CITY OF VIRGINIA BEACH
Fire Department

VBFD
Fire Plans Review Policies
2024

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PREFACE

This document provides policies based on certain codes shown in brackets **[ ]** from the current edition of the Virginia Statewide Fire Prevention Code that support the operations of the Virginia Beach Fire Department. Definitions, ordinances, and other codes included in this document are meant to supplement the policies. In the absence of specific policy, nationally recognized standards of good practice should be used. National Fire Protection Association and Factory Mutual standards are commonly accepted.

Most plans are submitted through the Development Services Center within the Planning Department. Stand-alone plans that include drawings only for the installation of marked fire lanes, relocation or the removal of existing private fire hydrant, and the installation of LP-gas cages are submitted directly to the Fire Prevention Bureau.

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DEFINITIONS

Refer to the appropriate code or standard for more definitions.

Alternative Water Supply. [NFPA] Water supplies provided to meet the minimum fire flow/duration requirements where no municipal-type water system exists or to supplement an inadequate municipal-type water supply.

Area Separation: Portions of buildings which are separated by fire walls, constructed in accordance with the Virginia Construction Code, are allowed to be considered as separate fire-flow calculation areas.

Authority Having Jurisdiction. [NFPA] An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure. Also known as *AHJ*. The AHJ for enforcing the Virginia Statewide Fire Prevention Code for the City of Virginia Beach is the Fire Marshal, City of Virginia Beach code §12-25.

Check Valve. [NFPA 24] A valve that allows flow in one direction only.

Facility. A building or use in a fixed location including exterior storage areas for flammable and combustible substances and hazardous materials, piers, wharves, tank farms and similar uses. This term includes recreational vehicles, mobile home and manufactured housing parks, sales, and storage lots.

Flow Test. [NFPA 24] A test performed by the flow and measurement of water from one hydrant and the static and residual pressures from an adjacent hydrant for the purpose of determining the available water supply at that location.

Flushing Test. [NFPA 24] A test of a piping system using high velocity flows to remove debris from the piping system prior to it being placed in service.

Hydrostatic Test. [NFPA] A test of a closed piping system and its attached appurtenances consisting of subjecting the piping to an increased internal pressure for a specified period of duration to verify system integrity and leak rates.

Indicating Valve. [NFPA] A valve that has components that show if the valve is open or closed. Examples are outside screw and yoke (OS&Y) gate valves and underground gate valves with indicator posts.

High-piled Combustible Storage. [VSFPC] Storage of combustible materials in closely packed piles or combustible materials on pallets, in racks or on shelves where the top of storage is greater than 12 feet (3658 mm) in height. Where required by the fire code official, high-piled combustible storage also includes certain high-hazard commodities, such as rubber tires, Group A plastics, flammable liquids, idle pallets, and similar commodities, where the top of storage is greater than 6 feet (1829 mm) in height.

Hydrant. [NFPA] An exterior valved connection to a water supply system that provides hose connections.

Private Fire Hydrant [NFPA] A valved connection on a water supply system having one or more outlets and that is used to supply hose and fire department pumpers with water on private property.

Hydraulically Calculated Water Demand Flow Rate. [NFPA 24] The waterflow rate for a system or hose stream that has been calculated using accepted engineering practices.

Jurisdiction. [VSFPC] The governmental unit (the City of Virginia Beach) that has adopted this code under due legislative authority.

Key Box. [VSFPC] A secure device with a lock operable only by a fire department master key and containing building entry keys and other keys that may be required for access in an emergency. The Virginia Beach Fire Prevention Bureau uses products by Knox.

Local Board of Fire Prevention Code Appeals (LBFPCA). The governing body of any county, city, or town, other political subdivision and state agency in this Commonwealth charged with the enforcement of the SFPC under state law.

Modifications. [VSFPC] The fire official may grant modifications to any provision of the SFPC upon application by the owner or the owner's agent provided the spirit and intent of the SFPC are observed and public health, welfare, and safety are assured.

Private Fire Service Main. A private fire service main and their associated appurtenances that are owned and maintained by a private property owner. [NFPA] Private fire service main, as used in this standard, is that pipe and its appurtenances on private property (1) between a source of water and the base of the system riser for water-based fire protection systems, (2) between a source of water and inlets to foam-making systems, (3) between a source of water and the base elbow of private hydrants or monitor nozzles, and (4) used as fire pump suction and discharge piping, (5) beginning at the inlet side of the check valve on a gravity or pressure tank.

