the negative contains cadmium and the electrolyte is potassium hydroxide.

**Nonrecombinant battery.** A storage battery in which, under conditions of normal use, hydrogen and oxygen gases created by electrolysis are vented into the air outside of the battery.

**Recombinant battery.** A storage battery in which, under conditions of normal use, hydrogen and oxygen gases created by electrolysis are converted back into water inside the battery instead of venting into the air outside of the battery.

**Stationary storage battery.** A group of electrochemical cells interconnected to supply a nominal voltage of DC power to a suitably connected electrical load, designed for service in a permanent location. The number of cells connected in a series determines the nominal voltage rating of the battery. The size of the cells determines the discharge capacity of the entire battery. After discharge, it may be restored to a fully charged condition by an electric current flowing in a direction opposite to the flow of current when the battery is discharged.

**Valve-regulated lead-acid (VRLA) battery.** A lead-acid battery consisting of sealed cells furnished with a valve that opens to vent the battery whenever the internal pressure of the battery exceeds the ambient pressure by a set amount. In VRLA batteries, the liquid electrolyte in the cells is immobilized in an absorptive glass mat (AGM cells or batteries) or by the addition of a gelling agent (gel cells or gelled batteries).

**Vented (flooded) lead-acid battery.** A lead-acid battery consisting of cells that have electrodes immersed in liquid electrolyte. Flooded lead-acid batteries have a provision for the user to add water to the cell and are equipped with a flame-arresting vent which permits the escape of hydrogen and oxygen gas from the cell in a diffused manner such that a spark, or other ignition source, outside the cell will not ignite the gases inside the cell.

**BIN BOX.** A five-sided container with the open side facing an aisle. Bin boxes are self-supporting or supported by a structure designed so that little or no horizontal or vertical space exists around the boxes.

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

## DEFINITIONS

**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.** A person qualified in accordance with Section 3301.4 to be in charge of and responsible for the loading and firing of a blast.

**BLASTER, RESTRICTED.** Any person engaging in the use of explosives or blasting agents utilizing 5 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 the 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.

**[B] BLEACHERS.** Tiered seating supported on a dedicated structural system and two or more rows high and is not a building element (see "Grandstands").

**[B] BOARDING HOUSE.** A building arranged or used for lodging for compensation, with or without meals, and not occupied as a single-family unit.

**BOILING POINT.** The temperature at which the vapor pressure of a liquid equals the atmospheric pressure of 14.7 pounds per square inch absolute (psia) (101 kPa) or 760 mm of mercury. Where an accurate boiling point is unavailable for the material in question, or for mixtures which do not have a constant boiling point, for the purposes of this classification, the 20-percent evaporated point of a distillation performed in accordance with ASTM D 86 shall be used as the boiling point of the liquid.

**BONFIRE.** An outdoor fire utilized for ceremonial purposes.

**BRITISH THERMAL UNIT (BTU).** The heat necessary to raise the temperature of 1 pound (0.454 kg) of water by 1°F (0.5565°C).

**[A] BUILDING.** Any structure used or intended for supporting or sheltering any use or occupancy.

**[B] BUILDING AREA.** See "Area, Building."

**[B] BUILDING HEIGHT.** See "Height, Building."

**[A] BUILDING OFFICIAL.** The officer or other designated authority charged with the administration and enforcement of the *International Building Code*, or a duly authorized representative.

**BULK OXYGEN SYSTEM.** An assembly of equipment, such as oxygen storage containers, pressure regulators, safety devices, vaporizers, manifolds and interconnecting piping,

that has a storage capacity of more than 20,000 cubic feet (566 m<sup>3</sup>) of oxygen at *normal temperature and pressure (NTP)* including unconnected reserves on hand at the site. The bulk oxygen system terminates at the point where oxygen at service pressure first enters the supply line. The oxygen containers can be stationary or movable, and the oxygen can be stored as a gas or liquid.

**BULK PLANT OR TERMINAL.** That portion of a property where flammable or *combustible liquids* are received by tank vessel, pipelines, tank car or tank vehicle and are stored or blended in bulk for the purpose of distributing such liquids by tank vessel, pipeline, tank car, tank vehicle, portable tank or container.

**BULK TRANSFER.** The loading or unloading of flammable or *combustible liquids* from or between tank vehicles, tank cars or storage tanks.

**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.

**CANOPY.** A structure or architectural projection of rigid construction over which a covering is attached that provides weather protection, identity or decoration, and may be structurally independent or supported by attachment to a building on one end and by not less than one stanchion on the outer end.

**CARBON DIOXIDE EXTINGUISHING SYSTEM.** A system supplying carbon dioxide (CO<sub>2</sub>) from a pressurized vessel through fixed pipes and nozzles. The system includes a manual- or automatic-actuating mechanism.

**[B] CARE SUITE.** A group of treatment rooms, care recipient sleeping rooms and their associated support rooms or spaces and circulation space within Group I-2 occupancies where staff are in attendance for supervision of all care recipients within the suite, and the suite is in compliance with the requirements of Section 1407.4.3 of the *International Building Code*.

**CARTON.** A cardboard or fiberboard box enclosing a product.

**CEILING LIMIT.** The maximum concentration of an airborne contaminant to which one may be exposed. The ceiling limits utilized are those published in DOL 29 CFR Part 1910.1000. The ceiling Recommended Exposure Limit (REL-C) concentrations published by the U.S. National Institute for Occupational Safety and Health (NIOSH), Threshold Limit Value-Ceiling (TLV-C) concentrations published by the American Conference of Governmental Industrial Hygienists (ACGIH), Ceiling Workplace Environmental Exposure Level (WEEL-Ceiling) Guides published by the American Industrial Hygiene Association (AIHA), and other *approved*, consistent measures are allowed as surrogates for hazardous substances not listed in DOL 29 CFR Part 1910.1000.

**[EB] CHANGE OF OCCUPANCY.** A change in the purpose or level of activity within a building that involves a change in application of the requirements of this code.

**DECORATIVE MATERIALS.** All materials applied over the building interior finish for decorative, acoustical or other effect (such as curtains, draperies, fabrics, streamers and surface coverings) and all other materials utilized for decorative effect (such as batting, cloth, cotton, hay, stalks, straw, vines, leaves, trees, moss and similar items), including foam plastics and materials containing foam plastics. Decorative materials do not include floor coverings, ordinary window shades, interior finish and materials 0.025 inch (0.64 mm) or less in thickness applied directly to and adhering tightly to a substrate.

**DEFLAGRATION.** An exothermic reaction, such as the extremely rapid oxidation of a flammable dust or vapor in air, in which the reaction progresses through the unburned material at a rate less than the velocity of sound. A deflagration can have an explosive effect.

**DELUGE SYSTEM.** A sprinkler system employing open sprinklers attached to a piping system connected to a water supply through a valve that is opened by the operation of a detection system installed in the same area as the sprinklers. When this valve opens, water flows into the piping system and discharges from all sprinklers attached thereto.

**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.

**DESIGN PRESSURE.** The maximum gauge pressure that a pressure vessel, device, component or system is designed to withstand safely under the temperature and conditions of use expected.

**DESIGNATED INDIVIDUAL.** A person who is in possession of a BCC issued by the SFMO, certified by the SFMO as a pyrotechnician, or a restricted or unrestricted blaster, any of whom are responsible for ensuring compliance with state law and regulations relating to blasting agents and explosives and applying for explosives or firework permits; is at least 21 years of age; and demonstrates the capability to effectively communicate safety messages verbally and in writing in the English language.

**DETACHED BUILDING.** A separate single-story building, without a *basement* or crawl space, used for the storage or use of hazardous materials and located an *approved* distance from all structures.

**DETEARING.** A process for rapidly removing excess wet coating material from a dipped or coated object or material by passing it through an electrostatic field.

**DETECTOR, HEAT.** A fire detector that senses heat, either abnormally high temperature or rate of rise, or both.

**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 1½ pounds (0.68 kg) of explosives per 1,000 caps. For strengths higher than No. 8 cap, consult the manufacturer.

**[B] DETOXIFICATION FACILITIES.** Facilities that provide treatment for substance abuse serving care recipients who are incapable of self-preservation or who are harmful to themselves or others.

**DHCD.** The Virginia Department of Housing and Community Development.

**DIP TANK.** A tank, vat or container of flammable or combustible liquid in which articles or materials are immersed for the purpose of coating, finishing, treating and similar processes.

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

**DISPENSING.** The pouring or transferring of any material from a container, tank or similar vessel, whereby vapors, dusts, fumes, mists or gases are liberated to the atmosphere.

**DISPENSING DEVICE, OVERHEAD TYPE.** A dispensing device that consists of one or more individual units intended for installation in conjunction with each other, mounted above a dispensing area typically within the motor fuel-dispensing facility canopy structure, and characterized by the use of an overhead hose reel.

**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.

**[B] DOOR, BALANCED.** A door equipped with double-pivoted hardware so designed as to cause a semicounter balanced swing action when opening.

**[B] DORMITORY.** A space in a building where group sleeping accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories or fraternity houses.

**DRAFT CURTAIN.** A structure arranged to limit the spread of smoke and heat along the underside of the ceiling or roof.

**[B] DRAFTSTOP.** A material, device or construction installed to restrict the movement of air within open spaces of concealed areas of building components such as crawl spaces, floor/ceiling assemblies, roof/ceiling assemblies and attics.

**DRY-CHEMICAL EXTINGUISHING AGENT.** A powder composed of small particles, usually of sodium bicarbonate, potassium bicarbonate, urea-potassium-based bicarbon-

**[B] EXIT DISCHARGE.** That portion of a *means of egress* system between the termination of an *exit* and a *public way*.

**[B] EXIT DISCHARGE, LEVEL OF.** The *story* at the point at which an *exit* terminates and an *exit discharge* begins.

**[B] EXIT, HORIZONTAL.** A path of egress travel from one building to an area in another building on approximately the same level, or a path of egress travel through or around a wall or partition to an area on approximately the same level in the same building, which affords safety from fire and smoke from the area of incidence and areas communicating therewith.

**[B] EXIT PASSAGEWAY.** An *exit* component that is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives, and provides for a protected path of egress travel in a horizontal direction to the *exit discharge*.

**EXPANDED PLASTIC.** A foam or cellular plastic material having a reduced density based on the presence of numerous small cavities or cells dispersed throughout the material.

**EXPLOSION.** An effect produced by the sudden violent expansion of gases, which may be accompanied by a shock wave or disruption, or both, of enclosing materials or structures. An explosion could result from any of the following:

1. Chemical changes such as rapid oxidation, *deflagration* or *detonation*, decomposition of molecules and runaway polymerization (usually *detonations*).
2. Physical changes such as pressure tank ruptures.
3. Atomic changes (nuclear fission or fusion).

**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.

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 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 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.

**[B] EXTERIOR WALL.** A wall, bearing or nonbearing, that is used as an enclosing wall for a building, other than a *fire wall*, and that has a slope of 60 degrees (1.05 rad) or greater with the horizontal plane.

**EXTRA-HIGH-RACK COMBUSTIBLE STORAGE.** Storage on racks of Class I, II, III or IV commodities which exceed 40 feet (12 192 mm) in height and storage on racks of high-hazard commodities which exceed 30 feet (9144 mm) in height.

**FABRICATION AREA.** An area within a semiconductor fabrication facility and related research and development

## DEFINITIONS

areas in which there are processes using hazardous production materials. Such areas are allowed to include ancillary rooms or areas such as dressing rooms and offices that are directly related to the fabrication area processes.

**FACILITY.** A building or use in a fixed location including exterior storage areas for flammable and combustible substances and hazardous materials, piers, wharves, tank farms and similar uses. This term includes recreational vehicles, mobile home and manufactured housing parks, sales and storage lots.

**FAIL-SAFE.** A design condition incorporating a feature for automatically counteracting the effect of an anticipated possible source of failure; also, a design condition eliminating or mitigating a hazardous condition by compensating automatically for a failure or malfunction.

**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 of mortar placement.

**FALSE ALARM.** The willful and knowing initiation or transmission of a signal, message or other notification of an event of fire when no such danger exists.

**FINES.** Small pieces or splinters of wood byproducts that will pass through a 0.25-inch (6.4 mm) screen.

**FIRE ALARM.** The giving, signaling or transmission to any public fire station, or company or to any officer or employee thereof, whether by telephone, spoken word or otherwise, of information to the effect that there is a fire at or near the place indicated by the person giving, signaling or transmitting such information.

**FIRE ALARM BOX, MANUAL.** See "Manual fire alarm box."

**FIRE ALARM CONTROL UNIT.** A system component that receives inputs from automatic and manual fire alarm devices and may be capable of supplying power to detection devices and transponder(s) or off-premises transmitter(s). The control unit may be capable of providing a transfer of power to the notification appliances and transfer of condition to relays or devices.

**FIRE ALARM SIGNAL.** A signal initiated by a fire alarm-initiating device such as a manual fire alarm box, automatic fire detector, waterflow switch or other device whose activation is indicative of the presence of a fire or fire signature.

**FIRE ALARM SYSTEM.** A system or portion of a combination system consisting of components and circuits arranged to monitor and annunciate the status of fire alarm or supervisory signal-initiating devices and to initiate the appropriate response to those signals.

**FIRE APPARATUS ACCESS ROAD.** A road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as *fire lane*, public street, private street, parking lot lane and access roadway.

**[B] FIRE AREA.** The aggregate floor area enclosed and bounded by *fire walls*, *fire barriers*, *exterior walls* or *horizontal assemblies* of a building. Areas of the building not provided with surrounding walls shall be included in the fire area if such areas are included within the horizontal projection of the roof or floor next above.

