

STATE FIRE PREVENTION COMMISSION
MINUTES
June 19, 2018

Members Present: Charles D. Davis, Chairman
Joseph L. Scheffey, Vice Chairman
Mark A. Bilger
K.C. Harrington
Edward Tochterman, Jr.
Stacy Welch

Members Absent: Mark F. Hubbard

Chairman Davis called the meeting to order at the Rowland E. Powell Convention Center in Ocean City at which the Maryland State Firemen's Association's annual convention was being held.

FIRE MARSHAL REPORT

Fire Marshal Brian Geraci reported that several Office of the State Fire Marshal (OSFM) employees have retired recently: Deputy State Fire Marshal (DSFM) Steve Hatchett, Bomb Squad; Fire Safety Inspector (FSI) Terry Gearhart, Western Region; and DSFM Thomas Harr, Lower Eastern Shore. Additionally FSI Edward Gotthardt, Western Region, resigned to take a position as an inspector for Montgomery County. FSI Gotthardt previously worked for the National Institutes of Health in Montgomery County. Arrangements are being made to fill these positions as well as some others. Discussions are also taking place on changing orientation and hiring practices. DSFM Derek Chapman has been promoted to Deputy Chief State Fire Marshal for the Northeast Region.

Fire fatalities stand at 36 for the year, compared to 38 last year.

DSFM Dexter Hodges, Upper Eastern Shore, who this year was named Fire Investigator of the Year as reported at the last meeting, recently traveled to Frisco, Texas to receive the award from the International Association of Arson Investigators.

National Home Fire Sprinkler Day was May 19th. Fire Marshal Geraci, U.S. Fire Administrator Keith Bryant, NFPA President Jim Pauley, Prince George's County Fire Chief Ben Barksdale, and members of the Home Fire Sprinkler Coalition participated in a media event at the Maryland Fire and Rescue Institute (MFRI), College Park to speak about home fire sprinklers. There was also a live side-by-side burn demonstration. The event was streamed to over 2,000 viewers. Unfortunately there was little media attention that day due to flooding and severe weather.

Several memorial services took place in May and June for DCFM Sander Cohen. DCFM Cohen's parents and many OSFM personnel attended various events. An OSFM Line of Duty Memorial was dedicated at Maryland State Police Headquarters. Photos were included in Fire Marshal Geraci's printed report. The last memorial will take place in Emmitsburg in October.

The Arson and Explosive Group of the Baltimore ATF conducted three days of training for Maryland fire and explosives investigators. The training took place in Baltimore City and at the ATF Fire Research Lab in Beltsville. Topics included fire dynamics, arson detection canines, evidence preservation and case studies.

The OSFM Underwater Hazardous Devices Team and two members responded with its boat to the flood in Ellicott City to search the Patapsco River bank for the missing national guardsman. This was the first request of this kind for the team. Units from Prince George's, Washington, and Frederick Counties also assisted. Search efforts had to be suspended due to water levels and turbulent speeds.

Fire Marshal Geraci attended the recent NFPA conference which went very well. A lot of people from other states commended Maryland for its efforts with residential sprinklers and the 10-year long-life smoke alarm law. They were interested in how this was accomplished.

As a follow-up to discussions in February regarding the formation of a science advisory workgroup, a meeting is scheduled on July 10th in Annapolis. Assistant Attorney General Susan Baron will attend to represent the Commission in a legal capacity. Dr. Milke with the University was invited to attend but is unable to do so. Dr. Beyler was not invited as this will be a Maryland fire investigators group only. It is not an open meeting.

There were no significant cuts to the OSFM budget for Fiscal Year 2019. Three-quarter ton pickup trucks will be purchased for regional explosive technicians. Similar vehicles are on display at the convention.

COMAR 29.06.01 PROPOSED AMENDMENTS

Chief Fire Protection Engineer (CFPE) Ken Bush reported on proposed amendments to the State Fire Prevention Code, COMAR 29.06.01. An extensive review of the 2018 NFPA 1 *Fire Code* and NFPA 101 *Life Safety Code* was conducted by a committee of approximately 35 fire and building code officials. With the incorporation of NFPA 1 and NFPA 101 into the State Fire Prevention Code, other NFPA codes referenced in these codes are also effectively adopted. In order to proceed, the Commission has to vote on the committee's recommendations.

CFPE Bush reported on a needed correction to the distributed draft pertaining to proposed amendment 29.06.01.07AA. The phrase "Two releasing operations shall be permitted for existing hardware on a door leaf" should read "Two releasing operations shall be permitted for hardware on an existing door leaf" for better clarity. This amendment will permit one additional locking device to be installed on existing classroom doors where the old hardware may not serve the desired level of security. There are some restrictions as part of the amendment regarding height of hardware, no simultaneous operations required for the release of both devices, and the devices having to be readily discernable as being locked. The committee felt allowing an additional device is better than some of the makeshift arrangements that are currently being used in some schools. This has been a statewide as well as a national concern with the NFPA membership itself debating whether to allow a second device. Ultimately NFPA voted to only permit one device. Newly constructed schools will only be allowed one device on doors because the door manufacturers have developed single devices that provide acceptable security. It is existing doors in older schools that present security concerns that the committee wanted to address.

In proposed amendment 29.06.01.08T dealing with the frequency of inspections, the committee decided it was not a good idea to require specific frequencies based on occupancy risk classifications so it is recommended these various sections of NFPA 1 be deleted.

Proposed amendment 29.06.01.08NN gives authority to require removal of any nonfunctional fire safety equipment, effectively prohibiting antique or decorative devices to be displayed which may give the appearance they are functional.

Existing amendment 29.06.01.08KK is being deleted to eliminate the reference to Section 903 of the International Building Code (IBC). This has been in the State Fire Code for several cycles and at the recommendation of Fire Marshal Geraci the committee agreed it could be deleted. Provisions for sprinklers in NFPA 1 are now at levels to provide sufficient safety in buildings. Deleting this amendment eliminates confusion with the building code. Requirements for sprinklers in the IBC can be enforced by the building code authorities.

Existing amendment 29.06.01.08ZZ is being deleted to eliminate certain separation requirements

of laboratory spaces from other areas of the building. This was originally adopted at the behest of a local authority but has not provided the desired results. Separation requirements will revert back to those in NFPA 45 *Standard on Fire Protection for Laboratories Using Chemicals*.

NFPA 1 has added new sections for the storage of hogged materials (such as mulch), so several Maryland amendments are no longer needed.

Proposed amendment 29.06.01.08III adds some requirements for mobile cooking operations. The amendment basically takes suggested material out of the NFPA Annex and mandates requirements for the installation of gas appliances and the identification of vehicles by tag number, VIN number, and signed statements as to who installed the piping for the appliances. This will make it much easier for field inspectors to identify properly installed equipment in the specific vehicles as they travel throughout the various jurisdictions in the state. NFPA 1 also added several new requirements for mobile cooking operations which the committee felt should be retained.

Regarding amendments in 29.06.01.09 dealing with fireworks and explosives, several were deleted as obsolete or because they are included in the 2017 edition of NFPA 1124 *Code for the Manufacture, Transportation, and Storage of Fireworks and Pyrotechnic Articles*. However, NFPA 1124 does not address the sale, handling or storage of consumer-based fireworks. Some consumer-based fireworks are legal in Maryland so the numerous requirements adopted from Chapter 65 of NFPA 1, 2012 edition will be retained under proposed amendment 29.06.01.09F. NFPA 1, Section 65.10 is basically material extracted from NFPA 1124, 2006 edition.

After discussions with the State Fire Marshal's Bomb Squad as well as the Maryland Explosive Advisory Council, several amendments in 29.06.01.10 dealing with blasting operations were deleted as obsolete or because they are included in the 2013 edition of NFPA 495 *Explosive Materials Code*.

NFPA 1 has a new Chapter 38 "Marijuana Growing, Processing, or Extraction Facilities". The committee did not make any amendments because it was felt it is best to adhere to the national standard since there has not been enough experience dealing with these facilities in Maryland. Although it had not yet been officially adopted in Maryland, some jurisdictions with these facilities had begun using these requirements.

Arrangements have been made for several training seminars to be held at MFRI College Park in October. There will be three one-day seminars and one two-day seminar. Secretary Ritchie will be handling the registration.

Motion by Commissioner Tochterman, second by Vice Chairman Scheffey, and unanimously approved to accept the Code Update Committee's recommendations and move forward with the adoption process. CFPE Bush stated the proposed amendments will now be forwarded to the Maryland State Police for approval and review by the Joint Committee on Administrative, Executive, and Legislative Review Committee (AELR) before it can be published for public comment and public hearing.

A copy of the corrected proposal is attached for the record.

OTHER BUSINESS

CFPE Bush reported he attended a recent NFPA meeting. He also is approached about Maryland's success and he recommends other states form a strong partnership with the fire service to help get regulations and laws dealing with fire and life safety passed. At a technical session, there were two challenges to remove sprinkler protection from exterior spaces and interior alcoves in single-family dwellings but they were defeated. In response to inquiries from some Commissioners, both CFPE Bush and Fire Marshal Geraci feel there is more of an effort in several local jurisdictions and states throughout the country to require residential sprinklers. The City of Las Vegas is the most recent to adopt requirements. There was some interesting debate at the NFPA meeting on firefighter training to include

fire prevention in Level 1 introductory fire training. That is moving forward.

CFPE Bush reported at committee hearings of the International Code Council the tall wood building construction proposal moved forward almost unanimously. It will go to public hearing session in Richmond, Virginia, in September. There is an effort to coordinate requirements in the building code with construction restrictions in the Life Safety Code.

Vice Chairman Scheffey reported on the progress of the high-rise task force, which meets about every six weeks. Joe Felton, Manager of Fire Prevention, Montgomery County Department of Permitting Services, recently joined the group. He provided some good comments and the committee tasked him to look at some items. The task force is looking at alternatives to 100% retroactive sprinklers and will be discussing some of those ideas in further detail. The task force discussed the rationale for identifying and designating existing non-sprinklered high-rise buildings as an inimical hazard. Information related to this is embodied in the draft position paper that the Commission discussed last year as well as in Vice Chairman Scheffey's response thereto. Vice Chairman Scheffey requested the draft position paper and his comments be included in the minutes for public record. He contacted legal counsel who had no objection to including these documents in the minutes since the matter is being discussed in open meetings. It was noted that at the April meeting the Commission voted 4 to 1 to declare unsprinklered residential high-rise buildings an inimical hazard. Another task force meeting is scheduled in July. Fire Marshal Geraci stated a residential mist demonstration, based on an international model, is scheduled for June 27 at 1:00 p.m. at MFRI College Park.

Regarding the upcoming appeal for the Maryland School for the Deaf and a report on record from Jensen Hughes Associates, Vice Chairman Scheffey disclosed he is mostly retired from Jensen Hughes but there is still an association. Also, in an email he sent, he raised an administrative question regarding engineering licensure as it relates to the appeal. After consulting with legal counsel, Vice Chairman Scheffey requested he be recused from the appeal and that the Commission not consider any of his contemporaneous comments in his email. A formal motion was made to do so by Vice Chairman Scheffey, seconded, and unanimously carried.

Commissioner Tochterman, along with Commissioner Welch thanked CFPE Bush and Secretary Ritchie for their excellent work regarding the code update committee review and proposed amendments. Compliments were extended to Commissioners Tochterman and Welch for their service on the committee.

Commissioner Tochterman reported he was coordinating with Secretary Ritchie to complete a full library of codes that have been adopted by the Commission since its creation in 1964. Secretary Ritchie advised she has the full library with the exception of the 1988 BOCA Fire Prevention Code. Commissioner Tochterman provided her with an embossing stamp to emboss each book to be retained as the Commission's official library which currently is located in Secretary Ritchie's Hagerstown Office. Fire Marshal Geraci thanked Commissioner Tochterman for the embosser and the books he personally donated from his collection.

Motion to approve the minutes of the April 26, 2018, meeting. Seconded, and unanimously carried.

CHAIRMAN REPORT

Commissioner Harrington's term will expire June 30, 2018. With the recusal of Vice Chairman Scheffey from the appeal and with the several vacancies, Chairman Davis noted there must be five commission members presents to have a quorum at the next meeting and appeal hearing. Commissioner Harrington agreed to continue to serve until replaced. Chairman Davis thanked him for his service and dedication.

Chairman Davis spoke to applicant Doug Alexander today regarding his appointment to the Commission. All required paperwork has been submitted to the Governor's Appointments Office and Mr. Alexander is waiting on a response.

Chairman Davis reported that Commissioner Bilger has moved and will need to contact the Governor's Appointments Office regarding his representation. Secretary Ritchie will work with the office regarding membership representation for existing and any incoming new members.

Chairman Davis reported he has not gotten a response from the Governor's Office regarding funding for the Mid-Atlantic Life Safety Conference. This year's conference is scheduled for September 25th.

MEETING SCHEDULED

The next meeting has been scheduled for
Thursday August 16, 2018 – 9:30 a.m.
Laurel Municipal Building, Council Chambers
8103 Sandy Spring Road
Laurel, Prince George's County

Fire Marshal Geraci reported he will be unable to attend the August meeting since he will be traveling for the National Association of State Fire Marshals Conference in Park City, Utah.

There being no further business, the meeting was adjourned.

Respectfully submitted,
(as summarized from transcript provided by Hunt Reporting),



Heidi Ritchie, Secretary

Attachments:
State Fire Prevention Code Proposed Amendments
Draft High-Rise Position Paper
Vice Chairman Scheffey's High-Rise Comments



State of Maryland Fire Prevention Code

**Larry Hogan
Governor**

**Boyd K. Rutherford
Lt. Governor**

**Colonel William M. Pallozzi
Secretary
Department of State Police**

**Brian S. Geraci
State Fire Marshal**

**Promulgated by:
State Fire Prevention Commission
C. Daniel Davis, Jr., Chairman**

<http://sfpc.mdsp.org>

(Effective January 1, 2019?)

**Additions = Underline
Deletions = ~~Strikethrough~~**

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(COMAR 29.06.01)**

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**TITLE 29 DEPARTMENT OF STATE POLICE
SUBTITLE 06 FIRE PREVENTION COMMISSION
CHAPTER 01 FIRE PREVENTION CODE
Authority: Public Safety Article §6-206 and 6-501
(Amended effective January 1, 20162019?)**

.01 Title.

This chapter shall be known and may be cited as the State Fire Prevention Code.

.02 Purpose.

A. The purpose of this chapter is to establish minimum requirements that will provide a reasonable degree of fire prevention and control to safeguard life, property, or public welfare from:

- (1) The hazards of fire and explosion arising from the storage, handling, or use of substances, materials, or devices; and
- (2) Conditions hazardous to life, property, or public welfare in the use or occupancy of buildings, structures, sheds, tents, lots, or premises.

B. This chapter incorporates by reference NFPA 1 Fire Code (20152018 Edition), except as amended in Regulations .08 and .09 of this chapter, and NFPA 101 Life Safety Code (20152018 Edition), except as amended in Regulation .07 of this chapter. ~~Certain requirements of the International Building Code as incorporated by reference by the Maryland Building Performance Standards are also adopted by incorporation by reference in Regulations .06—16 of this chapter and are considered minimum standards.~~

C. The State Fire Prevention Commission recommends the use of the NFPA National Fire Codes or other nationally recognized standards in technical matters not specifically addressed by this chapter.

.03 Application and Scope.

A. This chapter applies to both new and existing buildings and conditions. In various sections there are specific provisions for existing buildings that may differ from those for new buildings. Unless otherwise noted, this chapter does not apply to facilities, equipment, structures, or installations that were existing or approved for construction or installation before the effective date of this chapter, except in those cases in which it is determined by the authority having jurisdiction (AHJ) that the existing situation constitutes a hazard so inimical to the public welfare and safety as to require correction. The requirements for existing buildings and conditions may be modified if their application clearly would be impractical in the judgment of the AHJ, but only if it is clearly evident that a reasonable degree of safety is provided. The State Fire Marshal or the legally appointed designee has the authority to make a determination of the applicability of this chapter to any building or condition in it, subject to the right of appeal to the State Fire Prevention Commission as prescribed in COMAR 29.06.02.

B. (Repealed)

C. The provisions of this chapter do not apply in Baltimore City except to those buildings and conditions specifically prescribed in Public Safety Article, Title 6, Subtitle 4, Annotated Code of Maryland.

D. The provisions of this chapter do not apply to buildings used solely as dwelling houses for not more than two families as prescribed in Public Safety Article, Title 6, Subtitle 3, Annotated Code of Maryland.

