



# CITY OF CHESAPEAKE

## PUBLIC FACILITIES MANUAL – CHAPTER 13 FIRE PROTECTION

Chesapeake Fire Department  
Fire Prevention Division  
Office of the Fire Marshal  
304 Albemarle Drive  
Chesapeake, Virginia 23322  
(757)382-6566 phone  
(757)382-8313 fax

### I. INTRODUCTION

- A. The Fire Department Objective - As a participant in the developmental plan review process the objective is to prevent or minimize an emergency incident through proper application of code requirements which provide optimal mitigation capabilities through utilization of fire protection systems, equipment and resources to ensure maximum life safety and property protection. The Fire Prevention Division is focused on ensuring that the following broad categories are adequately addressed during this process:
1. Emergency Access – Emergency access includes efficient and timely ingress/egress to and within the facility site or structure(s) for occupant and emergency personnel safety which is a critical component necessary to conduct effective firefighting and other emergency operations utilizing a combination of resources that include mobile apparatus (fire engines, ladder trucks, and ambulances), emergency personnel and other portable and support equipment.
  2. Water Supplies for Firefighting – Adequate supply of water (volume & pressure) for manual firefighting operations and/or automatic fire protection systems via properly sized public or private water mains supplying fire hydrants at required distances, and may include elevated tanks or approved alternate water supplies when municipal supply is not available or sufficient to meet fire-flow requirements of the facility or structure (s) to be protected.
  3. Fire Protection Systems – Fire protection systems that are required by code or otherwise installed such as fire sprinklers, standpipe systems, fire alarms and detection systems, commercial cooking suppression systems, spray paint booth suppression systems, ventilation systems and similar fire protection equipment.
  4. Hazardous Processes / Target Hazards – Special requirements, permits, or need for additional equipment and or systems created due to a hazardous process or “target hazard” occurring in, or outside of a structure(s) or facility, which has potential to adversely affect the occupants, responding emergency personnel, or the community; requires a [Fire Code Operational Permit](#) in accordance with the SFPC and Chesapeake Local Amendments for fire and life safety compliance. This permit is issued by the Fire Dept. upon routine inspection or during the field inspection for certificate of occupancy.
- B. Plan Review - Site, Subdivision or Fire Protection Plans submitted for review/approval shall meet the minimum requirements of applicable Uniformed Statewide Building and Fire Prevention Codes including referenced standards, and the Chesapeake Public Facilities Manual (PFM). Fire Code modification requests shall be submitted in writing to the Fire Code Official, and may be potentially granted in accordance with the Fire Code Modification Policy upon review and written approval.
- C. Regulations Consisting of Applicable Codes, Referenced Standards and Public Facilities Manual References –
- **Public Facilities Manual (PFM)** - The intent of the PFM is to specify requirements and direction where the codes and standards provide authority to Chesapeake as the local authority having jurisdiction to determine specific or enhanced requirements for certain construction and fire protection applications. Therefore, in regard to *Chapter 13 of the PFM - Fire Protection and associated appendix sections*, only these specific or enhanced criteria unique

to Chesapeake are identified in this document. Click on the following link for a comprehensive listing of the [City of Chesapeake PFM](#) including Fire Protection related requirements. [The VA Statewide Fire Prevention Code \(SFPC\)](#) and referenced standards, Chesapeake local amendments and the PFM make up the comprehensive “fire protection requirements for Chesapeake”.

**Utilize the following links to view other components of the fire protection requirements for Chesapeake:**

- **The International Code Council (ICC)** - Produces a series of codes including the Fire and Building Codes and referenced standards that are commonly referred to as the “I”- Codes. New versions are periodically adopted and amended by the Commonwealth of Virginia of which the current version is the 2015 edition. Click the following link <https://codes.iccsafe.org/public/collections/VA> for a comprehensive list that provides free, read-only access of which each code includes the VA amendments. These references can be purchased in various formats by contacting the ICC Store at 800-786-4452, or online at [www.iccsafe.org](http://www.iccsafe.org).