**[B] FIRE BARRIER.** A fire-resistance-rated wall assembly of materials designed to restrict the spread of fire in which continuity is maintained.

**FIRE CHIEF.** The chief officer of the fire department serving the jurisdiction, or a duly authorized representative.

**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" shall have the same meaning as the term "fire code official" and, in addition, such official shall have the powers outlined in Section 27-98.1 of the Code of Virginia.

**FIRE COMMAND CENTER.** The principal attended or unattended location where the status of detection, alarm communications and control systems is displayed, and from which the system(s) can be manually controlled.

**[B] FIRE DAMPER.** A *listed* device installed in ducts and air transfer openings designed to close automatically upon detection of heat and resist the passage of flame. Fire dampers are classified for use in either static systems that will automatically shut down in the event of a fire, or in dynamic systems that continue to operate during a fire. A dynamic fire damper is tested and rated for closure under elevated temperature airflow.

**FIRE DEPARTMENT MASTER KEY.** A limited issue key of special or controlled design to be carried by fire department officials in command which will open key boxes on specified properties.

**FIRE DETECTOR, AUTOMATIC.** A device designed to detect the presence of a fire signature and to initiate action.

**[B] FIRE DOOR.** The door component of a fire door assembly.

**[B] FIRE DOOR ASSEMBLY.** Any combination of a fire door, frame, hardware and other accessories that together provide a specific degree of fire protection to the opening.

**[B] FIRE EXIT HARDWARE.** Panic hardware that is *listed* for use on *fire door assemblies*.

**FIRE LANE.** A road or other passageway developed to allow the passage of fire apparatus. A fire lane is not necessarily intended for vehicular traffic other than fire apparatus.

**[B] FIRE PARTITION.** A vertical assembly of materials designed to restrict the spread of fire in which openings are protected.

**FIRE POINT.** The lowest temperature at which a liquid will ignite and achieve sustained burning when exposed to a test flame in accordance with ASTM D 92.

**[B] FIRE PROTECTION RATING.** The period of time that an opening protective assembly will maintain the ability to confine a fire as determined by tests prescribed in Section

716 of the *International Building Code*. Ratings are stated in hours or minutes.

**FIRE PROTECTION SYSTEM.** *Approved* devices, equipment and systems or combinations of systems used to detect a fire, activate an alarm, extinguish or control a fire, control or manage smoke and products of a fire or any combination thereof.

**[B] FIRE RESISTANCE.** That property of materials or their assemblies that prevents or retards the passage of excessive heat, hot gases or flames under conditions of use.

**[B] FIRE-RESISTANCE RATING.** The period of time a building element, component or assembly maintains the ability to confine a fire, continues to perform a given structural function, or both, as determined by the tests, or the methods based on tests, prescribed in Section 703 of the *International Building Code*.

**[B] FIRE-RESISTANT JOINT SYSTEM.** An assemblage of specific materials or products that are designed, tested and fire-resistance rated in accordance with either ASTM E 1966 or UL 2079 to resist for a prescribed period of time the passage of fire through joints made in or between fire-resistance-rated assemblies.

**FIRE SAFETY FUNCTIONS.** Building and fire control functions that are intended to increase the level of life safety for occupants or to control the spread of the harmful effects of fire.

**[B] FIRE SEPARATION DISTANCE.** The distance measured from the building face to one of the following:

1. The closest interior *lot line*;
2. To the centerline of a street, an alley or *public way*; or
3. To an imaginary line between two buildings on the property.

The distance shall be measured at right angles from the face of the wall.

**[B] FIRE WALL.** A fire-resistance-rated wall having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof, with sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall.

**FIRE WATCH.** A temporary measure intended to ensure continuous and systematic surveillance of a building or portion thereof by one or more qualified individuals for the purposes of identifying and controlling fire hazards, detecting early signs of unwanted fire, raising an alarm of fire and notifying the fire department.

**[B] FIREBLOCKING.** Building materials, or materials *approved* for use as fireblocking, installed to resist the free passage of flame to other areas of the building through concealed spaces.

**FIREWORKS.** Any firecracker, torpedo, skyrocket, or other substance or object, of whatever form or construction, that contains any explosive or inflammable compound or sub-

stance, and is intended, or commonly known, as fireworks and that 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 the 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 that comply with the construction, chemical composition, and labeling regulations of the DOTn for Fireworks, UN0336, 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 the 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 that 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.

**[B] FIXED BASE OPERATOR (FBO).** A commercial business granted the right by the airport sponsor to operate on an airport and provide aeronautical services such as fueling, hangaring, tie-down and parking, aircraft rental, aircraft maintenance and flight instruction.

**[B] FIXED SEATING.** Furniture or fixtures designed and installed for the use of sitting and secured in place including bench-type seats and seats with or without back or arm rests.

**[B] FLAME SPREAD.** The propagation of flame over a surface.

**[B] FLAME SPREAD INDEX.** A comparative measure, expressed as a dimensionless number, derived from visual measurements of the spread of flame versus time for a material tested in accordance with ASTM E 84 or UL 723.

**FLAMMABLE CRYOGENIC FLUID.** A *cryogenic fluid* that is flammable in its vapor state.

**FLAMMABLE FINISHES.** Coatings to articles or materials in which the material being applied is a flammable liquid, combustible liquid, combustible powder, fiberglass resin or flammable or combustible gel coating.

**FLAMMABLE GAS.** A material which is a gas at 68°F (20°C) or less at 14.7 pounds per square inch atmosphere

**[B] FOSTER CARE FACILITIES.** Facilities that provide care to more than five children, 2½ years of age or less.

**FUEL LIMIT SWITCH.** A mechanism, located on a tank vehicle, that limits the quantity of product dispensed at one time.

**FUMIGANT.** A substance which by itself or in combination with any other substance emits or liberates a gas, fume or vapor utilized for the destruction or control of insects, fungi, vermin, germs, rats or other pests, and shall be distinguished from insecticides and disinfectants which are essentially effective in the solid or liquid phases. Examples are methyl bromide, ethylene dibromide, hydrogen cyanide, carbon disulfide and sulfuryl fluoride.

**FUMIGATION.** The utilization within an enclosed space of a fumigant in concentrations that are hazardous or acutely toxic to humans.

**FURNACE CLASS A.** An oven or furnace that has heat utilization equipment operating at approximately atmospheric pressure wherein there is a potential explosion or fire hazard that could be occasioned by the presence of flammable volatiles or combustible materials processed or heated in the furnace.

**Note:** Such flammable volatiles or combustible materials can, for instance, originate from the following:

1. Paints, powders, inks, and adhesives from finishing processes, such as dipped, coated, sprayed and impregnated materials.
2. The substrate material.
3. Wood, paper and plastic pallets, spacers or packaging materials.
4. Polymerization or other molecular rearrangements.

Potentially flammable materials, such as quench oil, water-borne finishes, cooling oil or cooking oils, that present a hazard are ventilated according to Class A standards.

**FURNACE CLASS B.** An oven or furnace that has heat utilization equipment operating at approximately atmospheric pressure wherein there are no flammable volatiles or combustible materials being heated.

**FURNACE CLASS C.** An oven or furnace that has a potential hazard due to a flammable or other special atmosphere being used for treatment of material in process. This type of furnace can use any type of heating system and includes a special atmosphere supply system. Also included in the Class C classification are integral quench furnaces and molten salt bath furnaces.

**FURNACE CLASS D.** An oven or furnace that operates at temperatures from above ambient to over 5,000°F (2760°C) and at pressures normally below atmospheric using any type of heating system. These furnaces can include the use of special processing atmospheres.

**GAS CABINET.** A fully enclosed, ventilated, noncombustible enclosure used to provide an isolated environment for *compressed gas* cylinders in storage or use. Doors and access ports for exchanging cylinders and accessing pressure-regulating controls are allowed to be included.

**GAS DETECTION SYSTEM, CONTINUOUS.** See “Continuous gas detection system.”

**GAS ROOM.** A separately ventilated, fully enclosed room in which only *compressed gases* and associated equipment and supplies are stored or used.

**[B] GRADE FLOOR OPENING.** A window or other opening located such that the sill height of the opening is not more than 44 inches (1118 mm) above or below the finished ground level adjacent to the opening.

**[B] GRADE PLANE.** A reference plane representing the average of finished ground level adjoining the building at exterior walls. Where the finished ground level slopes away from the exterior walls, the reference plane shall be established by the lowest points within the area between the building and the *lot line* or, where the *lot line* is more than 6 feet (1829 mm) from the building, between the building and a point 6 feet (1829 mm) from the building.

**[B] GRANDSTAND.** Tiered seating supported on a dedicated structural system and two or more rows high and is not a building element (see “*Bleachers*”).

**[B] GROUP HOME.** A facility for social rehabilitation, substance abuse or mental health problems containing a group housing arrangement that provides custodial care but does not provide acute care.

**[B] GUARD.** A building component or a system of building components located at or near the open sides of elevated walking surfaces that minimizes the possibility of a fall from the walking surface to a lower level.

**[B] GYPSUM BOARD.** Gypsum wallboard, gypsum sheathing, gypsum base for gypsum veneer plaster, exterior gypsum soffit board, predecorated gypsum board or water-resistant gypsum backing board complying with the standards listed in Tables 2506.2 and 2507.2 and Chapter 35 of the *International Building Code*.

**[B] HABITABLE SPACE.** A space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces.

**HALOGENATED EXTINGUISHING SYSTEM.** A fire-extinguishing system using one or more atoms of an element from the halogen chemical series: fluorine, chlorine, bromine and iodine.

**HANDLING.** The deliberate transport by any means to a point of storage or use.

**[B] HANDRAIL.** A horizontal or sloping rail intended for grasping by the hand for guidance or support.

**HAZARDOUS MATERIALS.** Those chemicals or substances which are *physical hazards* or *health hazards* as defined and classified in this chapter, whether the materials are in usable or waste condition.

**HAZARDOUS PRODUCTION MATERIAL (HPM).** A solid, liquid or gas associated with semiconductor manufacturing that has a degree-of-hazard rating in health, flammability or instability of Class 3 or 4 as ranked by NFPA 704 and which is used directly in research, laboratory or production

**HPM FLAMMABLE LIQUID.** An HPM liquid that is defined as either a Class I flammable liquid or a Class II or Class IIIA *combustible liquid*.

**HPM ROOM.** A room used in conjunction with or serving a Group H-5 occupancy, where HPM is stored or used and which is classified as a Group H-2, H-3 or H-4 occupancy.

**IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH).** The concentration of air-borne contaminants that poses a threat of death, immediate or delayed permanent adverse health effects, or effects that could prevent escape from such an environment. This contaminant concentration level is established by the National Institute of Occupational Safety and Health (NIOSH) based on both toxicity and flammability. It generally is expressed in parts per million by volume (ppm v/v) or milligrams per cubic meter ( $\text{mg}/\text{m}^3$ ). Where adequate data do not exist for precise establishment of IDLH concentrations, an independent certified industrial hygienist, industrial toxicologist, appropriate regulatory agency or other source *approved* by the *fire code official* shall make such determination.

**IMPAIRMENT COORDINATOR.** The person responsible for the maintenance of a particular *fire protection system*.

**[B] INCAPABLE OF SELF-PRESERVATION.** Persons because of age, physical limitations, mental limitations, chemical dependency, or medical treatment who cannot respond as an individual to an emergency situation.

**INCOMPATIBLE MATERIALS.** Materials that, when mixed, have the potential to react in a manner which generates heat, fumes, gases or byproducts which are hazardous to life or property.

**INERT GAS.** A gas that is capable of reacting with other materials only under abnormal conditions such as high temperatures, pressures and similar extrinsic physical forces. Within the context of the code, inert gases do not exhibit either physical or *health hazard* properties as defined (other than acting as a simple asphyxiant) or hazard properties other than those of a *compressed gas*. Some of the more common inert gases include argon, helium, krypton, neon, nitrogen and xenon.

**INHABITED BUILDING.** A building regularly occupied in whole or in part as a habitation for people, or any place of religious worship, 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*.

**INITIATING DEVICE.** A system component that originates transmission of a change-of-state condition, such as in a smoke detector, manual fire alarm box, or supervisory switch.

**INSECTICIDAL FOGGING.** The utilization of insecticidal liquids passed through fog-generating units where, by means of pressure and turbulence, with or without the application of heat, such liquids are transformed and discharged in the form of fog or mist blown into an area to be treated.

**[B] INTERIOR EXIT RAMP.** An exit component that serves to meet one or more means of egress design requirements, such as required number of exits or exit access travel

distance, and provides for a protected path of egress travel to the exit discharge or public way.

**[B] INTERIOR EXIT STAIRWAY.** An exit component that serves to meet one or more means of egress design requirements, such as required number of exits or exit access travel distance, and provides for a protected path of egress travel to the exit discharge or public way.

**[B] INTERIOR FINISH.** Interior finish includes interior wall and ceiling finish and interior floor finish.

**[B] INTERIOR FLOOR-WALL BASE.** Interior floor finish trim used to provide a functional or decorative border at the intersection of walls and floors.

**[B] INTERIOR WALL AND CEILING FINISH.** The exposed interior surfaces of buildings, including but not limited to: fixed or movable walls and partitions; toilet room privacy partitions; columns; ceilings; and interior wainscoting, paneling or other finish applied structurally or for decoration, acoustical correction, surface insulation, structural *fire resistance* or similar purposes, but not including trim.

