Resolution No.:	18-603
Introduced:	September 20, 2016
Adopted:	September 20, 2016

COUNTY COUNCIL
FOR MONTGOMERY COUNTY MARYLAND

Lead Sponsor: Council President on behalf of the County Executive

SUBJECT: Approval of Executive Regulation 7-16, Fire Safety Code – Fire Protection Systems

Background

1. On June 28, 2016, the County Council received Executive Regulation 7-16, Fire Safety Code – Fire Protection Systems. The proposed regulation would revise existing regulations to accommodate organizational changes made by Expedited Bill 29-16, Fire Safety Code – Administration - Reorganization, which transfers the Fire Code Compliance Section from the County Fire and Rescue Service to the Department of Permitting Services.

2. The Council reviewed the regulation under Method (2). Under Method (2), if the Council does not approve or disapprove a regulation within 60 calendar days after the Council receives the regulation, the regulation automatically takes effect.

3. On September 15, 2016, the Planning Housing, and Economic Development Committee reviewed the proposed regulation and recommended approval.

Action

The County Council for Montgomery County Maryland approves the following resolution:

Executive Regulation 7-16, Fire Safety Code – Fire Protection Systems is approved.

This is a correct copy of Council action.

Linda M. Lauer

Linda M. Lauer, Clerk of the Council

MONTGOMERY COUNTY EXECUTIVE REGULATION

Offices of the County Executive • 101 Monroe Street • Rockville, Maryland 20850

Subject FIRE SAFETY CODE – FIRE PROTECTION SYSTEMS	Number: 7-16
Originating Department DEPARTMENT OF PERMITTING SERVICES	Effective Date August 1, 2016

Montgomery County Regulation on:

FIRE SAFETY CODE - FIRE PROTECTION SYSTEMS
Montgomery County Department of Permitting Services

Issued by: County Executive
Regulation No: 7-16
COMCOR 22.00.06

Authority: Code Section 22-13
Amends: Executive Regulation 19-13
Council Review: Method 2 under Code Section 2A-15
Register Vol. 30, Issue 5
Effective date: August 1, 2016
Comment Deadline: May 31, 2016
Sunset date: None

SUMMARY: This regulation amends Executive Regulation 19-13 and adopts and modifies certain standards published by the National Fire Protection Association (NFPA) involved with the installation, testing and maintenance of certain fire protection systems as required by the Montgomery County Building Code, the Montgomery County Fire Safety Code, and the Maryland State Fire Prevention Code. These codes and the associated codes and standards incorporated by reference are adopted to set the minimum requirements to establish a reasonable level of safety from the hazards created by fire, explosion, and dangerous conditions. New buildings, new systems, or new conditions are subject to this regulation. Existing buildings, existing systems, or existing conditions which are altered are subject to this regulation to the extent required by the Maryland Building Rehabilitation Code, the Montgomery County Fire Safety Code, and the Maryland State Fire Prevention Code. Unaltered existing buildings, existing systems, or existing conditions are subject to this regulation only when an inimical or distinct hazard exists.

ADDRESSES: Department of Permitting Services
255 Rockville Pike, 2nd Floor
Rockville, MD 20850

STAFF: For further information, contact Joseph Felton, Manager, Division of Building Construction, 240-777-6208.

MONTGOMERY COUNTY EXECUTIVE REGULATION

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Subject FIRE SAFETY CODE – FIRE PROTECTION SYSTEMS	Number: 7-16
Originating Department DEPARTMENT OF PERMITTING SERVICES	Effective Date

COMCOR 22.00.06 Fire Safety Code – Fire Protection Systems

22.00.06.01

In accordance with the procedures authorized in Chapter 22, "Fire Safety Code", of the Montgomery County Code, as amended, this Executive Regulation applies to the design, installation, alteration, and maintenance of fire protection systems in buildings or structures. Where there are differences between this regulation and the Montgomery County Building Code, the more restrictive provision(s) will apply.

In this regulation the term "Director" means the Director of the Department of Permitting Services and includes the Director's designees.

The Department of Permitting Services has the authority to enforce the requirements of the Montgomery County Fire Safety Code as it pertains to new and existing buildings, facilities, elements, structures, and conditions.

New buildings, new systems, or new conditions are subject to this regulation. Existing buildings, existing systems, or existing conditions which are altered are subject to this regulation to the extent required by the Maryland Building Rehabilitation Code, the Montgomery County Fire Safety Code, and the Maryland State Fire Prevention Code. Unaltered existing buildings, existing systems, or existing conditions are subject to this regulation only when an inimical or distinct hazard exists.