*Note: ICC Commentary publications of individual codes and particular sections are a resource which is recommended and utilized to assist the Fire Code Official with a broader understanding, clarification and interpretation of the intent of the requirement toward proper application of the code. The commentary publications are not offered as free, read-only access and require purchase.*

- **Virginia amendments to the Building and Fire Codes** – Stand-alone Virginia amendments to these and other codes can be obtained or viewed on-line at the VA Dept. of Housing and Community Development (DHCD) web sites at the following link. <https://www.dhcd.virginia.gov/building-and-fire-regulations-archives>
- **Chesapeake Local Amendments to the Fire Code** – Chesapeake local amendments may be obtained online at the City of Chesapeake web-site at: [Chesapeake Local SFPC Amendments](#)
- **Referenced Standards** - Referenced Standards as listed in each specific I-Code are recognized industry standards such as National Fire Protection Association (NFPA), Underwriters Laboratory (UL), American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM), US Department of Transportation (DOTn), and American Petroleum Institute (API), to name a few. For a listing in Chapter 80 of the Fire Code click the following link <https://codes.iccsafe.org/content/document/1360/14588666>.
- **National Fire Protection Association (NFPA)** – NFPA as a leader in the industry produces numerous fire and life safety standards which are referenced in the various I-Codes. These standards can also be viewed as free, read-only access by creating a profile to include a user name and password at <https://www.nfpa.org/Codes-and-Standards/All-Codes-and-Standards/Free-access>, or purchased in various formats at <https://www.nfpa.org/> or by contacting 800-344-3555.

## II. OCCUPANCY USE GROUP

A. The primary basis for life safety and property protection requirements as set forth in this document and at the core of all plan reviews conducted by the Fire Department are driven by the type of occupancy or “Use Group” of a structure(s) as listed below, or portions thereof, as defined by the Virginia Building and Fire Codes. However, other factors such as the processes occurring inside or outside of structures within the site, structural components including height, type of construction and fire protection systems and appurtenances affect site layout and design. Click link for detailed description: <https://codes.iccsafe.org/content/document/1346/14175435>.

- |   |   |
|---|---|
| 1. Assembly: Groups A-1, A-2, A-3, A-4 and A-5. | 6. Institutional: Groups I-1, I-2, I-3 and I-4    |
| 2. Business: Group B                            | 7. Mercantile: Group M                            |
| 3. Educational: Group E                         | 8. Residential: Groups R-1, R-2, R-3, R-4 and R-5 |
| 4. Factory and Industrial: Groups F-1 and F-2   | 9. Storage: Groups S-1 and S-2                    |

### III. FIRE SERVICE AND PROTECTION FEATURES

#### A. EMERGENCY ACCESS

For standard code requirements see links to the 2015 [VA Statewide Fire Prevention Code](#), and specifically [Chapter 5 - Fire Service Features](#) and [Appendix D - Fire Apparatus Access Roads](#). In addition, the following shall apply:

**Note:** In regard to **Section (IFC) D103.6.2, Roads more than 26 feet in width**. “Fire apparatus access roads more than 26 feet wide (7925 mm) to 32 feet wide (9754 mm) shall be posted, when directed by the fire code official, on one side of the road as a fire lane.” Generally, since fire apparatus access roads 30 feet or more can usually accommodate on-street parking and still provide adequate emergency access width which coincides with Development and Permits, PFM criteria; this section has been modified and shall not require fire lane posting on either side, however, is subject to individual access evaluation and approval by the fire code official.

1. **Fire Lanes.** Fire lanes required by the Fire Official for emergency access purposes shall be marked in accordance with [PFM, Appendix 19](#). Fire lanes may be required for numerous emergency access scenarios where parking or other obstructions may inhibit emergency access on public or private fire apparatus access roads as defined by the Fire Code, such as streets or alleys within a residential subdivision, drive aisles within a site, access points to a site, locked security gates or other concerns deemed necessary to facilitate ingress and egress for fire apparatus, personnel and equipment for effective and efficient fire and life safety emergency operations.
2. **Water Access.** An all-weather surface providing a minimum 12 foot width, shall be required for emergency access by fire apparatus to all significant bodies of water that present potential water rescue or recovery operations as determined by the Fire Code Official. Significant bodies of water may include BMP retention/detention, lakes, borrow pits, ponds or rivers whether public or private. Click on the following links for details: [PFM Volume I, Chapter 5, Sect 5.6 - Easements, Letter H - Detention Facilities](#) and [PFM, Volume II - Misc. - Lake Access](#).
3. **Security gates, Key boxes or Padlocks.** Where security gates are installed and locked, or where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, an approved means of emergency access in accordance with the SFPC and Appendix D, and the PFM shall be provided and maintained. A specific Chesapeake Fire Department approved key box or padlock shall also be required, obtained by the property owner or agent and installed and maintained in an accessible location, and the gate detail shall meet fire code and city standards as follows:
  - a. The authorized key box vendor approved by the Chesapeake Fire Department is Knox Corporation, and requires either a pre-authorization form from the Chesapeake Fire Department prior to purchase, or can be ordered on-line at [www.knoxbox.com](http://www.knoxbox.com) by selecting “Products/Place Order” and enter the appropriate Chesapeake zip code or “Chesapeake” in the Department field and “Virginia” in the State field then follow the prompts to order or obtain information.
  - b. Key box or padlock access is limited to only Chesapeake Fire Department emergency personnel for emergency access purposes only and not by other jurisdictions. The department-wide Knox key system for Chesapeake is securely locked on each response unit and monitored for access to and replacement of the Knox key whereby each authorized emergency personnel has a unique “pin” for entry and tracking purposes and such emergency access is tied to a specific incident number. Owners of buildings or facilities may at their own expense, incorporate monitoring of the key box so they are notified when the box is opened.