Pumper Outlet. [NFPA] The hydrant outlet intended for use by fire departments for taking supply from the hydrant for pumpers.

Rated Capacity. [NFPA] The flow available from a hydrant at the designated residual pressure (rated pressure) either measured or calculated.

Violations. [City Code] A violation of any provision of this article shall constitute a Class 1 misdemeanor, §12-49.

Virginia Construction Code. Known hereafter as USBC or VCC was cooperatively developed by the Virginia Fire Services Board and the Virginia Board of Housing and Community Development (DHCD). This code has been adopted by the City of Virginia Beach, §8-26 and the AHJ is the Building Code Official.

Virginia Statewide Fire Prevention Code. Known hereafter as "the code", or "SFPC or VSFPC". The SFPC has been adopted by the City of Virginia Beach, §12-41 and was cooperatively developed by the Virginia Fire Services Board and the Virginia Board of Housing and Community Development (DHCD).

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SECTION 1 ADMINISTRATION

101.1 Purpose. This document is intended to provide general information on code requirements found in the Virginia Statewide Fire Prevention Code (VSFPC) and applicable NFPA standards during the site plan review process and permit inspections for the benefit of property owners, designers, engineers, architects, and contractors.

102.1 Scope. The information herein instructs about fire code and fire department policy requirements regarding the installation of fire department access to the premise and building, fire protection water supply, and the installation of LP-gas cages. This document is intended as a general guideline and does not guarantee full compliance. Always refer to all applicable fire codes and standards for more information.

- **Note:** This guideline does not include information pertaining to the installation of a fire sprinkler system, fire alarm system, fire extinguishment system for commercial kitchens, fire-rated assemblies, or other life safety requirements. Consult with the Permits and Inspections Office within the Planning Department for all applicable building code requirements.

103.1 Code and standard references:

- Virginia Statewide Fire Prevention Code
- NFPA 24 Standard for the Installation of Private Fire Service Mains
- NFPA 291 Recommended Practice of Fire Flow Testing and Marking of Hydrants
- NFPA 1142 Water Supplies for Suburban and Rural Fire Fighting

104.1 Types of plans to be reviewed by the Fire Marshal:

- Fire department access and water supply: installation, relocation, or removal.
- Zoning conditional use permits and variance changes.
- Installation of LP-Gas cage.

104.1.1 Civil plan submittal. Site plans involving other city agencies are submitted through the City of Virginia Beach Development Services Center (DSC).

104.1.2 Stand-alone plans. Plans involving stand-alone installation of an above ground water storage tank for fire department use, replacement of an existing private fire hydrant or fire department connection, fire lane installation, Knox product installation, and placement of storage cages for LP-Gas containers are submitted directly to the Fire Marshal's Office.

104.1.3 Revision and field change. All revisions and field changes affecting fire department access, water supply, or other fire code requirements shall be submitted to and approved by the Fire Marshal.

105.1 Approval. The Fire Marshal must approve all plans involving the VSFPC and the VBFD polices prior to installation. Approval granted shall not allow non-conformance of required codes and policies. Final approval is subject to field inspections.

105.1.1 [CVB Code §12.49.1] Violations. Unapproved work and/or violations of the VSFPC may result in a notice of violation, stop work order, and/or summons to court.

106.1 Permits. Permits for the installation of private underground fire service mains and associated equipment are obtained through the Permits and Inspections Office in the Planning

Department.

107.1 Legal. This section reviews some of the legalities found in the VSFPC and the City Code.

107.1.1 Adoption, Virginia Beach City Code, §12-41. Pursuant to the provisions of Code of Virginia, Chapter 9, § 27-98, the fire department is designated and authorized to enforce that certain code known as the Virginia Statewide Fire Prevention Code, as promulgated by the Board of Housing and Community Development of the Commonwealth of Virginia, save and except such portions as may be modified or amended in this article, of which code a copy has been and is now filed in the office of the city clerk, and the same is hereby adopted and incorporated as fully as if set out at length herein and the provisions thereof shall be controlling within the limits of the city.

107.1.2 Modifications, Virginia Statewide Fire Prevention Code, §106.5. The Fire Marshal may grant modifications to any provision of the VSFPC upon application by the owner or the owner's agent provided the spirit and intent of the VSFPC are observed and public health, welfare, and safety are assured. The application must be submitted prior to the plan approval.

107.1.2.1 Plan disapproval. If the plan has been disapproved or a violation has been identified relating to requirements set forth within the Virginia Statewide Fire Prevention Code, and you cannot practically correct the deficiency, you may formally request a code modification.

