Attachment to Resolution 15-1720

MONTGOMERY COUNTY EXECUTIVE REGULATION

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

Subject Regulations Adopting and Amending Certain Standards of the National Fire Code Regarding Fire Protection Systems	**Number** 6-06AM
Originating Department Montgomery County Fire and Rescue Service	**Effective Date** November 28, 2006

Montgomery County Regulation on:

FIRE SAFETY CODE - FIRE PROTECTION SYSTEMS
Montgomery County Fire and Rescue Service

Issued by: County Executive
Regulation No: 6-06AM

Authority: Code Section 22-13
Supersedes: Executive Regulation 10-97
Council Review: Method 2 under Code Section 2A-15
Register Vol. 23, Issue 8
Effective date: November 28, 2006
Sunset date: None

SUMMARY: This regulation adopts the 2003 edition of the National Fire Protection Association's Uniform Fire Code (NFPA 1) and all associated NFPA codes or standards incorporated by reference to conform to the Maryland State Fire Prevention Code (MSFPC) and is intended to reduce the burden on business owners, developers, and design professionals of working from multiple code editions. The changes do not retroactively apply to buildings permitted and approved before the date of adoption of this regulation.

Unless otherwise enumerated below, changes to this regulation reflect reorganization changes made by the National Fire Protection Association to the model codes previously adopted under Section 22-13 of the Montgomery County Fire Safety Code. In all cases below, the Fire Chief has determined that an inimical hazard exists requiring regulations that exceed the minimum requirements of the MSFPC (*see Public Safety Article Section 6-206 establishing the State Fire Prevention Code as minimum requirements and authorizing local jurisdictions to adopt more stringent requirements).*

Revised 4/96

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Sec. 3 provides a more inclusive definition of fire protection system than chapter 22 to cover systems not envisioned at the time of original passage. This section also establishes and implements requirements for fire protection system operating permits; Sec. 4 extends the licensing requirements of the State and existing Montgomery County Fire Code from sprinkler contractors and persons maintaining portable fire extinguishers to all persons and companies conducting installation, service, repair or modification of any fire protection system as defined in this proposed regulation; Sec. 17 establishes and implements a new, more stringent requirement for the number of sprinkler heads installed under a non-flat ceiling to ensure adequate fire flow ; Sec. 20 through Sec. 27, and Sec. 31 establish and implement new, more stringent requirements for sprinkler systems installed in one and two-family homes; Sec. 33 establishes and implements a new, more stringent requirement specifying the location of fire department sprinkler connections; Sec. 42 through Sec. 44 establish and implement new, more stringent requirements for the installation of eccentric reducers and relief valves on fire protection systems; and Sec. 52 through Sec. 56 establish and implement new, more stringent requirements for fire alarm systems.

ADDRESSES: Division Chief Michael Love, Fire Marshal, Montgomery County Fire and Rescue Service, Executive Office Building, 101 Monroe Street, Rockville, Maryland 20850

STAFF: For further information, contact Battalion Chief Michael Donahue, Office of Fire Code Enforcement, Montgomery County Fire and Rescue Service, 240-777-2470.

MONTGOMERY COUNTY EXECUTIVE REGULATION

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

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Sec. 1 In accordance with the procedures authorized in Chapter 22, "Fire Safety Code", of the Montgomery County Code, 1996, this Executive Regulation applies to the design, installation, 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 "Fire Chief" means the Fire Chief of the Montgomery County Fire and Rescue Service and includes the Fire Chief's designees.

Sec. 2 All references to the National Fire Codes and standards adopted in these regulations 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 2003 edition of National Fire Protection Association's Uniform Fire Code (NFPA 1) and are adopted in their entirety.

The Fire Chief must review these regulations and propose amendments within six months after the date the State Fire Prevention Commission adopts new amendments to NFPA 1 and NFPA 101 into the State Fire Prevention Code.

Sec. 3 Fire Protection System Permit. A permit must be obtained from the Fire Chief to operate any fire protection system in any building or other structure, except one and two family dwellings.

(a) Fire protection system means any fire alarm device or system, or suppression device or system, which is designed and installed to:

1. detect, control, or extinguish a fire;

2. alert occupants or the fire department, or both, that a fire has occurred; or

3. be used by fire and rescue personnel on scene to aid in suppressing a fire.

(b) Fire protection systems must be inspected and approved at time of installation and annually thereafter. The Fire Chief must issue a permit upon approval of the system.