This regulation amends and replaces Executive Regulation No. 19-13.

22.00.06.02

All references to the National Fire Codes and standards adopted in this regulation are to those codes, standards, recommended practices, and manuals in the National Fire Codes, published by the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269. Unless otherwise noted, all references are to those codes and standards published in the 2015 edition of National Fire Protection Association's Fire Code (NFPA 1) and are adopted in their entirety.

Terms used in this regulation that are defined in the state adopted consensus codes have the meanings used in the consensus code.

For the purpose of this regulation, the Director is the designated Authority Having Jurisdiction (AHJ) in NFPA 1.

22.00.06.03

NFPA 1, section 1.10 is deleted.

22.00.06.04

Designs for smoke management systems must be submitted for review and approval as part of a building permit. Submittals for smoke management systems must include:

(a) Plans and specifications
(b) Engineering calculations and/or computer model
(c) Floor plans
(d) System diagrams and details
(e) Sequence of operations and control layout
(f) Preliminary test procedures
(g) Acceptance test procedures
(h) Pass/fail criteria
(i) Maintenance requirements including periodic testing criteria

22.00.06.05

NFPA 13, section 7.2, add the following: Dry pipe systems may only be installed where heat is not adequate to prevent freezing.

22.00.06.06

NFPA 13, sub-paragraph 7.2.3.6.1 is deleted.

22.00.06.07

NFPA 13, subsection 8.1.1, add new principle (9) as follows:

(9) Sprinklers are required under attached balconies or porches unless at least 50 percent of the longest exterior side is open to the atmosphere.

22.00.06.08

NFPA 13, paragraph 8.3.2.1 is amended as follows: In dwelling units, ordinary temperature - rated sprinklers must be used.

22.00.06.09

NFPA 13, paragraph 8.3.2.4, add the following: "Intermediate temperature sprinkler heads must only be installed if an acceptable layout can not be achieved without a sprinkler head in the high temperature area."

22.00.06.10

NFPA 13, paragraph 8.4.5.1, add: Listed residential sprinkler heads must be used in dwelling units except Detention and Correctional occupancies.

22.00.06.11

NFPA 13, subsection 8.8.1, add: Extended coverage sprinklers are not permitted in speculative business and mercantile occupancies.

22.00.06.12

NFPA 13, paragraph 8.15.7.1, add: Any canopy with the potential for extended vehicle standing or parking below must have sprinkler protection on the underside of the canopy.

22.00.06.13

NFPA 13, paragraph 8.15.8.2, add new sub-paragraph:

8.15.8.2.1. When sprinklers are required, sprinklers must not be installed directly above shelving.

22.00.06.14

NFPA 13, paragraph 8.15.15.1, is amended as follows: For new ceiling installations, drop-out ceilings are prohibited.

22.00.06.15

NFPA 13, subparagraph 8.16.1.1.1.1 and paragraph 8.17.1.1, add: When a sprinkler system serves more than one level, each level must be consistently and separately valved by a listed and approved control valve. In addition, where a sprinkler system is required to activate a building fire alarm system, the sprinkler system must have a separate and distinct water flow detecting device for each floor and zone.

Exception 1: In buildings not exceeding three floors and 3000 square feet per floor.
Exception 2: Unoccupied and unused attics may be zoned with the level below.
Exception 3: Mezzanines not exceeding 3000 square feet in area.
Exception 4: Detention and correctional facilities.

22.00.06.16

NFPA 13, subsection 8.17.2, add the following requirements for fire department connections:

(a) Must be located within 100 feet from a fire hydrant, and between 18 and 48 inches from grade to the centerline of the inlets.

(b) Number of 2 1/2 in. inlets:

System Demand (gpm)	No. of Inlets
up to 749	2
750-999	3
1000 and more	4

(c) Multiple connections for the same building must be interconnected.

(d) When a section of a building is fed by a connection (i.e., partial systems), permanent all weather identification signs must be provided on connections.

(e) Must be sized at least as large as the main sprinkler system riser pipe or the fire pump discharge line, whichever is larger.

22.00.06.17

NFPA 13, section 11.1, add: Calculations for new systems or new portions of systems must meet the criteria below.

(a) Highest hazard and most demanding use allowed by building construction permit or property zoning.

(b) Storage use: Available storage height for high storage of a class 4 non-encapsulated material.