.04 Enforcement.

A. Enforcement of this chapter is the responsibility of:

- (1) The State Fire Marshal;
- (2) A legally designated fire official of a county or municipal corporation of the State; or
- (3) Other persons legally appointed by the State Fire Marshal under Public Safety Article, Title 6, Subtitle 3, Annotated Code of Maryland.

B. The State Fire Marshal or the legally appointed designee may accept alternate methods of satisfying the intent of this chapter if the material, method, or work is at least the equivalent of that required by this chapter in quality, effectiveness, durability, and safety, and meets or exceeds the intent of the chapter.

C. If there are differing or conflicting requirements between this chapter and codes or standards adopted by incorporation by reference by this chapter, the State Fire Marshal or the legally appointed designee shall determine which requirements apply, subject to the right of appeal to the State Fire Prevention Commission.

D. If Public Safety Article, Annotated Code of Maryland, or this chapter requires that a permit, license, or certificate of approval be obtained from the State Fire Marshal, it shall be obtained from the State Fire Marshal, or other appropriate authority, of the county, city, or incorporated town where the activity or equipment for which the permit, license, or certificate required is located.

E. A violation of this chapter is subject to the penalties set forth in the Public Safety Article, Annotated Code of Maryland.

.05 Definitions.

A. In this chapter, the following terms have the meanings indicated.

B. Terms Defined.

- (1) "Authority having jurisdiction (AHJ)" means the State Fire Marshal or the legally appointed designee as prescribed in this chapter.
- (2) "International Code Council (ICC)" means International Code Council, Inc., 500 New Jersey Avenue N.W., 6th Floor, Washington, DC 20001-2070.
- (3) "Legally appointed designee" means those local or county officials specifically authorized under the Public Safety Article, Annotated Code of Maryland, to enforce the provisions of the State Fire Laws and State Fire Prevention Code.
- (4) "New building or condition" means a building, structure, installation, plant, equipment, renovation, or condition:
 - (a) For which a building permit is issued on or after the effective date of this chapter;
 - (b) On which actual construction is started on or after the effective date of this chapter in a jurisdiction where a building permit is not required;
 - (c) Which represents a change from one occupancy classification to another on or after the effective date of this chapter; or
 - (d) Which represents a situation, circumstance, or physical makeup of any structure, premise, or process that was commenced on or after the effective date of this chapter.
- (5) "NFPA" means National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

.06 Incorporation by Reference.

A. In this chapter, the following documents are incorporated by reference, with the amendments specified in this chapter. Tentative interim amendments and supplements to these documents and to the codes and standards referenced in these documents are not included as part of this chapter unless specifically adopted by this chapter.

B. Documents Incorporated.

- (1) NFPA 1 Fire Code (2015~~2018~~ Edition).
- (2) NFPA 101 Life Safety Code (2015~~2018~~ Edition).
- ~~(3) International Building Code as incorporated by reference by the Maryland Building Performance Standards, which can be found under COMAR 05.02.01.02-1.~~

C. Incorporation by Reference Locations. The documents incorporated by reference in §B of this regulation are available for inspection in State depository libraries.

.07 National Fire Protection Association 101 Life Safety Code.

The NFPA 101 Life Safety Code (2015~~2018~~ Edition) is incorporated by reference, except for the following amendments:

A. Amend Section 2.2 to add the referenced publication NFPA 1124 Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles, 2006 edition delete the referenced publication NFPA 150 Standard on Fire and Life Safety in Animal Housing Facilities, 2016 edition.

B. Amend Section 2.4 to delete the referenced publications NFPA 150 Standard on Fire and Life Safety in Animal Housing Facilities, 2016 edition and NFPA 5000 Building Construction and Safety Code, 2018 edition. Wherever NFPA 5000 is referenced, other than for extracted text, substitute the building code adopted by the AHJ.

BC. Amend Subsection ~~3.3.623.3.64~~ to add the following Paragraph: ~~3.3.62.33.3.64.3~~ Bulkhead Door. A type of door assembly covering an opening in the ground providing direct access to a basement, the floor of which is not more than 8 feet below ground level. The door consists of a single rigid leaf or two overlapping rigid leaves or covers which need to be pushed or lifted upwards in order to be opened. A person, after opening the door, can walk up a series of steps to escape to the outside.

CD. Amend Paragraph ~~3.3.142.13.3.148.1~~ and Subparagraphs 16.6.1.1.2 and 17.6.1.1.2 to delete "more than 3, but".

DE. Amend Paragraphs ~~3.3.190.43.3.196.4~~ and 6.1.4.1 to delete "four or more".

EE. Amend Paragraphs ~~3.3.190.123.3.196.12~~ and 6.1.9.1 to replace "four" with "six".

FG. Amend Subsection 4.5.8 and Paragraph 4.6.12.1 to delete "for compliance with the provisions of this Code".

H. Amend Paragraph 4.6.10.2 to replace "Where required by Chapters 11 through 43, construction" with "Construction".

GJ. Amend Paragraph 4.6.12.3 to delete "by the Code".

HJ. Amend Subsection 4.8.2 to add the following Paragraph: 4.8.2.4 Emergency action plans shall be maintained in a location approved by the AHJ.

K. Amend Subparagraph 6.1.8.1.1 to replace "three" with "five" and delete ",if any, accommodated in rented room".

IL. Amend Subparagraph 7.2.1.5.12 to replace "required" with "provided".

JM. Amend Subparagraph 7.2.1.6.3 to replace "in Chapters 11 through 43" with "by the AHJ and Chapters 11 through 43".

KN. Amend Subparagraph 7.2.1.7.1 to delete "required to be".

LO. Amend Subparagraph 7.2.1.7.3 to delete "Required".

MP. Amend Paragraph 7.9.1.2 to replace "only" in the first sentence with ", but not be limited to,".

NQ. Amend Paragraph 9.6.1.3 and Subsection 9.11.1 to delete "required by this Code".

OR. Amend Paragraph 9.6.2.6 to add the following: This paragraph does not permit the omission of manual fire alarm boxes in accordance with other provisions of this Subsection unless specifically permitted by Chapters 11 through 43.

PS. Amend Paragraph 9.7.1.1 to add the following Subparagraph: 9.7.1.1.1 For new ceiling installations, drop-out ceilings as referenced in NFPA 13, Subsection 8.15.15, shall be prohibited.

T. Amend Subsection 9.11.4 and Paragraph 9.14.1.1 to replace "Chapters 11 through 43" with "the AHJ and Chapters 11 through 43".

QU. Amend Paragraph 11.8.3.1 to add "High-rise buildings do not include a structure or building used exclusively for open-air parking."

RV. Amend Paragraph 11.11.2.1 to add "or other approved testing standard approved by the State Fire Marshal".

W. Delete Subsection 11.12.2.

X. Delete Paragraphs 12.2.1.2, 14.2.1.5, 16.2.1.1, 28.2.1.4, 30.2.1.3, 32.2.2.7, 36.2.1.6, 38.2.1.5, 40.2.1.3, 42.2.1.3, Subparagraphs 16.6.2.1.2, 32.3.2.1.3, and Subsection 26.2.4.

SY. Amend Paragraphs 12.2.4.1 and 13.2.4.1 to add the following:

(1) Not less than two separate exits shall be provided on every story.

(2) Not less than two separate exits shall be accessible from every part of every story.

YZ. Amend Paragraphs 14.7.2.3 and 15.7.2.3 to delete existing wording and replace with the following:

Fire emergency egress drills shall be conducted as follows:

(1) Not less than one fire emergency egress drill shall be conducted every month the facility is in session, unless the following criteria are met:

(a) In climates where the weather is severe, the monthly fire emergency egress drills shall be permitted to be deferred; and

(b) In educational occupancies which are:

(i) fully protected by an automatic sprinkler system, the total number of annual fire emergency egress drills shall be five, with a least two of the required drills conducted in the first four months of the school year; or

(ii) not fully protected by an automatic sprinkler system, the total number of annual fire emergency egress drills shall be eight, with at least three of the required drills conducted in the first four months of the school year.

(2) All occupants of the building shall participate in the fire emergency egress drill.

(3) One fire emergency egress drill, other than for educational occupancies that are open on a year-round basis, shall be required within the first 30 days of operation.

AA. Amend Subparagraph 15.2.2.2.4 to add the following new item: (10) Two releasing operations shall be permitted for hardware on an existing door leaf provided that releasing does not require simultaneous operations and the locking device is of a type that is readily distinguishable as locked.

UBB. Amend Subsections 16.1.1 and 17.1.1 to add the following Paragraphs:

16.1.1.9 16.1.1.10 and 17.1.1.9 17.1.1.10 Day-care centers providing day care for school-age children before or after school hours in a building which is in use as a public or private school are not required to meet the provisions of this chapter, but shall meet the provisions for educational occupancies.

VCC. Amend Subparagraphs 16.2.11.1.1 and 17.2.11.1.1 to add the following item:

(4) For grade floor windows the minimum net clear opening shall be permitted to be 5.0 ft2.

WDD. Amend Sub-subparagraphs 16.6.1.4.1.1 and 17.6.1.4.1.1 to delete "more than three, but" and replace "seven" with "nine".

XEE. Amend Sub-subparagraphs 16.6.1.4.1.2 and 17.6.1.4.1.2 to replace "7" with "9".

YFF. Amend Subparagraphs 16.6.1.7.1 and 17.6.1.7.1 to replace "both" with "all" and Items (1) and (2) with the following Items:

(1) The minimum staff-to-client ratio shall be not less than one staff member for up to eight clients, including the caretaker's own children incapable of self-preservation.

(2) There shall be not more than four clients incapable of self-preservation, including the caretaker's own children incapable of self-preservation.

(3) A staff-to-client ratio of at least one staff member to every two clients incapable of self-preservation shall be maintained at all times.

(4) The staff-to-client ratio shall be permitted to be modified by the authority having jurisdiction where safeguards in addition to those specified in this section are provided.

ZGG. Amend Paragraphs Subparagraph 16.6.2.1 16.6.2.1.1 and Paragraph 17.6.2.1 and Subparagraphs ~~16.6.2.4.5~~ and ~~17.6.2.4.5~~ to add the following: Bulkhead doors may not serve as a primary means of escape.

HH. Amend Subparagraphs 16.6.2.4.5 and 17.6.2.4.5 to delete item (3).

AAII. Amend Paragraphs 16.6.2.2 (Reserved) and 17.6.2.2 (Reserved) to add the following: SLIDING DOOR: For family day-care homes, a sliding door used as a required means of escape shall comply with the following conditions:

(1) The sliding door shall have not more than one, easily operated, locking device that does not require special knowledge, effort, or tools to operate;

(2) There may not be draperies, screens, or storm doors that could impede egress;

- (3) The sill or track height may not exceed 1/2 inch above the interior finish floor;
- (4) The surface onto which exit is made shall be an all weather surface such as a deck, patio, or sidewalk;
- (5) The floor level outside the door may be one step lower than the inside, but not more than 8 inches lower;
- (6) The sliding door shall open to a clear open width of at least 28 inches;
- (7) Before day-care use each day, the sliding door shall be unlocked and tested to the full required width to be sure it is operating properly, and the door shall be nonbinding and slide easily; and
- (8) During periods of snow or freezing rain, door tracks shall be cleared out and the door opened periodically throughout the day in order to ensure proper operation.

BBJJ. Amend Paragraphs 16.6.2.3 (Reserved) and 17.6.2.3 (Reserved) to add the following: SPECIAL MEANS OF ESCAPE REQUIREMENTS: For family day-care homes, deadbolt locks shall be provided with approved interior latches, or these locks shall be of a captured key design from which the key cannot be removed from the interior side of the lock when the lock is in the locked position.

CCKK. Amend Subparagraph ~~17.6.3.4.4~~17.6.3.4.5 to delete "existing" and replace "and battery" with "battery, and smoke alarm".

DDLL. Amend Subparagraph 22.4.5.1.3 to delete "or 22.4.5.1.5".

EE. Amend Subparagraphs ~~22.4.5.1.4(1)~~ and ~~23.4.5.1.4(1)~~ to replace "2 minutes" with "30 seconds".

FF. Amend Subparagraphs ~~22.4.5.1.4(2)~~ and ~~23.4.5.1.4(2)~~ to replace "2-minute" with "30-second".

GGMM. Delete Subparagraphs 22.4.5.1.5 and 23.4.5.1.5.

HHNN. Delete Paragraphs 22.4.5.2 and 23.4.5.2.

HOQO. Amend Subparagraph 23.4.5.1.3 to delete "or 23.4.5.1.5".

JJPP. Amend Paragraph 24.1.1.2 to replace "three" with "five" and delete ", if any, accommodated in rented rooms".

KKQQ. Amend Subparagraphs 24.2.2.3.3, 32.2.2.3.1(3), and 33.2.2.3.1(3) to insert ", or not less than 5.0 ft² for grade floor windows" after "5.7 ft²".

LLRR. Amend Paragraph 26.1.1.1 to replace "buildings" with "buildings that do not qualify as one- and two-family dwellings".

MMSS. Amend Sub-subparagraph 33.3.3.4.8.1 to delete "33.3.3.4.8.2 and".

NNTT. Delete Sub-subparagraph 33.3.3.4.8.2.

OOUU. Amend Table 42.2.5 to replace "50" with "75" and "15" with "23" for common path of travel for ordinary hazard storage occupancy not protected throughout by an approved, supervised automatic sprinkler system in accordance with 9.7.1.1(1).

PPVV. Amend Subparagraphs 42.3.4.1.2 and 42.3.4.1.3 to replace "Storage occupancies" with "Storage occupancies less than three stories".

QQWW. Amend Sub-subparagraphs 42.8.3.4.1.1 and 42.8.3.4.1.3 to replace "Parking structures" with "Parking structures less than three stories".

.08 National Fire Protection Association 1 Fire Code.

The NFPA 1 Fire Code (20152018 Edition) is incorporated by reference, except for the amendments in Regulation .09 of this chapter and the following amendments:

~~A. Amend Paragraph 1.7.12.2 to add the following sentence: The AHJ shall be authorized to require plans to bear the stamp of a registered design professional.~~

BA. Delete Section 1.10. (See COMAR 29.06.02)

CB. Delete Subsection 1.11.3.

DC. Amend Subsection 1.12.1 to add the following Paragraph: 1.12.1.1 Permits, certificates, notices, approvals, or orders required by this code shall be governed by the policies and procedures of the AHJ.

ED. Amend Paragraph 1.12.6.13 to replace "Permits shall" with "Permits may".

FE. Amend Subsection 1.12.8 to replace "shall" with "may".

GF. Amend Subsection 1.13.2 to delete "Mandatory." and replace "shall" with "may".

HG. Delete Paragraphs 1.13.12.4 and ~~1.16.4.21.16.4.3~~.

H. Amend Paragraphs 2.1.1.1 and 2.1.1.2 to replace "Compliance" with "Where permitted by the AHJ, compliance".

I. Amend Section 2.2 to delete the referenced publication NFPA 5000 Building Construction and Safety Code, 20152018 edition. Wherever NFPA 5000 is referenced, other than for extracted text, substitute the building code adopted by the AHJ. Delete the referenced publication NFPA 150 Standard on Fire and Life Safety in Animal Housing Facilities, 2013 2016 edition. ~~Add the referenced publication NFPA 1124 Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles, 2006 edition.~~

~~J. Amend Section 3.3 to add the following Subsection. 3.3.278 Fireworks. Any composition or device for the purpose of producing a visible or audible effect for entertainment purposes by combustion, deflagration or detonation, and that meets the definition of Consumer Fireworks or Display Fireworks as set forth in NFPA 1124 Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles, 2006 edition, and as referenced in Public Safety Article, §10-101, Annotated Code of Maryland.~~

KJ. Amend Subsection 3.3.14 to add the following Paragraph: 3.3.14.13 Consumer Fireworks Retail Sales Area. The portion of a consumer fireworks retail sales facility or store, including the immediately adjacent aisles, where consumer fireworks are located for the purpose of retail display and sale to the public.

K. Amend Subsection 3.3.130 and Paragraph 3.3.130.1 to add "and as referenced in Public Safety Article, §10-101, Annotated Code of Maryland".

L. Amend Paragraph ~~3.3.183.6~~3.3.192.6 to delete "more than 3 but".

M. Amend Paragraphs ~~3.3.183.7~~3.3.192.7 and 6.1.4.1 to delete "four or more".

N. Amend Paragraph ~~3.3.183.22~~3.3.192.25 to replace "three" with "five" and delete ", if any, accommodated in rented rooms".