**IRRITANT.** A chemical which is not *corrosive*, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of CPSC 16 CFR Part 1500.41 for an exposure of four or more hours or by other appropriate techniques, it results in an empirical score of 5 or more. A chemical is classified as an eye irritant if so determined under the procedure listed in CPSC 16 CFR Part 1500.42 or other *approved* techniques.

**[A] JURISDICTION.** The governmental unit that has adopted this code under due legislative authority.

**KEY BOX.** A secure device with a lock operable only by a fire department master key, and containing building entry keys and other keys that may be required for access in an emergency.

**[A] LABELED.** Equipment, materials or products to which have been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items and whose labeling indicates either that the equipment, material or product meets identified standards or has been tested and found suitable for a specified purpose.

**[B] LEVEL OF EXIT DISCHARGE.** See "Exit Discharge, Level of."

**LIMITED SPRAYING SPACE.** An area in which operations for touch-up or spot painting of a surface area of 9 square feet ( $0.84 \text{ m}^2$ ) or less are conducted.

**LIQUEFIED NATURAL GAS (LNG).** A fluid in the liquid state composed predominantly of methane and which may contain minor quantities of ethane, propane, nitrogen or other components normally found in natural gas.

**LIQUEFIED PETROLEUM GAS (LP-gas).** A material which is composed predominantly of the following hydrocar-

## DEFINITIONS

bons or mixtures of them: propane, propylene, butane (normal butane or isobutane) and butylenes.

**LIQUID.** A material having a melting point that is equal to or less than 68°F (20°C) and a *boiling point* which is greater than 68°F (20°C) at 14.7 pounds per square inch absolute (psia) (101 kPa). When not otherwise identified, the term "liquid" includes both flammable and *combustible liquids*.

**LIQUID OXYGEN AMBULATORY CONTAINER.** A container used for liquid oxygen not exceeding 0.396 gallons (1.5 liters) specifically designed for use as a medical device as defined by 21 USC Chapter 9 that is intended for portable therapeutic use and to be filled from its companion base unit (a liquid oxygen home care container).

**LIQUID OXYGEN HOME CARE CONTAINER.** A container used for liquid oxygen not exceeding 15.8 gallons (60 liters) specifically designed for use as a medical device as defined by 21 USC Chapter 9 that is intended to deliver gaseous oxygen for therapeutic use in a home environment.

**LIQUID STORAGE ROOM.** A room classified as a Group H-3 occupancy used for the storage of flammable or *combustible liquids* in a closed condition.

**LIQUID STORAGE WAREHOUSE.** A building classified as a Group H-2 or H-3 occupancy used for the storage of flammable or *combustible liquids* in a closed condition.

**[A] LISTED.** Equipment, materials, products or services included in a list published by an organization acceptable to the *fire code official* and concerned with evaluation of products or services that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services and whose listing states either that the equipment, material, product or service meets identified standards or has been tested and found suitable for a specified purpose.

**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.

**LOCKDOWN.** An emergency situation, in other than a Group I-3 occupancy, requiring that the occupants be sheltered and secured in place within a building when normal evacuation would put occupants at risk.

**LONGITUDINAL FLUE SPACE.** See "Flue Space—Longitudinal."

**[A] LOT.** A portion or parcel of land considered as a unit.

**[A] LOT LINE.** A line dividing one lot from another, or from a street or any public place.

**LOW-PRESSURE TANK.** A storage tank designed to withstand an internal pressure greater than 0.5 pounds per square inch gauge (psig) (3.4 kPa) but not greater than 15 psig (103.4 kPa).

**LOWER EXPLOSIVE LIMIT (LEL).** See "Lower flammable limit."

**LOWER FLAMMABLE LIMIT (LFL).** The minimum concentration of vapor in air at which propagation of flame

will occur in the presence of an ignition source. The LFL is sometimes referred to as LEL or lower explosive limit.

**LP-GAS CONTAINER.** Any vessel, including cylinders, tanks, portable tanks and cargo tanks, used for transporting or storing LP-gases.

**MAGAZINE.** A building, structure or container, other than an operating 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 semitrailer, 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, semitrailer 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, semitrailer, 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.

**MAGNESIUM.** The pure metal and alloys, of which the major part is magnesium.

**[B] MALL.** See "Covered mall building."

**MANUAL FIRE ALARM BOX.** A manually operated device used to initiate an alarm signal.

**MANUAL STOCKING METHODS.** Stocking methods utilizing ladders or other nonmechanical equipment to move stock.

**MARINA.** Any portion of the ocean or inland water, either naturally or artificially protected, for the mooring, servicing or safety of vessels and shall include artificially protected works, the public or private lands ashore, and structures or facilities provided within the enclosed body of water and ashore for the mooring or servicing of vessels or the servicing of their crews or passengers.

**MARINE MOTOR FUEL-DISPENSING FACILITY.** That portion of property where flammable or *combustible liq-*

*uids* or gases used as fuel for watercraft are stored and dispensed from fixed equipment on shore, piers, wharves, floats or barges into the fuel tanks of watercraft and shall include all other facilities used in connection therewith.

**MATERIAL SAFETY DATA SHEET (MSDS).** Information concerning a hazardous material which is prepared in accordance with the provisions of DOL 29 CFR Part 1910.1200 or in accordance with the provisions of a federally approved state OSHA plan.

**MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA.** The maximum amount of a hazardous material allowed to be stored or used within a *control area* inside a building or an outdoor *control area*. The maximum allowable quantity per control area is based on the material state (solid, liquid or gas) and the material storage or use conditions.

**[B] MEANS OF EGRESS.** A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a *public way*. A means of egress consists of three separate and distinct parts: the *exit access*, the *exit* and the *exit discharge*.

**MECHANICAL STOCKING METHODS.** Stocking methods utilizing motorized vehicles or hydraulic jacks to move stock.

**[B] MEDICAL CARE.** Care involving medical or surgical procedures, nursing or for psychiatric purposes.

**MEMBRANE STRUCTURE.** An air-inflated, air-supported, cable or frame-covered structure as defined by the *International Building Code* and not otherwise defined as a tent. See Chapter 31 of the *International Building Code*.

**[B] MERCHANDISE PAD.** A merchandise pad is an area for display of merchandise surrounded by *aisles*, permanent fixtures or walls. Merchandise pads contain elements such as nonfixed and moveable fixtures, cases, racks, counters and partitions as indicated in Section 105.2 of the *International Building Code* from which customers browse or shop.

**METAL HYDRIDE.** A generic name for compounds composed of metallic element(s) and hydrogen.

**METAL HYDRIDE STORAGE SYSTEM.** A *closed system* consisting of a group of components assembled as a package to contain metal-hydrogen compounds for which there exists an equilibrium condition where the hydrogen-absorbing metal alloy(s), hydrogen gas and the metal-hydrogen compound(s) coexist and where only hydrogen gas is released from the system in normal use.

**[B] MEZZANINE.** An intermediate level or levels between the floor and ceiling of any story and in accordance with Section 505 of the *International Building Code*.

**MOBILE FUELING.** The operation of dispensing liquid fuels from tank vehicles into the fuel tanks of motor vehicles. Mobile fueling may also be known by the terms "Mobile fleet fueling," "Wet fueling" and "Wet hosing."

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

**MULTIPLE-STATION ALARM DEVICE.** Two or more single-station alarm devices that can be interconnected such that actuation of one causes all integral or separate audible

alarms to operate. It also can consist of one single-station alarm device having connections to other detectors or to a manual fire alarm box.

**MULTIPLE-STATION SMOKE ALARM.** Two or more single-station alarm devices that are capable of interconnection such that actuation of one causes the appropriate alarm signal to operate in all interconnected alarms.

**NESTING.** A method of securing flat-bottomed *compressed gas* cylinders upright in a tight mass using a contiguous three-point contact system whereby all cylinders within a group have a minimum of three points of contact with other cylinders, walls or bracing.

**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.

**NIGHT CLUB.** Any building or portion thereof in which the main use is a place of public assembly that provides exhibition, performance or other forms or entertainment; serves alcoholic beverages; and provides music and space for dancing.

**NORMAL TEMPERATURE AND PRESSURE (NTP).** A temperature of 70°F (21°C) and a pressure of 1 atmosphere [14.7 psia (101 kPa)].

**[B] NOSING.** The leading edge of treads of *stairs* and of landings at the top of *stairway flights*.

**NOTIFICATION ZONE.** See "Zone, notification."

**NUISANCE ALARM.** An alarm caused by mechanical failure, malfunction, improper installation or lack of proper maintenance, or an alarm activated by a cause that cannot be determined.

**[B] NURSING HOMES.** Facilities that provide care, including both intermediate care facilities and skilled nursing facilities, where any of the persons are incapable of self-preservation.

**OCCUPANCY CLASSIFICATION.** For the purposes of this code, certain occupancies are defined as follows:

**[B] Assembly Group A.** Assembly Group A occupancy includes, among others, the use of a building or structure, or a portion thereof, for the gathering of persons for purposes such as civic, social or religious functions; recreation, food or drink consumption; or awaiting transportation.

**Small buildings and tenant spaces.** A building or tenant space used for assembly purposes with an *occupant load* of less than 50 persons shall be classified as a Group B occupancy.

**Small assembly spaces.** The following rooms and spaces shall not be classified as assembly occupancies:

1. A room or space used for assembly purposes with an *occupant load* of less than 50 persons and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.

**Five or fewer children.** A facility having five or fewer children receiving such care shall be classified as part of the primary occupancy.

**Five or fewer children in a dwelling unit.** A facility such as the above within a dwelling unit and having five or fewer children receiving such care shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code*.

**[B] Factory Industrial Group F.** Factory Industrial Group F occupancy includes, among others, the use of a building or structure, or a portion thereof, for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair or processing operations that are not classified as a Group H high-hazard or Group S storage occupancy.

**Factory Industrial F-1 Moderate-hazard occupancy.** Factory industrial uses which are not classified as Factory Industrial F-2 Low Hazard shall be classified as F-1 Moderate Hazard and shall include, but not be limited to, the following:

- Aircraft (manufacturing, not to include repair)
- Appliances
- Athletic equipment
- Automobiles and other motor vehicles
- Bakeries
- Beverages; over 16-percent alcohol content
- Bicycles
- Boats
- Brooms or brushes
- Business machines
- Cameras and photo equipment
- Canvas or similar fabric
- Carpets and rugs (includes cleaning)
- Clothing
- Construction and agricultural machinery
- Disinfectants
- Dry cleaning and dyeing
- Electric generation plants
- Electronics
- Engines (including rebuilding)
- Food processing and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities
- Furniture
- Hemp products
- Jute products
- Laundries
- Leather products
- Machinery
- Metals
- Millwork (sash and door)
- Motion pictures and television filming (without spectators)
- Musical instruments
- Optical goods
- Paper mills or products
- Photographic film
- Plastic products
- Printing or publishing

- Refuse incineration
- Shoes
- Soaps and detergents
- Textiles
- Tobacco
- Trailers
- Upholstering
- Wood; distillation
- Woodworking (cabinet)

**[B] Factory Industrial F-2 Low-hazard Occupancy.** Factory industrial uses involving the fabrication or manufacturing of noncombustible materials which, during finishing, packaging or processing do not involve a significant fire hazard, shall be classified as Group F-2 occupancies and shall include, but not be limited to, the following:

- Beverages; up to and including 16-percent alcohol content
- Brick and masonry
- Ceramic products
- Foundries
- Glass products
- Gypsum
- Ice
- Metal products (fabrication and assembly)

**High-hazard Group H.** High-hazard Group H occupancy includes, among others, the use of a building or structure, or a portion thereof, that involves the manufacturing, processing, generation or storage of materials that constitute a physical or *health hazard* in quantities in excess of those allowed in *control areas* complying with Section 5003.8.3, based on the maximum allowable quantity limits for *control areas* set forth in Tables 5003.1.1(1) and 5003.1.1(2). Hazardous occupancies are classified in Groups H-1, H-2, H-3, H-4 and H-5 and shall be in accordance with this code and the requirements of Section 415 of the *International Building Code*. Hazardous materials stored or used on top of roofs or canopies shall be classified as outdoor storage or use and shall comply with this code.

**Exceptions:** The following shall not be classified as Group H, but shall be classified as the occupancy that they most nearly resemble.

1. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Chapter 24 of this code and Section 416 of the *International Building Code*.
2. Wholesale and retail sales and storage of flammable and *combustible liquids* in mercantile occupancies conforming to Chapter 57.
3. Closed piping system containing flammable or *combustible liquids* or gases utilized for the operation of machinery or equipment.
4. Cleaning establishments that utilize *combustible liquid* solvents having a *flash point* of 140°F (60°C) or higher in *closed systems* employing equipment *listed* by an *approved testing agency*, provided that this occupancy is separated from

all other areas of the building by 1-hour *fire barriers* in accordance with Section 707 of the *International Building Code* or 1-hour *horizontal assemblies* in accordance with Section 711 of the *International Building Code*, or both.

5. Cleaning establishments that utilize a liquid solvent having a *flash point* at or above 200°F (93°C).
6. Liquor stores and distributors without bulk storage.
7. Refrigeration systems.
8. The storage or utilization of materials for agricultural purposes on the premises.
9. Stationary batteries utilized for facility emergency power, uninterruptible power supply or telecommunication facilities, provided that the batteries are equipped with safety venting caps and ventilation is provided in accordance with the *International Mechanical Code*.
10. *Corrosives* shall not include personal or household products in their original packaging used in retail display or commonly used building materials.
11. Buildings and structures occupied for aerosol storage shall be classified as Group S-1, provided that such buildings conform to the requirements of Chapter 51.
12. Display and storage of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in quantities not exceeding the *maximum allowable quantity per control area* in Group M or S occupancies complying with Section 5003.8.3.5.
13. The storage of black powder, smokeless propellant and small arms primers in Groups M and R-3 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements of this code.