(c) All uses: 20% safety factor. For systems without a pump, this is based on the demand pressure only at the supply point. For systems with a pump, this is based on both the demand pressure and demand flow at the pump discharge. All design options, except grids in speculative buildings, must be explored.

Exception to safety factor only: Owner occupied buildings may use a lower safety factor if a pump would be necessary to achieve the 20%.

22.00.06.18

NFPA 13, paragraph 11.2.2.3, delete (3) and (4).

22.00.06.19

NFPA 13, subsection 24.1.2, add: Pressure and flow availability as determined by a hydraulic information sheet received from a public utility must be used for new taps. Pressure and flow availability for existing taps must be determined by an interior flow test. In any case, the supply information must be corrected for the low hydraulic gradient. Fire pumps and fire pump/tank supplies must only be used where it is demonstrated that the public water supply is inadequate.

22.00.06.20

NFPA 13, section 25.1, add: (5): Finished surfaces must be completed within a 1' radius of sprinklers before the final inspection.

22.00.06.21

NFPA 13, paragraph 25.2.1.11, add a third sentence: Pendent sprinkler heads must not be installed in plastic pipe until after the hydrostatic test is passed.

22.00.06.22

NFPA 13D, subsection 1.1.1, add a second sentence: This standard also applies to Day Care homes containing 12 clients or less if located within converted one and two family dwellings or townhouses.

22.00.06.23

NFPA 13D, section 6.1, add: Pressure and flow availability as determined by a public utility must be used and must be adjusted to the low hydraulic gradient. Booster pumps and pump/tank supplies may be used only where it is demonstrated that the public water supply is inadequate as determined by the Director.

22.00.06.24

NFPA 13D, subsection 6.1.1, add: All calculations must include at least a 10% safety factor to account for minor field changes, unless a booster pump is necessary to obtain this safety factor.

22.00.06.25

NFPA 13D, section 6.2: Add (6)

(6) System specific data plate on durable material to be fixed at sprinkler system main riser.

22.00.06.26

NFPA 13D, paragraph 7.5.6.1, add: Where possible to maintain listed coverage, sprinkler heads must be positioned so as to eliminate the need to install sprinkler heads of a higher temperature rating.

22.00.06.27

NFPA 13D, subsection 7.5.7, add: Finished surfaces must be completed within a 1' radius of all sprinklers before the final inspection.

22.00.06.28

NFPA 13D, paragraph 8.2.5.1, add sub-paragraph 8.2.5.1.1:

8.2.5.1.1 Sprinkler heads in closets must not be located directly above shelves.

22.00.06.29

NFPA 13D, subsection 8.3.4, add the following after garages: "...unless located partially or wholly beneath living space."

22.00.06.30

NFPA 13D, subsection 9.1.2: Delete Methods (1), (2) and (4).

22.00.06.31

NFPA 13D, paragraph 11.2.1.4, add a second sentence: When systems utilizing plastic pipe are being hydrostatically tested, pendent sprinklers are not permitted.

22.00.06.32

NFPA 13R, subsection 5.4.2, add: Antifreeze, dry pipe and preaction systems are prohibited in dwelling units and interior corridors leading to dwelling units.

22.00.06.33

NFPA 13R, subparagraph 6.4.6.3.2, add: Sprinkler heads in closets must not be located directly above shelves.

22.00.06.34

NFPA 13R, subsection 6.11.1 is amended to read: "In all apartment buildings, at least one fire department connection must be provided for buildings accessible by the fire department, that exceed 2000 square feet or are more than a single story. The fire department connection must be a minimum of one 2 ½ inch inlet with a feed line sized at least as large as the main system riser. The fire department connection must be located on a fire department access road and be 18 to 48 inches from the centerline of the inlet to finish grade."

22.00.06.35

NFPA 13R, section 7.4, add: All calculations must include at least a 10% safety factor to account for minor field changes, unless a listed fire pump is necessary to obtain this safety factor.

22.00.06.36

NFPA 13R, section 9.1, add: Pressure and volume availability as determined by a public utility must be used and must be adjusted to the low hydraulic gradient. Booster pumps and pump/tank supplies may be used only where it is demonstrated that the public water supply is inadequate.

22.00.06.37

NFPA13R, section 9.4, add: Domestic pumps are permitted for townhomes.

22.00.06.38

NFPA 13R, subsection 10.2.2. Add a new paragraph:

10.2.2.3 Pendent sprinkler heads must not be installed in plastic pipe until after the hydrostatic test is passed.

22.00.06.39

NFPA 14, subsection 4.8.2 is amended as follows: Each fire hose valve must have a 2 1/2 in. hose connection, 2 1/2 in. to 1 1/2 in. reducer, cap, and chain.