(c) A fire protection systems permit must be obtained prior to installation of any kitchen cooking equipment suppression system.

Sec. 4 Fire Protection System License. A contractor or person responsible for the installation, modification, service, or third-party inspection of any fire protection system or any portion thereof in Montgomery County, must obtain and carry on their person a license from the Fire Chief subject to the following criteria:

(a) Qualifications required.
  (1) Residential license (13D and 13R sprinkler systems): National Institute for Certification of Engineering Technologies (NICET) Level II Certification, Registered Professional Engineer Certification, or other nationally recognized certification as approved by the Fire Chief.

  (2) General license (all other fire protection systems): National Institute for Certification of Engineering Technologies (NICET) Level III Certification, Registered Professional Engineer Certification, or other nationally recognized certification as approved by the Fire Chief.

(b) When required by the system manufacturer for systems other than sprinkler systems, proof of training for installing or maintaining particular system types.
(c) Proof of financial stability.
(d) Demonstrated competency in Montgomery County requirements.
(e) Licenses will be subject to annual renewal.
(f) The Fire Chief may rescind these licenses for cause.

Sec. 5 Maintenance of Residential Sprinkler Systems. All leases must have the following provision: "Sprinkler System. In units equipped with fire sprinkler systems, no portion of the system may be changed or altered except by a licensed, certified sprinkler installer. Sprinkler heads must not be painted, covered, obstructed or any item hung from them. Prior to any alteration of the sprinkler system or any changes, additions, or removal of partitions, or walls, plans must be submitted to the Department of Permitting Services".

Sec. 6 Smoke Control System shop drawing submittals 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

MONTGOMERY COUNTY EXECUTIVE REGULATION

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Sec. 7 NFPA 12A, add: Halon systems shall not be installed as required protection in accordance with state and/or local building or fire codes due to the environmental impact of discharge testing, the lack of adequate alternative test methods, and availability of alternative agents such as carbon dioxide.

Sec. 8 NFPA 13, paragraph 8.1.1, add new paragraph (7) as follows:

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

Sec. 9 NFPA 13, paragraph 8.4.5.1, add: Listed residential sprinkler heads must be used in dwelling units except Detention and Correctional occupancies.

Sec. 10 NFPA 13, paragraph 8.14.7.5, add: Sprinklers are not required under noncombustible or limited exterior canopies over drive up windows. Any canopy with the potential for extended vehicle standing or parking below shall have sprinkler protection on the underside of the canopy.

Sec. 11 NFPA 13, paragraph 8.14.10.3 (protection of electrical equipment rooms) is deleted.

Sec. 12 NFPA 13, paragraph 8.14.19.1 is amended as follows: In new installations expected to supply sprinklers below a ceiling and in any speculative areas subject to tenant changes, minimum one inch sprinkler outlets must be provided.

Sec. 13 NFPA 13, paragraph 8.14.19.2 is amended as follows: after the word "bushings" delete everything and replace with "for hydrostatic testing only, and must be removed prior to the occupancy of the space."

Sec. 14 NFPA 13, paragraphs 8.15.1.1.1 and 8.16.1.1, 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 local 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.

MONTGOMERY COUNTY EXECUTIVE REGULATION

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Sec. 15 NFPA 13, paragraph 8.16.2, add the following requirements for fire department connections:

(a) Must be located within 100 feet from a free standing (not wall type) 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 above	4

(c) Multiple connections for the same building shall be interconnected.
(d) When a section of a building is fed by a connection (i.e., partial systems), permanent all weather identification signs shall 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.

Sec. 16 NFPA 13, paragraph 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) Laboratory use: ordinary group 2 for class A, B, or C labs.
(d) 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, 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%.

Sec. 17 NFPA 13, paragraph 11.2.3.5.1, add: The number of design sprinklers shall be at least 5 under ceilings which are not flat, smooth and level unless specifically listed for a four sprinkler design area.

MONTGOMERY COUNTY EXECUTIVE REGULATION

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

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Sec. 18 NFPA 13, paragraph 15.1.2, add: Pressure and flow availability as determined by a public utility shall be used for new taps. Pressure and flow availability for existing taps shall be determined by an interior flow test. In any case, the supply information shall be corrected for the low hydraulic gradient. Booster pumps and pump/tank supplies shall only be used where it is demonstrated that the public water supply is inadequate.

Sec. 19 NFPA 13D, paragraph 1.1, add: This standard also applies to Day care homes containing 12 clients or less if located within converted one and two family dwellings or townhouses.