**High-hazard Group H-1.** Buildings and structures containing materials that pose a *detonation* hazard shall be classified as Group H-1. Such materials shall include, but not be limited to, the following:

Detonable pyrophoric materials

Explosives:

- Division 1.1
- Division 1.2
- Division 1.3
- Division 1.4
- Division 1.5
- Division 1.6

Organic peroxides, unclassified detonable

Oxidizers, Class 4

Unstable (reactive) materials, Class 3 detonable, and Class 4

**Occupancies containing explosives not classified as H-1.** The following occupancies containing explosive materials shall be classified as follows:

1. Division 1.3 explosive materials that are used and maintained in a form where either confinement or configuration will not elevate the hazard from a mass fire hazard to mass explosion hazard shall be allowed in Group H-2 occupancies. \*\*
2. Articles, including articles packaged for shipment, that are not regulated as a Division 1.4 explosive under Bureau of Alcohol, Tobacco, Firearms and Explosives regulations, or unpackaged articles used in process operations that do not propagate a *detonation* or deflagration between articles shall be allowed in H-3 occupancies. \*\*

**High-hazard Group H-2.** Buildings and structures containing materials that pose a *deflagration* hazard or a hazard from accelerated burning shall be classified as Group H-2. Such materials shall include, but not be limited to, the following:

Class I, II or IIIA flammable or *combustible liquids* which are used or stored in normally open containers or systems, or in closed containers or systems pressurized at more than 15 pounds per square inch gauge (103.4 kPa)

*Combustible dusts* where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with Section 414.1.3 of the *International Building Code*

*Cryogenic fluids*, flammable

Flammable gases

Organic peroxides, Class I

Oxidizers, Class 3, that are used or stored in normally open containers or systems, or in closed containers or systems pressurized at more than 15 pounds per square inch gauge (103.4 kPa)

Pyrophoric liquids, solids and gases, nondetonable

Unstable (reactive) materials, Class 3, nondetonable

Water-reactive materials, Class 3

**High-hazard Group H-3.** Buildings and structures containing materials that readily support combustion or that pose a *physical hazard* shall be classified as Group H-3. Such materials shall include, but not be limited to, the following:

Class I, II or IIIA flammable or *combustible liquids* that are used or stored in normally closed containers or systems pressurized at 15 pounds per square inch gauge (103.4 kPa) or less

*Combustible fibers*, other than densely packed baled cotton

Consumer fireworks, 1.4G (Class C, Common)

*Cryogenic fluids*, oxidizing

Flammable solids

Organic peroxides, Class II and III

Oxidizers, Class 2

Oxidizers, Class 3, that are used or stored in normally closed containers or systems pressurized at 15

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\*

**OXIDIZING CRYOGENIC FLUID.** An oxidizing gas in the cryogenic state.

**OXIDIZING GAS.** A gas that can support and accelerate combustion of other materials more than air does.

**OZONE-GAS GENERATOR.** Equipment which causes the production of ozone.

**[B] PANIC HARDWARE.** A door-latching assembly incorporating a device that releases the latch upon the application of a force in the direction of egress travel. See also "Fire Exit Hardware."

**PASS-THROUGH.** An enclosure installed in a wall with a door on each side that allows chemicals, HPM, equipment, and parts to be transferred from one side of the wall to the other.

**[B] PENTHOUSE.** An enclosed, unoccupied rooftop structure used for sheltering mechanical and electrical equipment, tanks, elevators and related machinery, and vertical shaft openings.

**PERMISSIBLE EXPOSURE LIMIT (PEL).** The maximum permitted 8-hour time-weighted-average concentration of an air-borne contaminant. The exposure limits to be utilized are those published in DOL 29 CFR Part 1910.1000. The Recommended Exposure Limit (REL) concentrations published by the U.S. National Institute for Occupational Safety and Health (NIOSH), Threshold Limit Value-Time Weighted Average (TLV-TWA) concentrations published by the American Conference of Governmental Industrial Hygienists (ACGIH), Workplace Environmental Exposure Level (WEEL) Guides published by the American Industrial Hygiene Association (AIHA), and other *approved*, consistent measures are allowed as surrogates for hazardous substances not *listed* in DOL 29 CFR Part 1910.1000.

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

**[A] PERMIT.** An official document or certificate issued by the authority having jurisdiction which authorizes performance of a specified activity.

**[A] PERSON.** An individual, heirs, executors, administrators or assigns, and also includes a firm, partnership or corporation, its or their successors or assigns, or the agent of any of the aforesaid.

**[B] PERSONAL CARE SERVICE.** The care of persons who do not require medical care. Personal care involves responsibility for the safety of the persons while inside the building.

**PESTICIDE.** A substance or mixture of substances, including fungicides, intended for preventing, destroying, repelling or mitigating pests and substances or a mixture of substances intended for use as a plant regulator, defoliant or desiccant. Products defined as drugs in the Federal Food, Drug and Cosmetic Act are not pesticides.

**[B] PHOTOLUMINESCENT.** Having the property of emitting light that continues for a length of time after excitation by visible or invisible light has been removed.

**PHYSICAL HAZARD.** A chemical for which there is evidence that it is a *combustible liquid, cryogenic fluid, explosive*, flammable (solid, liquid or gas), organic peroxide (solid or liquid), oxidizer (solid or liquid), oxidizing gas, pyrophoric (solid, liquid or gas), unstable (reactive) material (solid, liquid or gas) or water-reactive material (solid or liquid).

**PHYSIOLOGICAL WARNING THRESHOLD.** A concentration of air-borne contaminants, normally expressed in parts per million (ppm) or milligrams per cubic meter (mg/m<sup>3</sup>), that represents the concentration at which persons can sense the presence of the contaminant due to odor, irritation or other quick-acting physiological responses. When used in conjunction with the permissible exposure limit (PEL), the physiological warning threshold levels are those consistent with the classification system used to establish the PEL. See the definition of "Permissible exposure limit (PEL)."

**PIER.** A structure built over the water, supported by pillars or piles, and used as a landing place, pleasure pavilion or similar purpose.

**[B] PLACE OF RELIGIOUS WORSHIP.** See "Religious Worship, Place of."

**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.

**PLYWOOD AND VENEER MILLS.** Facilities where raw wood products are processed into finished wood products, including waferboard, oriented strandboard, fiberboard, composite wood panels and plywood.

**PORTABLE OUTDOOR FIREPLACE.** A portable, outdoor, solid-fuel-burning fireplace that may be constructed of steel, concrete, clay or other noncombustible material. A portable outdoor fireplace may be open in design, or may be equipped with a small hearth opening and a short chimney or chimney opening in the top.

**POWERED INDUSTRIAL TRUCK.** A forklift, tractor, platform lift truck or motorized hand truck powered by an electrical motor or internal combustion engine. Powered industrial trucks do not include farm vehicles or automotive vehicles for highway use.

**PRESSURE VESSEL.** A closed vessel designed to operate at pressures above 15 psig (103 kPa).

**PRIMARY CONTAINMENT.** The first level of containment, consisting of the inside portion of that container which comes into immediate contact on its inner surface with the material being contained.

**PROCESS TRANSFER.** The transfer of flammable or *combustible liquids* between tank vehicles or tank cars and process operations. Process operations may include containers, tanks, piping and equipment.

**PROPELLANT.** The liquefied or *compressed gas* in an aerosol container that expels the contents from an aerosol container when the valve is actuated. A propellant is consid-

ered flammable if it forms a flammable mixture with air, or if a flame is self-propagating in a mixture with air.

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

**[B] PSYCHIATRIC HOSPITALS.** See "Hospitals."

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

**[A] PUBLIC WAY.** A street, alley or other parcel of land open to the outside air leading to a street, that has been deeded, dedicated or otherwise permanently appropriated to the public for public use and which has a clear width and height of not less than 10 feet (3048 mm).

**PYROPHORIC.** A chemical with an autoignition temperature in air, at or below a temperature of 130°F (54°C).

**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.

**PYROTECHNICIAN (FIREWORK OPERATOR).** 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 a permit for a fireworks display.

**PYROTECHNICIAN, AERIAL.** A person supervising or engaged in the design, setup or conducting of an outdoor aerial fireworks display performed in accordance with the regulations as set forth in this code and NFPA 1123, a referenced standard for fireworks displays.

**PYROTECHNICIAN, PROXIMATE.** 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 this code and NFPA 1126, a referenced standard for the use of pyrotechnics before a proximate audience.

**PYROTECHNICS.** 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:

**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.

**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.

**Minimum separation distance (D<sub>o</sub>).** 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.

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

**[B] RAMP.** A walking surface that has a running slope steeper than one unit vertical in 20 units horizontal (5-percent slope).

**RAW PRODUCT.** A mixture of natural materials such as tree, brush trimmings, or waste logs and stumps.

**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.

**RECORD DRAWINGS.** Drawings ("as built") that document the location of all devices, appliances, wiring, sequences, wiring methods and connections of the components of a fire alarm system as installed.

**RECREATIONAL FIRE.** An outdoor fire burning materials other than rubbish where the fuel being burned is not contained in an incinerator, outdoor fireplace, portable outdoor fireplace, barbeque grill or barbeque pit and has a total fuel area of 3 feet (914 mm) or less in diameter and 2 feet (610 mm) or less in height for pleasure, religious, ceremonial, cooking, warmth or similar purposes.

**REDUCED FLOW VALVE.** A valve equipped with a restricted flow orifice and inserted into a *compressed gas* cylinder, portable tank or stationary tank that is designed to reduce the maximum flow from the valve under full-flow conditions. The maximum flow rate from the valve is determined with the valve allowed to flow to atmosphere with no other piping or fittings attached.

**REFINERY.** A plant in which flammable or *combustible liquids* are produced on a commercial scale from crude petroleum, natural gasoline or other hydrocarbon sources.

**REFRIGERANT.** The fluid used for heat transfer in a refrigeration system; the refrigerant absorbs heat and transfers it at a higher temperature and a higher pressure, usually with a change of state.

**[M] REFRIGERATING (REFRIGERATION) SYSTEM.** A combination of interconnected refrigerant-containing parts constituting one closed refrigerant circuit in which a refrigerant is circulated for the purpose of extracting heat.

**[A] REGISTERED DESIGN PROFESSIONAL.** An architect or engineer, registered or licensed to practice professional architecture or engineering, as defined by the statutory requirements of the professional registration laws of the state in which the project is to be constructed.

**[B] RELIGIOUS WORSHIP, PLACE OF.** A building or portion thereof intended for the performance of religious services.

**REMOTE EMERGENCY SHUTOFF DEVICE.** The combination of an operator-carried signaling device and a mechanism on the tank vehicle. Activation of the remote emergency shutoff device sends a signal to the tanker-mounted mechanism and causes fuel flow to cease.

**REMOTE SOLVENT RESERVOIR.** A liquid solvent container enclosed against evaporative losses to the atmosphere during periods when the container is not being utilized, except for a solvent return opening not larger than 16 square inches (10 322 mm<sup>2</sup>). Such return allows pump-cycled used solvent to drain back into the reservoir from a separate solvent sink or work area.

**REMOTELY LOCATED, MANUALLY ACTIVATED SHUTDOWN CONTROL.** A control system that is designed to initiate shutdown of the flow of gases or liquids that is manually activated from a point located some distance from the delivery system.

**REPAIR GARAGE.** A building, structure or portion thereof used for servicing or repairing motor vehicles.

**RESIN APPLICATION AREA.** An area where reinforced plastics are used to manufacture products by hand lay-up or spray-fabrication methods.

**RESPONSIBLE MANAGEMENT.** A person who is any of the following:

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 or directors of a corporation.
5. The managers or members of a limited liability company.
6. The managers, officers or directors of an association.
7. Individuals in other business entities recognized under the laws of the Commonwealth as having a fiduciary responsibility to the firm.

**RESPONSIBLE PERSON.** A person trained in the safety and fire safety considerations concerned with hot work. Responsible for reviewing the sites prior to issuing permits as

part of the hot work permit program and following up as the job progresses.

**RETAIL DISPLAY AREA.** The area of a Group M occupancy open for the purpose of viewing or purchasing merchandise offered for sale. Individuals in such establishments are free to circulate among the items offered for sale which are typically displayed on shelves, racks or the floor.

**ROLL COATING.** The process of coating, spreading and impregnating fabrics, paper or other materials as they are passed directly through a tank or trough containing flammable or *combustible liquids*, or over the surface of a roller revolving partially submerged in a flammable or *combustible liquid*.

**RUBBISH (TRASH).** Combustible and noncombustible waste materials, including residue from the burning of coal, wood, coke or other combustible material, paper, rags, cartons, tin cans, metals, mineral matter, glass crockery, dust and discarded refrigerators, and heating, cooking or incinerator-type appliances.

**SAFETY CAN.** An *approved* container of not more than 5-gallon (19 L) capacity having a spring-closing lid and spout cover so designed that it will relieve internal pressure when subjected to fire exposure.

**[B] SCISSOR STAIR.** Two interlocking *stairways* providing two separate paths of egress located within one stairwell enclosure.