O. Amend Paragraphs ~~3.3.183.25~~3.3.192.28 and 6.1.9.1 to replace "four" with "six".

P. Amend Paragraph 4.5.8.1 to delete "for compliance with the provisions of this Code".

Q. Amend Paragraph 4.5.8.3 to delete "by the Code".

R. Amend Subparagraph 6.1.8.1.1 to replace "three" with "five" and delete ", if any, accommodated in rented rooms".

RS. Amend Subsection 10.1.2 to add "except as amended by COMAR 29.06.01.07, COMAR 29.06.01.08, and COMAR 29.06.01.09".

T. Amend Section 10.2 to delete Subsection 10.2.7 and Table 10.2.7.1.

SU. Amend Subsections 10.4.1 and 10.4.2 to replace "AHJ" with "AHJ or incident commander".

TV. Amend Subsection 10.10.6.1 to replace "10 ft (3 m)" with "15 ft (4.6 m)".

UW. Amend Subsection 10.11.1 to add the following Subparagraph and Paragraph:
10.11.1.1.1 Subject to the approval of the AHJ, individual suites within structures and rear exterior entrances and/or access from service corridors shall be clearly identified.
~~10.11.1.9~~10.11.1.9 Where required by the AHJ, symbols in compliance with NFPA 170 Standard for Fire Safety and Emergency Symbols shall be used.

VX. Amend Paragraph 10.11.1.1 to replace "address numbers" with "premises identification" and Paragraphs 10.11.1.2, 10.11.1.6, 10.11.1.7 and ~~10.11.1.8~~10.11.1.8 to replace "Address numbers" with "Premises identification".

Y. Amend Paragraph 10.11.1.4 to delete existing wording and replace with "Where required by the AHJ, the assignment of addresses to buildings shall be in accordance with an approved method."

Z. Delete Paragraph 10.11.1.5.

WAA. Amend Subsection 10.13.1 to add the following new Paragraph: 10.13.1.2 The AHJ shall be permitted to:

- (1) Approve the placement of a natural cut or balled tree;
- (2) Limit the number of natural cut or balled trees displayed; and
- (3) Order the removal of any tree if the tree poses a hazard to life or safety.

XBB. Amend Paragraph 10.13.1.1 to replace "Christmas" with "Unless otherwise approved by the AHJ, Christmas".

YCC. Amend Paragraph 10.13.3.1 to replace "by the manufacturer" with "by a testing laboratory recognized by the Office of the State Fire Marshal".

ZDD. Amend Paragraph 10.13.9.1 to replace "½ in. (13 mm)" with "2 in. (50 mm)" and add the following sentence: "A natural cut tree shall not exceed 10 ft. (3 m) in height, excluding the tree stand."

AAEE. Amend Subparagraph 10.14.11.2.6 to replace "any vehicles" with "any vehicles, buildings,".

BBFF. Amend Section 10.15 to add the following Subsection: 10.15.6 The AHJ shall have the authority to require that outdoor storage of any combustible material be enclosed by an approved fence or other protective enclosure to prevent unauthorized access.

CCGG. Amend Subsection 10.15.1 to replace "10 ft (3m)" with "15 ft (4.6m)" and "property line" with "property line, building, or adjacent pile of combustible material"; and add the following: The separation distance shall be allowed to be increased where the AHJ determines that a higher hazard to the adjoining property exists.

DDHH. Amend Subsection 10.15.5 to add "and shall not exceed 10,000 ft² in area".

EEII. Amend Subsection 10.18.7 to replace "repaired" with "repaired on any balcony, under any overhanging portion, or".

FFJJ. Amend Section 11.1 to add the following Subsection: 11.1.9 Clearance. A clear space of not less than 30 inches (762 mm) in width, 36 inches (914 mm) in depth, and 78 inches (1981 mm) in height shall be provided in front of electrical service equipment. Where the electrical service equipment is wider than 30 inches (762 mm), the clear space shall not be less than the width of the equipment. No storage of any materials shall be located within the designated clear space. Exception: Where other specialized dimensions are required or permitted by NFPA 70.

GGKK. Amend Paragraph 11.1.7.3 to add the following Subparagraph: 11.1.7.3.2 Doors to electrical control panel rooms shall be marked with a plainly visible and legible sign stating ELECTRICAL ROOM or similar approved wording in contrasting letters not less than 1 in. (25 mm) high and not less than ¼ in. (6.4 mm) in stroke width.

HHLL. Amend Paragraph 11.3.6.1 to add the following sentence: Keys for new elevators shall be cut to a uniform key code to comply with the Maryland State Elevator Code.

IIMM. Amend Subsection 11.9.1 to replace "approved by the fire department" with "approved by the AHJ".

NN. Amend Section 13.1 to add the following Subsection. 13.1.14 Appearance of Equipment. The AHJ shall be permitted to prohibit any device that has the physical appearance of a life safety or fire protection function but does not perform that life safety or fire protection function.

OO. Amend Subsection 13.1.3 to replace "in Chapters 11 through 43" with "by the AHJ and Chapters 11 through 43".

JJPP. Amend Paragraph 13.3.1.2 to add the following Subparagraph: 13.3.1.2.1 For new ceiling installations, drop-out ceilings as referenced in NFPA 13, Subsection 8.15.15, shall be prohibited.

~~KK. Amend Paragraph 13.3.2.1 to add the following Subparagraph: 13.3.2.1.1 All new buildings shall be equipped with an automatic sprinkler system or other automatic fire suppression system where required by Section 903 of the International Building Code as incorporated by reference by the Maryland Building Performance Standards.~~

~~LLQQ. Amend Paragraphs 13.3.3.1 and 13.3.3.2 to delete "installed in accordance with this Code".~~

~~MMRR. Amend Subsection 13.4.1 to add the following Subparagraph: 13.4.1.1.1 No fire pump component, including the pump, driver, or controller, shall be permitted to be installed in below-ground vaults or pits unless otherwise approved by the AHJ.~~

~~NNSS. Amend Subsection 13.6.1.2 to add ", unless otherwise permitted by the AHJ."~~

~~OO TT. Amend Sub-subparagraph 13.6.4.1.2.1 to replace "certified" with "licensed as required by the AHJ".~~

~~PPUU. Delete Sub-subparagraphs 13.6.4.1.2.1.1, 13.6.4.1.2.1.2, 13.6.4.1.2.1.3, 13.6.4.1.2.1.4, 13.6.4.1.2.1.5, 13.6.4.1.2.1.6.~~

~~QQVV. Amend Sub-subparagraph 13.6.4.1.2.3 to replace "certified" with "licensed".~~

~~RRWW. Amend Sub-subparagraphs 13.7.2.28.1.2 and 13.7.2.28.1.3 to replace "Storage occupancies" with "Storage occupancies less than three stories".~~

~~SSXX. Amend Paragraph 14.13.1.2 to replace "only" in the first sentence with ", but not be limited to,".~~

~~TT. Amend Paragraphs 18.1.3.1 and 18.1.3.2 to replace "fire department" with "AHJ".~~

~~UUYY. Amend Subparagraph 18.2.3.2.1 to replace "exterior door" with "exterior door acceptable to the AHJ".~~

~~ZZ. Delete Paragraph 18.2.3.4.~~

~~VAAA. Amend Subparagraph 20.2.4.2.3 to delete existing wording and replace with the following:~~

~~Fire emergency egress drills shall be conducted as follows:~~

~~(1) Not less than one fire emergency egress drill shall be conducted every month the facility is in session, unless the following criteria are met:~~

~~(a) In climates where the weather is severe, the monthly fire emergency egress drills shall be permitted to be deferred; and~~

~~(b) In educational occupancies which are:~~

~~(i) fully protected by an automatic sprinkler system, the total number of annual fire emergency egress drills shall be five, with a least two of the required drills conducted in the first four months of the school year; or~~

~~(ii) not fully protected by an automatic sprinkler system, the total number of annual fire emergency egress drills shall be eight, with at least three of the required drills conducted in the first four months of the school year.~~

~~(2) All occupants of the building shall participate in the fire emergency egress drill.~~

~~(3) One fire emergency egress drill, other than for educational occupancies that are open on a year-round basis, shall be required within the first 30 days of operation.~~

~~WWBBB.~~ Amend Subparagraph 20.3.4.1.1 and 20.3.4.1.2 to delete "more than 3, but" and the ", " after "12".

~~XXCCC.~~ Amend Paragraph 25.2.2.1 to add "or other approved testing standard approved by the State Fire Marshal".

~~YYDDD.~~ Amend Subsection ~~26.1.5~~26.1.6 to add the following Paragraphs:

~~26.1.5.2~~26.1.6.2 When requested by the AHJ, a hazard assessment shall be conducted by a technically qualified person acceptable to the AHJ.

~~26.1.5.3~~26.1.6.3 When requested by the AHJ, a list of hazardous materials used in each laboratory shall be provided. The list shall specify the chemical name, quantity and hazard class.

~~26.1.5.4~~26.1.6.4 New laboratories or laboratories where the NFPA 45 laboratory hazard classification changes shall post an information placard near the main entrance to the laboratory. The placard shall state the building name or address, room number, NFPA 45 laboratory hazard classification, edition of NFPA 45, maximum allowable quantities of flammable liquids both inside a storage cabinet and open use, and maximum quantities of flammable gases permitted within the laboratory.

~~ZZ.~~ Amend Chapter 26 to add the following Section and Subsection:

~~26.3~~ Construction

~~26.3.1~~ All laboratories, laboratory suites or laboratory units within the scope of NFPA 45, regardless of the laboratory hazard classification in NFPA 45, shall be separated by at least one-hour fire resistance rated construction from non-laboratory areas. If a higher fire resistance rating is required by Table 5.1.1 in NFPA 45 or the building code, the higher fire resistance rating shall be used. Rooms that are an incidental use to the lab shall be considered part of the laboratory for the purpose of this requirement and shall not require additional separation.

~~AAA.~~ Amend Subparagraph 31.3.6.2.2 to add the following item:

~~(9) Piles containing leaves and other extraneous or hogged material, such as whole tree chip piles, shall be turned or reclaimed at least every 3 months.~~

~~BBB.~~ Amend Subparagraph 31.3.6.3.1 to delete existing wording and replace with the following: Piles shall not exceed 18 feet in height, 50 feet in width, and 350 feet in length. Piles shall be subdivided by fire lanes having at least 30 feet of clear space at the base of piles.

~~CCC.~~ Delete Subparagraph 31.3.6.3.2 and Sub-subparagraphs 31.3.6.3.2.1, 31.3.6.3.2.2, and 31.3.6.3.2.3.

~~EEE.~~ Delete Chapter 35 Animal Housing Facilities.

~~DDDDFF.~~ Amend Subsection 42.7.5 to add the following Paragraphs:

42.7.5.7 Management/owner officials or employees shall conduct daily site visits to ensure that all equipment is operating properly.

42.7.5.8 Regular equipment inspection and maintenance at the unattended self-service facility shall be conducted.

42.7.5.9 Fuel dispensing equipment shall comply with one of the following:

(1) The amount of fuel being dispensed is limited in quantity by preprogrammed card; or

(2) Dispensing devices shall be programmed or set to limit uninterrupted fuel delivery of not more than 25 gallons and shall require a manual action to resume continued delivery.

EEEEGGG. Amend Paragraph 42.7.5.5 to add the following: The following information shall be conspicuously posted in this area:

- (1) The exact address of the unattended self-service facility.
- (2) The telephone number of the owner or operator of the unattended self-service facility.

FFFHHH. Amend Subsection 50.2.1 to add the following Paragraphs, Subparagraphs, and Sub-subparagraphs:

50.2.1.10 Commercial Outdoor Cooking Operations. These requirements apply to commercial outdoor cooking operations such as those that typically take place under a canopy or tent-type structure at fairs, festivals, and carnivals. This includes, but is not limited to, deep frying, sautéing, and grilling operations.

50.2.1.10.1 Tent and Canopy Requirements.

50.2.1.10.1.1 Tents or canopies where cooking equipment not protected in accordance with NFPA 96 is located shall not be occupied by the public and shall be separated from other tents, canopies, structures, or vehicles by a minimum of 10 ft. (3050 mm) unless otherwise approved by the AHJ.

50.2.1.10.1.2 All tent and canopy material shall comply with the flame resistance requirements of Subsection 25.2.2.

50.2.1.10.2 LP Gas Fuel Requirements.

50.2.1.10.2.1 LP gas tank size shall be limited to 60 pounds. The total amount of LP gas on site shall not exceed 60 pounds for each appliance that is rated not more than 80,000 btu/hr. and 120 pounds for each appliance rated more than 80,000 btu/hr.

50.2.1.10.2.2 Tanks shall be maintained in good physical condition and shall have a valid hydrostatic date stamp.

50.2.1.10.2.3 Tanks shall be secured in their upright position with a chain, strap, or other approved method that prevents the tank from tipping over.

50.2.1.10.2.4 Tanks shall be located so that they are not accessible to the public. LP gas tanks shall be located at least 5 feet from any cooking or heating equipment or any open flame device.

50.2.1.10.2.5 All LP gas equipment shall be properly maintained and comply with the requirements of NFPA 58. 50.2.1.10.2.6 Regulators. Single-stage regulators may not supply equipment that is rated more than 100,000 btu/hr. rating. Two-stage regulators shall be used with equipment that is rated more than 100,000 btu/hr.

50.2.1.10.3 General Safety Requirements.

50.2.1.10.3.1 All electrical cords shall be maintained in a safe condition and shall be secured to prevent damage.

50.2.1.10.3.2 Movable cooking equipment shall have wheels removed or shall be placed on blocks or otherwise secured to prevent movement of the appliance during operation.

50.2.1.10.3.3 Portable fire extinguishers shall be provided in accordance with NFPA 1, Section 13.6 and shall be specifically listed for such use.

III. Amend Subparagraph 50.7.2.3.4 to replace "an approved company" with "a gas fitter certified by the Maryland Department of Labor, Licensing, and Regulation" and add the following:

The certification documentation shall consist of the following:

- (1) The name of the certified gas fitter;
- (2) The license or certification number that demonstrates the gas fitter is approved to install, inspect, and maintain LP-gas systems;
- (3) The corporate name of the mobile food service business;
- (4) The identifying name on the side of the mobile food vehicle;
- (5) The date of inspection;

(6) The vehicle tag number and VIN; and

(7) A signed statement by the certified gas fitter that reads: "The LP-Gas system has been inspected for compliance with the current edition of NFPA 58 and found to be in compliance with the provisions of the code. In addition, leak detection has been conducted on the LP-Gas system piping and the piping has been found to maintain integrity."

.09 Fireworks and Explosive Materials.

The NFPA 1 Fire Code (20152018 Edition) is incorporated by reference, except for the amendments in Regulation .08 of this chapter and the following amendments:

A. Permits shall be required for the following:

- (1) Fireworks displays;
- (2) Pyrotechnics before a proximate audience; and
- (3) Flame effects before an audience.

B. Amend Sections 65.2, 65.3, and 65.4 to add the following:

- (1) All applications for permits for display shall be filed at least 10 business days before the display is to be held.
- (2) Under Public Safety Article, Title 10, Annotated Code of Maryland, the following requirements apply to public liability and property damage insurance:
 - (a) In order to meet the requirement of the statute, the State shall be named as an insured in the contract of insurance;
 - (b) Because the policy shall cover all damages to persons or property, a deductible form of coverage may not be accepted;
 - (c) The minimum amount of coverage that the State can accept on any display is \$25,000 for the injury of one person, \$50,000 for more than one person, and \$10,000 for property damage; and
 - (d) A duplicate policy of a certificate of insurance shall be attached to the application.
- (3) The policy or certificate shall provide that:
 - (a) The coverage may not be canceled without at least 30 days notice to the State Fire Marshal;
 - (b) The duplicate policy or certificate shall set forth all of the terms, conditions, endorsements, and riders which are or which will become part of the policy when issued;
 - (c) It is understood and agreed that limitations cannot be included in the policy which are not set forth in the duplicate policy or certificate of insurance which has been filed;
 - (d) If the policy is issued by an insurer authorized to do business in the State, it shall be validated by the signature of an agent licensed by the Maryland Insurance Administration to represent the insurer;
 - (e) If coverage is provided by an insurer who is not authorized to do business in the State, the duplicate policy or certificate of insurance shall be accompanied by a power of attorney or other satisfactory evidence that the person, firm, or corporation acting as agent in accepting the risk has authority to bind risks and issue policies for the insurer;
 - (f) The State Fire Marshal's Office specifically reserves the right to disapprove contracts issued by any authorized insurer if the Fire Marshal's Office determines the insurer is unsatisfactory; and (g) If the policy issued by the unauthorized company is acceptable to the Fire Marshal's Office, it shall be registered and the registration fee and tax paid.

