

Blasting 101

-- Beth Brough
94 Singletree

Let's just say that my only past exposure to blasting was with a previous property and it was not exactly an optimal experience. Consequently, eighteen years ago, Joe and I were elated when we did not need to blast for our partial basement and crawl space even though our home sits on a hill of rock. Yet, when the prospect for blasting with the new construction on Fernbank's last lots, mostly nestled among developed properties, became very real, I decided to set out on my own investigation. My "game plan" was to achieve a very simple baseline of knowledge that might help myself or anyone else to understand what's involved as well as what are the possible avenues and questions for the added protection of an existing residence. I am not going to pretend that I am any sort of expert even now and that there isn't much, much more to the information out there. I had heard that great changes have happened since 911. The purpose of this article is just a jumpstart to that working baseline of information to prompt a discussion with the professionals.

The "game plan" entailed not only contacting the state regulator but also "in the field" local blasting contractors to make informed comparisons in the hope of achieving a fundamental layman's understanding of what to anticipate as a basic level of quality, reputable service. And guess what? The information from both types of sources matched remarkably, pretty much achieving the goal. Internet searches confirmed expectations with a great deal of more technical information. The following Q&A pretty much outlines my path.

Q & A:

1. What entity regulates blasting in the state of West Virginia?

Blasting is regulated by the West Virginia Fire Commission-Office of the State Fire Marshal in Charleston, WV. A blasting contractor should be licensed with this state office.

2. What document outlines all the regulations regarding explosives in the West Virginia and where can I find it?

The WV State Fire Code Title 87-01, Section 2.2.o through 2.2.s or pages 15 to 21 of the pdf copy that can be found on the FUAO website or with a pdf link. As you will see on the copy, this amendment to the existing legislative rule was recently effective 8/1/2020.

3. What do the FUAO regulations indicate?

In the "Design Guidelines and Design Review Process for Fernbank at Cress Creek - Appendix 2: Regulations" (or page 19 of the actual manual on the website copy) states: (See pdf link.)

CONSTRUCTION PERIOD REGULATIONS

In the interest of all owners and contractors, the following regulations shall be enforced during the construction period. These regulations shall be a part of the construction contract document specifications for each residence, and all contractors and owners shall abide by these regulations. It is also required that the contractor be familiar with and abide by the applicable sections of the Declaration and the Guidelines.

Blasting

Any plans to blast shall be brought to the attention of the ARC before commencement and shall be approved by the ARC. The ARC shall generally permit blasting only on weekdays. Proper safety and protective actions shall be used.

State and County regulations for licensing requirements for blasting shall hold including proper notification and seismographic procedures that are required.

See the introduction to Appendix 2 for an explanation of the legal basis for the above regulation.

4. How does the Fernbank resident become informed of what “proper safety and protective actions” are being used in the case that blasting should take place in the vicinity of their residence?

On the FUAO website, there are thirteen questions that resident homeowners should ask the prospective residents and their contractor concerning proposed blasting for new construction. These questions were discussed and approved by the Division Director for the WV Fire Safety Inspection Division at the State Fire Marshal’s Office in Charleston. As a post-script here, I added six of my own personal questions.

See pdf link.

All of the approved questions cited in #4 are important, yet the remainder of this newsletter article intends to convey the major categories addressed by these questions.

Here is a Summary of What One Can Anticipate from Reputable Companies:

1. A Written Blast Plan:

Pre-Blast Prep: *Entails pre-blast preparation or survey, both interior and exterior. Then, there is the creation of a blast design usually by a rock blasting superintendent and a safety specialist. Seismic survey professionals can also be involved here to help with identifying structural conditions potentially even utilizing digital imagery. Foundation walls, drywall partitions, flooring, sidewalks as well as building materials and water supply are all surveyed.*

Plan Purpose: *Provides a project specific information concerning blasting procedures, safety and measures for the best management practices including seismographic implementation.*

Sample Blast Plan Template with Typical Topics where Appropriate:

- Introduction
- Pre- and Post-Blast Surveys and Notifications
- Typical Blast Design
- Blast Monitoring
- Blast Reports
- Sequence of Blasting
- Blasting Procedures
- Blast Vibration
- Blast Area Security and Warning Signals
- Delivery and Storage of Explosives
- Licenses and Permits
- Blaster Qualifications
- Blasting Personnel / Blaster Licenses
- Sample Loaded Hole Diagrams
- Sample Blast Hole
- Vibration Limits

2. A Written Safety Plan often included in the Blast Plan

3. A Copy of the Blasting Contractor’s Insurance Policy

You may have to ask for this, but you are entitled to it.

4. A Pre-blast Video Survey (preferably 3rd party)

*Every source, **fairly emphatically**, alluded to the fact that the neighboring homeowners should request/be offered some type of pre-blast survey.*

A video pre-blast survey provides a baseline from which to judge post-blast damage. It protects both the homeowner and the blasting contractor. “Third party” alludes to a videographer that is not associated with either the homeowner or the blasting contractor. The video firm will secure the video from view unless needed post-blasting.

I was told that properties within just less than a football field length from the blast site were eligible to some type of pre-blast survey. It should be noted that there were various answers about the distance from the blast, but the “football field” correlation seems to cover most answers given.

5. A Pre-Blast Meeting that goes over all of the above

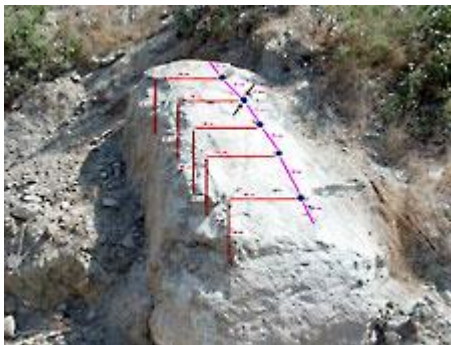
Factors that Caught My Attention:

1. **Blasting Product Mediums:** *It was noted by one safety manager that blasting can be an implosion as well as an explosion allowing for greater safety options. This should be discussed in the blast plan and design. There are choices here that are much more important than a layman may realize. Please note that one of the thirteen approved questions concerns product medium. A couple products here surprised me.*

Emulsions: *Greater stability can be offered by an emulsion product that is mechanically mixed by a computer controlled system and a specific ratio of materials is pumped down into the borehole.*

Demolition grout: *One construction contractor called this one to my attention. He described a project of his whereby he had to build an addition on a 100 year old home. He needed to “blast” for the new foundation but that would have literally destroyed the original home. His answer was demolition grout which is a non-explosive, expansive agent poured in small boreholes ultimately splitting the rock formations for removal.*

Before:



After:



2. **Some interesting technologies implemented by the industry:**

- Non-electric blasting techniques permitting a series of small explosions, thousandths of seconds apart, with less risk and more control
- Stable explosive gels, also known as bulk packages in “sausage casings” pumped into boreholes for more powerful precision
- Computer-aided blast design
- Boretrak system that produces a 3D view of the hole
- Laser tracking or laser beams pulsed off rock providing 3D read for use in the loading process

13 Recommended Questions

1. Who's the blasting contractor? Is the blasting contractor compliant with the WV State Fire Code Title 87-01, Section 2.2.o through 2.2.s or pages 15 to 21? Are they licensed with the state of West Virginia?
2. How many shots are they going to do?
3. What product are they using?
4. What are they using to keep stemming in place? Stemming is the material that is put inside of a blast hole to help prevent gases from escaping.
5. What is their mitigation to control adverse effects? Will they use/need mats? Blankets?
6. Do they maintain a blast log?
7. Do they have a blast plan? Do they do a blast diagram or shot plot of the blast site?
8. What's the name of the seismograph company? Qualifications? Experience? A seismograph will be needed at the nearest dwelling to demonstrate compliance with ground vibrations and air blast limits.
9. Who is going to do the shooting? The site evaluation?
10. Are they aware that 2 business days warning to WV State Fire Marshal is required prior to blasting? i.e. warning on a Monday for a Wednesday blast.
11. Do they do gas detection in our basements or crawl spaces?
12. Are they doing a pre-blast video site survey of all properties? This should be a third party survey that secures the video from the blasting company.
13. Do they blast when there is a low ceiling?

Questions from a more personal perspective:

1. Who's the builder? Excavator?
2. How is the blasting contractor regulated and inspected?
3. Regarding the individual shooter and seismologist assigned to this specific job, how are they qualified and experienced? Licenses? Certifications? Bonded? Insured? How long have they been in the business?
4. Please discuss/explain the ground vibration limitations as defined and illustrated in NFPA 495, 11.1.2.1(a) diagram in Section 2.2.o.6.C. or page 16 of the WV State Fire Code Title 87-01.
5. How do we protect valuables such as windows and irreplaceable antique/art breakables?
6. If the blasting cracks a foundation and/or a brick wall, what is our recourse? Foundations are repairable but not re-pourable. A repaired foundation can still devalue a home.

LEGAL BASIS

Authority for design review is grounded in the governing document for the Subdivisions at Cress Creek community, the "Master Declaration of Covenants, Conditions, and Restrictions of Cress Creek."

Under the terms of this document, the ARC, as defined in Article XXIV of the Declaration, hereby adopts these Design Guidelines as the basis for all design review. Should these Guidelines be revised, such revisions shall then take precedence over previous Guidelines.

The Declaration shall govern should any discrepancies occur between these Guidelines and the Declaration.

CONSTRUCTION PERIOD REGULATIONS

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State and County regulations for licensing requirements for blasting shall hold including proper notification and seismographic procedures that are required.

Burn & Bury

Open burning is permitted on the site only in accordance with County/State regulations. No stumps or trash may be buried on the site.

Chemical Toilets

Chemical toilets shall be provided by the contractor and placed in an approved location. All chemical toilets shall be confined to the street side of the Lots.

Construction Entrance

A 12' wide entrance shall be designated on the site plan and completed before commencement of house plan excavation. It shall be of 4 inches of ballast stone for a minimum of 25 feet from edge of asphalt roadway. Drainage swale flows may not be blocked during construction. All deliveries and ingress/egress to the lot shall take place on the construction entrance. Mud from the site tracked onto the roadway shall be removed by contractor within 24 hours.

Construction Limits

The contractor shall provide a detailed plan of construction limits prior to construction. The plan shall be implemented with snowfencing, rope barricades, or like material prior to construction. The plan shall include size and location for construction material storage areas, limits of excavation, access areas, parking, chemical toilet location, temporary structures, dumpster, fire extinguisher, utility trenching and a construction sign.