- c. The key box shall contain keys or otherwise appropriate means such as an access control card or entry code to gain access as required by the Fire Code Official. The key box shall be mounted no less than 5 feet and no more than 6 feet above grade, and shall be visibly located as close as possible to the required point of entry without obstruction. Where gates with hasps are provided and Knox padlocks are authorized by the Fire Code Official, they shall readily accommodate Knox padlocks.
- d. At a minimum, key boxes shall be required on all structures where sprinkler systems (including access to sprinkler equipment rooms) and/or fire alarms are required or installed, and where access to fire apparatus access roads leading to front or rear exterior portions of a structure or facility are restricted by gated/fenced and secure compound.
- e. Typical gate detail shall be in accordance with [PFM Vol. II Misc. - EGA-1 Emergency Gate Access](#) and shall be copied and pasted to the site or subdivision plan. Gate variations shall be submitted and approved by the fire code official.

## **B. WATER SUPPLIES FOR FIREFIGHTING**

For standard code requirements see links to the 2015 [VA Statewide Fire Prevention Code](#), and specifically [Chapter 5 - Fire Service Features](#) and [Appendix B - Fire-flow for Buildings](#). In addition, the following shall apply:

1. **Type of water supply.** A municipal water supply is the required water supply if it is available. The water supply shall consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required water demand for fire protection in accordance with [PFM Appendix 18-A](#). A good water supply consists of an adequate source of water, a distribution system, and proper pressure for delivery. If the water source is deemed not reliable by the fire code official, it will not be considered as an acceptable water supply. Water data calculations must be provided to substantiate the volume, pressure and duration of flow requirements for the water source considered.
  
2. **Private fire service mains.** Private fire service mains and appurtenances shall be installed in accordance with NFPA 24 and maintained in accordance with NFPA 25 and the SFPC. Appurtenances such as fire dept. connections (FDC), fire hydrants and post indicator valves (PIV) shall be located remotely (no wall mounts) at least 40 feet off a building and out of the potential collapse (hazard) zone of any structure for emergency personnel safety. PIV's are required by the fire code official that serve to provide above ground notification to responding emergency personnel that water service is operational to fire suppression systems serving a particular facility or structure. These valves are required to be locked in the open position, and to be monitored for tamper in accordance with Section 903.4 of the SFPC. PIV's should be placed up stream of the FDC and should never control the flow of water through the FDC intended to directly augment the sprinkler system supply by the fire department pumper.
 

**Exception:** When the 40 ft. distance required for the PIV is not feasible as determined by the Fire Code Official, the PIV may be permitted to be closer than 40 ft. to the structure at the discretion of the Fire Code Official when the PIV is both electronically supervised by the fire alarm system via a tamper switch and locked in the open position.
  
3. **Fire-flow.** Fire-flow requirements, which are synonymous with "water demand for fire protection", for buildings or portions of buildings and facilities shall be determined by an approved method. Fire-flow demand shall be provided in accordance with [PFM Appendix 18-A](#) which utilizes (IFC) Appendix B as adopted by Chesapeake. The fire protection water demand worksheet must be completed and submitted for approval for each project. See NFPA 13, 13-R or 13-D for automatic fire suppression system hydraulic calculations.
  - a. **Water supply flow test.** Water supply flow tests shall be obtained and documentation provided prior to final approval and acceptance of the water supply system by the Fire Department. Acceptable available water supply

shall be deemed to mean “current flow data” within the past 6 (six) months of the date of project submittal to include documentation as provided by the City of Chesapeake Department of Utilities (757-382-6352) for public mains, and certified third party flow testing and documentation for private mains. When making requests for water flow data, it shall be the responsibility of the site engineer or fire protection engineer to request current flows as defined here to reflect present water flow conditions to ensure the reliability and functionality of fire hydrants and fire protection systems.