- **Note:** Only the property owner or their agent may apply for a modification. The property owner or their agent must first attempt to work with the code official(s) and/or other professional consultants, to develop a design that provides prescriptive compliance with the adopted fire codes and standards of the City of Virginia Beach.

107.1.2.2 Waivers or variances. A waiver or variance is permission not to comply with a code requirement. The VSFPC does not allow non-conformance of the code. A modification is an equivalency which allows the use of some other approved alternative to meet the level of safety intended by the code. A self-imposed hardship or aesthetic reason will not be accepted as a basis for a modification request.

107.1.2.3 Procedure. Submit the VBFD Modification Request Application. The below criteria must be filled out completely:

- the nature of the code violation along with the code number,
- list all other applicable codes, editions, and sections,
- the practical difficulty in complying with the requirements,
- the proposed modification is following the intent of the code, and
- what compensatory protection, technical data, or equivalent safety you would provide to offset deficiencies.

107.1.2.4 Other supporting data. The Fire Marshal may require and consider a statement from a professional engineer, architect, or other competent person as to the equivalency of the proposed modification.

107.1.2.5 Review and record keeping. The Fire Marshal and staff shall expediently review the documentation. If approved or disapproved, the Fire Marshal or staff shall sign and date the document and shall be recorded in the permanent files.

107.2 Application of appeal, VSFPC §112.5. The owner of a structure, the owner's agent or any other person involved in the maintenance of the structure, or activity, may appeal a decision of the fire official concerning the application of the VSFPC or the fire official's refusal to grant modification under Section 106.5 to the provisions of the VSFPC. The appeal shall first lie to the LBFPCA and then to the State Review Board. The appeal shall be submitted to the LBFPCA within 14 calendar days of the application of the VSFPC. The application shall contain the name and address of the owner of the structure and the person appealing if not the owner. A copy of the written decision of the fire official shall be submitted along with the application for appeal and maintained as part of the record. The application shall be stamped or otherwise marked by the LBFPCA to indicate the date received. Failure to apply for appeal within the time limit established by this section shall constitute acceptance of the fire official's decision.

SECTION 2 GENERAL REQUIREMENTS

201.1 CONSTRUCTION DOCUMENTS

201.1.1 [VSFPC §501.3] Construction documents. Construction documents for proposed fire apparatus access, location of fire lanes, security gates across fire apparatus access roads, and hydraulic calculations for the needed fire flow and fire hydrant systems shall be submitted to the Fire Marshal's Office for review and approval prior to construction.

201.1.2 Plan package. Plans shall include the following, as applicable:

- Name, address, and stamp of civil engineer, professional designer.
- Location, including street address or GPIN.
- Point of compass.
- Scaled drawing.
- A graphic representation of the scale.
- Fire department access.
- Size, material, and location of all water supplies and associated equipment.
- Hydraulic calculations- provide available fire flow at 20 psi and provide supporting calculations. For man-made or natural bodies of water, use NFPA 1142.
- LP-gas cage location in relation to buildings, structures, and lot lines.
- Other documents as requested.

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SECTION 3 FIRE APPARATUS ACCESS

301.1 [VSFPC §503.1] Acceptance. Facilities, buildings, or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an approved fire apparatus access road (fire lane) and must be approved by the Fire Marshal and be maintained by the property owner. Refer to the VSFPC Chapter 5, section 503 for more requirements.

302.1 [VSFPC §503.1.1] Buildings with an approved automatic fire sprinkler system. The Fire Marshal may increase the dimension of 150 feet to 300 feet if the building will be equipped with an approved automatic fire sprinkler system throughout the building per the applicable building code.

303.1 [VSFPC §503.1.2] Additional access. The Fire Marshal is authorized to require more than one fire apparatus access road based on the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access for the below types of developments:

303.1.1 Single Family Developments. Developments of one- or two-family dwellings where the number of dwelling units exceed 30 shall be provided with two separate and approved fire apparatus access roads.

Exceptions:

- Where there are more than 30 dwelling units on a single public or private fire apparatus access road and all dwelling units are equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3 of the VCC, access from two directions shall not be required.
- The number of dwelling units on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the fire code official.

303.1.2 Multi-family developments having more than 100 dwelling units. Multiple-family residential projects having more than 100 dwelling units shall be equipped throughout with two separate and approved fire apparatus access roads.