~~C. Amend Section 65.2 to add the following subsection: 65.2.3 All storage of display fireworks shall comply with NFPA 1124, Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles.~~

DC. Amend Section 65.5 to add the following regarding the manufacture of fireworks:

- (1) A building containing hazardous mixes or items may not be located closer than 20 feet to the property line.
- (2) In §C(3) of this regulation, the following terms have the meanings indicated:
 - (a) "Trainees" means employees undergoing initial training in a specific process for a period not to exceed 24 consecutive work hours.
 - (b) "Transients" means:
 - (i) Supervisors not regularly assigned to the area;
 - (ii) Bona fide government agency personnel engaged in official business; and
 - (iii) Material-handling personnel actively engaged in the transfer of materials into or out of the area.
- (3) The maximum number of workers, excluding one trainee and three transients, permitted in a building at one time shall be limited to one person per 100 square feet gross floor area or one person in buildings of less than 100 square feet gross floor area.
- (4) The total amount of explosives or pyrotechnic composition including raw materials, material being processed, and finished products, that may be safely permitted in any building at a given time, shall be determined by the enforcement agency based upon the American Table of Distances for Storage of Explosives, without recognition for barricades. However, distances may not be less than those required by Public Safety Article, §10-204(a), Annotated Code of Maryland. The amount of explosives or other pyrotechnic composition may not exceed the amount necessary for production for 4 hours.
- (5) Before beginning work, all fireworks plants shall submit for approval accurate scale plot plans of their premises to the State Fire Marshal of all proposed changes of location of any of the structures, fences, and gates.

ED. Amend Section 65.5 to add the following Subsections:

~~65.5.2 The manufacture, transportation, or storage of fireworks shall comply with NFPA 1124, Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles.~~

65.5.3 Sale or use of fireworks shall comply with the following:

- (1) Before the sale, offering for sale, or use within the State, of any sparkler, every manufacturer of sparklers shall submit sufficient samples for inspection to the State Fire Marshal, with a laboratory report from a certified testing laboratory affirming that the analysis of these sparklers showed that they contain no chlorates or perchlorates.
- (2) All sparklers sold in the State shall be sold in boxes, and each box shall be clearly marked that the sparklers contain no chlorates or perchlorates.
- (3) The manufacturer shall furnish the State Fire Marshal with a current list of wholesalers, jobbers, retailers, or retail outlets, who handle or supply sparklers, or maintain a list of wholesalers, jobbers, retailers, or retail outlets, subject to inspection by the State Fire Marshal.

FE. Amend Subsection 65.9.1 reference to NFPA 495 as follows:

- (1) Delete Sections 11.2 and 11.3.
- (2) Amend Section 3.3 to add the following definition: Demolition. The explosive razing of any manmade structure or any part thereof that cannot be covered with overburden or blasting mats.
- (3) Amend Section 4.4 to add the following new Subsection: 4.4.7 Each applicant for a Demolition Class D permit shall possess 5 years of experience in the field of demolition and shall pass the demolition examination as approved by the Office of the State Fire Marshal.

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Amend Chapter 65 to add the following:

65.10 Sale, Handling, and Storage of Consumer Fireworks.

65.10.1 Applicability.

65.10.1.1 General Requirements. Retail sales of consumer fireworks in both new and existing buildings, structures, and facilities shall comply with the requirements of this section unless otherwise indicated.

65.10.1.1.1 New Facilities.

65.10.1.1.1.1 For the purpose of applying the requirements of this section, the following consumer fireworks retail sales(CFRS) facilities and stores shall be considered to be new:

(1) Permanent CFRS facilities and stores that are not initially occupied until after the effective date of this Code, unless plans are submitted and accepted for review, plans have been approved for construction, or a building permit has been issued prior to the effective date of this Code;

(2) Permanent CFRS facilities and stores constructed prior to the effective date of this Code and in which the retail sales of consumer fireworks have not been conducted either seasonally or year-round within one year prior to the effective date of this Code;

(3) Temporary CFRS facilities and stores

65.10.1.1.1.2 In a store where the area of the retail sales floor occupied by the retail displays of consumer fireworks is increased after the effective date of this Code, such that the area exceeds the limits specified in 65.10.5.1.1(1), the building shall be considered to be a new CFRS facility.

65.10.1.1.2 Existing Facilities. For the purpose of applying the requirements of Section 65.10, CFRS facilities and stores not considered to be new as specified in 65.10.1.1.1 shall be considered to be existing.

65.10.1.1.3 Minimum Requirements. Existing life safety features that do not meet the requirements for new buildings but that exceed the requirements for existing buildings shall not be further diminished.

65.10.1.1.4 Modernization or Renovation. Any alteration or any installation of new equipment shall meet, as nearly as practicable, the requirements for new construction.

65.10.1.1.4.1 Only the altered, renovated, or modernized portion of an existing building, system, or individual component shall be required to meet the provisions of this Code that are applicable to new construction.

65.10.1.1.4.2 If the alteration, renovation, or modernization adversely impacts required life safety features, additional upgrading shall be required.

65.10.1.1.4.3 Except where another provision of this Code exempts a previously approved feature from a requirement, the resulting feature shall be not less than that required for existing buildings.

65.10.1.2 Facility Classification. The requirements of this section shall apply to the following:

(1) Permanent buildings and structures, including the following:

(a) Stores;

(b) CFRS facilities.

(2) Temporary facilities, including the following:

(a) CFRS stands;

(b) Tents;

(c) Canopies;

(d) Membrane structures.

65.10.2 Special Limits for Retail Sales of Consumer Fireworks.

65.10.2.1 Retail sales of consumer fireworks, including their related storage and display for sale of such fireworks, shall be in accordance with this Code.

65.10.2.2 Retail sales of consumer fireworks shall be limited to mercantile occupancies defined in 3.3.183.17 and NFPA 101.

65.10.2.3 Any building or structure used for the retail sales of consumer fireworks, including their related storage, shall comply with Section 20.12 and NFPA 101 for mercantile occupancies, except as provided in this Code.

65.10.2.4 Retail sales of display fireworks and pyrotechnic articles, including the related storage and display for sale of such fireworks and articles, shall be prohibited at a CFRS facility or store.

65.10.2.5 Retail sales of certain explosive devices prohibited by the Child Safety Act of 1966, including the related storage and display for sale of such devices, shall be prohibited at a CFRS facility or store.

65.10.2.6 The retail sales of pest control devices, including their related storage and display for sale, shall be prohibited at a CFRS facility or store.

65.10.2.7 The retail sales of fireworks that do not comply with the regulations of the U.S. Consumer Product Safety Commission as set forth in 16 CFR 1500 and 1507 and the regulations of the U.S. Department of Transportation as set forth in 49 CFR 100 to 178, including their related storage and display for sale, shall be prohibited.

65.10.3 General Requirements for All Retail Sales.

65.10.3.1 Exempt Amounts.

65.10.3.1.1 The requirements of this section shall not apply to CFRS facilities or stores where the consumer fireworks are in packages and where the total quantity of consumer fireworks on hand does not exceed 125 lb. (net) [56.8 kg] of pyrotechnic composition or, in a building protected throughout with an approved automatic sprinkler system installed in accordance with Section 13.3 and NFPA 13, 250 lb. (net) [113.6 kg] of pyrotechnic composition.

65.10.3.1.2 Where the actual weight of the pyrotechnic composition of consumer fireworks is not known, 25 percent of the gross weight of the consumer fireworks, including packaging, shall be permitted to be used to determine the weight of the pyrotechnic composition.

65.10.3.2 Permits. Where required by state or local laws, ordinances, or regulations, a permit for the following shall be obtained:

(1) Construction, erection, or operation of the following:

(a) Permanent building or structure;

(b) Temporary structure such as a stand, tent, or canopy used for the purpose of the retail display or sale of consumer fireworks to the public.

(2) Storage of consumer fireworks in connection with the retail display or sale of consumer fireworks to the public.

65.10.3.3 Plans. Plans for facilities other than stands and tents shall include the following:

(1) Minimum distances from the following:

(a) Public ways;

(b) Buildings;

(c) Other CFRS facilities;

(d) Motor vehicle fuel-dispensing station dispensers;

(e) Retail propane-dispensing station dispensers;

(f) Flammable and combustible liquid aboveground tank storage;

(g) Flammable gas and flammable liquefied gas bulk aboveground storage and dispensing areas within 300 ft (91.5 m) of the facility used for the retail sales of consumer fireworks.

(2) Vehicle access and parking areas.

(3) Location and type of portable fire extinguishers.

(4) Floor plan and layout of storage and displays to indicate compliance with this chapter and applicable state or local laws, ordinances, or regulations.

(5) Means of egress.

(6) Construction details.

65.10.3.4 Fire Department Access. Any portion of an exterior wall of a building, sidewall of a tent, or other defined perimeter of a CFRS facility or store shall be accessible within 150 ft (45.7 m) of a public way or an approved fire apparatus access.

65.10.3.5 Construction of Buildings and Structures. Consumer fireworks shall only be permitted to be sold at retail in any of the following buildings or structures, provided that any new building or structure does not exceed one story in height:

(1) Permanent buildings or structures constructed in accordance with the building code enforced by the AHJ;

(2) Tents, canopies, or temporary membrane structures complying with NFPA 102, Standard for Grandstands, Folding and Telescopic Seating, Tents, and Membrane Structures;

(3) Temporary structures constructed in accordance with this chapter;

(4) Temporary CFRS stands greater than 800 ft² (74 m²) in area that also meet the requirements for a permanent structure;

(5) Vehicles, such as vans, buses, trailers, recreational vehicles, motor homes, travel trailers, trucks, and automobiles, complying with the applicable requirements for CFRS stands.

65.10.3.6 An automatic sprinkler system designed and installed in accordance with Section 13.3 and NFPA 13 shall be provided throughout permanent CFRS facilities and stores in which CFRS are conducted in the following buildings:

(1) New buildings greater than 6000 ft² (557.2 m²) in area;

(2) Existing buildings greater than 7500 ft² (694 m²) in area.

65.10.3.6.1 Door and window openings in the fire barrier wall shall be protected by self-closing fire doors or fixed fire windows having a fire protection rating of not less than 1 hour and shall be installed in accordance with Section 12.4 and NFPA 80, Standard for Fire Doors and Other Opening Protectives.

65.10.3.6.2 Any other openings or penetrations in the fire barrier wall shall be protected in accordance with NFPA 101.

65.10.3.6.3 Every CFRS facility and store shall have no fewer than two portable fire extinguishers with a minimum rating of 2A, at least one of which shall be of the pressurized water type.

65.10.3.7 Storage Rooms. Storage rooms containing consumer fireworks in a new permanent CFRS facility or store shall be protected with an automatic sprinkler system installed in accordance with Section 13.3 and NFPA 13 or separated from the retail sales area by a fire barrier having a fire resistance rating of not less than 1 hour.

65.10.3.8 Portable Fire Extinguishers.

65.10.3.8.1 Specification. Portable fire extinguishers shall be provided as required for extra (high) hazard occupancy in accordance with Section 13.6 and NFPA 10.

65.10.3.8.2 Extinguisher Type. Where more than one portable fire extinguisher is required, at least one fire extinguisher shall be of the multipurpose dry chemical type if the facility is provided with electrical power.

65.10.3.8.3 Location. Portable fire extinguishers for permanent consumer fireworks retail sales facilities and stores shall be located so that the maximum distance of travel required to reach an extinguisher from any point does not exceed 75 ft (23 m), as specified in NFPA 10.

65.10.3.9 Fire Alarms. A fire alarm system shall be provided as required by Section 13.7 and NFPA 101.

65.10.3.10 Smoke Control.

65.10.3.10.1 Smoke and heat vents designed and installed in accordance with NFPA 204, Standard for Smoke and Heat Venting, shall be provided in the CFRS area of new permanent CFRS facilities or stores where the ceiling height is less than 10 ft (3.05 m) and the travel distance to reach an exit is greater than 25 ft (7.6 m).

65.10.3.10.2 The smoke and heat vents required by 65.10.3.10.1 shall be automatically activated by a smoke detection system installed throughout the CFRS area in accordance with NFPA 72.

65.10.3.11 No Smoking Signs.

65.10.3.11.1 Smoking shall not be permitted inside or within 50 ft (15.5 m) of the CFRS area.

65.10.3.11.2 At least one sign that reads as follows, in letters at least 2 in. (51 mm) high on a contrasting background, shall be conspicuously posted at each entrance or within 10 ft (3.05m) of every aisle directly serving the CFRS area in a store: "FIREWORKS — NO SMOKING"

65.10.3.12 Distance from Bulk Dispensing and Bulk Storage.

65.10.3.12.1 CFRS facilities and stores shall not be located within 50 ft (15.2 m) of the following:

- (1) Retail propane-dispensing station dispensers;
- (2) Aboveground storage tanks for flammable or combustible liquid, flammable gas, or flammable liquefied gas;
- (3) Compressed natural gas-dispensing station dispensers.

65.10.3.12.2 New CFRS facilities and stores, existing CFRS stands and tents, and temporary CFRS facilities shall not be located within 50 ft (15.2 m) of motor vehicle fuel-dispensing station dispensers.

65.10.3.12.3 Existing CFRS facilities, other than CFRS stands, tents, and temporary facilities, and existing stores shall not be located within 25 ft (7.6 m) of motor vehicle fuel-dispensing station dispensers.

65.10.3.12.4 Fuel tanks on vehicles or other motorized equipment shall not be considered bulk storage.

65.10.3.12.5 Fuel storage for generators shall be in accordance with 65.10.4.9.2.

65.10.3.12.6 CFRS areas and storage areas shall not be located within 300 ft (91.2 m) of any aboveground bulk storage or bulk dispensing area for the following:

- (1) Flammable or combustible liquid;
- (2) Flammable gas;
- (3) Flammable liquefied gas.

65.10.3.13 Fire Safety and Evacuation Plan. For a CFRS facility or store, an approved fire safety and evacuation plan shall be prepared in writing and maintained current.

65.10.3.14 Means of Egress.

65.10.3.14.1 Number of Exits.

65.10.3.14.1.1 The minimum number of exits provided from the retail sales area shall be not less than three or as determined in accordance with Chapter 14 and NFPA 101, whichever number is greater.

65.10.3.14.1.2 Required means of egress from the retail sales area shall not be allowed to pass through storage rooms.

65.10.3.14.2 Egress Travel Distance. Exits provided for the retail sales area of tents, membrane structures, canopies, and permanent CFRS facilities, including Class C stores, shall be located so that the maximum egress travel distance, measured from the most remote point to an exit along the natural and unobstructed path of egress travel, does not exceed 75 ft (22.9 m).

65.10.3.14.3 Aisles. Aisles serving as a portion of the exit access in CFRS areas shall comply with this paragraph.

65.10.3.14.3.1 Aisle Width.

65.10.3.14.3.1.1 Aisles shall have a minimum clear width of 48 in. (1.2 m).

65.10.3.14.3.1.2 The required width of aisles shall be maintained unobstructed at all times the facility is occupied by the public.

65.10.3.14.3.2 Aisle Arrangements.

65.10.3.14.3.2.1 Not less than one aisle shall be provided and arranged so that travel along the aisle leads directly to an exit.

65.10.3.14.3.2.2 Other required exits shall be located at, or within 10 ft (3.05 m) of, the end of an aisle or a cross-aisle.

65.10.3.14.3.2.3 Aisles shall terminate at an exit, another aisle, or a cross-aisle.

65.10.3.14.3.2.4 Dead-end aisles shall be prohibited.

65.10.3.14.3.2.5 Where more than one aisle is provided, not less than one cross-aisle shall have an unobstructed connection with every aisle, other than cross-aisles.

65.10.3.14.3.2.6 Cross-aisle connections shall be provided for each aisle at intervals not greater than 50 ft (15.2 m) as measured along the aisle.

65.10.3.14.3.2.7 Where cross-aisles are required, not less than one cross-aisle shall have at least one end terminate at, or within 10 ft (3.05 m) of, an exit.

65.10.3.14.4 Doors and Doorways. Doors and doorways used in the means of egress shall comply with this paragraph.

65.10.3.14.4.1 Egress doors shall be not less than 36 in. (910 mm) in width [providing a minimum of 32 in. (813 mm) clear width].

65.10.3.14.4.2 Every egress door that has a latching device shall be provided with panic hardware complying with Chapter 14 and NFPA 101.