4. **Fire hydrant systems.** There are two criteria for fire hydrant locations that apply. The first pertains to distance from a hydrant to the most remote part of a structure to be protected. The second pertains to the number of hydrants required and the spacing from one hydrant to the next located along a fire apparatus access road based on the fire-flow of a structure(s) which is addressed in [Appendix C](#) of the IFC as adopted by Chesapeake, utilizing table C102.1.

- a. Where required. Where a portion of the facility or building hereafter constructed is more than 400 feet (122 m) from a hydrant on a fire apparatus access road, as measured by an approved route capable of supporting firefighting apparatus without obstructions around the exterior of the facility or building, additional public or on-site private fire hydrants and mains shall be provided where required by the fire code official. A fire hydrant shall be required to be located within 50 feet of all FDC’s and on the same side of the fire apparatus access road so that when hose connections are made the road is not blocked from other emergency apparatus travel and operations. Firefighters shall not have to hand lay more than 400 feet (122 m) of hose to reach all portions of the exterior grade level of the building. Each hydrant must be accessible to fire apparatus and shall face the proper direction towards the fire apparatus access road where apparatus must position to facilitate ease of connection. The 400-foot (122 m) distance must be measured from the hydrant(s) to all portions of the exterior at ground level. Fire hydrant distances are measured from where the fire apparatus must position and make hose connections and hose lays along an unobstructed route to the furthest portion of a structure(s).

Exceptions:

- 1. For Group R-3, R-5 and Group U occupancies, the distance requirement shall be 600 feet (183 m).
- 2. For buildings equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the SFPC, the distance requirement shall be 600 feet (183 m).
- b. This requirement is not intended to prevent the development of rural areas when municipal fire hydrants are not available as long as the fire code official has approved an alternate water supply in accordance with [PFM Appendix 18-E](#) and NFPA 1142, as referenced. An example of an alternate water supply could be a dry hydrant via a “drafting basin” as referenced in PFM, Appendix 18-E drawing water supply from a water source deemed reliable by the fire code official utilizing calculations provided by the site or fire protection engineer, such as but not limited to, a retention pond, river or lake, storage tanks of sufficient volume, or other such system(s) that is approved by the fire code official. Standard dry fire hydrants as referenced in NFPA 1142 in non-municipal water service areas of the city have been found to be problematic and discouraged in lieu of water shuttling operations in combination with potential monitored fire detection or other compensating fire protection systems and/or water supply options as specifically approved by the fire code official upon evaluation of proposed residential and commercial subdivisions and sites.
- c. **Private Fire Hydrants** - Private fire hydrants must be designed to provide the minimum fire-flow demand as determined in accordance with [PFM Appendix 18-A](#). New and existing private fire hydrants must be inspected, maintained and flow-tested annually in accordance with NFPA 25 and NFPA 291 utilizing [PFM Appendix 18-C](#) documentation to be submitted to the fire code official. New private fire hydrant installations must also be flow-tested as part of acceptance approval and are also required to be identified as such by painting the barrel Rust-Oleum brand Regal Red #7765 (Chesapeake public fire hydrant barrels are painted chrome silver). The bonnets of both public and private fire hydrants shall also be painted the appropriate color in accordance with NFPA 291 representing GPM flow per [PFM Appendix 18-B](#) using specific Rust-Oleum brand colors.

|                 |                   |                   |
|-----------------|-------------------|-------------------|
| <b>Class C</b>  | Less than 500 GPM | <b>Red</b>        |
| <b>Class B</b>  | 500-999 GPM       | <b>Orange</b>     |
| <b>Class A</b>  | 1000-1499 GPM     | <b>Green</b>      |
| <b>Class AA</b> | 1500 GPM & above  | <b>Light Blue</b> |