Construction Trailers, Sheds, or Temporary Structures

These construction shelters shall be approved by the ARC as to their size, configuration, and location. All temporary structures shall be removed after the occupancy permit issuance.



WEST VIRGINIA SECRETARY OF STATE

MAC WARNER

ADMINISTRATIVE LAW DIVISION

eFILED

5/5/2020 9:37:57 AM

Office of West Virginia
Secretary Of State

**NOTICE OF FINAL FILING AND ADOPTION OF A LEGISLATIVE RULE AUTHORIZED
BY THE WEST VIRGINIA LEGISLATURE**

AGENCY: Fire Commission TITLE-SERIES: 87-01
RULE TYPE: Legislative Amendment to Existing Rule: Yes Repeal of existing rule: No
RULE NAME: Fire Code
CITE STATUTORY AUTHORITY: 29-3-5, 15A-11-3

The above rule has been authorized by the West Virginia Legislature.

Authorization is cited in (house or senate bill number) 4275

Section 64-6-1(a) Passed On 3/7/2020 12:00:00 AM

This rule is filed with the Secretary of State. This rule becomes effective on the following date:

August 1, 2020

This rule shall terminate and have no further force or effect from the following date:

August 01, 2025

BY CHOOSING 'YES', I ATTEST THAT THE PREVIOUS STATEMENT IS TRUE AND CORRECT.

Yes

Stacy L Nowicki-Eldridge -- By my signature, I certify that I am the person authorized to file legislative rules, in accordance with West Virginia Code §29A-3-11 and §39A-3-2.

TITLE 87
LEGISLATIVE RULE
FIRE COMMISSION

SERIES 1
FIRE CODE

§ 87-1-1. General.

1.1. Scope. -- This rule establishes the State Fire Code for the safeguarding of life and property from the hazards of fire and explosion.

1.2. Authority. -- This legislative rule is issued under authority of W. Va. Code § 29-3-5.

1.3. Filing Date. -- May 5, 2020.

1.4. Effective Date. -- August 1, 2020.

1.5. Sunset Provision. -- This rule shall terminate and have no further force or effect on August 1, 2025.

1.6. Exemption. -- This State Fire Code has no application to personal care homes caring for three or less patients or buildings used wholly as dwelling houses for no more than two families and has no application to farm structures. Provided; however, that farm structures (1) used for group sleeping accommodations for farm workers or (2) used for educational, health care, assembly or detention/correctional occupancy are not exempt from the requirements of this State Fire Code.

1.7. Incorporation of Other Documents. -- This State Fire Code does not include a reprinting of all the requirements imposed by statute or by the incorporation of various National Standards and Codes cited in section 2 of this rule. For ascertaining these additional standards and requirements it is necessary to make reference to these other documents.

§ 87-1-2. National Standards and Codes.

2.1. The standards and requirements as set out and established by NFPA 1 of the 2018 edition of "The National Fire Codes" published by the National Fire Protection Association ("NFPA") and has the same force and effect as if set out verbatim in this rule and is hereby adopted and promulgated by the State Fire Commission as a part of the State Fire Code with the following exceptions or additions:

2.1.a. NFPA 101 2018_edition is adopted in full, as opposed to the limited capacity as set forth in NFPA 1, with the following additions:

2.1.a.1. NFPA 101 section 11.8 is adopted in full with the following additions:

2.1.a.1.A. Any new building or structure more than forty (40) feet in height, measured from the lowest level of fire department vehicle access to the floor of the highest normally occupied space used for human occupancy of the structure, is subject to this paragraph for high rise buildings. This rule shall not nullify or interfere with existing city high rise ordinances or local laws previously adopted prior to September 8, 1975 relative to high rise buildings. Industrial occupancies not occupied as business offices are exempted from the provisions of this paragraph.

2.1.a.1.B. Addition of Floors to Existing Buildings. -- Whenever floors are added to an existing building, which previously was not a high rise, causing the building to become a high rise, the building shall qualify as a new building for purposes of this rule.

2.1.a.1.C. Automatic Fire Extinguishing Systems & Standpipe Systems. -- Any building or structure as defined in subparagraphs 2.1.a.1.A. or 2.1.a.1.B. of this rule and used for human occupancy shall have an approved automatic fire extinguishing system throughout the entire building and standpipe systems installed in accordance with The National Fire Codes, adopted under section 2 of this rule. Class I Manual Standpipe Systems may be used up to 75 feet as adopted by NFPA 14, Standard for Standpipe Systems.

2.1.a.1.D. Fire Alarm System. -- The fire alarm system of a high rise building shall conform to the Standards imposed by this rule.

2.1.a.1.E. Fire Department Voice Communication System. -- A High rise building or structure used for human occupancy that is seventy-five (75) feet in height or greater as measured in accordance with subparagraph 2.1.a.1.A. of this Section shall have an approved electrically supervised fire department voice communication system. The Fire Department Voice Communication System shall be located at each floor level of stair enclosures, elevator lobbies, the penthouse and in any elevator designated for fire department use. This system shall be a telephone jack system unless specifically approved otherwise by the designated fire authority having jurisdiction.

2.1.a.1.F. High Rise Central Control Station. -- In every high rise building as defined in subparagraphs 2.1.a.1.A. and 2.1.a.1.B. of this section, a central control station for fire department operations shall be provided in a location approved by the State Fire Marshal or the designated local fire authority. The Central Control Station shall contain: (1) the fire department voice communication system panel when required, (2) fire detection and alarm system panels, (3) status indicators for the heating, ventilation and air conditioning (HVAC), smoke control system, fire pumps and emergency generator and a (4) telephone approved by designated fire authority having jurisdiction. Emergency lighting shall be provided at the Central Control Station.

2.1.a.1.G. Emergency Power. -- A permanently installed emergency power generation system conforming to The National Fire Codes adopted by section 2 of this rule shall be provided in every high rise building 75 feet in height or greater, as measured in accordance with subparagraph 2.1.a.1.A. of this section. All power, lighting, signal, and communication facilities, required by this rule or otherwise, shall be transferable automatically to the emergency power system. The emergency power system shall be of sufficient capacity to provide service for, but not limited to, the following:

- 2.1.a.1.G.1. the Fire Alarm System;
- 2.1.a.1.G.2. Exit & Other Emergency Lighting;
- 2.1.a.1.G.3. Fire Protection Equipment;
- 2.1.a.1.G.4. the Smoke Management System;
- 2.1.a.1.G.5. the Fire Department Elevator;
- 2.1.a.1.G.6. the Fire Department Voice Communication System; and

2.1.a.1.G.7. the Fire Pumps.

2.1.a.1.H. Smoke Management. -- In all high rise buildings as defined in subparagraphs 2.1.a.1.A. and 2.1.a.1.B. of this section, a smoke management system designed in accordance with NFPA 92 Smoke-Control Systems, shall be provided and acceptable to the State Fire Marshal.

2.1.a.1.I. Floor Designation. -- All stairway doors, both on the stairway and entrance side, shall indicate the floors by number. The floor number shall be in at least 6" block letters in a contrasting color

2.1.b. Except as otherwise provided in this rule, the standards set forth in section 2.2 of NFPA 1 are modified as follows:

2.1.b.1. NFPA 5000 is excluded in its entirety;

2.1.b.2. NFPA 472 is excluded in its entirety;

2.1.b.3. NFPA 120 is excluded in its entirety;

2.1.b.4. NFPA 101A is excluded in its entirety.

2.1.c. Except as otherwise provided in this rule, the following NFPA standards are incorporated as if set forth fully herein:

2.1.c.1. NFPA 12 (2018 edition) is included in its entirety.

2.1.c.2. NFPA 12A (2018 edition) is included in its entirety.

2.1.c.3. NFPA 16 (2018 edition) is included in its entirety.

2.1.c.4. NFPA 34 (2018 edition) is included in its entirety.

2.1.c.5. NFPA 45 (2018 edition) is included in its entirety.

2.1.c.6. NFPA 85 (2018 edition) is included in its entirety.

2.1.c.7. NFPA 91 (2018 edition) is included in its entirety.

2.1.c.8. NFPA 92 (2018 edition) is included in its entirety.

2.1.c.9. NFPA 102 (2018 edition) is included in its entirety.

2.1.c.10. NFPA 170 (2018 edition) is included in its entirety.

2.1.c.11. NFPA 204 (2018 edition) is included in its entirety.

2.1.c.12. NFPA 253 (2018 edition) is included in its entirety.

2.1.c.13. NFPA 265 (2018 edition) is included in its entirety.

2.1.c.14. NFPA 286 (2018 edition) is included in its entirety.

- 2.1.c.15. NFPA 326 (2018 edition) is included in its entirety.
- 2.1.c.16. NFPA 410 (2018 edition) is included in its entirety.
- 2.1.c.17. NFPA 701 (2018 edition) is included in its entirety.
- 2.1.c.18. NFPA 914 (2018 edition) is included in its entirety.
- 2.1.c.19. NFPA 1123 (2018 edition) is included in its entirety.
- 2.1.c.20. NFPA 1124 (2006 edition) is included in its entirety.
- 2.1.c.21. NFPA 1141 (2017 edition) is included in its entirety.
- 2.1.c.22. NFPA 2001 (2018 edition) is included in its entirety.
- 2.1.c.23. NFPA 2010 (2018 edition) is included in its entirety.

2.1.c.24. SUPPLEMENT VOLUME 1: Tentative Interim Amendment to NFPA 70, Revise Article 517.41(E) to read as follows: (E) Receptacle Identification. The cover plates for the electrical receptacles or the electrical receptacles themselves supplied from the essential electrical system shall have a distinctive color or marking so as to be readily identifiable. [99:6.5.2.2.4.2]

2.2. For purposes of this rule, the following shall be in addition to, and override and take precedent over any standard set forth in NFPA 1, or NFPA 101.

2.2.a. Sprinkler Protection and Area Limitations.

2.2.a.1 Approved automatic sprinkler systems in accordance with the applicable NFPA Standard for Sprinkler Systems will be installed in all new buildings used for any occupancy, exceeding the area limitations noted in the chart at the end of this subsection. Sprinkler protection for occupancies covered by section 2 of this rule are required to provide sprinkler protection regardless of area limitations. *See Table 2.2.a. below.*

2.2.a.2 All residential occupancies, except one- and two-family dwellings, shall prominently display signage stating whether the building contained an approved automatic sprinkler and whether the windows are capable of being opened or broken in an emergency.