**SECONDARY CONTAINMENT.** That level of containment that is external to and separate from primary containment.

**SEED COTTON.** See "Cotton."

**SEGREGATED.** Storage in the same room or inside area, but physically separated by distance from *incompatible materials*.

**[B] SELF-CLOSING.** As applied to a fire door or other opening, means equipped with an *approved* device that will ensure closing after having been opened.

**[B] SELF-LUMINOUS.** Illuminated by a self-contained power source, other than batteries, and operated independently of external power sources.

**[B] SELF-PRESERVATION, INCAPABLE OF.** See "Incapable of Self-Preservation."

**SELF-SERVICE MOTOR FUEL-DISPENSING FACILITY.** That portion of motor fuel-dispensing facility where liquid motor fuels are dispensed from fixed *approved* dispensing equipment into the fuel tanks of motor vehicles by persons other than a motor fuel-dispensing facility attendant.

**SEMICONDUCTOR FABRICATION FACILITY.** A building or a portion of a building in which electrical circuits or devices are created on solid crystalline substances having electrical conductivity greater than insulators but less than conductors. These circuits or devices are commonly known as semiconductors.

**SERVICE CORRIDOR.** A fully enclosed passage used for transporting HPM and purposes other than required *means of egress*.

## DEFINITIONS

**SHELF STORAGE.** Storage on shelves less than 30 inches (762 mm) deep with the distance between shelves not exceeding 3 feet (914 mm) vertically. For other shelving arrangements, see the requirements for rack storage.

**SINGLE-STATION SMOKE ALARM.** An assembly incorporating the detector, the control equipment and the alarm-sounding device in one unit, operated from a power supply either in the unit or obtained at the point of installation.

**[B] SITE.** A parcel of land bounded by a *lot line* or a designated portion of a public right-of-way.

**SITE-FABRICATED STRETCH SYSTEM.** A system, fabricated on site and intended for acoustical, tackable or aesthetic purposes, that is comprised of three elements:

1. A frame constructed of plastic, wood, metal or other material used to hold fabric in place;
2. A core material (infill, with the correct properties for the application); and
3. An outside layer, comprised of a textile, fabric or vinyl, that is stretched taut and held in place by tension or mechanical fasteners via the frame.

**SKY LANTERN.** An unmanned device with a fuel source that incorporates an open flame in order to make the device airborne.

**[B] SLEEPING UNIT.** A room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a *dwelling unit* are not sleeping units.

**SMALL ARMS AMMUNITION.** A shotgun, rifle or pistol cartridge and any 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.

**SMOKE ALARM.** A single- or multiple-station alarm responsive to smoke. See also "Single-station Smoke Alarm" and "Multiple-Station Smoke Alarm."

**[B] SMOKE BARRIER.** A continuous membrane, either vertical or horizontal, such as a wall, floor, or ceiling assembly, that is designed and constructed to restrict the movement of smoke.

**[B] SMOKE COMPARTMENT.** A space within a building enclosed by *smoke barriers* on all sides, including the top and bottom.

**[B] SMOKE DAMPER.** A *listed* device installed in ducts and air transfer openings designed to resist the passage of smoke. The device is installed to operate automatically, controlled by a smoke detection system, and where required, is capable of being positioned from a *fire command center*.

**SMOKE DETECTOR.** A *listed* device that senses visible or invisible particles of combustion.

**[B] SMOKE-DEVELOPED INDEX.** A comparative measure, expressed as a dimensionless number, derived from measurements of smoke obscuration versus time for a material tested in accordance with ASTM E 84.

**[B] SMOKE-PROTECTED ASSEMBLY SEATING.** Seating served by means of egress that is not subject to smoke accumulation within or under a structure.

**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.

**[B] SMOKEPROOF ENCLOSURE.** An *exit stairway* designed and constructed so that the movement of the products of combustion produced by a fire occurring in any part of the building into the enclosure is limited.

**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 Sections 59.1-69 through 59.1-76 of the Code of Virginia.

**SOLID.** A material that has a melting point and decomposes or sublimates at a temperature greater than 68°F (20°C).

**SOLID SHELVING.** Shelving that is solid, slatted or of other construction located in racks and which obstructs sprinkler discharge down into the racks.

**SOLVENT DISTILLATION UNIT.** An appliance that receives contaminated flammable or *combustible liquids* and which distills the contents to remove contaminants and recover the solvents.

**SOLVENT OR LIQUID CLASSIFICATIONS.** A method for classifying solvents or liquids according to the following classes:

**Class I solvents.** Liquids having a *flash point* below 100°F (38°C).

**Class II solvents.** Liquids having a *flash point* at or above 100°F (38°C) and below 140°F (60°C).

**Class IIIA solvents.** Liquids having a *flash point* at or above 140°F (60°C) and below 200°F (93°C).

**Class IIIB solvents.** Liquids having a *flash point* at or above 200°F (93°C).

**Class IV solvents.** Liquids classified as nonflammable.

**SPECIAL AMUSEMENT BUILDING.** A building that is temporary, permanent or mobile that contains a device or system that conveys passengers or provides a walkway along, around or over a course in any direction as a form of amusement arranged so that the egress path is not readily apparent due to visual or audio distractions or an intentionally confounded egress path, or is not readily available because of the mode of conveyance through the building or structure.

**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 *explo-*

## DEFINITIONS

where a specific function, laboratory procedure or research activity occurs. *Approved* or *listed* hazardous materials storage cabinets, flammable liquid storage cabinets or gas cabinets serving a workstation are included as part of the workstation. A workstation is allowed to contain ventilation equipment, fire protection devices, detection devices, electrical devices and other processing and scientific equipment.

**[B] YARD.** An open space, other than a *court*, unobstructed from the ground to the sky, except where specifically provided by the *International Building Code*, on the lot on which a building is situated.

**ZONE.** A defined area within the protected premises. A zone can define an area from which a signal can be received, an area to which a signal can be sent or an area in which a form of control can be executed.

**ZONE, NOTIFICATION.** An area within a building or facility covered by notification appliances which are activated simultaneously.

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 ***Part II—General Safety Provisions***

**CHAPTER 3**  
**GENERAL REQUIREMENTS**

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4. Vacant marker hazard identification symbols: The following symbols shall be used to designate known hazards on the vacant building marker. They shall be placed directly above the symbol.

- 4.1. R/O—Roof open
- 4.2. S/M—Stairs, steps and landing missing
- 4.3. F/E—Avoid fire escapes
- 4.4. H/F—Holes in floor

**311.5.5 Informational use.** The use of these symbols shall be informational only and shall not in any way limit the discretion of the on-scene incident commander.

**311.5.6 Removal.** Removal of placards posted in accordance with this section without the approval of the fire official shall be a violation of this code.

**311.6 Unoccupied tenant spaces in mall buildings.** Unoccupied tenant spaces in covered and open mall buildings shall be:

1. Kept free from the storage of any materials.
2. Separated from the remainder of the building by partitions of at least 0.5-inch-thick (12.7 mm) gypsum board or an approved equivalent to the underside of the ceiling of the adjoining tenant spaces.
3. Without doors or other access openings other than one door that shall be kept key locked in the closed position except during that time when opened for inspection.
4. Kept free from combustible waste and be broom swept clean.

## SECTION 312 VEHICLE IMPACT PROTECTION

**312.1 General.** Vehicle impact protection required by this code shall be provided by posts that comply with Section 312.2 or by other *approved* physical barriers that comply with Section 312.3.

**312.2 Posts.** Guard posts shall comply with all of the following requirements:

1. Constructed of steel not less than 4 inches (102 mm) in diameter and concrete filled.
2. Spaced not more than 4 feet (1219 mm) between posts on center.
3. Set not less than 3 feet (914 mm) deep in a concrete footing of not less than a 15-inch (381 mm) diameter.
4. Set with the top of the posts not less than 3 feet (914 mm) above ground.
5. Located not less than 3 feet (914 mm) from the protected object.

**312.3 Other barriers.** Physical barriers shall be a minimum of 36 inches (914 mm) in height and shall resist a force of 12,000 pounds (53 375 N) applied 36 inches (914 mm) above the adjacent ground surface.

## SECTION 313 FUELED EQUIPMENT

**313.1 General.** Fueled equipment including, but not limited to, motorcycles, mopeds, lawn-care equipment, portable generators and portable cooking equipment, shall not be stored, operated or repaired within a building.

### Exceptions:

1. Buildings or rooms constructed for such use in accordance with the *International Building Code*.
2. Where allowed by Section 314.
3. Storage of equipment utilized for maintenance purposes is allowed in *approved* locations when the aggregate fuel capacity of the stored equipment does not exceed 10 gallons (38 L) and the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.

**313.1.1 Removal.** The *fire code official* is authorized to require removal of fueled equipment from locations where the presence of such equipment is determined by the *fire code official* to be hazardous.

**313.2 Group R occupancies.** Vehicles powered by flammable liquids, Class II *combustible liquids* or compressed flammable gases shall not be stored within the living space of Group R buildings.

## SECTION 314 INDOOR DISPLAYS

**314.1 General.** Indoor displays constructed within any building or structure 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 and open 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.** Vendors 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 5506.5.1.1.
2. The amount of smokeless powder each vender may store is limited to the storage arrangements and storage amounts established in Section 5506.5.2.1. 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 (15 240 mm) separation between venders and 20 feet (6096 mm) 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 5506.5.2.3.

### SECTION 315 GENERAL STORAGE

**315.1 General.** Storage shall be in accordance with Sections 315.2 through 315.5.

**315.2 Permit required.** A permit for miscellaneous combustible storage shall be required as set forth in Section 107.2.

**315.3 Storage in buildings.** Storage of materials in buildings shall be orderly and stacks shall be stable. Storage of combustible materials shall be separated from heaters or heating devices by distance or shielding so that ignition cannot occur.

**315.3.1 Ceiling clearance.** Storage shall be maintained 2 feet (610 mm) or more below the ceiling in nonsprinklered areas of buildings or a minimum of 18 inches (457 mm) below sprinkler head deflectors in sprinklered areas of buildings.

**315.3.2 Means of egress.** Combustible materials shall not be stored in exits or enclosures for stairways and ramps.

**315.3.3 Equipment rooms.** Combustible material shall not be stored in boiler rooms, mechanical rooms or electrical equipment rooms.

**315.3.4 Attic, under-floor and concealed spaces.** Attic, under-floor and concealed spaces used for storage of combustible materials shall be protected on the storage side as required for 1-hour fire-resistance-rated construction. Openings shall be protected by assemblies that are self-closing and are of noncombustible construction or solid wood core not less than 1<sup>3</sup>/<sub>4</sub> inches (44.5 mm) in thickness. Storage shall not be placed on exposed joists.

**Exceptions:**

1. Areas protected by *approved automatic sprinkler systems*.
2. Group R-3 and Group U occupancies.

**315.4 Outside storage.** Outside storage of combustible materials shall not be located within 10 feet (3048 mm) of a property line or other building on the site.

**Exceptions:**

1. The separation distance is allowed to be reduced to 3 feet (914 mm) for storage not exceeding 6 feet (1829 mm) in height.
2. The separation distance is allowed to be reduced when the fire official determines that no hazard to the adjoining property exists.

**315.4.1 Storage beneath overhead projections from buildings.** To the extent required by the code the building was constructed under, when buildings are required to be protected by automatic sprinklers, the outdoor storage, display and handling of combustible materials under eaves, canopies or other projections or overhangs is prohibited except where automatic sprinklers are installed under such eaves, canopies or other projections or overhangs.

**315.4.2 Height.** Storage in the open shall not exceed 20 feet (6096 mm) in height.

**315.5 Storage underneath high-voltage transmission lines.** Storage located underneath high-voltage transmission lines shall be in accordance with Section 316.6.2.

### SECTION 316 HAZARDS TO FIRE FIGHTERS

**316.1 Trapdoors to be closed.** Trapdoors and scuttle covers, other than those that are within a *dwelling unit* or automatically operated, shall be kept closed at all times except when in use.

**316.2 Shaftway markings.** Vertical shafts shall be identified as required by this section.

**316.2.1 Exterior access to shaftways.** Outside openings accessible to the fire department and which open directly on a hoistway or shaftway communicating between two or more floors in a building shall be plainly marked with the word SHAFTWAY in red letters at least 6 inches (152 mm) high on a white background. Such warning signs shall be placed so as to be readily discernible from the outside of the building.

**316.2.2 Interior access to shaftways.** Door or window openings to a hoistway or shaftway from the interior of the building shall be plainly marked with the word SHAFTWAY in red letters at least 6 inches (152 mm) high on a white background. Such warning signs shall be placed so as to be readily discernible.

**Exception:** Marking shall not be required on shaftway openings which are readily discernible as openings onto a shaftway by the construction or arrangement.

**316.3 Pitfalls.** The intentional design or *alteration* of buildings to disable, injure, maim or kill intruders is prohibited. No person shall install and use firearms, sharp or pointed objects, razor wire, *explosives*, flammable or *combustible liquid* containers, or dispensers containing highly toxic, toxic, irritant or

## CHAPTER 56

# EXPLOSIVES AND FIREWORKS

### SECTION 5601 GENERAL

**5601.1 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 (91 kg) of smokeless powder when stored in the manufacturer's original containers in detached Group U structures at least 10 feet (3048 mm) from inhabited buildings and are accessory to Group R-3 or R-5.