Sec. 20 NFPA 13D add new paragraph:

5.1.4 Where a dedicated sprinkler booster pump is provided the following conditions must be met:

(1) Pumps shall not sit directly on the floor.
(2) Pumps shall be powered from the house electrical service by a nominal 220-240 circuit as required by Montgomery County Electrical Code.
(3) Power at the pump shall be supervised passively by motor disconnect within sight that also controls a lighting circuit for other than a stair or pump room.
(4) Sprinkler system shall be connected to a bathroom toilet to create a passive purge system.
(5) Pump shall be connected to a time delay relay (run timer).

Sec. 21 NFPA 13D, paragraph 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 only be used where it is demonstrated that the public water supply is inadequate as determined by the director of the Department of Permitting Services.

Sec. 22 NFPA 13D, paragraph 6.2: Add section (5) Well pumps

(5) A well pump shall have sufficient capacity and pressure to meet the sprinkler system demand. The stored water capacity of sections 6.1.2 and 6.1.3 shall be permitted to be a combination of the water in the well (including the refill rate) plus the water in the holding tank if such tank can supply the sprinkler system.

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Sec. 23 NFPA 13D, add new paragraph:

6.2.1 Where a water storage tank(s) is provided the following conditions shall be met:

(1) Tank shall be provided with an automatic filling valve (float valve or equivalent).
(2) A method of seeing the water level in the tank shall be provided without having to open the tank.

Sec. 24 NFPA 13D, paragraph 6.2 (4), add new sentence: "A valve must be provided for routine testing of the pump."

Sec. 25 NFPA 13D, 7.1.2, delete "the" in the beginning and add "fed by a tank" after piping.

Sec. 26 NFPA 13D, section 7.5.5.1, add: Where possible to maintain listed coverage, sprinkler heads shall be positioned so as to eliminate the need to install sprinkler heads of a higher temperature rating.

Sec. 27 NFPA 13D, paragraph 7.5.5, add new paragraph 7.5.5.4:

7.5.5.4 Dry type sprinklers shall be used in areas which are not heated to at least 40 degrees F.

Sec. 28 NFPA 13D, paragraph 8.1.2, add: The number of design sprinklers shall be at least three under ceilings which are not flat, smooth, and level, unless specifically listed with a two sprinkler design area.

Sec. 29 NFPA 13D, paragraph 8.2.4 is amended as follows:
Obstructions:

(a) Sprinklers shall be positioned so that response time and discharge are not adversely affected by features such as sloped ceilings, beams, lights, and fan motors.
(b) Unprotected bulkheads or soffits behind the spray of sidewall sprinklers shall not exceed 8 inches in width.
(c) Sprinkler heads in closets shall not be located directly above shelves.

Sec. 30 NFPA 13D, paragraph 8.4, add: All calculations shall include at least a 10% safety factor to account for minor field changes, unless a booster pump is necessary to obtain this safety factor.

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Sec. 31 NFPA 13D, paragraph 8.6.4, add the following after garages: "...unless located partially or wholly beneath living space."

Sec. 32 NFPA 13R, paragraph 6.5.3, add: Pressure and volume availability as determined by a public utility shall be used and shall be adjusted to the low hydraulic gradient. Booster pumps and pump/tank supplies may only be used where it is demonstrated that the public water supply is inadequate.

Sec. 33 NFPA 13R, paragraph 6.6.4.1 is replaced to read: In all apartment buildings, a single 2 1/2 in. fire department connection with a feed line sized at least as large as the main system riser shall be provided when the system has 20 or more sprinklers. The fire department connection shall be located on a street front and be 18 to 48 inches from the centerline of the inlet to finish grade. Paragraph 6.6.4.2 is deleted.

Sec. 34 NFPA 13R, paragraph 6.7.1.2, add: The number of design sprinklers shall be at least five under ceilings which are not flat, smooth and level unless specifically listed with a four sprinkler design area.

Sec. 35 NFPA 13R, paragraph 6.7.1.5.3 is amended as follows:
Obstructions:

(a) Sprinklers shall be positioned so that response time and discharge are not adversely affected by features such as sloped ceilings, beams, lights, and fan motors.
(b) Unprotected bulkheads or soffits behind the spray of side wall sprinklers shall not exceed 8 inches in width.
(c) Sprinkler heads in closets shall not be located directly above shelves.

Sec. 36 NFPA 13R, paragraph 6.7.4, 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.