**TABLE 2.2.a.
SPRINKLER PROTECTION & AREA LIMITATION**
BUILDING HEIGHT**

Type of Construction	1 Story	2 Story	More than 2 Stories and Up to 40 ft.	More than 40 feet	More than 75 feet
Type I					
443					
Fire Resistive	50,000	45,000	15,000	Sec. 2.1-High Rise	Sec. 2.1-High Rise
332					
Fire Resistive	40,000	30,000	10,000	Sec. 2.1-High Rise	Sec. 2.1-High Rise
Type II					
222					
Protected Non-Com.	35,000	25,000	10,000	Sec. 2.1-High Rise	Sec. 2.1-High Rise
111					
Protected Limited Combustible	30,000	20,000	8,000	Sec. 2.1-High Rise	Sec. 2.1-High Rise
000					
Unprotected Limited Unprotected Non-Com.	12,000	8,000	Sprinklered	Not Permitted	Not Permitted
Type III					
211					
Protected Ordinary	10,000	6,000	Sprinklered	Not Permitted	Not Permitted
200					
Non-Protected Ordinary	8,000	4,000	Sprinklered	Not Permitted	Not Permitted
Type IV					
2HH					
Heavy Timber	9,000	6,000	Sprinklered	Not Permitted	Not Permitted
Type V					
111					
Protected Wood Frame	8,000	4,000	Sprinklered	Not Permitted	Not Permitted
000					
Non-Protected Wood Frame	6,000	3,000	Not Permitted	Not Permitted	Not Permitted

**Notes to Table 2.2.a.:

- (1) The word "area" means that area enclosed by exterior or foundation walls, fire walls, or a combination of exterior or foundation walls. A fire wall shall be constructed in accordance with NFPA 221, Standard for Fire Walls and Fire Barrier Walls, with a minimum of a 2 hour fire rating. Buildings shall only be separated by one (1) two hour fire wall and areas shall be divided as equally as possible.
- (2) The phrase "not permitted" means that buildings of these heights are not permitted for the type of construction indicated.
- (3) The phrase "Section 2.1-High Rise" means that the building shall also comply with Section 2.1 of this Rule.
- (4) Types of building construction indicated in the chart are located in NFPA 220 and 221, Standard on Types of Building Construction.
- (5) Exception: Automatic sprinklers shall not be required in open parking structures as defined in NFPA 88A of Type I or Type II construction that are

less than 40 feet in height as measured per subparagraph 2.1.a.1.A. of this Rule.

2.2.b. Sprinkler Protection (Certain Occupancies).

2.2.b.1. All nursing, convalescent, old age, custodial care, long term or extended care homes or institutions, and correctional or detention facilities, existing and new, regardless of the type of construction, shall have a complete automatic sprinkler protection in accordance with NFPA Standard 13 contained within the National Fire Codes and incorporated by reference in Subsection 2.1 of this rule.

2.2.b.1.A In Lodging and Rooming occupancies, a sprinkler system shall not be required where there is directing outside exiting from each sleeping room and an approved electrically supervised fire alarm system is installed.

2.2.b.2. Homes or institutions caring for more than three patients shall meet the requirements of this section.

2.2.c. Carpet Used as Floor Covering.

2.2.c.1. Flammability Requirements for Carpet Used As Floor Covering.

2.2.c.1.A In institutional, health care, educational and penal occupancies, carpet shall meet a minimum value of 0.45 watts per square centimeter in all corridors and exits. Carpet in all other areas shall meet a minimum value of 0.22 watts per square centimeter.

2.2.c.1.B. Flammability requirements for carpet used as floor covering in all other occupancies shall meet a minimum value of 0.22 watts per square centimeter in all corridors and exits.

2.2.c.1.C. Any pad used under the carpet shall meet the minimum class of the carpet installed.

2.2.c.1.D. The values shall be determined by NFPA 253, Critical Radiant Flux of Floor Covering Systems.

2.2.c.2. Smoke Generation Properties of Carpet Used as Floor Covering.

2.2.c.2.A. In all occupancies smoke generation shall not exceed a maximum value of $D_m=450$ (flaming mode).

2.2.c.2.B. The value shall be determined by ASTM E-662, Specific Optical Density of Smoke Generation by Solid Materials.

2.2.c.2.C. All test data for determining the flammability and smoke properties of carpets shall be conducted by a nationally recognized laboratory as certified by the National Voluntary Laboratory Accreditation Program.

2.2.c.2.D. Where an approved, automatic sprinkler system is installed and all floors are non-combustible, Class II carpet is permitted in any location where Class I carpet is required. Where an approved automatic sprinkler system is installed and all floors are noncombustible and Class II carpet is permitted, no rating is required.

2.2.d. Fire Alarm System.

2.2.d.1. General Requirements for All Occupancies.

2.2.d.1.A. The following requirements apply in addition to NFPA 101, Life Safety Code, Chapter 9, Section 9.6 as adopted by this Rule:

2.2.d.1.A.1. All fire alarm systems, including all components, shall be electrically supervised. Components include pull stations, automatic detection, audio visual devices, flow switches, tamper switches and the main panel.

2.2.d.1.A.2. All fire alarm systems shall be tied in ahead of the main power disconnect, unless a secondary power source is provided.

2.2.d.1.A.3. All sprinkler systems OS & Y, P.I.V. and other Control Valves shall be electrically supervised and tied into the trouble/supervisory side of the fire alarm control panel.

2.2.d.1.A.4. All sprinkler systems shall be tied in so water flow will activate the general fire alarm audio visual device.

2.2.d.1.A.5. Flow and/or pressure switches shall be annunciated separately on the main fire alarm control panel.

2.2.d.2. All health care, assisted living facilities licensed by the health department, and detention and correctional occupancies shall be tied into a fire department or a communication center with 24-hour supervision which is responsible for receiving emergency calls. Existing assisted living facilities licensed by the health department shall be in compliance with this requirement by July 1, 2016.

2.2.d.3. Heating, Ventilation, Air Conditioning Systems (HVAC).

2.2.d.3.A. All heating, ventilation, and air conditioning systems greater than 2000 CFM and less than 15,000 CFM shall have a duct type smoke detector in the return air duct or plenum for automatic shut down, to close main fan dampers and to sound a general fire alarm when activated.

2.2.d.3.B. All heating, ventilation, air conditioning systems greater than 15,000 CFM shall have duct type smoke detectors installed in both supply and return air ducts to automatically shut down, close main fan dampers and to sound a general fire alarm when activated.

2.2.d.3.C. In health care, detention and correctional occupancies and high rise buildings duct detectors shall be zoned to indicate the specific air handling unit at the main fire alarm panel.

2.2.d.3.D. An HVAC unit which uses 100% of outside air does not require duct detectors, and shall shut down upon fire alarm activation.

2.2.d.3.E. HVAC Systems used as part of the smoke management systems are exempt from the requirements of this paragraph.

2.2.d.4. Audible alarm indicating devices shall be of such character and distributed so as to be effectively heard above the ambient noise level obtained under normal conditions of occupancy. Audible alarm indicating devices shall produce signals that are distinctive from audible signals used for other purposes in the same building.

2.2.d.5. Visual signal devices shall be provided in all new fire alarm systems.

2.2.d.6. Pre-recorded or live voice evacuation instructions to occupants are permitted. Pre-recorded instructions shall be preceded by not less than 5 seconds or more than 10 seconds of a continuous alerting signal. Upon completion or failure of pre-recorded instructions, the fire alarm evacuation signal shall sound. Pre-recorded instructions shall be repeated two or more times. Live voice instructions shall be permitted to interrupt the pre-recorded message or the fire alarm evacuation signal. Audible and visual fire alarm devices shall be used only for fire alarm system.

2.2.d.7. Manual pull stations shall be located no greater than 200 feet from each other and at all exits. Manual pull stations shall be of the same general operational type.

2.2.d.8. Thermal detectors are required in the following areas in all occupancies requiring a fire alarm system and as listed or identified in NFPA 101, The Life Safety Code. Thermal detectors are not required in areas provided with sprinkler protection or dwelling units of apartments.

AREAS	TYPE OF DETECTORS
(a) Attic & Cockloft Spaces	Fixed Temperature
(b) Storage Rooms	Rate of Rise
(c) Furnace or boiler rooms	Fixed Temperature
(d) Janitor Closets	Rate of Rise
(e) Kitchens	Fixed Temperature
(f) Laboratories, Home Economics, Woodworking Shops, Auto Shops, Utility Rooms, & Locker Rooms	Rate of Rise

2.2.d.9. Smoke detectors are required in the following areas in all occupancies requiring fire alarm systems:

2.2.d.9.A. Rooms and/or areas dedicated for the location of electrical distribution panels or transformers;

2.2.d.9.B. Stages or Platforms; and

2.2.d.9.C. On each side of required smoke partition doors.

2.2.d.10. Smoke detectors shall be placed a maximum of 15 feet from ends of corridors or walls and 30 feet on center including all toilet rooms over one occupant and in any other rooms that are a part of the means of egress without doors and open to the corridors, where required by the occupancy. Exceeding the spacing requirements will require submission of technical data for approval by the Fire Marshal. Exception: Smoke beam detectors shall be permitted in accordance with manufacturers specifications.

2.2.d.11. A building or structure being used for more than one occupancy shall comply with the fire alarm system requirements of the most stringent occupancy for that building or structure.

2.2.d.12. Hood suppression systems shall be connected to the Fire Alarm System and separately zoned.

2.2.d.12.A Upon activation of the automatic extinguishing system an audible/visual device

shall be placed in the public area(s) of the building when no fire alarm system is required.

2.2.d.13. A pre-signal fire alarm system is not permitted.

2.2.d.14. Detection for Elevators shall comply with NFPA 72, ANSI, ASME, and West Virginia Department of Labor requirements.

2.2.d.15. All Hotels being 2 or more stories high, Motels being 2 or more stories high, shall be tied into a fire department or a communication center with 24-hour supervision which is responsible for receiving emergency calls.

2.2.d.15.A. Exception: Hotels and motels with direct to outside exits from all guests rooms.