**5601.1.1 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*.

**5601.1.2 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.

**5601.1.3 Fireworks.** The possession, manufacture, storage, sale, handling and use of fireworks are prohibited.

#### Exceptions:

1. Storage and handling of fireworks as allowed in Section 5604.
2. Manufacture, assembly and testing of fireworks as allowed in Section 5605.
3. The use of fireworks for fireworks displays as allowed in Section 5608.
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 100-178, 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.

**5601.1.4 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.

**5601.1.5 Ammonium nitrate.** The storage and handling of ammonium nitrate shall comply with the requirements of NFPA 490 and Chapter 63.

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

**5601.2 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.

**5601.2.1 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 5606.

**5601.2.2 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 5603.2 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.

**5601.2.3 Permit restrictions.** The fire 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.

**5601.2.3.1 Permit applicants.** As a condition of a permit as provided for in Section 107.5, 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 7 days after the change of status and shall provide the name of another designated individual. The fire official may revoke or require the reissuance of a permit based on a change of permit conditions or status or inability to provide another designated individual.

**5601.2.3.1.1 BCC.** The SFMO shall process all applications for a BCC for compliance with Section 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.

**5601.2.3.1.2 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.

**5601.2.3.1.3 Fee for BCC.** The fee for obtaining or renewing a BCC from the 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.

**5601.2.3.1.4 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 BCC 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.

**5601.2.4 Financial responsibility.** Before a permit is issued, as required by Section 5601.2, 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.

**5601.2.4.1 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 \$1,000,000.

**Exception:** Filing a bond or submitting a certificate of liability insurance is not required for blasting on real estate parcels of 5 or more acres conforming to the definition of "real estate devoted to agricultural use" or "real estate devoted to horticultural use" in Section 58.1-3230 of the Code of Virginia and conducted by the owner of such real estate.

**5601.2.4.2 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 \$1,000,000.

**5601.3 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.

**5601.4 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.

**5601.4.1 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 Section 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 1 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 1 year under direct supervision by a certified unrestricted blaster or other person or persons 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 six occasions within the 24 months immediately preceding the application for certification.

The SFMO shall process all certification applicants for compliance with Section 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 5 or more acres conforming to the definition of “real estate devoted to agricultural use” or “real estate devoted to horticultural use” in Section 58.1-3230 of the Code of Virginia when blasting on such real estate.

**5601.4.2 Certification issuance.** The issuance of a certification as a blaster or pyrotechnician shall be denied if the applicant has (i) 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, (ii) has not provided acceptable proof or evidence of the experience required in Section 5601.4.1, or (iii) has not provided acceptable proof or evidence of the continued training or education required in Section 5601.4.5.

**5601.4.3 Fee for certification.** The fee for obtaining or renewing a blaster or pyrotechnician certificate from the 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.

**5601.4.3.1 Fee for replacement certificate.** A written request for a replacement blaster or pyrotechnician certificate shall be accompanied by the payment of an administrative fee in the amount of \$20 made payable to the Treasurer of Virginia. Verbal requests shall not be accepted.

**5601.4.4 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 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.

**5601.4.5 Expiration and renewal of a BCC, or blaster or pyrotechnician certification.** A certificate for an unrestricted blaster, restricted blaster or pyrotechnician shall be valid for 3 years from the date of issuance. A BCC shall be valid for 3 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 3 consecutive years and a background investigation for compliance with Section 27-97.2 of the Code of Virginia. Renewal of the restricted blaster certificate will be issued upon proof of at least 8 accumulated hours of continued training or education in the use of explosives within 3 consecutive years and a background investigation for compliance with Section 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 3 consecutive years; and a background investigation for compliance with Section 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 3 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 blaster or pyrotechnician certificate upon compliance with Section 5601.4.1 to continue engaging in the unsupervised use of explosives or conducting a fireworks display.

**5601.4.6 Denial, suspension or revocation of a certificate.** If issuance or renewal of a blaster or pyrotechnician certificate is denied, or upon the filing of a complaint against an applicant or certificate holder for non-performance, or performance in violation of the SFPC and the appropriate referenced NFPA 495, 1123 or 1126 standards, the State Fire Marshal may convene a three member panel to hear the particulars of the complaint or denial. The three member panel will be comprised of the following persons:

1. A Virginia certified fire official, excluding any person certified as a blaster or pyrotechnician, or who is on the staff of the SFMO.
2. A Virginia certified blaster or pyrotechnician whose certification is the same as that of the person to whom a complaint is lodged, and who is not associated in any way with the person against whom a complaint is lodged and whose work or employer is geographically remote, as much as practically possible, from the person to whom a complaint is lodged.
3. A member of the general public who does not have a vested financial interest in conducting a fireworks display, or the manufacture, sale, storage, or use of explosives.

Upon the State Fire Marshal convening such panel, the hearing is to commence within 60 calendar days of the filing of the complaint or denial. The three member panel is to hear the complaint and render a written recommenda-

tion to the State Fire Marshal for certificate issuance, no action, revocation, or suspension of a certificate for a period not to exceed 6 months. Notwithstanding the discretionary decision and action to convene such panel, the State Fire Marshal reserves the authority to choose an action that may be contrary to the panel's recommendation. A written decision of the State Fire Marshal is to be delivered to the party within 14 days of the hearing's conclusion. If the certificate is denied, revoked or suspended by the SFMO, in accordance with Section 112.9, the party may file an appeal with the TRB. The party's appeal to the TRB must be filed within 14 calendar days of the receipt of the State Fire Marshal's written decision to deny, revoke, or suspend. The denial, revocation or suspension of a license is independent of any criminal proceedings that may be initiated by any state or local authority.

**5601.4.6.1 Replacement of revoked certificate.** Any person whose certificate as a pyrotechnician or blaster was revoked upon cause may apply for certification as a pyrotechnician or blaster 6 months or more from the date of the revocation and upon compliance with Section 5601.4.1. All elements of Section 5601.4.1 are required to be obtained and dated after the date of revocation.

**5601.4.6.2 Return of suspended certificate.** Any certificate that was suspended upon cause will be reinstated at the end of the suspension period without change to its expiration date.

**5601.5 Supervision.** The *fire code official* is authorized to require operations permitted under the provisions of Section 5601.2 to be supervised at any time by the *fire code official* in order to determine compliance with all safety and fire regulations.

**5601.6 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.

**5601.7 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.

**5601.8 Establishment of quantity of explosives and distances.** The quantity of *explosives* and distances shall be in accordance with Sections 5601.8.1 and 5601.8.1.1.

**5601.8.1 Quantity of explosives.** The quantity-distance (Q-D) tables in Sections 5604.5 and 5605.3 shall be used to provide the minimum separation distances from potential explosion sites as set forth in Tables 5601.8.1(1) through 5601.8.1(3). The classification 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 5601.8.1.1 through 5601.8.1.4.

**TABLE 5601.8.1(1)**  
**APPLICATION OF SEPARATION DISTANCE (Q-D) TABLES—DIVISION 1.1, 1.2 AND 1.5 EXPLOSIVES<sup>a, b, c</sup>**

ITEM	MAGAZINE	Q-D	OPERATING BUILDING	Q-D	INHABITED BUILDING	Q-D	PUBLIC TRAFFIC ROUTE	Q-D
Magazine	Table 5604.5.2(1)	IMD	Table 5605.3	ILD or IPD	Table 5604.5.2(1)	IBD	Table 5604.5.2(1)	PTR
Operating building	Table 5604.5.2(1)	ILD or IPD	Table 5605.3	ILD or IPD	Table 5604.5.2(1)	IBD	Table 5604.5.2(1)	PTR
Inhabited building	Table 5604.5.2(1)	IBD	Table 5604.5.2(1)	IBD	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Public traffic route	Table 5604.5.2(1)	PTR	Table 5604.5.2(1)	PTR	Not Applicable	Not Applicable	Not Applicable	Not Applicable

For SI: 1 foot = 304.8 mm.

- 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.
- 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.
- For definitions of Quantity-Distance abbreviations IBD, ILD, IMD, IPD and PTR, see Chapter 2.

**TABLE 5601.8.1(2)**  
**APPLICATION OF SEPARATION DISTANCE (Q-D) TABLES—DIVISION 1.3 EXPLOSIVES<sup>a, b, c</sup>**

ITEM	MAGAZINE	Q-D	OPERATING BUILDING	Q-D	INHABITED BUILDING	Q-D	PUBLIC TRAFFIC ROUTE	Q-D
Magazine	Table 5604.5.2(2)	IMD	Table 5604.5.2(2)	ILD or IPD	Table 5604.5.2(2)	IBD	Table 5604.5.2(2)	PTR
Operating building	Table 5604.5.2(2)	ILD or IPD	Table 5604.5.2(2)	ILD or IPD	Table 5604.5.2(2)	IBD	Table 5604.5.2(2)	PTR
Inhabited building	Table 5604.5.2(2)	IBD	Table 5604.5.2(2)	IBD	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Public traffic route	Table 5604.5.2(2)	PTR	Table 5604.5.2(2)	PTR	Not Applicable	Not Applicable	Not Applicable	Not Applicable

For SI: 1 foot = 304.8 mm.

- The minimum separation distance ( $D_o$ ) shall be a minimum of 50 feet.
- Linear interpolation between tabular values in the referenced Q-D table shall be allowed.
- For definitions of Quantity-Distance abbreviations IBD, ILD, IMD, IPD and PTR, see Chapter 2.

**TABLE 5601.8.1(3)**  
**APPLICATION OF SEPARATION DISTANCE (Q-D) TABLES—DIVISION 1.4 EXPLOSIVES<sup>a, b, c, d</sup>**

ITEM	MAGAZINE	Q-D	OPERATING BUILDING	Q-D	INHABITED BUILDING	Q-D	PUBLIC TRAFFIC ROUTE	Q-D
Magazine	Table 5604.5.2(3)	IMD	Table 5604.5.2(3)	ILD or IPD	Table 5604.5.2(3)	IBD	Table 5604.5.2(3)	PTR
Operating building	Table 5604.5.2(3)	ILD or IPD	Table 5604.5.2(3)	ILD or IPD	Table 5604.5.2(3)	IBD	Table 5604.5.2(3)	PTR
Inhabited building	Table 5604.5.2(3)	IBD	Table 5604.5.2(3)	IBD	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Public traffic route	Table 5604.5.2(3)	PTR	Table 5604.5.2(3)	PTR	Not Applicable	Not Applicable	Not Applicable	Not Applicable

For SI: 1 foot = 304.8 mm.

- The minimum separation distance ( $D_o$ ) shall be a minimum of 50 feet.
- Linear interpolation between tabular values in the referenced Q-D table shall not be allowed.
- For definitions of Quantity-Distance abbreviations IBD, ILD, IMD, IPD and PTR, see Chapter 2.
- This table shall not apply to consumer fireworks, 1.4G.

**5601.8.1.1 Mass-detonating explosives (Division 1.1, 1.2 or 1.5).** The total net *explosive* weight of mass-detonating explosives (Division 1.1, 1.2 or 1.5) shall be used. See Table 5604.5.2(1) or Table 5605.3 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.

**5601.8.1.2 Nonmass-detonating explosives (excluding Division 1.4).** Nonmass-detonating *explosives* (excluding Division 1.4) 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 5604.5.2(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 5604.5.2(2).

**5601.8.1.3 Combinations of mass-detonating and nonmass-detonating explosives (excluding Division 1.4).** Combination of mass-detonating and nonmass-detonating *explosives* (excluding Division 1.4) 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 5604.5.2(2) or Table 5605.3 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 5604.5.2(1), 5604.5.2(2) or 5605.3, 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 allowed 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 5604.5.2(1) or 5605.3 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 5604.5.2(1) and 5604.5.2(2).

**5601.8.1.4 Moderate fire—no blast hazards (Division 1.4).** For 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.

## SECTION 5602 DEFINITIONS

**5602.1 Definitions.** The following terms are defined in Chapter 2:

**AMMONIUM NITRATE.**

**BACKGROUND CLEARANCE CARD (BCC).**

**BARRICADE.**

**Artificial barricade.**

**Natural barricade.**

**BARRICADED.**

**BLAST AREA.**

**BLAST SITE.**

**BLASTER.**

**BLASTER, RESTRICTED.**

**BLASTER, UNRESTRICTED.**

**BLASTING AGENT.**

**BULLET RESISTANT.**

**DESIGN.**

**DESIGNATED INDIVIDUAL.**

**DETONATING CORD.**

**DETONATION.**

**DETONATOR.**

**DISCHARGE SITE.**

**DISPLAY SITE.**

**EXPLOSIVE.**

**High explosive.**

**Low explosive.**

**Mass-detonating explosives.**

**UN/DOTh Class 1 explosives.**

**Division 1.1.**

**Division 1.2.**

**Division 1.3.**

**Division 1.4.**

**Division 1.5.**

**Division 1.6.**

**EXPLOSIVE MATERIAL.**

**FALLOUT AREA.**

**FIREWORKS.**

- Fireworks, 1.4G.
- Fireworks, 1.3G.

**FIREWORKS DISPLAY.****HIGHWAY.****INHABITED BUILDING.****MAGAZINE.**

- Indoor.
- Type 1.
- Type 2.
- Type 3.
- Type 4.
- Type 5.