65.10.3.14.4.3 Means of egress doors shall be of the sidehinge swinging type and shall be arranged to swing in the direction of egress travel.

65.10.3.14.5 Exit Signs.

65.10.3.14.5.1 Exits shall be marked by an approved exit sign in accordance with Section 14.14 and NFPA 101.

65.10.3.14.5.2 Exit signs shall be required to be self-luminous or internally or externally illuminated.

65.10.3.14.6 Emergency Lighting.

65.10.3.14.6.1 The means of egress, including the exit discharge, shall be illuminated whenever the facility is occupied in accordance with Section 14.12 and NFPA 101.

65.10.3.14.6.2 Emergency lighting shall be provided for CFRS facilities and stores and shall comply with Section 14.13 and NFPA 101.

65.10.3.15 Retail Sales Displays.

65.10.3.15.1 General. The requirements of this section shall apply only to CFRS areas, unless otherwise specifically indicated.

65.10.3.15.2 Height of Sales Displays. To provide for visual access of the retail sales area by the employees and customers, partitions, counters, shelving, cases, and similar space dividers shall not exceed 6 ft (1.8 m) in height above the floor surface inside the perimeter of the retail sales area.

65.10.3.15.2.1 Merchandise on display or located on shelves or counters or other fixtures shall not be displayed to a height greater than 6 ft (1.8 m) above the floor surface within the CFRS area.

65.10.3.15.2.2 Where located along the perimeter of the consumer fireworks retail sales area, the maximum height of sales displays shall be limited to 12 ft (3.66 m).

65.10.3.15.3 Flame Breaks.

65.10.3.15.3.1 Where continuous displays of consumer fireworks are located on shelving, cases, counters, and similar display fixtures, a flame break shall be provided so that the maximum distance between flame breaks does not exceed 16 ft (4.9 m) where measured along the length of the display.

65.10.3.15.3.2 The flame break shall extend as follows:

(1) From the display surface to not less than 6 in. (150 mm) above the full height of the displayed merchandise or to the underside of the display surface directly above;

(2) For the full depth of the displayed merchandise.

65.10.3.15.3.3 Where packaged fireworks merchandise is displayed on the same level as individual unpackaged fireworks devices, the flame break required in 65.10.3.15.3.1 shall not be required where both of the following criteria are met:

(1) The length of the display level containing individual unpackaged fireworks devices is interrupted by packaged fireworks merchandise, or open space, or any combination thereof, having a continuous length of not less than 8 ft (2.4 m).

(2) The distance between flame breaks does not exceed 32 ft (9.8 m).

65.10.3.15.3.4 Where a merchandise display level contains packaged fireworks merchandise, such merchandise shall be permitted to be displayed in a continuous length on the same level,

where the display does not exceed 32 ft (9.8 m) without the flame break required in

65.10.3.15.3.1.

65.10.3.15.3.5 An aisle having a minimum width of 48 in. (1.2 m) shall be permitted to substitute for the flame break required in 65.10.3.15.3.1.

65.10.3.15.3.6 Where displays of merchandise face aisles that run along both long sides of the display fixtures or display surface, a flame break shall be installed lengthwise between the abutting display fixtures or along the approximate longitudinal centerline of the display surface so as to separate the merchandise facing one of the aisles from the merchandise that abuts it facing the other aisle.

65.10.3.15.3.7 Freestanding display racks, pallets, tables, or bins containing packaged fireworks merchandise shall be permitted without flame breaks, provided the dimensions of the area occupied by the fireworks merchandise do not exceed 4 ft (1.2 m) in width, 8 ft (2.4 m) in length, and 6 ft (1.8 m) in height, and the displayed fireworks merchandise is separated from other displays of merchandise by aisles having a minimum clear width of 4 ft (1.2 m).

65.10.3.15.3.8 Where both of the facing vertical surfaces of the abutting display fixtures are constructed of perforated hardboard panels not less than 1/4 in. (6 mm) thick that are separated from each other by an open space not less than 1 1/2 in. (38 mm) wide, a flame break specified in 65.10.3.15.3.6 shall not be required.

65.10.3.15.4 Shelving.

65.10.3.15.4.1 Shelving or other surfaces used to support fireworks display merchandise shall be permitted to have not more than 10 percent of the area of the shelf contain holes or other openings.

65.10.3.15.4.2 The 10 percent limitation on the area of holes or other openings in the shelf used to support fireworks display merchandise shall not be applicable under the following conditions:

(1) Where both of the facing vertical surfaces of the abutting display fixtures are constructed of perforated hardboard panels not less than 1/4 in. (6 mm) thick and separated from each other by an open space not less than 1 1/2 in. (38 mm) wide;

(2) Where such merchandise is suspended from or fastened to the shelf or surface or is displayed as packaged merchandise on the surface or in bins.

65.10.3.15.4.3 Flame breaks and solid display surfaces shall not be required for packaged fireworks merchandise displayed in bins or display racks or on pallets or tables located at the end of a row of display fixtures where the following conditions are met:

(1) Such end displays are separated from the ends of the display fixtures by an open space not less than 3 in. (76 mm) wide;

(2) The fireworks merchandise occupies an area having dimensions not greater than the width of the end of the row of display fixtures and a depth not greater than 36 in. (910 mm);

(3) The minimum required widths of the adjacent aisles are maintained, but in no case is the aisle width less than 48 in. (1.2 m).

65.10.3.15.5 Covered Fuses.

65.10.3.15.5.1 Only consumer fireworks meeting the criteria for covered fuses as described in 65.10.3.15.5.2 shall be permitted where the retail sales of consumer fireworks are conducted.

65.10.3.15.5.2 A consumer fireworks device shall be considered as having a covered fuse if the fireworks device is contained within a packaged arrangement, container, or wrapper that is arranged and configured such that the fuse of the fireworks device cannot be touched directly by a person handling the fireworks without the person having to puncture or tear the packaging or wrapper, unseal or break open a package or container, or otherwise damage or destroy the packaging material, wrapping, or container within which the fireworks are contained.

65.10.3.15.6 Reserved.

65.10.3.15.7 Horizontal Barriers. Combustible materials and merchandise shall not be stored directly above the consumer fireworks in retail sales displays unless a horizontal barrier constructed of plywood at least 9.5 mm (3/8 in.) thick is installed directly above the consumer fireworks as follows:

(1) Barriers shall extend from rack face to rack face and shall be tight to the vertical barriers;

- (2) Barriers shall be supported by horizontal rack members;
 - (3) Transverse vertical barriers constructed of plywood at least 9.5 mm (3/8 in.) thick shall be provided at the rack uprights extending from rack face to rack face;
 - (4) For double-row racks, longitudinal vertical barriers constructed of plywood at least 9.5 mm (3/8 in.) thick shall be provided at the rack uprights in the center of the rack.
- 65.10.3.16 Electrical Equipment. All electrical wiring shall be in accordance with NFPA 70.
- 65.10.3.17 Heating Equipment.
- 65.10.3.17.1 Heating units shall be listed and shall be used in accordance with their listing.
- 65.10.3.17.2 Temporary heating sources shall have tip-over and temperature-overheat protection.
- 65.10.3.17.3 Open-flame and exposed-element heating devices shall be prohibited.
- 65.10.3.18 Portable Generators.
- 65.10.3.18.1 Class II and Class III combustible liquid generator fuel shall be limited to not more than 5 gal (18.9 L).
- 65.10.3.18.2 Portable generators shall be permitted to use Class I flammable liquids as fuel, provided the quantity of such fuel is limited to 2 gal (7.6 L).
- 65.10.3.19 Operations.
- 65.10.3.19.1 General. Means of egress, including but not limited to aisles, doors, and exit discharge, shall be clear at all times when the facility or the building is occupied.
- 65.10.3.19.2 Distances from Entrances and Exits.
- 65.10.3.19.2.1 No consumer fireworks shall be displayed for sale or stored within 5 ft (1.5 m) of any public entrance in an enclosed building or structure.
- 65.10.3.19.2.2 No consumer fireworks shall be displayed for sale or stored within 2 ft (0.6 m) of any exit or private entrance in an enclosed building or structure.
- 65.10.3.19.3 Security.
- 65.10.3.19.3.1 CFRS facilities and stores shall be secured when unoccupied and not open for business, unless fireworks are not kept in the facility during such times.
- 65.10.3.19.3.2 The fireworks displayed or stored in a CFRS facility or store shall be allowed to be removed and transferred to a temporary storage structure or location.
- 65.10.3.19.4 Fireworks shall not be ignited, discharged, or otherwise used within 300 ft (91.5 m) of a CFRS facility or store.
- 65.10.3.20 Display and Handling. Not less than 50 percent of the available floor area within the retail sales area shall be open space that is unoccupied by retail displays and used only for aisles and cross-aisles.
- 65.10.3.21 Housekeeping.
- 65.10.3.21.1 CFRS areas and storage rooms shall be kept free of accumulations of debris and rubbish.
- 65.10.3.21.2 Any loose pyrotechnic composition shall be removed immediately.
- 65.10.3.21.3 Vacuum cleaners or other mechanical cleaning devices shall not be used.
- 65.10.3.21.4 Brooms, brushes, and dustpans used to sweep up any loose powder or dust shall be made of nonsparking materials.
- 65.10.3.21.5 Consumer fireworks devices that are damaged shall be removed and not offered for sale.
- 65.10.3.21.6 Damaged consumer fireworks shall be permitted to be returned to the dealer or shall be disposed of according to the manufacturer's instructions.
- 65.10.3.22 Training. All personnel handling consumer fireworks shall receive safety training related to the performance of their duties.
- 65.10.3.23 Under the Influence. Any person selling consumer fireworks shall not knowingly sell consumer fireworks to any person who is obviously under the influence of alcohol or drugs.
- 65.10.3.24 Records.
- 65.10.3.24.1 Records shall be maintained on available inventory on the premise.
- 65.10.3.24.2 Records shall be made available to the AHJ upon request.

65.10.4 Consumer Fireworks Retail Sales (CFRS) Facility Requirements.

65.10.4.1 Plan. Where required, plans for CFRS facilities shall be submitted to the AHJ with the permit application.

65.10.4.2 Site Plan. The site plan for tents shall show the location of the tent on the site and indicate the minimum separation distances required by 65.10.4.7.

65.10.4.3 Construction Materials. The following construction materials requirements shall apply to new permanent CFRS facilities in jurisdictions that have not adopted a local building code:

(1) Buildings having an area up to and including 8000 ft² (743 m²) shall be permitted to be constructed of any approved construction materials;

(2) Buildings having an area greater than 8000 ft² (743 m²) shall be constructed in accordance with one of the following:

(a) Buildings shall be constructed of noncombustible or limited-combustible materials;

(b) Buildings with exterior walls having a fire resistance rating of not less than 2 hours shall be permitted to have the roof decking and its supporting structure and interior partitions constructed of combustible materials.

(3) Roof coverings for any building shall have a minimum rating of Class C.

65.10.4.4 Multiple-Tenant Buildings.

65.10.4.4.1 Where new CFRS facilities are located in a building containing other tenants, the CFRS facility shall be separated from the other tenants by fire barriers having no openings and a fire resistance rating of not less than 2 hours.

65.10.4.4.2 Where the new CFRS facility is protected per Section 13.3 and NFPA 13, the fire resistance rating of the fire barrier required by 65.10.4.4.1 shall be permitted to be not less than 1 hour.

65.10.4.4.3 Any penetrations of the fire barrier shall be protected in accordance with NFPA 101.

65.10.4.5 Fire Protection.

65.10.4.5.1 Automatic Sprinkler System Alarm. Any waterflow alarm device shall be arranged to activate audible and visual alarms throughout the CFRS facility in accordance with Section 13.7 and NFPA 72.

65.10.4.5.2 Portable Fire Extinguishers. Portable fire extinguishers for temporary CFRS facilities shall be installed and located so that the maximum distance of travel required to reach an extinguisher from any point does not exceed 35 ft (10.6 m).

65.10.4.5.3 Public Notification. In permanent CFRS facilities greater than 3000 ft² (278.6 m²) in area, a public address system or a means for manually activating audible and visible alarm indicating devices located throughout the facility in accordance with Section 13.7 and NFPA 72 shall be provided at a constantly attended location when the CFRS facility is occupied.

65.10.4.6 Site Requirements.

65.10.4.6.1 Clearance to Combustibles. The area located within 30 ft (9 m) of a CFRS facility shall be kept free of accumulated dry grass, dry brush, and combustible debris.

65.10.4.6.2 Parking. No motor vehicle or trailer used for the storage of consumer fireworks shall be parked within 10 ft (3 m) of a CFRS facility, except when delivering, loading, or unloading fireworks or other merchandise and materials used, stored, or displayed for sale in the facility.

65.10.4.6.3 Fireworks Discharge. At least one sign that reads as follows, in letters at least 4 in. (102 mm) high on a contrasting background, shall be conspicuously posted on the exterior of each side of the CFRS facility: "NO FIREWORKS DISCHARGE WITHIN 300 FEET"

65.10.4.7 Separation Distances.

65.10.4.7.1 Permanent Facilities.

65.10.4.7.1.1 New Facilities. New permanent consumer fireworks retail sales facilities shall be separated from adjacent permanent buildings and structures in accordance with Table

65.10.4.7.1.1.

Table 65.10.4.7.1.1 Separation Distances Between New Permanent Buildings and Structures

Separation Distances		Exterior Wall Fire Resistance Rating (hr)	Exterior Wall Opening Protection Rating (hr)
ft	m		
<10	<3.05	2	1 ½
≥10 to <60	≥3.05 to <18.3	1	¾
≥60	≥18.3	0	0

65.10.4.7.1.2 Existing Facilities. Existing permanent CFRS facilities shall be separated from adjacent permanent buildings and structures by not less than 10 ft (3.05 m) or shall be separated by a wall with a 1-hour fire resistance rating.

65.10.4.7.2 Temporary Facilities. Temporary CFRS facilities shall be located as specified in Table 65.10.4.7.2.

Table 65.10.4.7.2 Temporary CFRS Facilities — Minimum Separation Distances

	Buildings		Combustibles ^a		Tents ^b		Vehicle Parking		Stands ^c		Storage of Consumer Fireworks	
	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m
Tents ^b	20	6.1	20	6.1	20	6.1	10	3.05	20	6.1	20	6.1
Stands ^c	20	6.1	10	3.05	20	6.1	10	3.05	5 ^d	1.5 ^d	20	6.1

a The required clearances to combustibles shall also comply with 65.10.4.6.1.

b Tents refers to temporary retail sales of consumer fireworks in tents, canopies, and membrane structures.

c Stands refers to temporary CFRS stands.

d Where stands are separated from each other by less than 20 ft (6.1 m), the aggregate area of such stands shall not exceed 800 ft² (74 m²).

65.10.4.8 Means of Egress.

65.10.4.8.1 General.

65.10.4.8.1.1 Means of egress in CFRS facilities shall comply with the applicable requirements of Chapter 14 and NFPA 101, as modified by 65.10.3.14 and 65.10.4.8.

65.10.4.8.1.2 Means of egress in tents and membrane structures used for retail sales of consumer fireworks shall also comply with NFPA 102, as modified by 65.10.3.14 and 65.10.4.8.

65.10.4.8.2 The evacuation plan shall be posted in a conspicuous location that is accessible to the public as well as to persons employed or otherwise working in the CFRS facility.

65.10.4.8.3 Exit signs shall not be required to be illuminated in tents that are not open for business after dusk.

65.10.4.8.4 Emergency lighting shall not be required in tents that are not open for business after dusk.

65.10.4.8.5 Exit openings from tents shall have a clear opening width of not less than 44 in. (1100 mm).

65.10.4.9 Source of Ignition.

65.10.4.9.1 Temporary Electrical Equipment. Battery powered equipment, electrical equipment, and electrical cords that are used in conjunction with a CFRS facility area shall be listed and shall be used in accordance with their listing.

65.10.4.9.1.1 Temporary wiring installed in a temporary structure, including tents and canopies, shall comply with NFPA 70.

65.10.4.9.1.2 Where temporary electrical conductors are placed on top of an outdoor surface to connect the permanent power source to the temporary CFRS facility's temporary electrical system, the conductors shall be provided with physical protection against damage caused by pedestrian or vehicular traffic.

65.10.4.9.2 Portable Generators.

65.10.4.9.2.1 Portable generators supplying power to CFRS facilities shall use only Class II or Class III combustible liquid fuels.