2.2.d.16. Carbon monoxide detectors shall be permitted to be connected to an approved fire alarm system. Activation of the carbon monoxide detector shall signal a supervisory alarm on the fire alarm control panel.

2.2.e. Inspection Tags

2.2.e.1. An inspection tag shall be attached to each fire protection system near the main control valve, main panel, or other such appropriate and visible location as determined by the authority having jurisdiction (“AHPJ”). The inspection tag shall contain the following information:

2.2.e.2. The individual performing the work;

2.2.e.3. Date of the test;

2.2.e.4. Results of the inspection and test.

2.2.f. Requirements for Educational and Day Care Occupancies.

2.2.f.1. A fire alarm system is required in every educational and day care occupancy, and shall meet the requirements and standards of this rule. However, classroom buildings of less than 3,000 sq. ft. gross floor area with direct exiting to the outside from each classroom are not required to have a fire alarm system.

2.2.f.2. Open plan classroom concepts require a complete smoke detection system throughout the facility.

2.2.f.3. Day care centers located in buildings other than educational facilities shall have smoke detectors installed on the ceilings of each story in front of the doors to the stairways and at no greater than 50 feet spacing in the corridors of all floors occupied by the center and 25 feet at the end of the corridors. Detectors shall also be installed in lounges and sleeping rooms in the center.

2.2.f.4. Group day care centers require hardwired smoke detectors in sleeping rooms and corridors. Audio visual warning devices are required if hearing impaired individuals are in the facility. In mixed occupancies when exiting requires the use of a common corridor, an electrically supervised fire alarm system shall be installed.

2.2.f.5. An annunciator panel or fire alarm control panel shall be readily accessible to local fire

department personnel.

2.2.f.6. Rate of rise thermal detectors are required in all rest rooms in new buildings except in fully sprinklered buildings.

2.2.f.7. Smoke detectors shall be installed in all corridors, except in a single-story building with direct exiting to the exterior by the means of a door from every normally student occupied room.

2.2.f.8. Classroom door locking to prevent unwanted entry- NFPA 101 section 15.2.2.2.4 shall be amended to read as follows:

- (1) the locking mechanism shall be capable of being engaged without opening the door.
- (2) The unlocking and unlatching from the classroom side of the door can be accomplished without the use of a key, tool, or special knowledge or effort.
- (3) Locks, if remotely engaged, shall be unlockable from the classroom side of the door without the use of a key, tool, or special knowledge or effort.
- (4) the locking means shall not modify the door closer, panic hardware, or fire exit hardware, provided that any device purchased and approved by the Fire Marshal prior to July 1, 2020, is exempt from this subdivision.
- (5) Two non-simultaneous releasing operations shall be permitted.
- (6) The temporary door locking device can be opened by school staff, school administrators, and first responders from the ingress side of the door, provided that any device purchased and approved by the Fire Marshal, prior to July 1, 2020 is exempt from this subdivision if the school has notified the first responders that it is exempt from this subdivision.
- (7) Modifications to fire door assemblies, including door hardware shall be in accordance with NFPA 80.
- (8) Staff shall be drilled in the engagement and release of the locking means, from within and outside the room, as part of the emergency egress drills required by 14.7.2.
- (9) Any locking mechanism purchased, installed or utilized pursuant to this section shall be approved by the State Fire Marshal in accordance to policies promulgated by him.
- (10) In addition, a temporary door locking device shall only be used under the following conditions:
 - a. Proof is provided by the administrative authority of a school building that a school safety plan has been adopted and filed; and
 - b. The temporary door locking device shall only be used in an emergency and during active shooter drills; and
 - c. During any type of training event, the temporary door locking device is engaged only by a staff member of the school building; and

d. The temporary door locking device shall only be engaged for a finite period of time as determined by the administrative authority of a school building in accordance with the approved and adopted school safety plan or during an actual active shooter event until first responders instruct them to disengage the said device; and

e. Proof is provided by the administrative authority of a school building that all appropriate fire responder agencies having jurisdiction for the school building have been notified prior to the use of the temporary door locking device; and

f. In-service training on the use of the temporary door locking device is provided for school staff members and local first responders; records verifying this training shall be maintained on file and provided to the State Fire Marshal's Office upon request.

2.2.g. Requirements for Assembly Occupancy.

2.2.g.1. A fire alarm system is required in every place of assembly where:

2.2.g.1.A. Occupancy is subject to 300 or more occupants;

2.2.g.1.B. Occupancy is subject to 100 or more occupants above or below the level of exit discharge;

2.2.g.1.C. The building is two (2) or more stories in height above the level of exit discharge, or two (2) or more stories below the level of exit discharge; or

2.2.g.1.D. Theaters with more than one audience-viewing room.

2.2.g.2. Annunciator panels and/or fire alarm control panels shall be readily accessible to fire department personnel.

2.2.g.3. Theaters and auditoriums shall provide audio visual devices. House lights in auditoriums and theaters shall be activated by the fire alarm system.

2.2.h. Requirements for Health Care and Ambulatory Care Occupancies.

2.2.h.1 A fire alarm system is required in every Health Care and Ambulatory Care occupancy, and the system shall meet the requirements and standards of this rule.

2.2.h.2. An approved automatic smoke detection system shall be installed in all corridors.

2.2.h.3. Manual pull stations shall be installed every 50 feet throughout the facility in patient sleeping room areas starting at the end of all corridors. All other manual pull stations shall be placed in accordance with the general requirements of this rule.

2.2.h.4. Fire alarm systems shall have annunciator panels located at all 24 hour nurse's stations, the telephone switchboard, and at the main location of the fire department's entry.

2.2.i. Requirements for Detention and Correctional Occupancies.

2.2.i.1. A fire alarm system is required in every detention and correctional occupancy and the system shall meet the requirements and standards as provided in this subsection.

2.2.i.2. The annunciator panel or fire alarm control panel shall be readily accessible to fire department personnel and shall also be provided in the detention or correctional facility control center.

2.2.i.3. Manual pull stations shall be provided as set forth in general requirements of this rule. Manual pull stations may be of the security type in detention or correctional occupancies.

2.2.i.4. Smoke detectors shall be installed in all corridors. If no corridor exists, they shall be installed at the highest point of the cell areas.

2.2.i.5. Dormitory style correctional facilities shall comply with the residential requirements of subdivision 2.2.j. of this subsection.

2.2.j. Requirements for Residential Occupancies.

2.2.j.1. A fire alarm system is required for each of the groups of residential buildings, and the system shall meet the requirements and standards of this Rule.

2.2.j.2. Lodging and rooming houses protected throughout with a sprinkler system shall be provided with interconnected hardwired smoke detectors as required by NFPA 72.

2.2.j.3. Residential occupancies are designated in two groups. These designated groups shall comply with the requirements of this rule. One group of occupancies includes hotels, motels, dormitories, lodging and rooming houses. The other group includes apartments only.

2.2.j.4. The following requirements apply to the occupancies of hotels, motels, dormitories, lodging and rooming houses.

2.2.j.4.A. Smoke detectors shall be placed a maximum of 15 feet from ends of corridors or walls and located 30 feet on center throughout all inside corridors. Smoke detectors shall be placed a maximum of 15 feet from ends of walls and 30 feet on center in open bay sleeping areas.

2.2.j.4.B. The annunciator panel or fire alarm control panel shall be readily accessible to fire department personnel and also shall be located at the registration desk.

2.2.j.4.C. All sleeping rooms and living areas in suites shall have an approved self-contained smoke alarm hard wired in accordance with NFPA 72, National Fire Alarm Code.

2.2.j.4.D. Motels and hotels having direct exterior exiting shall have a manual pull station every 75 feet located on exterior walls with the minimum requirement of one manual pull station. However, a one story motel with 16 or less sleeping rooms having direct exiting to the exterior is not required to be provided with a fire alarm system.

2.2.j.5. The following requirements apply to apartments.

2.2.j.5.A. Apartment buildings having 12 or more units or 4 or more stories in height

shall have a fire alarm system. Smoke detectors shall be placed a maximum of 15 feet from the ends of corridors and walls and 30 feet on centers.

2.2.j.5.B. All existing apartments shall have approved self-contained smoke alarm located at the entrances to bedrooms.

2.2.j.5.C. All new apartments shall have an approved self-contained smoke alarm hard wired in accordance with NFPA 72, National Fire Alarm Code.

2.2.j.5.D. All new apartment buildings having 12 or more units or 4 or more stories in height with direct exiting to the exterior shall have manual pull stations every 75 feet on the exterior wall with a minimum requirement of one pull station per building.

2.2.k. Requirements for Mercantile Occupancies.

2.2.k.1. A fire alarm system is required in every mercantile occupancy with a sales area totaling over 3,000 square feet, and the system shall meet the requirements and standards as provided in this subsection.

2.2.k.2. If an existing Class B mercantile occupancy has a complete and approved sprinkler protection system, a fire alarm system is not required.

2.2.l. Requirements for Business Occupancies.

2.2.l.1. A fire alarm system is required in every business occupancy where:

2.2.l.1.A. The occupancy is subject to 300 or more total occupants;

2.2.l.1.B. The occupancy is subject to 100 or more occupants above or below the level of exit discharge; or

2.2.l.1.C. The building is two (2) or more stories in height above the level of exit discharge or two (2) or more stories below the level of exit discharge.

2.2.m. Requirements for Industrial Occupancies.

2.2.m.1. A fire alarm system is required in all industrial occupancies as required in the National Fire Codes NFPA 101, Life Safety Code, referred to in section 2 of this rule.

2.2.n. Requirements for Storage Occupancies.

2.2.n.1. A fire alarm system is required in all Storage Occupancies as required in The National Fire Codes NFPA 101, Life Safety Code, referred to in section 2 of this rule.

2.2.n.2. Residential Board and Care Occupancies.

2.2.n.2.A. Application: All facilities classified as residential board and care occupancies shall conform to the Life Safety Code, NFPA 101, requirements except as modified under this subsection. This subparagraph does not apply to facilities with less than four (4) residents.

2.2.n.2.B. Resident sleeping rooms shall be located on first and second floors unless the

facility is provided with a sprinkler system meeting the requirements of NFPA 13, Standard for Sprinkler Systems.

2.2.n.2.C. Provide at least two (2) approved remote exits from each floor; at least one (1) exit shall be a door directly to the outside without traversing any corridor or space exposed to an unprotected vertical opening.