**MORTAR.****NET EXPLOSIVE WEIGHT (net weight).****OPERATING BUILDING.****OPERATING LINE.****PERMISSIBLE FIREWORKS.****PLOSOPHORIC MATERIAL.****PROXIMATE AUDIENCE.****PUBLIC TRAFFIC ROUTE (PTR).****PYROTECHNIC ARTICLE.****PYROTECHNIC COMPOSITION.****PYROTECHNIC SPECIAL EFFECT.****PYROTECHNIC SPECIAL-EFFECT MATERIAL.****PYROTECHNICIAN (FIREWORKS OPERATOR).****PYROTECHNICIAN, AERIAL.****PYROTECHNICIAN, PROXIMATE.****PYROTECHNICS.****QUANTITY-DISTANCE (Q-D).**

- Inhabited building distance (IBD).
- Intermagazine distance (IMD).
- Intraline distance (ILD) or Intraplant distance (IPD).
- Minimum separation distance ( $D_0$ ).

**RAILWAY.****READY BOX.****RESPONSIBLE MANAGEMENT.****SMALL ARMS AMMUNITION.****SMALL ARMS PRIMERS.****SMOKELESS PROPELLANTS.****SOLE PROPRIETOR.****SPECIAL INDUSTRIAL EXPLOSIVE DEVICE.****THEFT RESISTANT.**

### SECTION 5603 RECORD KEEPING AND REPORTING

**5603.1 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.

**5603.2 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 five years, and shall be furnished to the *fire 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 three years.

**5603.3 Loss, theft or unauthorized removal.** The loss, theft or unauthorized removal of *explosive materials* from a magazine or permitted facility shall be reported to the *fire code official*, local law enforcement authorities and the U.S. Department of Treasury, Bureau of Alcohol, Tobacco, Firearms and Explosives within 24 hours.

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

**5603.4 Accidents.** Accidents involving the use of explosives, explosive materials and fireworks, which result in injuries or property damage, shall be immediately reported by the permit holder to the *fire code official* and State Fire Marshal.

**5603.5 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.

**5603.6 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.

**5603.7 Safety rules.** Current safety rules covering the operation of magazines, as described in Section 5604.7, shall be posted on the interior of the magazine in a visible location.

### SECTION 5604 EXPLOSIVE MATERIALS STORAGE AND HANDLING

**5604.1 General.** Storage of *explosives* and *explosive materials*, small arms ammunition, small arms primers, propellant-actuated cartridges and smokeless propellants in magazines shall comply with the provisions of this section.

**5604.2 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 Section 5604 and NFPA 495 or NFPA 1124.

**Exceptions:**

1. Storage of fireworks at display sites in accordance with Section 5608.5 and NFPA 1123 or NFPA 1126.
2. Portable or mobile magazines not exceeding 120 square feet (11 m<sup>2</sup>) in area shall not be required to comply with the requirements of the *International Building Code*.

**5604.3 Magazines.** The storage of *explosives* and *explosive materials* in magazines shall comply with Table 5604.3.

**5604.3.1 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.

**5604.3.2 Low explosives.** *Explosive materials* that are not cap sensitive shall be stored in a Type 1, 2, 3, 4 or 5 magazine.

**5604.3.3 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.

**5604.4 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*.

**5604.5 Location.** The use of magazines for storage of *explosives* and *explosive materials* shall comply with Sections 5604.5.1 through 5604.5.3.3.

**5604.5.1 Indoor magazines.** The use of indoor magazines for storage of *explosives* and *explosive materials* shall comply with the requirements of Sections 5604.5.1.1 through 5604.5.1.7.

**5604.5.1.1 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.

**5604.5.1.2 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 1/2 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.

**5604.5.1.3 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 5605.6.4.1.

**5604.5.1.4 Prohibited use.** Indoor magazines shall not be used within buildings containing Group R occupancies.

**5604.5.1.5 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.

**5604.5.1.6 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.

**TABLE 5604.3  
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 <sup>a</sup> (pounds)				OUTDOOR (pounds)	MAGAZINE TYPE REQUIRED				
			Unprotected	Cabinet	Sprinklers	Sprinklers & cabinet		1	2	3	4	5
1.1 <sup>b</sup>	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	1	1	X	X	X	X	—
1.3	B	Low	0	0	5	10	1	X	X	X	X	—
1.4 <sup>c</sup>	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	Not Applicable	Not Applicable	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 5003.1.2.

b. Black powder shall be stored in a Type 1, 2, 3 or 4 magazine as provided for in Section 5604.3.1.

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

**5604.5.1.7 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).

**5604.5.2 Outdoor magazines.** All outdoor magazines other than Type 3 shall be located so as to comply with Table 5604.5.2(2) or Table 5604.5.2(3) as set forth in Tables 5601.8.1(1) through 5601.8.1(3). Where a magazine or group of magazines, as described in Section 5604.5.2.2, 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 5604.5.2(2).

**5604.5.2.1 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.

**5604.5.2.2 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.

**5604.5.3 Special requirements for Type 3 magazines.** Type 3 magazines shall comply with Sections 5604.5.3.1 through 5604.5.3.3.

**5604.5.3.1 Location.** Wherever practicable, Type 3 magazines shall be located away from neighboring inhabited buildings, railways, highways and other magazines in accordance with Table 5604.5.2(2) or 5604.5.2(3) as applicable.

**5604.5.3.2 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.

**5604.5.3.3 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.

**5604.6 Construction.** Magazines shall be constructed in accordance with Sections 5604.6.1 through 5604.6.5.2.

**5604.6.1 Drainage.** The ground around a magazine shall be graded so that water drains away from the magazine.

**5604.6.2 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.

**5604.6.3 Lighting.** When lighting is necessary within a magazine, electric safety flashlights or electric safety lanterns shall be used, except as provided in NFPA 495.

**5604.6.4 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*.

**5604.6.5 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  $\frac{1}{2}$  inch (12.7 mm). The signs shall be located to minimize the possibility of a bullet shot at the sign hitting the magazine.

**5604.6.5.1 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.

**5604.6.5.2 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.

**5604.7 Operation.** Magazines shall be operated in accordance with Sections 5604.7.1 through 5604.7.9.

**5604.7.1 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.

**5604.7.2 Open flames and lights.** Smoking, matches, flame-producing devices, open flames, firearms and firearms cartridges shall not be allowed inside of or within 50 feet (15 240 mm) of magazines.

**5604.7.3 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).

**5604.7.4 Combustible storage.** Combustible materials shall not be stored within 50 feet (15 240 mm) of magazines.

**5604.7.5 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*.

**5604.7.5.1 Storage of opened packages.** Packages of *explosive materials* that have been opened shall be closed before being placed in a magazine.

TABLE 5604.5.2(1)  
 AMERICAN TABLE OF DISTANCES FOR STORAGE OF EXPLOSIVES AS  
 APPROVED BY THE INSTITUTE OF MAKERS OF EXPLOSIVES AND REVISED JUNE 1991\*

QUANTITY OF EXPLOSIVE MATERIALS <sup>c</sup>		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 <sup>d</sup>	
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	1,880	285	570	786	1,572	94	188
18,000	20,000	975	1,950	290	580	813	1,626	98	196
20,000	25,000	1,055	2,000	315	630	876	1,752	105	210

(continued)

TABLE 5604.5.2(1)-continued  
**AMERICAN TABLE OF DISTANCES FOR STORAGE OF EXPLOSIVES AS  
 APPROVED BY THE INSTITUTE OF MAKERS OF EXPLOSIVES AND REVISED JUNE 1991<sup>a</sup>**

QUANTITY OF EXPLOSIVE MATERIALS <sup>c</sup>		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 <sup>d</sup>	
Pounds over	Pounds not over	Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded
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	610	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 <sup>b</sup>	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.

- 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.
- Storage in excess of 300,000 pounds of explosive materials in one magazine is not allowed.
- 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.
- 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 5604.5.2(2)

TABLE OF DISTANCES (Q-D) FOR BUILDINGS AND MAGAZINES CONTAINING EXPLOSIVES—DIVISION 1.3 MASS-FIRE HAZARD<sup>a, b, c</sup>

QUANTITY OF DIVISION 1.3 EXPLOSIVES (NET EXPLOSIVES WEIGHT)		DISTANCES IN FEET			
Pounds over	Pounds not over	Inhabited Building 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

- Black powder, when stored in magazines, is defined as low explosive by the Bureau of Alcohol, Tobacco, Firearms and Explosives (BATF).
- For quantities less than 1,000 pounds, the required distances are those specified for 1,000 pounds. The use of lesser distances is allowed when supported by approved test data and/or analysis.
- Linear interpolation of explosive quantities between table entries is allowed.

TABLE 5604.5.2(3)

TABLE OF DISTANCES (Q-D) FOR BUILDINGS AND MAGAZINES CONTAINING EXPLOSIVES—DIVISION 1.4<sup>c</sup>

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 <sup>a, b</sup> (IMD)	Intraline Distance (ILD) or Intraplant Distance <sup>a</sup> (IPD)
50	Not Limited	100	100	50	50

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

- 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*.
- For earth-covered magazines, no specified separation is required.
  - Earth cover material used for magazines shall be relatively cohesive. Solid or wet clay and similar types of soil are too 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.
  - 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.
- Restricted to articles, including articles packaged for shipment, that are not regulated as an explosive under Bureau of Alcohol, Tobacco, Firearms and Explosives 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.

**5604.7.5.2 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.

**5604.7.5.3 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.

**5604.7.6 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.

**5604.7.7 Contents.** Magazines shall be used exclusively for the storage of *explosive materials*, blasting materials and blasting accessories.

**5604.7.8 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.

**5604.7.9 Stock rotation.** When *explosive material* is removed from a magazine for use, the oldest usable stocks shall be removed first.

**5604.8 Maintenance.** Maintenance of magazines shall comply with Sections 5604.8.1 through 5604.8.3.

**5604.8.1 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.

**5604.8.2 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.

**5604.8.3 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.

**5604.9 Inspection.** Magazines containing *explosive materials* shall be opened and inspected at maximum seven-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.

**5604.10 Disposal of explosive materials.** *Explosive materials* shall be disposed of in accordance with Sections 5604.10.1 through 5604.10.7.

**5604.10.1 Notification.** The *fire code official* shall be notified immediately when deteriorated or leaking *explosive materials* are determined to be dangerous or unstable and in need of disposal.

*sive materials* are determined to be dangerous or unstable and in need of disposal.

**5604.10.2 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.

**5604.10.3 Qualified person.** The work of destroying *explosive materials* shall be directed by persons experienced in the destruction of *explosive materials*.

**5604.10.4 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.

**5604.10.5 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 allowed by Tables 5604.5.2(1), 5604.5.2(2) and 5604.5.2(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.

**5604.10.6 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.

**5604.10.7 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 5605 MANUFACTURE, ASSEMBLY AND TESTING OF EXPLOSIVES, EXPLOSIVE MATERIALS AND FIREWORKS

**5605.1 General.** The manufacture, assembly and testing of explosives, ammunition, blasting agents and fireworks shall comply with the requirements of this section, Title 59.1, Chapter 11 of the Code of Virginia, 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.

**5605.1.1 Permits.** Permits for the manufacture, assembly and testing 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 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.

**5605.2 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.

**5605.2.1 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 *fire code official* and the local fire department.

**5605.2.2 Maintenance of plans.** A copy of the required HMMP and HMIS shall be maintained on site and furnished to the *fire code official* on request.

**5605.2.3 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.

**5605.2.4 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.

**5605.3 Intraplant separation of operating buildings.** *Explosives* manufacturing buildings 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 5605.3 or 5604.5.2(3), 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.

TABLE 5605.3  
MINIMUM INTRALINE (INTRAPLANT) SEPARATION DISTANCES (ILD OR IPD) BETWEEN BARRICADED OPERATING BUILDINGS CONTAINING EXPLOSIVES—DIVISION 1.1, 1.2 OR 1.5 MASS-EXPLOSION HAZARD<sup>a</sup>

NET EXPLOSIVE WEIGHT			NET EXPLOSIVE 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.

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.

**5605.4 Separation of manufacturing operating buildings from inhabited buildings, public traffic routes and magazines.** When an 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 5604.5.2(2) or 5604.5.2(3) as appropriate, based on the maximum quantity of *explosive* materials permitted to be in the building at one time (see Section 5601.8).

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

**5605.4.1 Determination of net explosive weight for operating buildings.** In addition to the requirements of Section 5601.8 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.

**5605.4.1.1 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).

**5605.4.1.2 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).

**5605.4.1.3 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 5604.5.2.

**5605.4.1.4 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).

**5605.5 Buildings and equipment.** Buildings or rooms that exceed the *maximum allowable quantity per control area* of *explosive materials* shall be operated in accordance with this section and constructed in accordance with the requirements of the *International Building Code* for Group H occupancies.

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

**5605.5.1 Explosives dust.** *Explosives* dust shall not be exhausted to the atmosphere.

**5605.5.1.1 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.

**5605.5.1.2 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.

**5605.5.2 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.

**5605.5.3 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.

**5605.6 Operations.** Operations involving *explosives* shall comply with Sections 5605.6.1 through 5605.6.10.

**5605.6.1 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.

**5605.6.2 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.

**5605.6.3 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.

**5605.6.4 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 5605.3 or 5604.5.2(3), as appropriate.

**5605.6.4.1 Magazines.** Magazines used for storage in processing areas shall be in accordance with the requirements of Section 5604.5.1. 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 5605.3 or 5604.5.2(3), as appropriate.

**5605.6.5 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.

**5605.6.6 Safety rules.** General safety rules and operating instructions governing the particular operation or process conducted at that location shall be available at each location.

**5605.6.7 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.

**5605.6.8 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 allowed 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.

**5605.6.9 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.

**5605.6.10 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.

**5605.7 Maintenance.** Maintenance and repair of *explosives*-manufacturing facilities and areas shall comply with Section 5604.8.