65.10.4.9.2.2 Portable generators shall be located not less than 20 ft (6.1 m) from the CFRS facility.

65.10.4.9.2.3 Generator fuels shall be stored not less than 20 ft (6.1 m) from the CFRS facility.

65.10.4.9.2.4 Where the generator fuel storage is located not less than 50 ft (15.2 m) from the CFRS facility, the quantity of such fuel shall not be limited by 65.10.3.18.

65.10.4.9.3 Cooking Equipment.

65.10.4.9.3.1 Cooking equipment of any type shall not be permitted within 20 ft (6.1 m) of tents, canopies, or membrane structures used for the storage or sale of consumer fireworks.

65.10.4.9.3.2 Open flame cooking equipment of any type shall not be allowed within 50 ft (15.2 m) of tents, canopies, or membrane structures used for the storage or sale of consumer fireworks.

65.10.4.10 Quantity Limitations. The floor area occupied by the retail displays of consumer fireworks in permanent CFRS facilities shall not exceed 40 percent of the available floor area within the retail sales area.

65.10.4.11 Flame Breaks. In CFRS facilities the longitudinal flame break required in

65.10.3.15.3.6 shall not be required where the display fixture or surface is adjacent to an aisle that is not used for public egress.

65.10.5 Stores.

65.10.5.1 General.

65.10.5.1.1 For the purpose of this chapter, stores in which retail sales of consumer fireworks are conducted shall not be considered CFRS facilities as defined in 3.3.72 where both of the following conditions exist:

(1) The area of the retail sales floor occupied by the retail displays of consumer fireworks does not exceed 25 percent of the area of the retail sales floor in the building or

600 ft² (55.5 m²), whichever is less;

(2) The consumer fireworks are displayed and sold in a manner approved by the AHJ and comply with the applicable provisions of this code, federal and state law, and local ordinances.

65.10.5.1.2 Consumer fireworks displayed for sale in stores shall comply with the following:

(1) Such fireworks shall be under the visual supervision of a store employee or other responsible party while the store is open to the public;

(2) Such fireworks shall be packaged fireworks merchandise;

(3) Such fireworks shall be packaged and displayed for sale in a manner that will limit travel distance of ejected pyrotechnical components if ignition of the fireworks occurs;

65.10.5.2 Egress. Means of egress in stores shall comply with Chapter 14 and NFPA 101, unless otherwise specified in 65.10.3.14.

65.10.5.3 Storage Rooms. Storage rooms containing consumer fireworks in a new permanent store shall be protected with an automatic sprinkler system installed in accordance with Section 13.3 and NFPA 13 or separated from the retail sales area by a fire barrier having a fire resistance rating of not less than 1 hour.

65.10.5.3.1 Door and window openings in the fire barrier wall shall be protected by self-closing fire doors or fixed fire windows having a fire protection rating of not less than 1 hour and shall be installed in accordance with Section 12.4 and NFPA 80.

65.10.5.3.2 Any other openings or penetrations in the fire barrier wall shall be protected in accordance with NFPA 101.

65.10.5.4 Alarm Notification. In Class B stores, a public address system or a means for manually activating audible and visible alarm indicating devices located throughout the facility in accordance with Section 13.7 and NFPA 72 shall be provided at a constantly attended location when the store is occupied.

65.10.5.5 Flame breaks shall be allowed to be omitted in stores protected throughout with an automatic sprinkler system installed in accordance with Section 13.3 and NFPA 13.

65.10.6 Stands.

65.10.6.1 Site Plan. The site plan for stands shall show the location of the stand on the site and indicate the minimum separation distances required by 65.10.4.7.

65.10.6.2 Temporary Stands.

65.10.6.2.1 Portable Fire Extinguisher. Temporary CFRS stands of less than 200 ft² (18.6 m²) shall be required to have only one portable fire extinguisher.

65.10.6.2.2 Fire Safety and Evacuation Plan. An approved fire safety and evacuation plan shall not be required for temporary CFRS stands.

65.10.6.2.3 Means of Egress.

65.10.6.2.3.1 Retail sales areas within temporary CFRS stands shall have a minimum of two exits.

65.10.6.2.3.2 Exits provided for temporary fireworks retail sales stands shall be located such that the maximum egress travel distance as measured from the most remote point to an exit along the natural and unobstructed path of egress travel does not exceed 35 ft (10.6 m).

65.10.6.2.3.3 Customers shall not be permitted inside a temporary CFRS stand unless it complies with the means of egress requirements in 65.10.3.14.

65.10.6.2.3.4 Exit signs shall not be required to be illuminated in stands that are not open for business after dusk, or in temporary CFRS stands where the interior is not accessible to the public.

65.10.6.2.3.5 Emergency lighting shall not be required in stands that are not open for business after dusk or for temporary CFRS stands where the interior is not accessible to the public.

65.10.6.3 Minimum Separation Distances. Temporary CFRS stands shall be separated from adjacent buildings and structures in accordance with Table 65.10.4.7.2.

65.10.6.4 Stands Not Open to the Public.

65.10.6.4.1 Minimum Clear Width of Aisles. In temporary CFRS stands where the interior is not accessible to the public, the minimum clear width of the aisle shall be permitted to be not less than 28 in. (710 mm).

65.10.6.4.2 Egress Doors.

65.10.6.4.2.1 Egress doors provided for temporary CFRS stands where the interior is not accessible to the public shall be permitted to be not less than 28 in. (710 mm) in width.

65.10.6.4.2.2 For temporary CFRS stands where the interior is not accessible to the public, latching devices on doors shall be permitted without panic hardware.

65.10.6.4.3 Storage. In temporary CFRS stands where the interior is not accessible to the public, the maximum height of sales displays shall be limited to 8 ft (2.44 m).

65.10.6.4.4 Flame Breaks. Temporary CFRS stands where the interior is not accessible to the public shall not be required to comply with 65.10.3.15.3.

65.10.6.4.5 Covered Fuses.

65.10.6.4.5.1 Only consumer fireworks meeting the criteria for covered fuses as described in 65.10.3.15.5.2 shall be permitted where the retail sales of consumer fireworks are conducted.

65.10.6.4.6 Sales Display. The following shall apply to the sales display of consumer fireworks in temporary CFRS stands that do not allow access to the interior of the stand by the public:

(1) Consumer fireworks shall be displayed in a manner that prevents the fireworks from being handled by persons other than those operating, supervising, or working in the temporary CFRS stand.

(2) The handling requirements of 65.10.6.4.6(1) shall not apply to packaged assortments, boxes, or similarly packaged containers of one or more items, regardless of type.

~~H. Amend Section 74.1 reference to NFPA 400 to delete Subsection 11.1.3.~~

~~.10 Control of Air Overpressure and Ground Vibration for Blasting Operations. Blasting Operations General Requirements.~~

~~A. Control of Air Overpressure for Blasting Operations.~~

~~(1) This section applies to air overpressure effects as recorded at the location of a private dwelling, public building, school, church, and community or institutional building not owned or leased by the person conducting or contracting for the blasting operation.~~

~~(2)(A) Notifications.~~

~~Written notification by e-mail or facsimile shall be provided to the Office of the State Fire Marshal Bomb Squad at least 24 hours prior to each blast. The name of company or contractor performing the blasting and the location, date, and approximate time shall be identified. The geographical coordinates (longitude and latitude) shall be provided.~~

~~(3) Air overpressure from blasting shall be controlled so that the maximum allowable air overpressure at:~~

~~(a) An inhabited building, resulting from blasting operations, may not exceed 130 decibels peak when measured by an instrument having a flat frequency response, +/- 3 decibels, over a range of at least 6—200 hertz;~~

~~(b) A building not inhabited, resulting from blasting operations, may not exceed 140 decibels peak when measured by an instrument having a flat frequency response, +/- 3 decibels, over a range of at least 6—200 hertz;~~

~~(4)(B) Complaints.~~

~~If requested by a property owner registering a complaint and considered necessary by the State Fire Marshal, measurements on three consecutive blasts, using approved instrumentation, shall be made near to the structure in question.~~

B. Control of Ground Vibration for Blasting Operations.

~~(1) This section provides for limiting ground vibrations at structures that are not owned or leased by the person conducting or contracting for the blasting operation. The requirements and monitoring methods of this section are intended to protect low rise structures including dwellings. Engineered structures may safely withstand higher vibration levels and, based on an approved engineering study, the State Fire Marshal may allow higher levels for engineered structures.~~

~~(2)(C)~~

~~Special Precautions. When blasting operations, other than those conducted at a fixed site such as a quarry, are to be conducted within 200 feet of a pipe line or high voltage transmission line, the contractor shall take additional precautionary measures and shall notify the owner of the line, or the owner's agent, that blasting operations are intended.~~

~~(3) Methods. Each method described in §B(4)—(6) of this regulation, progressing from §B(4)—§B(6), has an increasing degree of sophistication and each can be implemented either by direction of the State Fire Marshal as a result of complaints or by the contractor to determine site specific vibration limits.~~

~~(4) Charge Weight Per Delay Dependent on Distance Method.~~

~~(a) When a seismograph is not used to record vibration effects, the explosive charge weight per delay, 8 milliseconds or greater, may not exceed the limits shown in Table A of this regulation. If charge weights per delay on any single delay period exceed 520 pounds, then ground vibration limits for structures shall comply with §B(5) or (6) of this regulation.~~

~~(b) Table A.~~

Distance Versus Weight of Explosives Method		
Distance to a Building		Weight of Explosive per Delay
Feet Over	Feet Not Over	Pounds

0 to 5	1/4
5 to 10	1/2
10 to 15	3/4
15 to 60	**
60 to 70	6
70 to 80	7-1/4
80 to 90	9
90 to 100	10-1/2
100 to 110	12
110 to 120	13-3/4
120 to 130	15-1/2
130 to 140	17-1/2
140 to 150	19-1/2
150 to 160	21-1/2
160 to 170	23-1/4
170 to 180	25
180 to 190	28
190 to 200	30-1/2
200 to 220	34
220 to 240	39
240 to 250	42
250 to 260	45
260 to 280	49
280 to 300	55
300 to 325	61
325 to 350	69
350 to 375	79
375 to 400	85
00 to 450	98
450 to 500	115
500 to 550	135
550 to 600	155
600 to 650	175
650 to 700	195
700 to 750	220
750 to 800	240
800 to 850	263

850 to 900	288
900 to 950	313
950 to 1,000	340
1,000 to 1,100	375
1,100 to 1,200	435
1,200 to 1,300	493

This table over 60 feet is based upon the formula: $W = D^{1.5/90}$

** 1/10 of a pound of explosive per foot of distance to a building.

(5) ~~Monitoring Method.~~ If a blaster determines that the charge weights per delay given in Table A are too conservative, the blaster may choose to monitor at the closest conventional structure each blast with an approved seismograph and meet the standard in §C(6) of this regulation. When starting to monitor at a new blasting operation with instrumentation, the initial blasts shall contain explosive charge weights per delay close to the limits established in Table A. From this point onwards the explosive charge weight per delay may be increased but the vibration levels detailed in §C(6) may not be exceeded.

(6) ~~Peak Particle Velocity Dependent on Distance Method.~~

(a) In this subsection, "peak particle velocity" means the maximum component of the three mutually perpendicular components of motion as recorded at the closest structure not owned or leased by the person conducting the blasting.

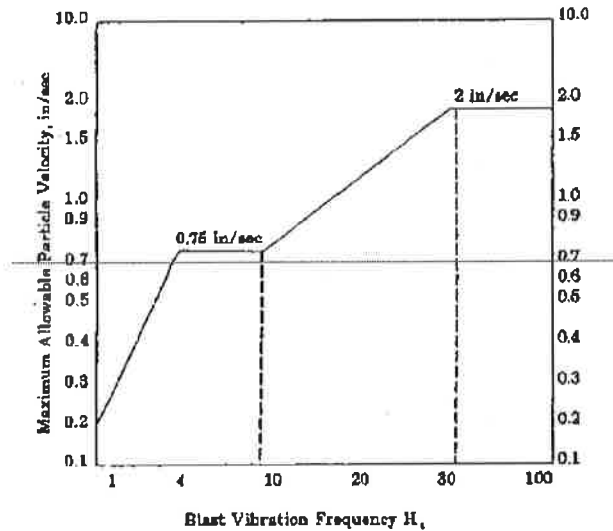
(b) Table B.

Distance		Peak Particle Velocity of Any One Component*
Feet Over	Feet Not Over	Inches Per Second
0 to 100		2.00
100 to 500		1.50
500 to 1,000		1.00
over 1,000		0.75

* The instrument's transducer shall be firmly coupled to the ground.

(7) ~~Particle Velocity Criteria Dependent on Frequency Content.~~ The following chart provides continuously variable particle velocity criteria dependent on the frequency content of the ground motion. The method of analysis shall be approved by the State Fire Marshal and provide an analysis showing all the frequencies present within the 1—50 hertz range:

Blast Vibration Frequency Hz, Maximum Allowable Particle Velocity, in/sec.



C. Instrumentation.

- (1) A direct-velocity recording seismograph capable of recording the continuous wave form of the three mutually perpendicular components of motions, in terms of particle velocity, shall be used. Each seismograph shall have a frequency response from 2 to 150 hertz or greater, and a velocity range from 0.0 to 2.0 inches per second or greater.
- (2) All field seismographs shall be capable of internal dynamic calibration and shall be calibrated according to the manufacturers' specifications at least once per year.
- (3) All seismographs shall be operated by competent individuals trained in the correct use of seismographs. Seismograph records shall be analyzed and interpreted by an independent third party approved by the State Fire Marshal.

D. Records.

- (1) A record of each blast shall be kept. All records, including seismograph reports, shall be retained for at least 3 years, be available for inspection, and include the following items:
 - (a) Name of company or contractor;
 - (b) Location, date, and time of blast. The geographical coordinates (longitude and latitude) shall be identified;
 - (c) Name, signature, and Social Security number of blaster in charge;
 - (d) Type of material blasted;
 - (e) Number of holes, burden, and spacing;
 - (f) Diameter and depth of holes;
 - (g) Type of explosives used;
 - (h) Total amount of explosives used;
 - (i) Maximum amount of explosives per delay period of 8 milliseconds or greater;
 - (j) Method of firing and type of circuit;
 - (k) Direction and distance in feet to nearest dwelling house, public building, school, church, and commercial or institutional building not owned or leased by the person conducting the blasting;
 - (l) Weather conditions including such factors as wind direction, etc.;
 - (m) Height or length of stemming;
 - (n) If mats or other protection to prevent fly rock were used;
 - (o) Type of detonators used and delay period used;
 - (p) Seismograph records including seismograph readings when required containing:
 - (i) Name and signature of the individual operating the seismograph,
 - (ii) Name of the individual analyzing the seismograph records, and

- (iii) Seismograph reading; and
- (q) The maximum number of holes per delay period of 8 milliseconds or greater.
- (2) The person taking the seismograph reading shall accurately indicate the exact location of the seismograph, if used, and shall also show the distance of the seismograph from the blast.

E. Liability Insurance for Explosives Handlers.

- (1) As provided in Public Safety Article, Title 11, Annotated Code of Maryland, proof of liability insurance shall be provided by an applicant for a license to:
 - (a) Manufacture explosives;
 - (b) Engage in the business of dealing in explosives; or
 - (c) Possess any explosives other than for use in firearms.
- (2) The minimum amount of liability insurance required for licensing for the activities specified in §E(1) of this regulation is \$1,000,000.

.11 Portable Fire Extinguishers.

A. License to Service or Repair Portable Fire Extinguishers. A license shall be obtained from the State Fire Marshal's Office by every individual, firm, or corporation commercially servicing, repairing, filling, or refilling portable fire extinguishers, except fire departments.

B. Sale of Portable Fire Extinguishers.

- (1) It is unlawful for a person, directly or through an agent, to sell or offer for sale in the State any make, type, or model of portable fire extinguisher, either new or used, unless the make, type, or model of extinguisher has been tested and listed by a testing laboratory accepted by the State Fire Marshal.
- (2) An extinguisher is not approved even if it bears the label of an accepted testing laboratory if it contains any of the following liquids:
 - (a) Carbon tetrachloride, chlorobromomethane, azeotropic chloromethane, dibromodifluoromethane, 1,2-dibromo-2-chloro-1,2-trifluoroethane;
 - (b) 1,2-dibromo-2,2-difluoroethane, methyl bromide, ethylene dibromide;
 - (c) 1,2-dibromotetrafluoroethane, hydrogen bromide, methylene bromide, bromodifluoromethane, dichlorodifluoromethane; or
 - (d) Any other toxic or poisonous liquid.