22.00.06.40

NFPA 14, subsection 5.1.2, add:

(1) Systems must be automatic wet type.
(2) Standpipe systems in unheated areas must be automatic dry type.
(3) Standpipe systems in detached open parking garages may be the manual dry type, if the piping is air supervised for breaks or open valves.
(4) Occupant use hose is prohibited in new or existing buildings.
(5) New standpipe systems must be Class I only.

22.00.06.41

NFPA 14, section 6.4 (Fire Department Connections), add:

(1) Number of 2 1/2 in. inlets:

System Demand (gpm)	No. of Inlets
up to 749	2
750-999	3
1,000 and more	4

(2) Multiple connections on the same building must be interconnected.
(3) When a section of a building is fed by a connection (i.e., partial systems), permanent all weather identification signs must be provided on connections.

22.00.06.42

NFPA 14, paragraph 7.3.2.2, add:

(1) Measurement must be parallel or at right angles to walls.
(2) Supplemental hose valves outside the stairs must not be located within tenant spaces, unless hose reach requirements cannot be met by placement of valves in public corridors or by use of wall hydrants for spaces opening to the exterior. Hose valve locations must be marked by the placement of signs, the striping of columns, or other approved methods.

22.00.06.43

NFPA 14, subsection 7.8.1, add exceptions:

Exception 1: In high-rise buildings, where booster pumps are necessary to produce the required residual pressures, pumps and piping systems must be sized to provide for the demand of the hydraulically most remote hose station, or the sprinkler system demand, whichever is greater. The standpipe system must also be sized to provide the required flow and pressure for all hose stations required to be flowing, when supplied by 150 psi at 1000 gpm at the fire department connection(s). Two sets of calculations will, therefore, be required under this exception.

Exception 2: Systems in buildings that are not high-rise, and dry systems with no automatic water supply, may be sized to obtain the required flows and pressures, when supplied by 150 psi at 1000 gpm at the fire department connection(s).

Exception 3: In existing buildings, after shell occupancy, hose valves added to correct reach violations created by tenant modifications may be supplied by 3 inch pipe without recalculation.

22.00.06.44

NFPA 20, paragraph 4.7.7.2, add: A relief valve is permitted to be installed to reduce operating pressure below 175 psi at high gradient.

22.00.06.45

NFPA 20, subsection 14.2.3, add: Fire pump control equipment must be inspected and approved by a Montgomery County electrical inspector before a fire pump performance test is performed and witnessed by Montgomery County.

22.00.06.46

NFPA 20, subsection 4.18.7 is amended entirely to state: For other than static water supplies, relief valves must not be piped back into the source of the supply.

22.00.06.47

NFPA 72, subsection 10.4.3 is amended by adding paragraph 10.4.3.1

10.4.3.1 When fire alarm equipment is installed in a parking garage or other similar space, if the AHJ determines that the humidity or temperature of the space or both cannot be maintained, then the fire alarm equipment must be listed for outdoor use and the environment where it is installed.

22.00.06.48

NFPA 72, subsection 10.18.3, add the following sentence: An annunciator with the following features is required when the building is greater than one story, has a sprinkler system, or has more than one type of alarm initiating device.

Exception 1: Apartments protected by a 13R sprinkler system.

Exception 2: Any building not exceeding two stories above grade and 3,000 square feet per floor.

(a) Annunciator must have a visible signal for each different floor, zone, and device type. Supervised computer screen or printer type annunciators may be used to meet this requirement if the zone identification is approved by the Director or Director's designees.

(b) Unless approved by the authority having jurisdiction, zones must not exceed a single floor, 52,000 square feet, or 300 linear feet. Sprinkler systems are permitted to be zoned under the applicable sprinkler standard.

(c) In zones greater than 22,500 square feet, a graphic outline on or adjacent to the annunciator must be provided showing the building outline, fire alarm and sprinkler zone boundaries, "you are here" notation, north compass arrow, all stairways, stairway identification numbers, sprinkler zones, all standpipe risers, fire department connections, elevators, and the building address.

(d) A lamp type annunciator must have a lamp test switch unless the annunciator circuits are supervised.

(e) The annunciator must be located at, and be visible from, the main fire department entrance unless the building has a fire command center.

(f) If two or more buildings are controlled by one alarm system, an annunciator must be installed in each building with a pilot lamp indicating the building of alarm origination.