2.2.n.2.D. Vertical openings shall be properly enclosed on all levels above grade with hour fire rated construction. If used as a primary means of exiting all levels shall be properly enclosed with 1 hour fire rated construction.

2.2.n.2.E. Doors shall be side-hinged swinging at least 32 inches wide when located in means of egress. Bathroom doors may be 24 inches wide.

2.2.n.2.F. Existing stairs shall be at least Class B.

2.2.n.2.G. Hazardous areas shall be provided with one hour fire-rated separation or provided with automatic sprinkler protection and smoke tight. Doors shall be self-closing.

2.2.n.2.H. Interior finish of walls and ceilings shall be at least Class C throughout.

2.2.n.2.I. Fire Alarm:

2.2.n.2.I.1. An electrically supervised fire alarm system shall be provided and meet the requirements of paragraph 2.2.d.1. and subdivision 2.2.j. of this rule.

2.2.n.2.I.2. Individual sleeping rooms shall be provided with a single station smoke alarm hardwired in accordance with NFPA 72, National Fire Alarm Code.

2.2.n.2.J. An approved automatic sprinkler system is required in all residential board and care facilities.

2.2.n.2.K. Corridor walls shall be at least twenty (20) minute fire-rated and smoke tight.

2.2.n.2.L. Electrical systems shall meet the National Electric Code.

2.2.n.2.M. Each sleeping room shall be provided with at least one (1) outside window for rescue and ventilation and shall meet the requirement for windows in one and two family dwellings of the Life Safety Code. A door directly to the outside from each sleeping room does not require an outside window.

2.2.n.2.N. Any carpet located in the facility shall meet the requirements of subdivision 2.2.c. of this rule.

2.2.n.2.O. No door in any means of egress shall be locked against egress when the building is occupied.

2.2.n.2.P. Every bathroom door lock shall be designed to permit opening of the locked door from the outside in an emergency.

2.2.n.2.Q. Every closet door latch shall be such that it can be readily opened from the inside in case of emergency.

2.2.n.2.R. No stove or combustion heater shall be located as to block escape in case of fire arising from the malfunction of the stove or heater.

2.2.n.2.S. Impractical to evacuate residents in small facilities shall be located in rooms at grade with direct exiting to the outside. The corridor room door shall be 20 minute fire rated construction or its equivalent.

2.2.o. Explosives.

2.2.o.1. As soon as practical after all loaded blast holes (shot) are linked, they shall be immediately connected to a source of ignition and fired by a person legally permitted to do so.

2.2.o.2. Pre-loading blast holes (shots) to be fired at a later time are prohibited unless a waiver has been granted to do so by the State Fire Marshal.

2.2.o.3. Section 4.6.2 of the National Fire Protection Association (NFPA) 495, Explosive Material Code, the provisions of which are incorporated in NFPA 1 and adopted by reference in subsection 2.1 of this rule, is amended to provide that persons 18 years and older may be issued a Class G Special "Helper" permit to use explosives.

2.2.o.4. A valid explosives storage permit shall be obtained from the State Fire Marshal for any explosives stored overnight. Provided that type III portable magazines and type V trailers which have not been disabled for over the road use shall not be counted as magazines for the purposes of the storage permit only. Also provided that a storage permit for explosives stored exclusively underground shall not be required.

2.2.o.5. A valid permit to use explosives ("Blaster License") shall be obtained from the State Fire Marshal for all persons detonating explosives for legal purposes and persons possessing and handling explosives. Exception: persons handling and possessing explosives for the sole purpose of inventory and accounting, and who also shall possess an "Employee Possessor/Responsible Person" clearance as issued by the Bureau of Alcohol, Tobacco, Firearms and Explosives where applicable.

2.2.o.6. Control of Adverse Effects.

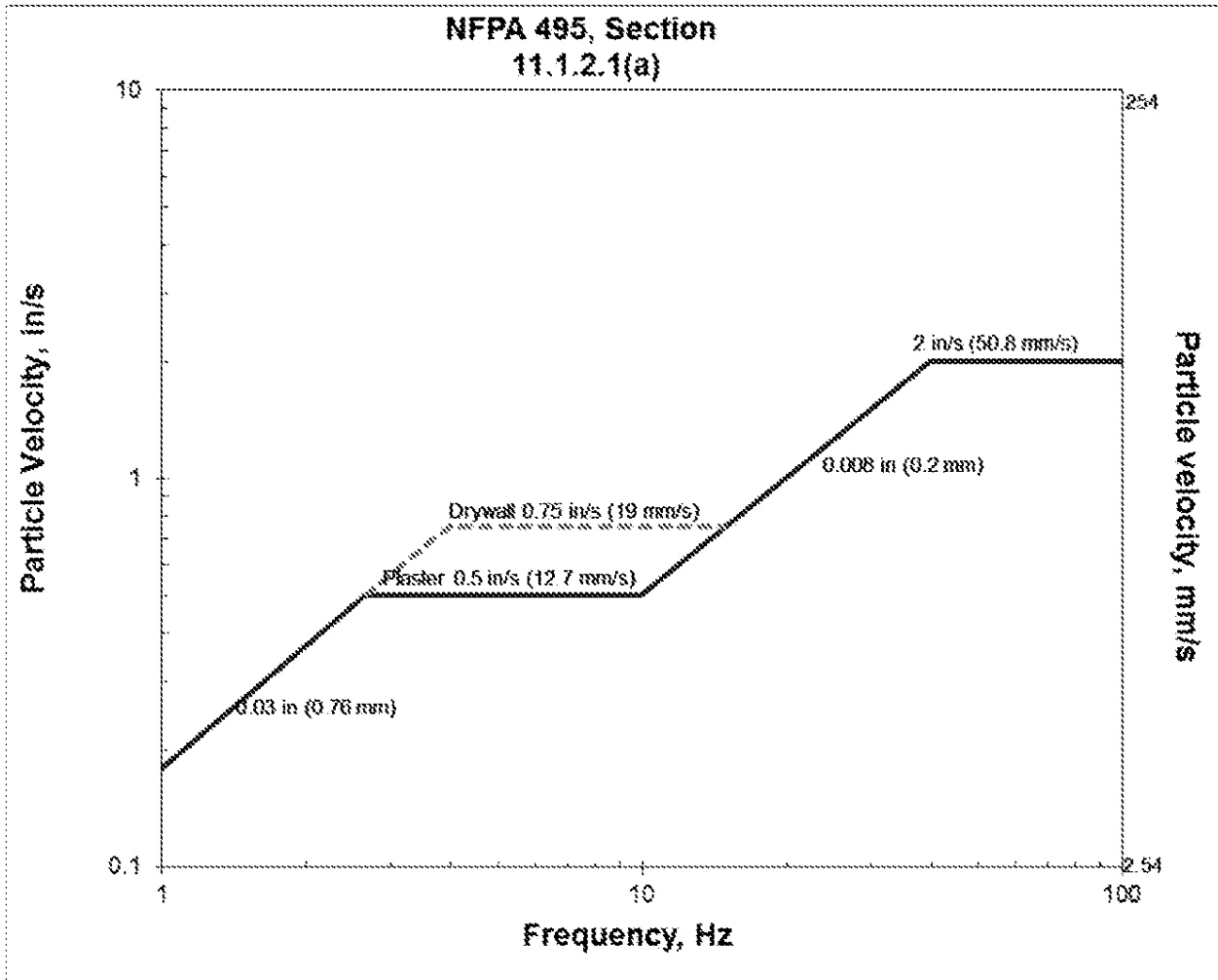
2.2.o.6.A. Blasting shall be conducted in a manner that prevents injury to persons and damage to public or private property outside the permit or blast area for which blasting activity occurs. For purposes of this rule, the definition of blast area is the area in which concussion (shock wave), flying material, or gases from an explosion can cause injury to persons (NFPA 495).

2.2.o.6.B. "Flyrock" defined as rock, mud or debris (excluding dust or detonation byproducts) ejected from the blast site by the force of a blast, shall not be cast beyond the operational boundary of the permit or blast area.

2.2.o.6.B.1. If flyrock is cast beyond the operational boundary of the permit or blast area, the licensed blaster shall notify the fire marshal by telephone within two (2) hours after learning of the flyrock incident, and submit a flyrock incident report to the fire marshal within three (3) business days after learning of the incident. The report shall be signed by the blaster-in-charge who conducted the blast. The report shall include, at a minimum, a copy of the blast record and all available seismograph data, a sketch of the blast site and rock deposition area, and a detailed explanation of: how the blast(s) were designed and loaded; who witnessed the blast(s) and where they were located and what they observed; the

location and nature of the flyrock deposition (including property owners, type and approximate number of rocks, size and distance range), property damages (if any) and personal injuries (if any); the probable cause of the flyrock incident; and the corrective measures to be taken to prevent another flyrock incident.

2.2.o.6.C. Ground vibration, when measured at any dwelling, public or commercial building, school, church, dam, earthen impoundment, or community or institutional building located outside the operational boundary of the permit or work area not owned or leased by the permittee, shall not exceed the limitations as defined and illustrated in NFPA 495, Section 11.1.2.1(a). *Provided, that the requirements set forth in this subsection shall not apply to blasting operations on surface coal extraction sites, and quarries otherwise permitted and regulated by the West Virginia Department of Environmental Protection, Office of Explosives and Blasting within the Division of Mining and Reclamation..* Alternatively, a waiver of this requirement from the owner of the structure may be filed with the State Fire Marshal's Office.



2.2.o.6.D. Airblast, when measured at any dwelling or building listed in subparagraph 2.2.q.6.C. of this rule shall be in compliance with NFPA 495, Table 11.2. Air Overpressure Limits.

Table 11.2 Air Overpressure Limits

Lower Frequency of Measuring	Measurement Level (dBL)
------------------------------	-------------------------

System [Hz (+/- 3 dBL)]	
0.1 Hz or lower – flat response*	134 peak
2 Hz or lower- flat response	133 peak
6 Hz or lower – flat response	129 peak
C-Weighted – slow response*	105 peak

*Only where approved by the state fire marshal.