## **C. FIRE PROTECTION SYSTEMS**

For standard code requirements see links to the 2015 [VA Statewide Fire Prevention Code](#), and specifically [Chapter 9 - Fire Protection Systems](#). In addition, the following shall apply:

1. **General** – The installation, inspection, testing, operation and maintenance of all fire protection systems shall be in accordance with the [VA Statewide Fire Prevention Code, Chapter 9](#) (SFPC) including referenced standards.
  - a. **Construction documents.** The building and fire code officials shall require construction documents and calculations for all fire protection and hazardous materials dispensing or storage systems (hazmat system) and to require permits be issued prior to the installation, rehabilitation or modification of any fire protection system, including all fire main piping and appurtenances from the private side of the water meter throughout the private site regarding fire protection or for any hazmat system. One set of complete and legible plans shall be submitted by uploading to Accela (eBuild) per the on-line permit process below or delivered directly to Fire Prevention if by paper per below, by a properly licensed contractor (holding current licenses in VA and Chesapeake) for review and approval that shall include pertinent calculations, manufacturer “cut sheets”, drawings and a completed [Fire Permit Application](#). A Fire Department plan review fee will be charged in accordance with the following schedule. [Fire Protection Plan Review Fee](#)

For faster and more efficient submittal, review and approval completed review packages should be submitted on-line using the following informational link: [On-line permit process](#). However, completed review packages can still be submitted directly to Fire Prevention at 304 Albemarle Drive, Chesapeake, VA 23322, tel. 757-382-6566, fax. 757-382-8313.

**Plan Review Time Table:**

|   |                                |
|---|--------------------------------|
| New fire alarm or sprinkler systems   | 30 days from date of submittal |
| Alteration/addition to existing sprinkler/alarm systems & all other types of system reviews | 14 days from date of submittal |

Upon approval of the plans by Fire Prevention, the Fire permit can be obtained from the Department of Development and Permits at which time a permit fee is collected. Upon completion of the system installation and with 2 business days advanced notification to 757-382-CITY or requesting an inspection on-line via the following link [Request an Inspection](#), system inspection/testing will be conducted by a Fire Inspector for final system acceptance/approval.

- b. **Installation acceptance testing.** Fire detection and alarm systems, fire-extinguishing systems, fire hydrant systems, fire standpipe systems, fire pump systems, private fire service main and all other fire protection systems and appurtenances thereto, and hazmat systems shall be subject to acceptance tests as contained in the installation standards and as approved by the fire code official. The fire code official shall be notified before any required acceptance testing.

**Occupancy.** It shall be unlawful to occupy any portion of a building or structure until the required fire detection, alarm, suppression or other fire protection systems have been inspected, tested and approved by the fire code official. Limited, partial occupancy for the purpose of fixtures or other non-combustible items involving minimal property protection or life-safety concerns may potentially be granted under certain conditions and are subject to approval by the building code official. Final certificate of occupancy is issued by the building code official.

**Statement of compliance.** Before receiving final approval of the fire protection system or hazmat system installation, the installing contractor shall furnish a written statement to the fire code official that the subject fire protection system has been installed in accordance with approved plans and has been tested in accordance with the manufacturer’s specifications and the appropriate installation standard. Any deviations from the design standards

shall be noted and copies of the approvals for such deviations shall be attached to the written statement. Before any acceptance test will be witnessed, approved or accepted by the fire code official the installing contractor must furnish all applicable test certificates as follows:

- **Sprinkler or Standpipe Systems** - A “Contractors Material and Test Certificate for Underground Piping” as contained in NFPA 13 or NFPA 14, as applicable, is required before acceptance testing is conducted or approved for any fire-extinguishing and/or standpipe system. Sprinkler or Standpipe Systems - A “Contractors Material and Test Certificate for Underground or Aboveground Piping” as contained in NFPA 13, NFPA 24 or NFPA 14, as applicable, is required before acceptance testing is conducted or approved for any fire-suppression/extinguishing and/or standpipe system. The underground certificate must include all fire main piping from the private side of the water meter and include all fire main piping located on the premises.
- **Fire Alarm and Fire Detection Systems** – “A Record of Completion” and “Certification of Owner/Operator Training in System Operation” as contained in NFPA 72 are required before acceptance testing is conducted or approved for any fire alarm or fire detection system.
- **Private fire hydrants** - Require a private contractor certification of functionality and compliance including a flow test in accordance with [PFM Appendix XVIII-C](#) to verify minimum required gpm flow, and must be color coded (painted) in accordance with [PFM Appendix XVIII-B](#).