(g) The graphic orientation must match the building orientation.
(h) The graphic floor level designations must match the elevator floor level designations.

22.00.06.49

Amend NFPA 72, paragraph 14.4.10.3 to read as follows:

"Test procedures. The test plan must ensure testing throughout the building. Test procedures must be as directed by the design professional and the AHJ. Using the Montgomery County control channel, each floor must be RF (radio frequency) signal level mapped utilizing a calibrated, portable spectrum analyzer. Each floor must be divided into equal grids of no larger than 50 feet by 50 feet. Individual testing points must not be spaced greater than 50 feet apart. Each grid must meet the required signal strength level, and provide a Delivered Audio Quality (DAQ) of not less than 3.5. (DAQ 3.5 is defined as 'Speech understandable with repetition rarely required. Some noise/distortion.') A maximum of two non-adjacent grids will be allowed to fail on the same floor. Failure of any two adjacent grids is considered a failure for the entire floor. Critical rooms, including, but not limited to, such areas as the fire command/control center, fire pump room, emergency generator room, stairwells with a standpipes, and other staging areas as identified by the AHJ, must not fail coverage at all."

22.00.06.50

Amend NFPA 72, paragraph 14.4.10.5 to read as follows:

"The design and acceptance testing of the in-building public safety radio enhancement system must be performed under the supervision of a Maryland registered professional engineer with a minimum of 5 years of experience in the design, installation, and alignment of bi-directional amplifier systems."

22.00.06.51

Amend NFPA 72, subsection 14.4.10 to add paragraph 14.4.10.7 to read as follows:

14.4.10.7 Maintenance. The building owner must maintain a service contract for emergency repair of the system. The service contract must be such that telephone support is available within 2 hours, and on-site maintenance service can be provided within 24 hours of recognition that the in-building public safety radio enhancement system is not operating correctly. A copy of the contract must be submitted to the AHJ at the time of acceptance testing. If the service contract is terminated, both the building owner and contractor must notify the AHJ within 24 hours.

22.00.06.52

NFPA 72, paragraph 17.7.1.7 is amended as follows: Detectors located at the top of shafts and stairs must be on a supervisory circuit only, unless a confirmation or verification feature is provided. The location must be identified at the annunciator or fire alarm control panel.

22.00.06.53

NFPA 72, paragraph 17.7.4.4, add: Activation of duct smoke detectors must sound an audible alarm in a normally occupied area or through the building fire alarm system, and must be identified as duct detector. Where connected to the building alarm, the signal must be supervisory only and must not initiate the building evacuation alarm unless a confirmation or verification feature is provided.

22.00.06.54

NFPA 72, subsection 17.12.2, add: Standpipe or main water flow indicators, if provided, must sound a supervisory signal only.

22.00.06.55

NFPA 72, section 17.14, is amended by adding paragraph 17.14.8.7

> 17.14.8.7 When fire alarm systems are not monitored by a UL listed central station, an approved permanent sign must be installed adjacent to each manual fire alarm box. The sign must read as follows:
>
> Local Alarm Only:
> (1) Activate Alarm
> (2) Exit Building
> (3) Call Fire Department

22.00.06.56

NFPA 72, paragraph 24.5.1.15 is amended by changing "two" to "six".

22.00.06.57

NFPA 72, paragraph 24.5.2.2 is modified to read as follows:

"Radio Coverage. Radio coverage must be provided throughout the building such that a minimum of 95% of the building (including underground levels, basements, elevators, stairways, etc.) is covered at a minimum of 95% of the time."

22.00.06.58

Amend NFPA 72, add subparagraph 24.5.2.5.6 to read as follows:

"Where required by the AHJ, a two inch diameter conduit/conduit sleeves must be provided vertically

from the roof level to the lowest level of the structure. This conduit will provide a vertical path for cable to all levels and should pass through the in-building public safety radio enhancement system equipment room. At a minimum, one 20-amp AC circuit and building ground must be located at the public safety radio enhancement system equipment and any outside antenna locations."

22.00.06.59

NFPA 72, paragraph 29.8.3.4, add new paragraph (14):

(14) Enclosed rooms with a closet such as dens, libraries, studies, or sitting rooms which could be used as a sleeping area must be treated as bedrooms.

Isiah Leggett, County Executive — June 29, 2016 Date

Approved as to form and legality:

Charles Frederick (CLR) personally approved on 6/10
Office of the County Attorney — 6/23/16 Date