2.2.o.6.E. A seismograph shall be used beside the nearest dwelling or building listed in subparagraph 2.2.q.6.C. of this rule to demonstrate compliance with the ground vibration and airblast limits listed in subparagraph 2.2.q.6.C and 2.2.q.6.D. of this rule. As an alternate to seismographic monitoring, the blast shall comply with scaled distance equation, $W = (D/50)^2$, where W is the maximum weight of explosives, in pounds, that can be detonated within any period less than 8 milliseconds, D is the distance, in feet, from the nearest blasthole to the nearest dwelling or building listed in 2.2.q.6.C. of this rule, and fifty is the applicable scaled distance factor.

2.2.o.6.F. For structures not listed in subsection 2.2.q.6.C. of this rule, such as oil or gas wells, oil or gas transmission and distribution lines, high-voltage steel transmission towers, public water lines, and silos, located outside the operational boundary of the blasting operation not owned or leased by the permittee, a seismograph shall be used beside the nearest structure to demonstrate that the peak particle velocity did not exceed 2.0 inches per second. As an alternate to seismographic monitoring, the blast shall comply with scaled distance equation, $W = (D/50)^2$, where W is the maximum weight of explosives, in pounds, that can be detonated within any period less than 8 milliseconds, D is the distance, in feet, from the nearest blasthole to the nearest dwelling or building listed in subparagraph 2.2.q.6.C. of this rule, and fifty is the applicable scaled distance factor. Alternatively, a waiver of this requirement from the owner of the structure may be filed with the State Fire Marshal's Office.

2.2.p. Monitoring instruments – All seismographs used to prove compliance with the ground vibration and airblast limits required by this rule shall be deployed in the field according to the ISEE Field Practice Guidelines for Blasting Seismographs (2009 Edition). Whenever possible, the seismographic measurement shall be made within ten (10) feet of the building or structure being monitored, on the side of the building or structure closest to the blast site.

2.2.p.1. A monitoring instrument for recording ground vibration, at a minimum, shall have:

- a. A frequency range of 2 Hz to 250 Hz;
- b. Particle velocity range of .02 to 4.0 inches per second or greater;
- c. An internal dynamic calibration system.

2.2.p.2. A monitoring instrument used to record airblast shall have:

- a. A lower frequency limit of 0.1, 2.0 or 6 Hz;
- b. An upper end flat-frequency response of at least 250 Hz;
- c. A dynamic range that, at a minimum, extends from 106 to 142 dBL.

2.2.p.3. A monitoring instrument shall be calibrated annually and when an instrument is repaired and then the repair may effect the response of the instrument. Calibration shall be done by the manufacturer of the equipment, or by an organization approved by the manufacturer, or by an organization having verifiable knowledge of the calibration procedures developed by the manufacturer. The calibration procedure shall include testing the response of the entire system to externally-generated dynamic inputs. These inputs shall test the entire monitoring system at a sufficient number of discrete frequency intervals to assure flat response throughout the frequency ranges specified by this rule. Dynamic reference standards used for calibration shall be traceable to the National Institute of Standards and technology (NIST). Calibration procedures and documentation of calibration shall immediately be made available upon demand by the State Fire Marshal, or other law enforcement or regulatory personnel.

2.2.p.4. A certificate that indicates the name of the calibration facility, the calibration technician, the date of calibration and frequency range of the airblast monitor shall be made available upon request by the State Fire Marshal, or other law enforcement or regulatory agency.

2.2.q. Monitoring Records.

2.2.q.1. Any person who operates a seismograph for the purpose of demonstrating compliance with the ground vibration and airblast limits of this rule shall receive appropriate training for the specific seismograph model(s) in use in: programming the seismograph(s) to record the blast; positioning the geophone and microphone; coupling the geophone to the ground; extracting the data after the blast in digital and printed forms; and understanding the results. Such training shall be received from a representative of the seismograph manufacturer or distributor, or other competent person(s). A record of such training shall be maintained by the seismograph operator or his or her employer, and made immediately available for inspection by the State Fire Marshal or other law enforcement or regulatory agency. All persons who operate a seismograph for the purpose of demonstrating compliance with the ground vibration and airblast limits of this rule shall also receive refresher training every two years.

2.2.q.2. Monitoring records, at a minimum, shall contain:

2.2.q.2.A. A calibration pulse on each of the mutually-perpendicular ground vibration traces. These pulses shall represent the dynamic response of the entire recording system to an internally-generated calibration signal, and shall allow the State Fire Marshal, or other law enforcement or regulatory personnel to verify that the seismograph is recording ground vibration to its specific accuracy.

2.2.q.2.B. The time history of particle velocities for three mutually perpendicular ground vibration traces and one air-overpressure trace, including time base, amplitude scales and peak values for all traces.

2.2.q.2.C. The results of a field calibration test for each channel.

2.2.q.2.D. The frequency content of all vibration signals using either single degree of freedom (SDF) response spectrum, Fast Fourier Transform (FFT) or half-cycle zero-crossing analysis methods.

2.2.q.2.E. Frequency versus particle velocity plots as indicated in NFPA 495, Table 11.1.2.1(b).

2.2.q.2.F. The name of the individual taking the recording.

2.2.q.2.G. The GPS NAD 83 or 27 location of the monitoring instrument, date and time of the recording.

2.2.q.2.H. The last calibration date of the monitoring instrument.

2.2.q.3. If the State Fire Marshal questions the validity of a ground vibration or airblast record, or the interpretation of the record, the State Fire Marshal may require a ground vibration or airblast recording to be analyzed or certified by the seismograph company supplying and calibrating the seismograph. When the fire marshal requires that a recording be analyzed or certified, it shall be performed and included with the blast report within thirty (30) days.

2.2.r. Blasting Activity Registration.

2.2.r.1. "Applicant" is defined as any user of commercial explosives that has obtained applicable Bureau of Alcohol Tobacco & Firearms ("BATF") clearances and intends to legally detonate any amount of commercial explosives for authorized purposes.

2.2.r.2. An agency approved form shall be submitted for any and all blasting activity, excluding surface coal extraction activities already permitted by the West Virginia Department of Environmental Protection, Office of Explosives and Blasting within the Division of Mining and Reclamation, to the State Fire Marshal no less than 2 business prior to the blasting activity commencing, and shall include the following information:

2.2.r.2.A. The applicant's name, address, telephone number and type of business;

2.2.r.2.B. A contact person's name title and telephone number;

2.2.r.2.C. The identity of independent subcontractors who will be performing the blasting activity;

2.2.r.2.D. The type of explosive to be used;

2.2r.2.E. The location of the blasting activity;

2.2.r.2.F. Job duration and times of blasting activity.

2.2.s. Blast logs.

2.2.s.1. Blast logs shall be maintained for a period of five years by anyone conducting blasting activities. Those logs shall immediately be made available upon demand by the State Fire Marshal, or other law enforcement or regulatory personnel.

2.2.s.2. The blast log shall include as a minimum:

2.2.s.2.A. The name of the blasting activity applicant;

2.2.s.2.B. The date and time of the blast;

2.2.s.2.C. The location of the blast using GPS NAD 83 or 27 coordinate system;

2.2.s.2.D. The owner name and address or the GPS NAD 83 or 27 coordinates of the nearest building location not owned by the blasting activity applicant or customer;

2.2.s.2.E. The direction and distance in feet from the blast site to the nearest structure not owned by the blasting activity applicant or its customer;

2.2.s.2.F. The direction and distance to the closest utility not owned by the blasting activity applicant or its customer;

2.2.s.2.G. The type of material to be blasted;

2.2.s.2.H. The type of stemming/decking material used;

2.2.s.2.I. The measures taken to control flyrock, including whether or not mats were used;

2.2.s.2.J. The weather conditions including temperature, wind direction and estimated speed, cloud cover;

2.2.s.2.K. The total number of holes, diameters, depths, burdens, spacings, subdrill, top and deck stemming heights, pounds per hole;

2.2.s.2.L. Explosives product densities and pounds used and/or units, not including detonating cord;

2.2.s.2.M. The total weight in pounds of explosives and primer cartridges used;

2.2.s.2.N. The type and total length in feet of detonating cord(s) used;

2.2.s.2.O. The type, length, delay period(s), of each detonator and the total quantity each type of detonator used: *Provided, that for the purposes of this subparagraph, if an electronic detonator is used, a delay period is not required to be reported on the blast log;*

2.2.s.2.P. The type(s) of initiation system used;

2.2.s.2.Q. The maximum weight in pounds of explosives detonated per delay period of less than 8 milliseconds;

2.2.s.2.R. The scaled distance to the closest structure and/or utility not owned by the applicant or client;

2.2.s.2.S. The powder factor(s) in pounds per cubic yard, tons per pound, or pounds per square foot;

2.2.s.2.T. The monitoring records required shall be made a part of the blast report within 24 hours of the blast if required by subparagraph 2.2.q.6.C;

2.2.s.2.U. A technical illustration (sketch) showing north arrow, the direction to the nearest structure and/or utility, the arrangement of blast hole burdens and spacings, firing time(s) and/or delay patterns for each blast charge, point of initiation, and free faces;

2.2.s.2.V. A technical illustration (sketch) showing typical borehole load cross section(s);

2.2.s.2.W. The printed name, signature, and permit number of the blaster-in-charge for each blast;

2.2.s.2.X. Any unusual conditions or comments.

2.3. Necessity of NICET Certification for Fire Protection and Fire Alarm Systems.

2.3.a. No fire protection and fire alarm system maintenance, repair or inspection work may be performed, offered or engaged in for compensation or hire within the State of West Virginia by any company unless the company maintains at least one (1) employee possessing a valid certificate of competency issued by the National Institute of Certification in Engineering Technologies (NICET). All companies shall be registered with the State Fire Commission and shall provide annual information on NICET certificate holders employed by their company for the purpose of maintenance, repair or inspection activities.

2.3.b. All fire protection extinguishment devices or systems not covered by 2.3.a. shall adhere to the following: No fire protection equipment or system installation, maintenance, repair or inspection work may be performed, offered or engaged in for compensation or hire within the State of West Virginia by any company unless the company maintains at least one (1) employee possessing a valid certificate of competency issued by the equipment or system manufacturer. All companies shall be registered with the State Fire Commission and shall provide annual information on certificate holders employed by their company for the purpose of installation, maintenance, repair or inspection activities.

§ 87-1-3. Reporting of Fire Incidents.

The fire chief of any organized public fire brigade, department or company shall report every fire and non-fire incident to the State Fire Marshal. Every fire and non-fire incident response shall be reported within one hundred eighty (180) days after the date of the incident. Provided, that any fire or explosion involving human fatality, arson or suspected arson shall be reported immediately.