## 2. Automatic Sprinkler Systems

- a. **Where required.** Where a sprinkler system is required or otherwise installed in accordance with the SFPC, including pertinent items related to standpipe systems, the following criteria shall also apply:
- 1) Post indicator valve (PIV), fire department connection (FDC) and fire hydrant serving the FDC are all required and shall be located by Fire Dept. SOP for response standardization on the street side (front plane) of the structure, and must be located a minimum of 40 feet off the structure to be out of the potential collapse or hazard zone for emergency personnel safety – no wall mounts are permitted.  
**Exceptions:**
    - a). Limited area systems with 20 or fewer sprinkler heads do not require these appurtenances provided hydraulic design calculations are met by available water supply and approved by the fire code official.
    - b). When the 40 ft. distance required for the PIV is not feasible as determined by the Fire Code Official, the PIV may be permitted to be closer than 40 ft. to the structure at the discretion of the Fire Code Official when the PIV is both electronically supervised by the fire alarm system via a tamper switch and locked in the open position.
  - 2) A fire hydrant shall be located within 50 feet of the FDC to augment sprinkler system supply by fire apparatus. A secondary fire hydrant shall also be required within 600 ft. of the furthest portion of the structure(s) as measured by the route fire apparatus must travel while laying fire hose for manual firefighting operations.
  - 3) The intent of the PIV is to only control the direct water supply to the sprinkler system and not any downstream FDC’s or fire hydrant(s). PIV to be locked in open position and be monitored for tamper in accordance with SFPC Section 903.4.
  - 4) FDC shall not be controlled by a PIV or any other valves in accordance with NFPA 24 to allow direct augmentation of the sprinkler system by the fire department pumper. Likewise, a PIV shall not be placed upstream of any fire hydrant that if shut off would also shut off the water flow to fire hydrants necessary for manual firefighting operations including FDC supply. The FDC should contain a one way check valve to ensure flow only in the direction of the fire suppression or standpipe system, and should contain a drip valve to prevent freezing. Hose connection threads shall be protected by listed caps provided with a chain attaching the cap(s) to the FDC to prevent loss. See [PFM, Appendix 18-G](#) for FDC details specific to Chesapeake required to copy to site plan as well as [SFPC, Chapter 9, Section 912](#) for further FDC requirements.
  - 5) With respect to fire hydrants, driveways, buildings and landscaping, FDC’s shall be located so that fire apparatus and hose connected to supply the system will not obstruct emergency access via the drive aisles or to buildings for passage or use by other fire apparatus. Therefore, the FDC and service fire hydrant shall be located on the same side of fire apparatus access road and such locations shall be approved by the fire code

official. Fire department connections shall face the proper direction towards the fire apparatus access road where apparatus must position to facilitate ease of hose connection, be fully visible and recognizable from the street or nearest point of fire department vehicle access or as otherwise approved by the fire code official. The centerline of the hose connection(s) shall not be less than 18 inches or more than 48 inches high measured from grade in accordance with NFPA 24.

- 6) Both the FDC and the fire hydrant required to augment the sprinkler system through the FDC shall not be located more than 50 feet from a fire apparatus access road.
- 7) The sprinkler system shall be monitored for tamper and flow and provide alarms in accordance with SFPC Section 903.4 (see section for exceptions).
- 8) Piping serving underground fire mains and appurtenances including FDC's shall be of proper size and type in accordance with NFPA 24 and 13.
- 9) Water demand calculations shall be provided to ensure the minimum water demand for fire protection can be met in accordance with PFM, Appendix 18-A and the SFPC.
- 10) To avoid any potential confusion by responding emergency personnel, proper signage is required to identify each FDC and PIV as to what system or structure is being supplied or sprinkler water supply is being controlled, as well as for any areas or rooms containing sprinkler system risers, fire pumps, fire alarms, or other pertinent fire protection equipment. (See [SFPC Sections 505, 509 and 912.5](#) for further details).

- b. **Standard Fire Protection Notes.** Where a fire main is installed to serve a sprinkler system and appurtenances to include private fire hydrants, FDC's and PIV's, the following standard fire protection notes must be copied and pasted to the site plan to ensure compliance during site construction and system installation which helps to ensure that standard requirements often missed are addressed during the field fire inspection to assist with a timely certificate of occupancy as well as future routine fire inspections.