- **Exception:** Projects having up to 200 dwelling units may have a single approved fire apparatus access road when all buildings, including nonresidential occupancies, are equipped throughout with approved automatic sprinkler systems installed in accordance with Section 903.3.1.1 or 903.3.1.2.

303.1.3 Multi-family developments having more than 200 dwelling units. Multiple-family residential projects having more than 200 dwelling units shall be provided with two separate and approved fire apparatus access roads regardless of whether they are equipped with an approved automatic sprinkler system.

303.1.4 Commercial and industrial developments. Buildings or facilities having a gross building area of more than 62,000 square ft. shall be provided with two separate and approved fire apparatus access roads.

- **Exception**: Projects having a gross building area of up to 124,000 square ft. that have a single approved fire apparatus access road when all buildings are equipped throughout with approved automatic sprinkler systems.

303.1.5 Remoteness. Where two fire apparatus access roads are required, they shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between accesses.

303.1.6 Emergency Access: If the required additional access road will be designated a Fire Department emergency access only road, the following requirements shall be met:

- Fire access gates shall be installed at both entrances to the Fire Department emergency access road or fire lane signs shall be installed throughout the access road. A standard fire access gate detail is available and shall be included on the plan if gates are to be used.
- A detail shall be provided for the Fire Department emergency access road which shows construction material, weight rating, signage, and how the path will be delineated. If a detail is not provided, the above shall be noted on the plan.
- Signs shall be placed at the entrance of the Fire Department emergency access road reading, "Fire Department Emergency Access". The signs shall be included in a detail or added to the plan.

304.1 [VSFPC §503.1.3] High-Piled Combustible Storage. Fire access roads shall be provided within 150' of all portions of the building, even with the installation of a fire sprinkler system. Note: §503.1.1 exception #1, sec. 1.1 does not apply.

305.1 Dimensions and Specifications [VSFPC §503.2]. On-street parking or other obstructions shall not reduce the required minimum clear width. Over-head projections, trees, signs, or utility lines shall not interfere with the minimum vertical height unless approved by the Fire Code Official.

305.1.1 Roadway widths. Follow Table 305.1.1 for specifications on where marked fire lanes are to be located and allowable on-street parking.

305.1.2 Driveway width. The minimum clear width of a driveway providing fire apparatus access shall be 12-ft and must be designed to accommodate required apparatus loading.

Table 305.1.1

STREET WIDTH	PARKING	FIRE LANE MARKINGS (Along curbing or pavement edge)
20 feet – 26 feet	No parking allowed on either side	Fire Lanes on both sides of access lane
Over 26 feet - up to 32 feet	Parallel parking allowed on one side	Fire lane on one side of access lane as determined by the fire code official.
34 feet and greater	Parallel parking allowed on both sides	Not required

All	No parking within 15' of either side of a fire hydrant as measured from center line of the barrel and extending parallel along access way.	Shall be marked per the Fire Marshal based on the location of the FH.

306.1 [VSFPC §503.2.2] Aerial apparatus access roads. Where the vertical distance between the *grade plane* and the highest roof surface exceeds 30 feet (9144 mm), *approved* aerial fire apparatus access roads shall be provided. For purposes of this section, the highest roof surface shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater.

- **Exception:** Where *approved* by the *fire code official*, buildings of Type IA, Type IB or Type IIA construction equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and having firefighter access through an enclosed *stairway* with a Class I standpipe from the lowest level of fire department vehicle access to all roof surfaces.

  306.1.1 Width. Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet (7925 mm), exclusive of shoulders, in the immediate vicinity of the building or portion thereof.

  306.1.2 Proximity to building. One or more of the required access routes meeting this condition shall be located not less than 15 feet (4572 mm) and not greater than 30 feet (9144 mm) from the building and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial fire apparatus access road is positioned shall be *approved* by the *fire code official*.

  306.1.3 Obstructions. Overhead utility and power lines shall not be located over the aerial fire apparatus access road or between the aerial fire apparatus road and the building. Other obstructions shall be permitted to be placed with the approval of the *fire code official*.

307.1 [VSFPC§ 503.2.3] Surface. Road surface shall be all-weather and be able to support fire apparatus loading of 82,000 lbs.

307.1.1 Other road surfaces. If a commercially available substitute material for pavement is used, it must be approved by the Fire Marshal and the manufacturer's instructions and details shall be included on the site plan.

307.1.2 Visibility. The supporting material shall be visible at the drive surface or properly delineated.

308.1 [VSFPC §503.2.4] Turn radius. An approved turn radius of 29-ft. 8-in. inside and 45-ft. outside is required throughout the project.