§ 87-1-4. Unvented Heaters.

All unvented fuel fired heaters are prohibited for all occupancies except one (1) and two (2) family dwellings. Provided, that a single unvented fuel fired heater is permitted for demonstration purposes in authorized mercantile applications when installed in accordance with manufacturers recommendations. The single heater shall be connected to a permanent source of fuel and shall not be used as a permanent or alternate source of heating. The unvented heater shall be shut off at the end of each business day.

§ 87-1-5. Maintenance of Fire Hazard; Order for Correcting Condition, Removal of Material, Repair, Demolition, etc.; Order to Contain Notice to Comply and Right to Appeal.

Whenever the State Fire Marshal, by and through persons working under his or her direction, determines based upon the State Fire Code and/or on the experience and knowledge applied in the operation of his or her office (1) that any building or structure has been constructed, altered, or repaired in a manner violating the State Fire Code as promulgated prior to the commencement of the construction, alterations, or repairs, or (2) that any building or structure is being maintained or used in such a way as to endanger life or property from the hazards of fire or explosion, or (3) that any building or other structure or property of any kind, which, for want of repairs, or by reason of its age, dilapidated, or abandoned condition or for any

other reason constitutes a fire hazards and is located or constructed so as to constitute a danger to other buildings, property, persons, life, or limb, or (4) that in any building or upon any premises there is located any combustible, flammable, or explosive substance or material or other condition dangerous to the safety of persons occupying the building or premises and adjacent premises and property, the State Fire Marshal shall order the condition or thing to be corrected, or combustible, flammable or explosive, items to be removed, or the building or buildings to be repaired, closed to occupants, or removed, as required by the circumstances. The order shall be promptly complied with by the owner, agent, occupant, and lessee of the premises, place, property, or thing. Any order may be expressed in the alternative, e.g. allowing repair but on the failure to repair requiring demolition. Any order by the State Fire Marshal which concludes that a fire hazard exists, shall state what repairs and/or demolition must be accomplished, and that compliance must be completed within thirty (30) days of issuance. In the event of noncompliance, the State Fire Marshal is authorized by statute to enter into and upon the premises affected by the order and cause the building, structure, premises, or thing to be repaired, or torn down, materials removed, and all dangerous conditions remedied (as the case may be) at the expense of the owner, and shall advise that the order can be contested by entering an appeal to the State Fire Commission as outlined in section 17 of this rule.

§ 87-1-6. Interference with Fire Protection Equipment.

No person shall render any portable or fixed fire extinguishing system or device or any fire warning system inoperative or inaccessible except as may be necessary during emergencies, maintenance, drills or prescribed testing.

§ 87-1-7. Exit Inspections and Public Life Safety Announcements.

7.1. Inspection of Exits. Not more than ninety (90) minutes prior to the scheduled commencement of any noncontinuous activity, event, performance, show, meeting, function, or other occasion for which people will gather in a place of assembly, the owner or his or her designee pursuant to written authority, instructions, or procedures shall inspect every required exit, way of approach to an exit, and way of departure from an exit. If the inspection reveals that any required means of egress is obstructed, inaccessible, locked, fastened, or otherwise unsuited for immediate use, the scheduled program shall not begin, nor shall admittance to the place of assembly be permitted, until necessary corrective action has been completed.

7.2. Announcements. Immediately prior to the start of a program for which 300 or more people will gather in a place of assembly, the owner or his or her authorized agent shall orally notify all attendees concerning the location of the exits to be used in case of fire or other emergency.

7.3. Records. An accurate record of all inspections, corrections, and notifications shall be kept and retained for at least two (2) years in the offices of the respective building owners. The records shall contain:

7.3.a. A brief description of each activity, event, performance, etc., including its date, time, and location; and

7.3.b. The name and signature of the person who performed each requirement of this section; and

7.3.c. The date and time when each requirement was performed.

7.4. Alternatives- In case of practical difficulty or undue hardship, or in which compliance would not significantly increase life safety, the State Fire Marshal may approve or accept alternative means of accomplishing the objectives of this section.

§ 87-1-8. Forest Fire Season.

8.1. The periods of each year between March first and May thirty-first, inclusive, and October first and December thirty-first, inclusive, are designated as forest fire seasons. No person shall during any fire season, except between the hours of five o'clock p.m. and seven o'clock a.m. prevailing time, set fire to, or procure another to set fire to, any brush, leaves, grass, debris or field containing dry grass or other inflammable material capable of spreading fire, located in or within 300 feet of any woodland, brushland, or field containing dry grass or other inflammable material. Any fire set during this time shall be extinguished prior to seven o'clock a.m. prevailing time. The prohibition of fires between seven o'clock a.m. and five o'clock p.m. prevailing time does not include (1) small fires set for the purpose of food preparation, or providing light or warmth around which all grass, brush, stubble, or other debris has been removed for a distance of ten feet from the fire, and (2) burning which may be conducted at any time when the ground surrounding the burning site is covered by one inch or more of snow. Any person who sets or causes to be set any fire permitted by this section shall not leave the fire unattended for any period of time.

8.2. Any person or his or her agent or employee who sets or causes to be set any fire at any time in the use and occupation of any kind on which the burning was being done is in violation of this section if fire escapes beyond the safety strip. Any person who, by himself or herself, or by his or her employees, agents or guides or as an employee, agent or guide of any other person, at any time builds or use any fire in any field, on any public or private road, or in any area adjacent to or on any forest land in this state, shall before leaving the fire for any period of time, totally extinguish the fire. A person shall not at any time throw or place any lighted match, cigar, cigarette, firecracker or lighted material on any forest land, private road, public highway or railroad right-of-way within this state.

§ 87-1-9. Executive Order by the Governor on Open Burning.

On those occasions when the Governor of the State issues an Executive Order or Proclamation to ban open burning due to weather conditions, the State Fire Marshal may assist in the enforcement of the provisions of the Proclamation or Executive Order.

§ 87-1-10. Outdoor Storage of Used Tires.

The storage of used tires shall comply with the following:

- 10.1. All outdoor storage of used tires shall be free from all trash and debris within the site;
- 10.2. The owner and operators of outdoor storage of used tires shall maintain controlled access to the property with only one entrance/exit, and shall install security lighting for use during evening and night time hours as designated by the State Fire Marshal;
- 10.3. All outdoor storage of used tires shall have a perimeter security chain link fence of a minimum height of six feet;
- 10.4. All storage of used tires, shredded or unshredded, shall be separated into individual piles on the property. No pile may exceed 50 feet wide by 50 feet deep by 15 feet in height;
- 10.5. In the absence of an available water supply of at least 500 GPM (gallons per minute) provided by fire hydrants within 1000 feet of the facility, a minimum of 10,000 thousand gallon water supply on the site for exclusive use of fire fighting personnel shall be established;

10.6. Fire lanes having a minimum of forty-five foot lanes capable of supporting fire apparatus shall be established and maintained between all tire piles;

10.7. A minimum of a fifty foot wide zone around the site perimeter inside the fence line shall be maintained;

10.8. All storage piles shall have a minimum of a thirty inch high earthen dike around each tire pile as the piles are established;

10.9. A maximum of eighteen tire piles may be established on a single site; and

10.10. No site may exceed the storage of more than three hundred thousand tires without the approval of the State Fire Marshal.

§ 87-1-11. Stopping, Standing or Parking Prohibited in Specified Areas.

11.1. No person shall stop, stand, or park a vehicle, except when necessary to avoid conflict with other traffic or in compliance with the law or the directions of a police officer or traffic-control device, in any of the following places:

11.1.a. Within fifteen feet of a fire hydrant; or

11.1.b. Within twenty feet of the driveway entrance to any fire station and on the side of a street opposite the entrance to any fire station within seventy-five feet of the entrance when properly sign-posted.

§ 87-1-12. Crossing Fire Hose.

No person shall drive a streetcar or vehicle over any unprotected hose of a fire department when it is laid down on any street, private driveway, or streetcar track, to be used at any fire or alarm of fire, without the consent of the fire department official in command.

§ 87-1-13. Emergency Vehicle Permits.

13.1. Authorization for all fire department vehicles and firefighters to operate Class A vehicles shall be designated by their fire chief and the State Fire Marshal's Office. Vehicles authorized by W. Va. Code § 17C-15-26 shall have red flashing warning lights and an audible signaling device, such as a siren, whistle or bell capable of emitting sound audible from a distance of not less than 500 feet.

13.2. Upon receipt of written notification from the Fire Chief of the local fire department to the State Fire Marshal requesting that an Emergency Vehicle Permit be revoked, the State Fire Marshal shall cause the permit to be revoked.

§ 87-1-14. Fire Safety Separation Requirements for Mobile Home Sites.

14.1. No portion of a manufactured home, excluding the tongue, shall be located closer than 3 m (10ft) side to side, 2.4 m (8 ft) end to side, or 1.8 m (6 ft) end to end horizontally from any other manufactured home or community building unless the exposed composite walls and roof of either structure are without openings and constructed of materials that will provide a 1-hour fire resistance rating or the structures are separated by a 1-hour fire-rated barrier.

14.2. Manufactured homes shall not be positioned vertically, stacked with one over the other, in whole or in part, unless the structure is designed and approved for such installation and permitted by the authority having jurisdiction.

§ 87-1-15. Propane Gas Training Program Certification.

Any person who installs or maintains liquefied petroleum gas systems shall complete training standards and qualifications as established by the National Propane Association Certified Employee Training Program. Exemption: Any person who installs, fuels, maintains or services a fuel gas system on a single family dwelling owned or leased, and occupied by that person.

§ 87-1-16. Requirement of Occupancy Certificate

16.1. The owner or occupant of a new building, existing Industrial and Storage occupancies, or a building that has had 50% or more of the space renovated or reconstructed, shall obtain a certificate of occupancy before the building is occupied or used for its intended purpose.

16.2. The projects, where applicable, shall be designed by an Architect as licensed by the WV Board of Architects or a Professional Engineer licensed by the WV State Board of Registration for Professional Engineers. Any such licensed professional shall affix their seal to the design documents per the respective licensing board and obtain a review approval from the AHJ prior to construction.

§ 87-1-17. Orders and Decisions of the State Fire Marshal; and Appeals and Procedure for Appeals from such Orders or Decisions.