#### **STANDARD FIRE PROTECTION NOTES:**

1. Approved signage is required for sprinkler room door in accordance with the VA Statewide Fire Prevention Code (SFPC) Section 509 and the Public Facilities Manual (PFM) to identify sprinkler equipment to emergency personnel.
2. The Fire Department Connection (FDC) riser (excluding connections) and the Post Indicator Valve (PIV) must both be painted red. Both the FDC and the PIV must have durable signs affixed per the SFPC, Section 912 and the PFM indicating the location being served, to assist emergency personnel. Private fire hydrants must be color coded and flow tested in accordance with PFM, Appendices 18 B & C.
3. A Fire Department approved lock box is required, in accordance with the Fire Code, Section 506 and the PFM, for emergency access to the sprinkler room and to the main building entrance in accordance with the PFM, to include access via any secured gates on the site which otherwise restrict emergency access to portions of the building. See Fire Department SOP 2.3.9 - Knox Box Security & Use.
4. An approved fire alarm system is required to monitor the sprinkler system flow and tamper valves in accordance with the Fire Code, Section 903.4 to include monitoring of the PIV and RPZ valves by a tamper switch via connection by fire alarm wire/conduit to the alarm system. The PIV must also be locked in the open position.
5. See FDC detail on detail sheet for proper installation requirements in accordance with PFM, Appendix 18G.
6. Approval of this site plan does not constitute approval of required applicable "Fire Permits" for installation of fire protection systems, including private fire mains, private fire hydrants, fire department connections and post indicator valves, and/or hazardous materials storage or dispensing systems. The installing contractor must obtain applicable Fire Permit(s) prior to installation by submitting detailed drawings, calculations, manufacturer's "cut sheets", specifications and other pertinent information for review and approval necessary to obtain the appropriate "Fire Permit". **Note: Water meters must be set and approved for service by Public Utilities prior to final approval of any water related fire protection systems.** See links for further information:

[Land-Use & Construction Fire Fees](#)

[Fire Permit Application](#)

## **D. Hazardous Processes / Target Hazards**

1. [Fire Code Operational Permit](#) may be required in accordance with the SFPC and Chesapeake Local Amendments for fire and life safety compliance. This permit is issued by the Fire Dept. upon routine inspection or during the field inspection for certificate of occupancy.

#### IV. PRE-SUBMITTAL SITE OR SUBDIVISION PLAN CHECKLIST

The following checklist is provided for site or subdivision plan pre-submittal convenience regarding highlights of typical fire protection areas of concern and is derived from the preceding sectional requirements but may not include all criteria.

A. Emergency Access:

1. Number of emergency access points to the site/subdivision meet minimum requirements including spacing based on proposed use, height and square footage of structures. If any are gated meet gate detail requirements including an approved Knox entry lock for all gates and buildings containing fire protection systems or hazardous materials.
2. Circulation within the site/subdivision meeting minimum number of fire apparatus access roads containing an approved surface and width requirements based on proposed use, height of structures, fire hose lays and distance to furthest portion of structure from where fire apparatus must position.
3. Dead-end travel issues properly addressed with an approved emergency turnaround.
4. Designated and properly marked fire lanes where parking or other obstructions may impede emergency access.
5. Water features provided with required emergency access.

B. Water Supplies for Firefighting:

1. Adequate water supply for fire protection supported by hydraulic calculations (water model), including PFM, Appendix, 18-A – Water Demand for Fire Protection (fire-flow) worksheet substantiated by a current flow-testing of the public main from Public Utilities. Alternative or supplemental water supply systems adequately addressed.
2. Adequate number, placement and spacing of public and/or private fire hydrants (containing adequate private main sizing) meeting fire-flow demand and color coding, support of fire dept. connections within 50 ft. where buildings are sprinklered (including a secondary fire hydrant within 600 ft. for manual firefighting operations) and/or a fire hydrant within 50 ft. to support a standpipe system if installed.

C. Fire Protection Systems:

1. If the structure(s) is sprinklered - all requirements adequately addressed for type of sprinkler system and monitoring, supply main type and sizing, proper placement of appurtenances such as FDC with fire hydrant placement within 50 ft. and PIV all remotely located off the structures a minimum of 40 ft., hydraulic calculations, and standard fire protection notes.

D. Hazardous Processes / Target Hazards – [Fire Code Operational Permit](#) require.