.11-1 Nonwater-based Fixed Fire Extinguishing Systems.

A license shall be obtained from the State Fire Marshal's Office by every individual, firm, or corporation commercially installing, servicing, or repairing nonwater-based fixed fire extinguishing systems.

.12 (Repealed)

.13 (Repealed)

.14 Sale and Use of Heaters and Stoves.

A. Gasoline Stoves. The sale or use of gasoline stoves or other similar fuel-burning cooking or heating appliances using Class I flammable liquids as defined in NFPA 1 Fire Code (2015~~2018~~ Edition) and NFPA 30 Flammable and Combustible Liquids Code (2015~~2018~~ Edition), is prohibited unless the appliance has been tested and listed by a testing laboratory accepted by the State Fire Marshal. The appliance shall be installed, operated, and maintained in a safe manner in accordance with the prescribed recommendation of the manufacturer and the conditions stated in the listing by the respective testing laboratory.

B. Unvented Portable Kerosene-Fired Heaters.

(1) The sale or use of unvented portable kerosene-fired heaters is permitted only if the heater or appliance meets the U.L. Subject 647 and bears the label of a testing laboratory accepted by the State Fire Marshal.

(2) The heaters shall only be used as permitted under Commercial Law Article, §14-1310, Annotated Code of Maryland.

(3) Each heater shall contain a warning label stating: "This device must not be operated while unattended". In addition, the heater shall contain the manufacturer's warning label required by Commercial Law Article, §14-1310, Annotated Code of Maryland.

.15 Sale or Use of Flame Retardant Chemicals.

An individual, firm, or corporation ~~may~~shall not sell or offer for sale in the State any type of flame-retardant or flame-proofing compound, powder, or liquid, for fire-retardant purposes unless the product has been tested, listed, and bears the mark of a recognized testing laboratory accepted by the State Fire Marshal

.16 Visual Obscuration Systems.

Visual obscuration systems associated with security or burglar alarm systems may not be permitted.



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Maryland State Fire Prevention Commission

Position Paper on Existing High-Rise Residential Structures

The number of recent fires that have resulted in injury and death to occupants of high-rise buildings that were not protected throughout by a fire suppression system has increased the level of concern for members of the State Fire Prevention Commission for similar structures located within the State of Maryland. At the current time, the Commission is aware of 85 high-rise structures in Montgomery County and 14 high-rise structures in Prince George's County that are not protected throughout by approved fire suppression and detection systems.

Fires in high-rise structure without automatic fire suppression systems installed throughout present unique life safety and firefighting challenges that are extremely difficult for firefighters to mitigate. These challenges include the movement of fire department equipment and personnel to the upper stories of tall buildings, often in confined stairways and other spaces which are simultaneously being used for other purposes, including occupant evacuation. In an emergency, the movement of people out of the structure is particularly difficult while firefighters are using the exit stairwells to access the fire. Since high-rise structures are not accessible for exterior firefighting, fire suppression efforts in these buildings are limited to interior operations, and often require the deployment of significantly more resources, such as personnel and equipment, to extinguish fires in these buildings than operations in other types of occupancies.

Due to their height, smoke movement in high-rise structures is very different from that of other structures. A number of varying conditions, including the differences between interior and exterior temperatures, location of the neutral plane, wind speed and direction, and the location and size of exterior building openings can influence the production, movement and hazards associated with smoke and other products of combustion. Due to varying conditions, the rapid and uncontrolled movement of flames, smoke, and other products of combustion may not be consistent for all fire scenarios. In addition, HVAC systems and other utilities in some high-rise buildings serve multiple floor levels, and can facilitate the spread of smoke and flame throughout the building.

Modern home furnishings burn faster and hotter than legacy materials. In today's home environment, building occupants have less than 4 minutes to escape a fire before flashover occurs. This limited escape time is even more crucial in high-rise apartment units without automatic fire suppression systems where longer egress paths exist and where the only path of travel may be blocked or impeded by a single fire incident. It should also be noted that evacuation times from larger,

particularly taller, buildings may be significant due to the large number of building occupants, and increased travel times along extended travel paths and vertical exit routes necessary for evacuation of these types of structures.

Since 2007, there have been 15,000 apartment fires in the State of Maryland that resulted in over 155 million dollars of property loss. During this same time period, over 500 civilians have been injured and 94 civilians have been killed as a result of fires in Maryland. It should also be noted that, over this same time period, over 200 Maryland firefighters have been injured and one Maryland firefighter was killed during fire suppression efforts in apartment buildings.

Cooking operations and the misuse of smoking materials remain the leading causes for apartment fires resulting in injuries and deaths. NFPA 101, *Life Safety Code*[®], a nationally recognized consensus Code which is referenced by the Maryland State Fire Prevention Code, has recognized that special protection features are necessary for the occupants of existing high-rise buildings, and has required the installation of complete automatic sprinkler protection or the adoption of an approved engineered life safety system for these existing buildings since the 1991 edition of that Code

Based upon the information presented within this document and upon the great potential for a loss of life to civilians and firefighters, the State Fire Prevention Commission affirms that current existing high-rise residential structures without complete fire suppression systems present a clear and present danger, are hazards so inimicable to the public safety as to require correction as stated by the provisions of §6-206 of the Maryland Public Safety Article, and require that corrections be made to these structures to secure adequate and reasonable levels of safety to both civilian occupants and fire suppression personnel.

DRAFT

December 4, 2017

Comments to Draft Position Paper on Existing High-Rise Residential Structures

SUMMARY

The draft Position Paper should not be published or endorsed by the State Fire Prevention Commission (SFPC). It has very serious limitations associated with the quantification of the supposed hazard, the administrative method of addressing the issue, and the technical thoroughness of the risk/benefit assessment and potential mitigation strategies. Based on this preliminary review, I believe there is currently insufficient data/analysis/justification to designate all existing Maryland high-rise structures, or all apartments, having incomplete or no automatic sprinkler protection, as a "clear and present danger" having inimical (rare, hostile, harmful) hazard to public safety.

I recommend that the SFPC:

1. Determine the magnitude of the problem and quantify the risk as assessed in analysis going forward. This discussion should include Commission Members, the State Fire Marshal (FM), the Chief Fire Protection Engineer (FPE), and other interested parties;
2. Determine the administrative approach if it is agreed that pro-active action is appropriate. The SFPC might make advisory recommendations for potential statutory changes, or begin drafting changes for potential revision of the Code of Maryland Regulations (COMAR), depending on the significance and cost impact of the changes; and,
3. If deemed appropriate, facilitate the assessment of the cost/benefit of potential improvements.

BACKGROUND

The draft Position Paper was circulated to the SFPC members by the Commission Secretary on November 6, 2017. It is written under the letterhead of the SFPC, C. Daniel Davis, Chairman, stating the opinion of the SFPC. Apparently, it was drafted by the FM and/or FPE and circulated for comment by Chairman Davis. My understanding that it is not the current opinion, position or wording of any Commission member. If it is, no member has spoken publicly about it. Without knowing the exact author, I will reference this as the "FM Draft" or just "Draft".

Prior to the October 19, 2017 SFPC meeting, the subject of apartment fire incidents as a general fire safety issue had not been identified in bi-monthly Commission meetings. I have reviewed the last three Commission Annual Reports. I have also reviewed the last three Annual Fire Death reports by the FM. None of these reports identify apartment fires as a "clear and present danger" requiring immediate action. None of these reports even mention the term "high-rise".

Without previous identification, discussion, evaluation and review of the issue, I think it is inappropriate to authorize the publication of the FM draft under the name of the SFPC. The SFPC legal counsel could confirm whether the FM could publish his own position paper if he feels strongly about the issue. I believe that any potential position paper issued by the SFPC requires more deliberation, technical analysis, and risk assessment for a proposal having such a significant regulatory impact.

IDENTIFICATION AND QUANTIFICATION OF RISK

The Draft does a poor job of quantifying the fire risk associated with existing high-rise apartments, and fails to quantify how this risk equates to a “a clear and present danger” and a hazard “so inimical as to require correction”.

It is not clear if the “inimical” hazard to public safety is with existing high-rise residential structures, or all existing multifamily dwellings. The title is “Position Paper on Existing High-Rise Residential Structures”. The last paragraph says that existing high-rise residential structures are a clear and present danger. But fire load, damage, loss, and casualty data applicable to other residential structures are cited in support of the conclusion. A “Fire Protection Options” paper distributed at the October meeting includes both high-rise and garden and mid-rise protection proposals.

Trends in Fire Loss History

It is stated that “The number of recent fires that have resulted in injuries and death to occupants of high-rise buildings that were not protected throughout by a fire suppression system has increased the level of concern...”. No citations are provided, and no correlation to the Maryland built environment are provided. It is reported that, since 2007, there have been 15,000 apartment fires in Maryland, with over 500 civilians injured, 94 civilians killed, 200 firefighters injured, and one firefighter killed. This apparently is for all apartments, both high- and low-rise, sprinklered and nonsprinklered. The entire inventory of these occupancies is apparently considered. So, is the contention that high-rise structures, or all multifamily dwellings, present a “clear and present danger”?

I attempted to analyze the publically available data on high-rise multifamily structure fires in Maryland using year end summary reports. These reports do not distinguish between low- and high-rise structures. If the problem is so serious, I would think that this categorization would be routine. The number of civilians killed in all apartment fires appears to be trending downward; between 2002 and 2011, the average annual number of fatalities was about 11 per year; since 2012, about 8 per year.

Since the implementation of special protection features in building/fire codes starting in the early 1970s, the threat in high-rise buildings has continued to diminish. Maryland has generally followed national trends in fire loss. National Fire Protection Association (NFPA) data can be used to assess the threat. A summary of their most recent review of high-rise building fires is appended.

The fire fatality rate per 1000 fires and the average loss per fire are generally lower in high-rise structures compared to other buildings in the same category. High-rise buildings have lower percentages of fires with flame damage outside the room of origin. NFPA attributes this lower risk to the greater use of fire protection systems and features (including automatic detection and fire resistive construction) in high-rise buildings compared to non-high-rise buildings.

NFPA does offer the opinion that “too many fires are occurring in high-rise properties without sprinklers. Retrofitting these properties will make them safer”. This is embodied in NFPA 101, *Life Safety Code*, Chapter 31 Existing Apartment Buildings (adopted as part of the Maryland Fire Prevention Code but exempted by virtue of COMAR Title 29, Subtitle 06, Chapter 01, Section 03 Applicability and Scope exemption for existing buildings).

This data is only partially helpful in assessing the position in the Draft, which seems to contend that active fire protection, particularly sprinklers, are needed to mitigate the threat. As a baseline, the following data analysis should be performed using both Maryland-specific and national fire incident data. The data should be assessed for all occupancies, all multifamily dwellings, all high-rise structures, and all high-rise multifamily dwellings:

1. Fire incident rate per 100,000 person population
2. Civilian and firefighter casualties and casualty rate (injuries and fatalities separated out; multiple fatality fires identified)
3. Flame and smoke spread beyond the room of origin
4. Average property loss per incident

This assessment should be for at least a 20 year (or greater) period, so trends can be established. The presence or absence of active (sprinkler, detection, alarm) and passive (fire resistive construction and compartmentation) fire protection should be included in the assessment. The FM, FPE, SFPC, and other interested parties should be solicited for comments, suggestions, and improvements to this outline before this analysis is initiated.

The Maryland fire loss for apartment fires since 2007 is cited as 155 million dollars. NFPA data indicate an average of about \$5000 per high-rise apartment fire incident. This compares to about \$10,000 per incident in Maryland, but these data are not broken down by high-rise and low-rise. How does average fire loss in Maryland compare between high-rise and low-rise structures?

The \$155M loss figure will be skewed in future analysis by the 2017 Fuse 47 mid-rise fire loss. This fire loss of a building nearing completion represents, in a single incident, one-third of the prior decade’s total apartment fire loss.

The Draft cites 85 high-rise structures in Montgomery County and 14 in Prince Georges County that are not protected throughout by automatic suppression and detection systems. Are these all residential occupancies, or do they include all high-rise structures? Further analysis of the protection that is provided (including compartmentation, fire alarm, fire detection, emergency power, elevator control, etc.) would be useful.

No mention is made of the large inventory of high-rise structures in Baltimore and the Town of Ocean City.

I agree with the conclusion that cooking is a leading cause of apartment fires. The position paper correctly identifies fire/smoke spread, containment, and egress challenges in high-rise buildings. Building and fire prevention codes have evolved based on these identifiable challenges and loss history. Earlier versions of high-rise codes allowed for fully sprinklered or fire resistive compartmentation options. In the 1980s, it was recognized that sprinklers provided a greater degree of protection (less risk of damage and casualties), and was so adopted as the default for high-rises (and in fact most other occupancies) building protection. Few large buildings or apartment structures are built today without sprinklers.

Firefighting in High-Rise Buildings

Combating an uncontrolled fire in a high-rise building can undoubtedly be a challenge. A more convincing argument can be made by reviewing, analyzing, and summarizing the information available in the technical literature. A supporting argument can be made by citing standard fire department (FD) responses: more apparatus and manpower are typically dispatched to a high-rise fire alarm than other structures. The NIST high-rise fire ground report certainly provides quantification of the need for increased crews, and the categorization of high-rise structures as "high-hazard".

An argument might be developed that, above a certain height, firefighters will have a limited ability to effectively contain and combat fires. Hauling 30-50 lbs. of equipment, firefighters will increasingly be challenged by fatigue and exhaustion the higher they have to climb up a building. This presumes that elevator recall and FD use (including emergency power) is not available. An assessment of FD elevator use is critical. The NIST study is a good starting point to establish this position. This analysis might point to a certain building height above which retroactive sprinklering should be considered as the primary risk-reduction technique.

I sense an underlying concern that fire spread outside the compartment or floor of origin inherently results in an increased firefighter risk. I don't have a simple technically-based answer to this concern. This should probably be assessed between high-rise and other structures. The implication is that previous high-rise code compartmentation options are insufficient to assure a reasonable degree of firefighter safety. I can't readily quantify the risk of this. As a starting point, I would look to the NFPA study on measuring the effectiveness of code provisions. A search of the effectiveness of fire resistive construction is needed. There is some fire spread data in the NFPA sprinkler effectiveness study, which has its basis in National Fire Incident Reporting System (NFIRS) data. NFIRS data could be searched for fire spread data in nonsprinklered buildings. Some high-rise scoring system methods have included firefighter safety as a measurement parameter.

In my view, firefighter casualty data provides a weak argument that retroactive high-rise protection is necessary. As with the apartment civilian fire fatality rate, the firefighter line of duty (LOD)

fatalities due to fire are trending downward. According to the Maryland FM Annual Reports, there were 22 fatalities between 1997-2006. There were 5 between 2006-2016. A similar assessment should be made of firefighter injuries (data for Maryland firefighter injuries were not readily available for this analysis). The November 2017 NFPA Research Letter headlined "Firefighter injuries are at an all-time low". The estimated firefighter injury rate in 2016 was the lowest since NFPA began reporting this data in 1981. One apartment fire incident was highlighted where a number of firefighters suffered from cyanide poisoning. This was attributed to the premature removal of their SCBA facepieces, when they thought the atmosphere was clear. There is no specific reference or categorization of injuries with respect to high-rises.

The Draft cites a Maryland firefighter killed while combating an apartment fire. Presumably, this is in reference to the January 2011 incident involving a three story garden apartment in Baltimore County. While tragic and unfortunate, this single incident does not necessarily support improvements in high-rise structures. For the time period cited (2007-present), there were 3 "on-scene" LOD fatalities at Maryland structure fires of the 13 total LOD fatalities (through 2016). Generally, less than half of US LOD fatalities and injuries occur at the scene of a fire, with only a portion of these involving active fire suppression efforts. The average annual LOD fatalities nationally is less than 100, compared to about 200 in the 1970s. United States Fire Administration (USFA) online search capability does not readily identify LOD fatalities and injuries in high-rise or apartment structures per se. Review of individual reports would have to be conducted to quantify this parameter.

I have serious concerns about the emphasis on "modern" vs. "legacy" fuel load. The so-called "modern" fuel packages (e.g., polyurethane upholstery) has been a firefighting challenge for over 50 years, encompassing nearly three generations of firefighters. It is time to stop misleading the public and firefighters that somehow home furnishings have recently changed in some significant and dangerous way. The introduction of oxygen through natural, planned, or inadvertent venting can create the potential for rapid onset of flashover. It has been, and remains, a challenge for firefighters. The example of four minutes to flashover is for just one specific scenario. It does not include all potential ventilation scenarios and materials, "legacy" or not. For example, exposed combustible interior can cause rapid flashover by itself (e.g. lauan wood used as an exposed finish). Perhaps mini-mansions, and lightweight floor joist construction have changed single-family dwelling firefighting strategy and tactics. And, the trend in wood construction in multifamily dwelling structures might be a tactical factor to consider (although it is not identified in the Draft). But, in simple terms, all currently active Maryland firefighters have faced essentially the same residential fire load/ventilation challenge throughout their careers.