17.1. State Fire Marshal's Order and Decisions are Final and Conclusive. -- Any order or final written decision of the State Fire Marshal based upon or made in the course of the administration or enforcement of the provisions of W. Va. Code § 29-3-1 et seq. based upon or made pursuant to this rule is final, unless vacated or modified upon review pursuant to the appeal rights and procedures provided by W. Va. Code § 29A and this rule.

17.2. State Fire Marshal's Order And Decisions Appealed. -- Any person aggrieved by an order or final written decision of the State Fire Marshal based upon or made in the course of the administration or enforcement of the provisions of W. Va. Code § 29-3-1 et seq. or made pursuant to this rule, and desiring to contest the order or written decision may file an appeal from the order or written decision with the State Fire Commission. Preservation of the right to an appeal and the procedure for the contested case is governed by this section and by W. Va. Code § 29-3-1 et seq.

17.3. W. Va. Code § 29-3-12(g) and (I) Inquiry and Investigation. -- The testimony which may be obtained by the State Fire Marshal pursuant to the authority in W. Va. Code § 29-3-12(g) and (I) shall be obtained without compliance with the provisions in this rule governing "Procedure in Contested Cases." Where appropriate, a subsequent order by the State Fire Marshal relating to the testimony obtained is the same as any other order by the State Fire Marshal subject to the appeal rights provided in W. Va. Code § 29-3-1 et seq.

17.4. Appeal Petition. -- The appeal petition shall be typewritten, styled "Appeal Petition", and the appellant shall submit an original and one (1) copy. It shall be complete in itself so as to fully state the matters contested. No telegram, telephone call, or similar communication will be regarded as an appeal petition. The petition shall contain and include the following:

17.4.a. a copy of the order or decision of the State Fire Marshal being contested;

17.4.b. a clear and concise assignment of each error which the petitioner alleges to have been committed by the State Fire Marshal in issuing the order or decision with each assignment of error being shown in separately numbered paragraphs;

17.4.c. a clear and concise statement of the facts upon which the petitioner relies as sustaining his or her assignment of errors;

17.4.d. the address to which the petitioner desires to have all notices, documents, and the final order of the State Fire Commission mailed;

17.4.e. the telephone number or numbers where the petitioner can be contacted;

17.4.f. the names and addresses of all persons having any ownership interest in the property which is the subject of the State Fire Marshal's order being contested;

17.4.g. a prayer setting forth the relief sought; and

17.4.h. the signature of the petitioner or its duly authorized officer.

17.5. Time Requirement and Manner of Filing Appeal Petition. -- The petitioner shall submit an appeal petition by personal delivery or mailed to the State Fire Commission within thirty (30) days following service upon the petitioner, or within thirty (30) days following actual receipt if service is not required or for some reason is not made of the order or decision being contested. Any appeal petition shall be sent by certified mail, return receipt requested, and is timely if postmarked within the thirty (30) day period. Any appeal petition not delivered or mailed within the thirty (30) day period is not timely filed and the order or decision of the State Fire Marshal being contested is final.

17.6. Copy of Appeal Petition to State Fire Commission. -- Upon receipt of an appeal petition, the Chairman of the State Fire Commission, through office staff, shall supply a copy of the petition to the State Fire Commission members together with an opinion by the State Fire Marshal regarding the urgency of the matter being contested. If the State Fire Marshal elects to file a response to the appeal petition, he or she shall deliver a copy of the response to the State Fire Commission and a copy to the petitioner.

17.7. Scheduling Appeal Petition for and Notice of Hearing. -- The State Fire Commission Chairman through office staff shall schedule a hearing on the appeal petition giving the petitioner and the State Fire Marshal at least ten (10) days written notice of the date, time, and place of the hearing. The notice to the petitioner shall be by personal delivery or by certified mail, return receipt requested, shall contain a short and plain statement of the matters to be considered at the hearing, and a copy of the State Fire Marshal's response, if any, to the appeal petition, and shall be mailed or personally delivered by the State Fire Marshal no later than thirty (30) days after receipt of the appeal petition. A copy of the notice to the petitioner shall be supplied to the State Fire Marshal. The hearing shall be conducted at a designated location in Charleston, West Virginia, or in the discretion of the State Fire Commission at a location within the county where the premises in question are located.

17.8. Authorized Representative. -- The petitioner may appear individually, or by counsel.

17.9. Continuances -- A motion for continuance shall not be granted unless made in writing three days before the hearing or during the hearing, in either case for good and sufficient cause. Upon consideration of a motion for continuance, the urgency of the situation shall be determined and taken into consideration. Conflicting engagements of counsel or the employment of new counsel are not good grounds

for a continuance unless a motion is filed promptly after the notice of hearing has been mailed or unless extenuating circumstances are shown, which the State Fire Commission or hearing examiner considers adequate.

17.10. Absence of Petitioner or Counsel at the Scheduled Hearing -- A hearing by the Fire Commission shall not be delayed or continued due to the absence of the petitioner or his or her legal counsel at a hearing, after service of notice of the time, date, and place of the hearing. The hearing shall proceed and the case shall be submitted for decision on the part of the absent petitioner or petitioners.

17.11. Hearing Examiner -- Any member of the State Fire Commission may conduct a hearing on an appeal petition and has full authority to conduct the proceedings on an appeal petition, and when acting in that capacity shall be referred to as the hearing examiner. Alternatively, the State Fire Commission may authorize and empower an impartial attorney as a hearing examiner with the specific powers listed in W. Va. Code § 29A-5-1(d).

17.12. Subpoenas and Subpoenas *Duces Tecum*.

17.12.a. At any hearing held under this section, the testimony of witnesses and the production of documentary evidence may be required through the use of subpoenas and subpoenas *duces tecum*. The State Fire Marshal may issue subpoenas and subpoenas *duces tecum* at the request of the petitioner, the hearing examiner or the State Fire Commission.

17.12.b. Every subpoena or subpoena *duces tecum* is required to prove service at least five (5) days before the return date of that subpoena, either by personal service made by any person eighteen (18) years of age, or older, or by registered or certified mail. A return acknowledgment signed by the person to whom the subpoena or subpoena *duces tecum* is directed is required to prove service by registered or certified mail.

17.12.c. Any party requesting a subpoena or subpoena *duces tecum* shall see that it is properly served. Service of a subpoena or subpoena *duces tecum* issued at the insistence of the State Fire Commission is the responsibility of the State Fire Commission.

17.12.d. Any public official who serves any subpoena or subpoena *duces tecum* is entitled to the same fee as a Sheriff who serves a witness subpoena for a circuit court of this state; and fees for the attendance and travel of witnesses are the same as for witnesses before the circuit courts of this state. All fees shall be paid by the State Fire Commission if the subpoena or subpoena *duces tecum* is issued at the instance of the Commission. All fees related to any subpoena or subpoena *duces tecum* issued at the instance of the petitioner or the State Fire Marshal shall be paid by the party requesting the subpoena or subpoena *duces tecum*.

17.12.e. A request for a subpoena or subpoena *duces tecum* shall be in writing and shall contain a statement acknowledging that the requesting party agrees to pay the required fee.

17.12.f. Any person receiving a subpoena or subpoena *duces tecum* issued under this section shall honor the subpoena or subpoena *duces tecum* as though it were issued by a circuit court of the state, and shall appear as a witness and/or produce the books, records, or papers in response to the subpoena or subpoena *duces tecum*. In case of disobedience or neglect of any subpoena or subpoena *duces tecum* served on any person or the refusal of any witness to testify to any matter regarding which he or she may be lawfully interrogated, the circuit court of the county in which the hearing is being held, upon application by the State Fire Commission, shall compel obedience by attachment proceedings for contempt as in the

case of disobedience of the requirements of a subpoena or subpoena *duces tecum* issued from the circuit court or a refusal to testify in the circuit court.

17.13. Evidence.

17.13.a. All witnesses appearing at the hearing shall testify under oath or affirmation. Every adverse party has the right of cross-examination of witnesses who testify, and has the right to submit rebuttal evidence.

17.13.b. All relevant and material evidence, including papers, records, agency staff memoranda and documents in the possession of the State Fire Commission or the State Fire Marshal of which either party desires to avail himself or herself, may be offered and made a part of the record in the case.

17.13.c. Irrelevant, immaterial, or unduly repetitious evidence shall be excluded by the Fire Commission. Except as otherwise in this section, the rules of evidence as applied in civil cases in the circuit courts of this state shall be followed in considering the admissibility of evidence. However, when necessary to ascertain facts not reasonably susceptible of proof under those rules, reasonably authenticated evidence not admissible under those Rules may be admitted, except where precluded by the W. Va. Code or privilege, if it is of a type commonly relied upon by reasonably prudent persons in the conduct of their affairs.

17.14. Record of Proceedings. -- All of the testimony, evidence and rulings on admissibility of evidence at any hearing shall be recorded by a certified court reporter. An official record of the hearing shall be prepared by the State Fire Commission. A transcript shall only be prepared if the Commission's final decision is appealed. The cost of the transcript shall be paid by the party requesting it.

17.15. Informal Disposition. -- At any stage of the proceedings, informal disposition may be made of any contested case by stipulation, agreed settlement, consent order, or default.

17.16. Decision by the State Fire Commission. -- Upon the conclusion of the hearing, the person designated by the State Fire Commission as hearing examiner shall prepare a decision supported by findings of fact and conclusions of law affirming, modifying, or vacating the earlier order of decision of the State Fire Marshal. The State Fire Commission may either accept, modify, or reject the hearing examiner's decision. If the Commission accepts the hearing examiner's decision it shall sign the decision. If the Commission rejects or modifies the hearing examiner's decision, it shall prepare a written decision setting forth findings of facts and conclusions of law. In either event, the order signed by the State Fire Commission shall be final unless vacated or modified upon judicial review thereof. A copy of the order shall be served on all parties to the hearing and all attorneys of record, if any, in person or by certified mail, return receipt requested.

17.17. Judicial Review. -- The petitioner or by the State Fire Marshal may appeal the Commission's decision to the circuit court of the county where the premises are located, if the appeal is filed within thirty (30) days after the date upon which party was served with a copy of the final order or decision of the State Fire Commission. The final order signed by the State Fire Commission is final if the proceedings for judicial review are not instituted within the said thirty (30) day period.