Sec. 37 NFPA 14, paragraph 4.7.2 is amended as follows: Each fire hose valve shall be provided with 2 1/2 in. valved hose connections, 2 1/2 in. to 1 1/2 in. reducers, caps, and chains.

Sec. 38 NFPA 14, paragraph 5.1.2, add:

(1) Systems shall be automatic wet type.
(2) Standpipe systems in unheated areas shall 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 shall be Class I only.

Sec. 39 NFPA 14, paragraph 6.3 (Fire Department Connections), add:

(1) Shall be located within 100 feet from a free standing (not wall type) hydrant.
(2) Number of 2 1/2 in. inlets:

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

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

Sec. 40 NFPA 14, paragraph 7.3.2.3, add:

(1) Measurement shall be parallel or at right angles to walls.
(2) Supplemental hose valves outside the stairs shall 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 shall be marked by the placement of signs, the striping of columns, or other approved methods.

Sec. 41 NFPA 14, paragraph 7.8.1.1, 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.

Sec. 42 NFPA 20, paragraph 5.14.6.4, add a new sentence: Eccentric reducers must be installed with the flat side on the bottom when fed directly from above.

Sec. 43 NFPA 20, paragraph 5.18.1.2, add: A relief valve may be installed to reduce operating pressure below 175 psi at high gradient.

Sec. 44 NFPA 20, paragraph 5.18.7 is amended entirely to state: Relief valves shall not be piped back into the source of the supply.

Sec. 45 NFPA 72, paragraph 4.4.6.1, add the following sentence: An annunciator with the following features is required when the building is greater than one story, over 20,000 square feet in area per floor, 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 shall 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 Fire Chief.
(b) Zones shall not exceed a single floor, 20,000 square feet, or 300 linear feet. Sprinkler systems may be zoned in accordance with the applicable sprinkler standard.
(c) If two or more zones per floor are required, a graphic outline on or adjacent to the annunciator shall be provided showing the building outline, zone boundaries, "you are here" notation, north compass arrow, all stairways, stairway identification numbers, all standpipe risers, elevators, and the building address.
(d) A lamp type annunciator shall have a lamp test switch unless the annunciator circuits are supervised.
(e) The annunciator shall be located at, and visible from, the main fire department entrance.
(f) If two or more buildings are controlled by one alarm system, an annunciator shall be installed in each building with a pilot lamp indicating the building of alarm origination.

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Sec. 46 NFPA 72, add new paragraph 5.7.3.2.5:

5.7.3.2.5 Detectors which activate required extinguishing systems on a cross-zoned or multiple-zone basis shall be spaced at a maximum of one-half of their allowed or listed square footage spacing.

Sec. 47 NFPA 72, paragraph 5.7.4.2.2, 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 trouble. If 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 to minimize unwanted alarms.

Sec. 48 NFPA 72, paragraph 5.7.1.7 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 to minimize unwanted alarms. The location must be identified at the annunciator or fire alarm control panel.

Sec. 49 NFPA 72, paragraph 5.10.2, add: Standpipe or main water flow indicators, if provided, must sound a supervisory signal only.

Sec. 50 NFPA 72, the second sentence under paragraph 5.12.4 is changed to read: "The center of each station must be between 42 and 48 inches above the floor level." Also, this paragraph shall be amended by the addition of the following: Approved "911" instruction signs shall be permanently affixed and maintained at each manual fire alarm station, unless the fire alarm is monitored by a UL listed central station.

Sec. 51 NFPA 72, paragraph 6.9.9.14 is amended as follows: At least six handsets shall be provided in the fire control room.

Sec. 52 NFPA 72, paragraphs 11.5.1.1, 11.5.2.1, and 11.5.4.1: delete the exception for each section.

Sec. 53 NFPA 72, paragraph 11.5.6.1 (4) is deleted.

Sec. 54 NFPA 72, paragraph 11.5.8.1 (2), delete the exception.

Sec. 55 NFPA 72, paragraph 11.5.12.1 (2), delete the exception.

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Sec. 56 NFPA 72, paragraph 11.8.3.5, add new paragraphs (10) and (11):

(10) Separate entrances to sleeping rooms shall be protected separately unless the door leads only to a bathroom or clothes/linen closet.

(11) Enclosed rooms such as dens, libraries, studies, or sitting rooms which could be used as a temporary sleeping area shall be treated as bedrooms.

Approved,

Douglas M. Duncan
County Executive

APPROVED AS TO FORM AND LEGALITY.
Montgomery County Attorney's Office
By:

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