**5605.8 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.

**5605.8.1 Protective clothing and equipment.** Protective clothing and equipment shall be provided to protect persons engaged in the testing, ignition or *detonation* of *explosive materials*.

**5605.8.2 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.

**5605.9 Waste disposal.** Disposal of *explosive materials* waste from manufacturing, assembly or testing operations shall be in accordance with Section 5604.10.

## SECTION 5606 SMALL ARMS AMMUNITION AND SMALL ARMS AMMUNITION COMPONENTS

**5606.1 General.** Indoor storage and display of black powder, smokeless propellants, small arms primers and small arms ammunition shall comply with this section and NFPA 495.

**5606.2 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*.

**5606.3 Packages.** Smokeless propellants shall be stored in *approved* shipping containers conforming to DOTn 49 CFR Part 173.

**5606.3.1 Repackaging.** The bulk repackaging of smokeless propellants, black powder and small arms primers shall not be performed in retail establishments.

**5606.3.2 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.

**5606.4 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 Groups 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 (3048 mm) 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.

**5606.4.1 Black powder.** (Section deleted.)

**5606.4.2 Smokeless propellants.** (Section deleted.)

**5606.4.3 Small arms primers.** (Section deleted.)

**5606.5 Display and storage in Group M occupancies.** The display and storage of small arms ammunition components in Group M occupancies shall comply with Sections 5606.5.1 through 5606.5.2.3.

**5606.5.1 Display.** Display of small arms ammunition components in Group M occupancies shall comply with Sections 5606.5.1.1 through 5606.5.1.3.

**5606.5.1.1 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.

**5606.5.1.2 Black powder.** No more than 1 pound (0.454 kg) of black powder shall be displayed in Group M occupancies.

**5606.5.1.3 Small arms primers.** (Section deleted.)

**5606.5.2 Storage.** Storage of small arms ammunition components shall comply with Sections 5606.5.2.1 through 5606.5.2.3.

**5606.5.2.1 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.
  - 3.5. 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) or by a fire partition having a fire-resistance rating of 1 hour.

3.6. 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.

**5606.5.2.2 Black powder.** Commercial stocks of black powder in quantities less than 50 pounds (23 kg) shall be allowed 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.

**5606.5.2.3 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  $\frac{1}{4}$  inch thick (6.4 mm), 2-inch (51 mm) nominal thickness wood, brick or concrete block.
  - 2.5. 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.

- 2.6. 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 5604 and NFPA 495.

## SECTION 5607 BLASTING

**5607.1 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.

**5607.2 Manufacturer's instructions.** Blasting operations shall be performed in accordance with the instructions of the manufacturer of the *explosive materials* being used.

**5607.3 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.

**5607.4 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*.

**5607.5 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*.

**5607.6 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.

**5607.7 Nonelectric detonator precautions.** Precautions shall be taken to prevent accidental initiation of nonelectric detonators from stray currents induced by lightning or static electricity.

**5607.8 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.

**5607.9 Drill holes.** Holes drilled for the loading of *explosive* charges shall be made and loaded in accordance with NFPA 495.

**5607.10 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.

**5607.11 Initiation means.** The initiation of blasts shall be by means conforming to the provisions of NFPA 495.

**5607.12 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.

**5607.13 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 5607.10, all persons and equipment are at a safe distance or under sufficient cover and that an adequate warning signal has been given.

**5607.14 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.

**5607.15 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.

**5607.16 Blast records.** A record of each blast shall be kept and retained for at least 5 years and shall be readily available for inspection by the code official. The record shall be in a format selected by the blaster and shall contain the minimum data and information indicated in Form 5607.16.

FORM 5607.16  
BLAST (SHOT) RECORD

Block 1 General Information				
1	Blast date:	Blast Number:	Blast Time:	Permit Number:
2	Blast location by address including city, county or town:			
3	Blast location by GPS coordinates: <input type="checkbox"/> check box if unknown			
4	Name of permit holder:			
5	Name of blaster in charge (print):			
6	Signature of blaster in charge:			
7	Certification number of blaster in charge:			

Block 2 General Environmental Conditions			
1	Weather (clear, cloudy or overcast):	Wind direction and speed:  @ _____ mph	Temperature: F° / C°
2	Topography (flat, hilly or mountainous):	Distance from blast site to nearest inhabited building:	Distance from nearest inhabited building determined by: <input type="checkbox"/> GPS coordinates <input type="checkbox"/> Measurement <input type="checkbox"/> Estimated
3	Use of nearest inhabited building (dwelling, business, apartment building, school, etc.):	Direction from blast site to nearest inhabited building:	Direction from blast site to nearest inhabited building determined by: <input type="checkbox"/> GPS instrument <input type="checkbox"/> Compass <input type="checkbox"/> Estimated
Additional blaster notations on environmental conditions:			

Block 3 Shot Layout and Precautions Taken (N/A = Not Applicable)			
1	Number of holes:	Diameter of hole or holes:	Depth of hole or holes:
2	Were any holes decked? <input type="checkbox"/> Yes <input type="checkbox"/> No	How many holes were decked? <input type="checkbox"/> N/A	How many decks per hole? <input type="checkbox"/> N/A
	(If applicable, indicate on any attached shot pattern drawing which holes were decked and the number of decks for the holes.)		
3	Shot pattern:  <input type="checkbox"/> Check this box if only single hole.	Depth of sub-drilling:	Drilling angle:
4	Burden:	Spacing of holes:	Water height:
5	Stemming height:	Material used for stemming:	Check box for flyrock precautions taken: <input type="checkbox"/> Mats <input type="checkbox"/> Overburden <input type="checkbox"/> None taken
Additional blaster notations on shot layout and precautions:			

(continued)

FORM 5607.16—continued  
BLAST (SHOT) RECORD

Block 4 Seismic Control Measures (N/A = Not Applicable)			
1	Was scaled distance formula used? <input type="checkbox"/> Yes <input type="checkbox"/> No	Indicate which scaled distance equation was used: <input type="checkbox"/> N/A <input type="checkbox"/> $W(lb)=[D(ft)/50]^2$ <input type="checkbox"/> $W(lb)=[D(ft)/55]^2$ <input type="checkbox"/> $W(lb)=[D(ft)/65]^2$	Maximum allowable charge weight per 8 ms based on scaled distance: <input type="checkbox"/> N/A
2	Was seismograph used? <input type="checkbox"/> Yes <input type="checkbox"/> No	Seismograph manufacturer and model number: <input type="checkbox"/> N/A	Seismograph serial number: <input type="checkbox"/> N/A  Seismograph's last calibration date: <input type="checkbox"/> N/A
3	Distance and direction seismograph from blast site: <input type="checkbox"/> N/A	Distance determined by: <input type="checkbox"/> N/A <input type="checkbox"/> GPS coordinates <input type="checkbox"/> Estimated <input type="checkbox"/> Measurement	
4	Seismograph <input type="checkbox"/> N/A Geophone minimum frequency _____ Hz Seismograph microphone minimum frequency _____ Hz	Seismograph recordings: <input type="checkbox"/> N/A Transverse _____ in/s _____ Hz Vertical _____ in/s _____ Hz Longitudinal _____ in/s _____ Hz Acoustic _____ dB _____ Hz	
5	Seismograph trigger level: <input type="checkbox"/> N/A _____ in/s _____ dB		
Additional blaster notations on seismic control measures:			

Block 5 Quantity and Product				
1	Maximum allowable charge weight per 8 ms interval: <input type="checkbox"/> Delay not used _____ lbs	Initiation (check): <input type="checkbox"/> Electric <input type="checkbox"/> Non-electric <input type="checkbox"/> Electronic		
2	Maximum number of holes/decks per 8 ms interval: <input type="checkbox"/> Delay not used _____ lbs			
3	Maximum weight or sticks of explosive per hole: _____ lbs	Firing device manufacturer and model: <input type="checkbox"/> N/A		
Explosive product listing (attach additional pages as needed):				
4	Manufacturer	Product name, description or brand	Number of units	Unit weight (lb)
5	Total explosive weight in this shot:			lbs.
Additional blaster notations on product and quantities:				

(continued)

FORM 5607.16—continued  
BLAST (SHOT) RECORD

Block 6	
Completion of Shot Record and General Comments	
General comments on shot not included in notes above:	
Date shot report completed:	Time shot report completed:
Printed name and signature of person completing shot report if different from Block 1, lines 5 and 6.	(Print)
	(Signature)

**SECTION 5608  
FIREWORKS DISPLAY**

**5608.1 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 5608.2 through 5608.10 and NFPA 1123 or NFPA 1126.

**5608.2 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 5601.2.3.1, 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 5601.4.1.

**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.

**5608.2.1 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 fireworks 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.

**5608.2.2 Use of pyrotechnics before a proximate audience.** Where the separation distances required in Section 5608.4 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*.

**5608.3 Approved fireworks displays.** Approved fireworks displays shall include only the approved fireworks 1.3G, fireworks 1.4G, fireworks 1.4S 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 certified by the SFMO in accordance with Section 5601.4.1 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.

**5608.4 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 feet-per-inch (31 m/2.4 mm) radius of internal mortar diameter of the largest shell to be fired as shown in Table 5608.4.

**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.

**TABLE 5608.4  
DISTANCES FOR OUTDOOR FIREWORKS DISPLAY SITES: MINIMUM SEPARATION  
DISTANCES FROM MORTARS TO SPECTATORS FOR LAND AND WATER DISPLAYS**

MORTAR SIZE <sup>a</sup>		MINIMUM SECURED DIAMETER OF SITE		VERTICAL MORTARS <sup>b</sup>		ANGLED MORTARS <sup>c</sup> 1/3 OFFSET		MORTARS TO SPECIAL HAZARDS <sup>d</sup>	
inch	mm	feet	m	feet	m	feet	m	feet	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	1,000	305	500	152	334	102	1,000	305
6	152	1,200	366	600	183	400	122	1,200	366
7	178	1,400	427	700	213	467	142	1,400	427
8	203	1,600	488	800	244	534	163	1,600	488
10	254	2,000	610	1,000	305	667	203	2,000	610
12	305	2,400	732	1,200	366	800	244	2,400	732
> 12	Requires the approval of the fire official								

a. 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-inch (76-mm) aerial shells, mines and comets are only for use in 3-inch (76 mm) mortars].

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

c. 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.

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

2. This provision shall not apply to unoccupied dwellings, buildings and structures with the approval of the building owner and the fire code official.

#### 5608.4.1 Non-splitting, non-bursting comets and mines.

For non-splitting or non-bursting comets and mines containing only stars or non-splitting or non-bursting comets, the minimum required radius of the display site shall be 50 feet per inch (15.24 m per 25.4 mm) of the internal mortar diameter of the largest comet or mine to be fired, one-half that shown in Table 5608.4.

**5608.4.2 Special distance requirements.** The minimum distance requirements of Table 5608.4 shall be adjusted as follows:

1. For chain-fused aerial shells and comets and mines to be fired from mortars, racks, or other holders that are sufficiently strong to prevent their being repositioned in the event of an explosive malfunction of the aerial shells, comets, or mines, the minimum required radius shall be the same as that required in Sections 5608.4 and 5608.4.1. For chain-fused aerial shells and comets and mines to be fired from mortars, racks, or other holders that are not sufficiently strong to prevent their being repositioned in the event of an explosive malfunction of the aerial shells, comets, or mines, or if there is doubt concerning the strength of racks holding chain-fused mortars, based upon the largest mortar in the sequence, the minimum required radius shall be double that required in Sections 5608.4 and 5608.4.1.
2. Distances from the point of discharge of any firework to a health care or detention and correctional facility, or the bulk storage of materials that have flammability, explosive, or toxic hazard shall be at least twice the distances specified in Table 5608.4.
3. The minimum required spectator separation distance for roman candles and cakes that produce aerial shells, comets, or mine effects shall be the same as the minimum required radius specified in Table 5608.4.
4. Aerial shells, comets and mines, and roman candles and cakes shall be permitted to be angled if the dud shells or components are carried away from the main spectator area and either of the following requirements is satisfied:
  - 4.1. The offset specified in Table 5608.4 is followed.
  - 4.2. The separation distance is correspondingly increased in the direction of the angle.

If the offset provided in Table 5608.4 is followed, the mortars or tubes shall be angled so that any dud shells or components fall at a point approximately equal to the offset of the mortars or tubes from the otherwise required discharge point but in the opposite direction.

**5608.5 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.

**5608.5.1 Supervision and weather protection.** Beginning as soon as fireworks have been delivered to the display site, they shall not be left unattended.

**5608.5.2 Weather protection.** Fireworks shall be kept dry after delivery to the display site.

**5608.5.3 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 mortars prior to discharge. Aerial shells that do not fit properly shall not be fired. After the fireworks display, damaged, deteriorated or dud shells shall either be returned to the supplier or destroyed in accordance with the supplier's instructions and Section 5604.10.

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

**5608.5.4 Sorting and separation.** After delivery to the display site and prior to the fireworks 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.

**5608.5.5 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 fireworks displays, or fireworks 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.

**5608.6 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.

**5608.7 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.

**5608.8 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.

**5608.9 Post-fireworks display inspection.** After the fireworks 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*.

**5608.10 Disposal.** Any shells found during the inspection required in Section 5608.9 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 5604.10.

### **SECTION 5609 TEMPORARY STORAGE OF CONSUMER FIREWORKS**

**5609.1 General.** Where the temporary storage of consumer fireworks, 1.4G is allowed by Section 5601.1.3, Exception 4, such storage shall comply with the applicable requirements of NFPA 1124.

**End of extract.**