Summarizing, combating a high-rise fire is a legitimate challenge. I would like to see more information on what existing code-mandated designs and facilities are effective or ineffective. This includes:

Standpipe availability and use:

FD communication/command systems including radio transmission effectiveness:

Voice communication systems:

Elevator recall and FD use: impact and reliability of emergency power systems: and,

Smoke control/stair pressurization.

A more compelling argument to improve high-rise firefighter safety might be made by a more thorough analysis of firefighting tactics and procedures with respect to high-rise features, rather than relying on casualty data.

Preventative Actions

The Draft conclusion that there is a clear and present danger in high-rise structures suggests that current regulations, including those intended to limit or mitigate fire loss, are ineffective. I have a concern that there are many fire safety requirements and preventative techniques already in-place, but are not being fully implemented or enforced. I provide two examples.

At my urging, the Fuse 47 fire was discussed at the October 2017 Commission meeting. Actions and lessons learned in firefighting and building code aspects were presented. It did not appear that there was a formal fire pre-plan. It was unclear that an on-site person acting as fire marshal was present. These and other prevention and mitigation regulations were in place, via reference to NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*. They do not appear to have been acted-on or strictly enforced. If they were, I stand corrected, but I did not get that sense from the presentations to the Commission. It will be interesting to see what enforcement or preventative actions will be taken as a result of this fire, one of the largest dollar loss fires in Maryland history.

After 9/11, NFPA convened a High-Rise Building Safety Advisory Committee. They have focused more on operational aspects of high-rise buildings than on code requirements. For example, they have issued a high-rise fire tip sheet, which guides residents on emergency evacuations procedures and tenant fire safety awareness. They have also published a guideline for developing emergency action plans. An apartment fire alarm tip sheet has been published. Has the FM implemented an outreach campaign to promote these and other high-rise fire safety awareness and operational plans? Has the FM reached out and offered operational assistance to jurisdictions, including code enforcement, fire department, and apartment management agencies where there are the greatest number of high-rise structures? If so, what is the result and feedback from these efforts? I am not aware that such an effort, for a “hazard so inimicable”, has been initiated.

Conclusions

I believe that, based on this preliminary review, there is currently insufficient data/analysis/justification to designate all existing Maryland high-rise structures, having incomplete or no automatic sprinkler protection, as a “clear and present danger” having an inimical hazard to public safety. A more thorough analysis might be used to conclude that some action to improve high-rise fire safety is warranted.

ADMINISTRATIVE APPROACH

As I understand the Draft, the FM proposes to have the Commission go on record as promoting the retroactive “correction” of high-rise fire hazards by invoking the § 6-206 of the Public Safety (PS) Annotated Code of Maryland. The regulations adopted under § 6-206 (e.g. the Life Safety Code as amended) do not apply to existing structures (§ 6-206(a)(2)(i)). An exception in subparagraph (ii) states

that if the Commission determines that an installation is a hazard so inimicable to the public safety as to require correction, the requirements in § 6-206 apply to the installation. In other words, the Commission could deem the hazard to occupants and responding firefighters of nonsprinklered high-rise residential structures so great that the structures should be retroactively improved. The implication in the Draft is that they should be sprinklered, although a list of potential improvements for both garden/mid-rise (undefined) and high-rise residential occupancies was distributed at the October 2017 Commission meeting.

As analyzed in the Risk description above, it is not clear that the FM has established an inimical hazard. The *Fire Prevention Code* is intended to establish minimum requirements that will provide a **reasonable** (my emphasis) degree of fire prevention and safeguard to life, property and the public welfare (Code of Maryland Regulations Title 29 Subtitle 06, Chapter 01). Advocates for increased high-rise protection must demonstrate that current protection is unreasonable.

Let's presume for a moment that the Commission agrees that some action is necessary. While the Maryland Code allows for Commission intervention, I argue that this is a public risk reduction measure which requires public and political input and judgement. The public at large, through the legislative process, should be allowed to assess the hazard and the associated costs of any subsequent risk reduction. If the hazard is great enough that both the FM and Commission deem action is necessary, a proposal to change the Annotated Code of Maryland should be developed. This places the risk-benefit decision on the body- politic (defined here as represented by the Maryland Legislature), not in the hands of 9 political (albeit expert) appointees. My opinion is that any **significant** proposed changes for high-rise fire protection (e.g. retroactive sprinkler protection) be accomplished legislatively through modifications to the Maryland Annotated Code, Public Safety § 9-401, Subtitle 4 *High-Rise Building Safety in Case of Fire*. Significant changes, such as retrofitting of all nonsprinklered high-rise structures with sprinklers, should not be administratively accomplished by the Commission revising regulations in Code of Maryland Regulations (CPMAR) Title 29 Subtitle 06, Chapter 01, Section 02 *Prevention Fire Code*, which only requires a public hearing (PS § 6-206(c)).

The Maryland Annotated Code establishes minimum requirements which must be followed by Maryland jurisdictions. Nothing prohibits individual jurisdictions from requiring a greater level of safety than is currently embodied by the State Code (PS § 6-206(d)(2)). The Town of Ocean City has retroactive high-rise fire safety requirements that exceed Maryland Code requirements. Montgomery and Prince Georges Counties, cited in the Draft, have the authority and ability to impose retroactive fire safety features on high-rise structures exceeding those in the State Code.

A question left unanswered by the Draft is whether retroactive requirements are proposed to apply to all jurisdictions in Maryland, including the City of Baltimore, or to Ocean City, which has already acted.

COST/BENEFIT ANALYSIS

The brief fire loss analysis above might seem to suggest that there are no significant issues with existing high-rise structures. The "average" high-rise fire might be tolerable. Without further analysis, this conclusion should not be immediately accepted.

Uncontrolled fires in nonsprinklered high-rise buildings have the potential for high casualties and significant damage for a single event. Fortunately, this has not occurred in Maryland in the recent past. Firefighting can also present a challenge, as demonstrated in the recent national and international fire losses where fire spread to multiple floors. From a regulatory or legislative viewpoint, the challenge is to determine how much protection is good enough? Using Code language, what level of protection is reasonable?

Many regulations are adopted using a qualitative risk/benefit approach. For example, "the cost of retrofitting buildings with sprinklers exceeds the benefit of improvement to public safety". Attitudes concerning risk/benefit change; in the early 1970s, options of compartmentation vs. fully sprinklering were considered by national code organizations as providing an appropriate level of public safety. The subsequent risk in newly constructed nonsprinklered high-rise buildings was perceived as too great, such that all new high-rises should be sprinklered. A large percentage of existing nonsprinklered high-rise buildings are those constructed in the 1970-1990 time frame when the compartmentation option was permitted. As seen in the data, there apparently has been some effectiveness of this option in improving high-rise fire safety.

NFPA 101 requires complete sprinkler protection or the adoption of an approved engineered life safety system for existing high-rise residential buildings. Unfortunately, the parameters for the engineering alternative are only generally stated. NFPA 101A, *Guide on Alternative Approaches to Life Safety*, has no method for residential structures. It references The *SFPE Guide on Risk Assessment and the SFPE Handbook* chapters on *Hazard Calculations* and *Fire Risk Indexing*. NFPA 551 is also referenced. The IBC has an existing building code (IEBC) which addresses existing high rise structures (Chapter 14).

Many jurisdictions in the US have adopted retroactive high-rise fire protection features. Risk indexing techniques have been used. Some jurisdictions favor complete sprinkler protection, others allow for alternative passive and active techniques. For this analysis, I investigated the Chicago requirements, and proposals being circulated for Honolulu. Chicago allows for alternative techniques in lieu of complete sprinklering. They have an assessment scoring system. Interestingly, business occupancies seem to have more restrictive requirements, implying that they perceive offices as a greater hazard than multifamily occupancies. Honolulu is considering both mandatory sprinkler retrofit in all high-rise residential buildings (as embodied by recently introduced legislation) and a risk indexing approach.

Since 2005, the Town of Ocean City has had retroactive high-rise requirements (Ordinance 2005-21). Buildings greater than 75 feet must be sprinklered, unless every dwelling has an exterior exit, or there is an NFPA 101 life safety system developed by a Maryland registered Fire Protection Engineer. For the exterior exit option, there is a list of additional requirements, including fire alarm and detection, standby power, FD phone system, Class I standpipe, and other features.

This is obviously not a comprehensive survey of retrofit approaches. If it is concluded from the risk assessment that the hazard of existing conditions requires retroactive action, the Commission should facilitate the assessment of the cost/benefit of potential improvements. Available assessment techniques should be reviewed and considered. Again, this should include all interested parties.

Any assessment of costs should include not only the initial capital cost, but recurring costs. Sprinkler, fire alarm and detection, elevator, and smoke control systems all require routine inspection and maintenance. Many inspections are code mandated.

Fire Protection System Reliability

Any cost/benefit analysis (or the associated risk assessment) should consider the reliability of recommended fire protection improvements. For example, the NIST fireground experiment report notes that many high-rise buildings are not sprinklered, and that “sprinkler systems fail in about one in fourteen fires. Thus, fire departments should be prepared to manage the risks associated with unsprinklered high-rise buildings”. NFPA has recently published a valuable study on sprinkler effectiveness and failure rates. It found that sprinklers operated and were effective in controlling a fire in 88% of fires large enough to operate them.

Fire alarm and detection system reliability data should be readily available. Compartmentation/fire resistive construction effectiveness reliability, as noted, is more challenging to assess.

Specific Challenges and Opportunities

Civilian injuries and fatalities due to fires have dropped dramatically in the last 30-40 years. The same trend holds true for firefighter casualties. We are now in a position to focus on specific occupancies and hazards: single family dwellings and kitchen/cooking fire hazards come to mind. Maryland has been particularly aggressive in addressing home fire safety; that is not the point of this discussion.

Cooking Fires

Cooking fire hazards in multi-family structures warrant specific consideration. NFPA has recognized the cooking hazard as an important hazard to mitigate. They are currently embarked on a multi-year effort to identify, test, and implement improvements to kitchen fire safety.

This effort is coming to fruition with the initial roll-out of improved cooktop appliances. UL Standard 858 addresses electric range tops and was recently updated to include an ignition prevention test for open coil ranges. The test is heating of oil in a pan with no ignition for 30 minutes; most existing stoves would ignite oil in about 8 minutes. In the future, all stoves designed to this UL Standard must pass this standard ignition test. There are no specific requirements on how to achieve this. Most proposed technologies use temperature sensing and limiting devices built into the stoves. Manufacturers are in general agreement on this approach, and believe they are capable of meeting this. There is at least one existing product on the market.

I recall some discussion at the October meeting related to gas appliances and potential amendments to the 2018 codes.

A risk assessment should consider the impact of the apparently imminent roll-out of these fire safety improvements in potentially reducing the overall residential fire threat. Would the introduction of these improvements reduce the need for other retroactive features?

Combustible Exterior Wall Assemblies

One hazard that seems to have been overlooked in the Draft is combustible exterior insulation systems. There have been a number of high profile, dramatic high-rise fires involving this material. The difference between sprinklered and nonsprinklered structures where these fires have occurred appears to be significant (e.g. Grenfell Tower in London vs. Dubai Marina Torch and Address Downtown fires in Dubai). So far, the most dramatic fires have occurred internationally. NFPA 285 *Standard Test Method for Evaluation of Fire Propagation Characteristics of Exterior, Non-Load-Bearing Wall Assemblies Containing Combustible Components* was developed and implemented in the United States through model building codes. The Standard assures that wall systems will resist self-accelerating and self-sustaining fires. Maryland has adopted these requirements. An example of the potential exterior wall fire spread was demonstrated at a 2016 Ocean City condominium fire as shown in Figure 1. This structure apparently had combustible exterior wall materials.

An assessment of existing nonsprinklered high-rise structures might include combustible exterior wall systems, and whether they are compliant with NFPA 285.* NFPA has a current project to develop fire mitigation strategies for fires which involve exterior walls.



Photo credit WBALTV11

FIGURE 1

*Disclosure – JENSENHUGHES provides assessment and audit services of building exterior wall systems

Conclusions

A cost/benefit analysis is an element of potential significant regulatory action. It is not the only, or final, factor in societal action to reduce risk from fire. The fire loss data certainly indicates a dramatic improvement to the US civilian and firefighter casualty rates. The question is, what resources should be expended (and in this case, through mandatory regulations) to further decrease the risk from fire, and what is the cost of alternative mitigation techniques to achieve the various reduced levels of risk?

A risk assessment including a cost/benefit analysis of mitigation techniques would help policymakers (be it the Commission or the Legislature) decide on appropriate regulatory action. If all interested parties agree that some action is appropriate based on the risk, then the Commission could facilitate the cost/benefit analysis. At the October Commission meeting, I strongly recommended such an approach. I again emphasize this.



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ATTACHMENT – NFPA HIGH-RISE FIRES FACT SHEET



U.S. HIGH-RISE BUILDING FIRES FACT SHEET

In 2009-2013, U.S. fire departments responded to an average of 14,500 structure fires per year in high-rise buildings.¹ These fires caused an annual average of

- 40 civilian fire deaths
- 520 civilian fire injuries
- \$154 million in direct property damage

Four property use groups account for half of high-rise fires:

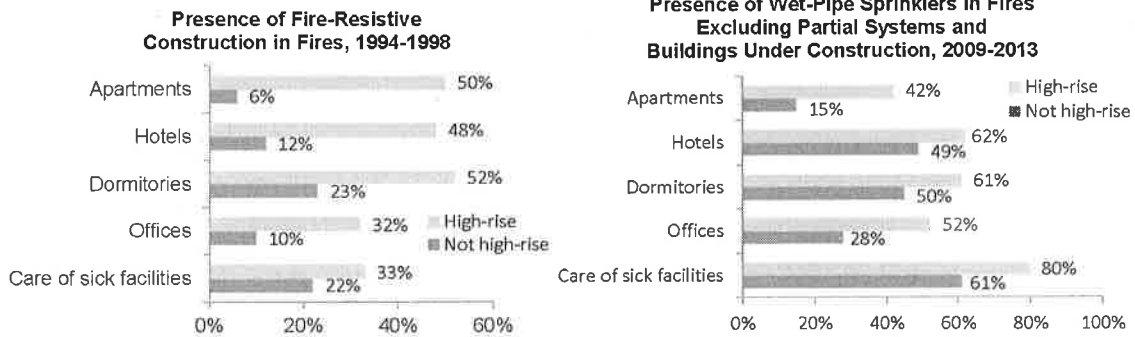
- Apartments (62% of all high-rise fires)
- Hotels (4% of high-rise fires)
- Dormitories (4% of high-rise fires)
- Offices (2% of high-rise fires)
- Facilities that care for the sick (1% of high-rise fires)
- The rest were mostly property uses found in mixed-use residential or office buildings (such as restaurants, stores, and parking garages) or probable miscodes of properties that cannot be high-rise (such as dwellings and sheds)

The fire death rate per 1,000 fires and the average loss per fire and of associated losses are generally lower in high-rise buildings than in other buildings of the same property use.

A major reason why risks are lower is probably the much greater use of fire protection systems and features² in high-rise buildings as compared to shorter buildings.

High-rise buildings have lower percentages of fires with flame damage beyond room of origin, providing further evidence of impact from fire protection systems and features:

- Apartments (4% of high-rise fires vs. 10% in shorter buildings)
- Hotels (4% of high-rise fires vs. 11% in shorter buildings)
- Dormitories (2% of high-rise vs. 1% in shorter buildings)
- Offices (10% of high-rise fires vs. 21% in shorter buildings)
- Facilities that care for the sick (4% of high-rise fires vs. 9% in shorter buildings)



¹ "High-rise" is defined here as 7 stories above grade. This is roughly consistent with the Life Safety Code definition of high rise as 75 feet (23 meters) in height, measured from the lowest level of fire department vehicle access to the floor of the highest occupiable story.

² Construction type of building involved in fire is not reported after 1998.

Source: NFPA, Fire Analysis & Research Division, www.nfpa.org
 NFPA, 1 Batterymarch Park, Quincy, MA 02169, www.nfpa.org
 Fire Analysis & Research Division, osck@nfpa.org