309.1 [VSFPC §503.2.5] Dead ends. An approved turn-around is required for a dead-end fire apparatus access roadway in excess of 150-ft. Refer to VSPFC Appendix D Figure D103.1 for acceptable turnarounds.

310.1 [VSFPC §503.2.7] Grade. Maximum grade along the fire apparatus access way shall be 10%.

- **Exception:** Roadways serving dry hydrants or static water sources for firefighting operations shall not exceed 8% grade.

311.1 [VSFPC 503.3] Markings. Refer to the Virginia Beach Fire Marshal Office Fire Lane Requirements document for additional information. The fire lane requirements document shall be included with the plan submittal.

312.1 [VSFPC 503.4.1] Traffic calming devices (TCD). TCD located within or affecting the fire apparatus roadway shall follow these requirements:

- TCD shall adhere to fire apparatus access specifications found in the VSFPC.
- TCD shall not significantly reduce response times.
- Identify the TCD on the Fire Department Access plan.
- Provide details of the product or the design and how it may affect maneuverability of a fire apparatus.
- Speed bumps and humps are prohibited on primary and secondary emergency routes.

313.1 [503.5, 503.6] Security gates. Security gates must provide a minimum clear width of 20-ft. or for one-way access lane, a minimum clear width of 12-ft. The gate and associated equipment must not interfere with the operation of the fire apparatus.

313.1.2 Documents. Provide specifications and details on the plan.

313.1.3 Bollards. Bollards may be an approved alternative if easily removable by one person. Location approved by the fire code official.

314.1 Required note. Refer to section 7 Notices for applicable notices to be added to the plan.

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SECTION 4 KEY REPOSITORY AND SPECIAL LOCKS

401.1 [VSPFC §506.1] Where required. A Knox Key Box shall be installed at the primary entrance to the building. An additional Knox Key Box shall be required for buildings installed with a fire protection system having an exterior door to the fire alarm and/or fire sprinkler room and as required by the Fire Code Official.

402.1 [VSFPC §503.6, 506.1.1] Over-ride switch. Electric gates shall be provided with a Knox over-ride switch.

403.1 Manual gates. Where secured against unauthorized entry, chained or manual gates shall be provided with a Knox padlock.

404.1 Mounting specifications. Installation height on the building, structure, or post shall be 5 feet measured from finished grade or as approved by the Fire Code Official.

405.1 Required note. Place the required Knox note on the plan, see section 7 Notices.

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SECTION 5 FIRE PROTECTION WATER SUPPLY

501.1 [VSFPC §507] General. This section shall provide guidance for approved water supply requirements found in the Virginia Statewide Fire Prevention Code and applicable standards. For requirements involving water connection in the city right-of-way, refer to the Public Utilities Standard Design Manual.

502.1 Plans. Plans and supporting documents for a water supply for fire department use are submitted to the Fire Marshal's Office for review.

503.1 Access. Unobstructed and direct access shall be provided at all times.

504.1 [VSPC §507.3] Fire flow. The approved calculation method is found in the VSFPC, Appendix B. A worksheet is available for use, see VBFD – Fire Flow Worksheet.

- **504.1.1 Areas without municipal water.** Refer to NFPA 1142, *Standard for Water Supplies for Suburban and Rural Firefighting,* to determine the needed fire flow, alternative water supply, and construction requirements. Dry hydrants will not be approved.
- **504.1.4 [VSPFC §501.3] Documents.** Submit all construction and hydraulic calculation documents to the Fire Marshal for review. Provide modeling where a private fire service main will serve on-site fire protection demands to show pressure/gpm can be met at hydraulically most demanding point at 20 residual pressure.
- **504.1.5 Pumping capacity.** The rated pumping capacity of VBFD fire apparatus is 1500 gpm at 150 psi, 1000 gpm at 200 psi, and 750 gpm at 250 psi.

505.1 [VSFPC §507.2.1] Fire main size. The minimum size main for a non-looped system is 8-in. and for a looped system is 6-in.

506.1 Dead-end hydrants. Dead-end hydrants must be kept to a minimum.

507.1 Hydrant types. The Department of Public Utilities has approved the following make and model of fire hydrants:

- Kennedy: K81-A
- American Darling: MK73-1
- Mueller Company: Super Centurion 250
- Clow Corporation: Medallion
- Note: the above may change due to updated Department of Public Utilities policies or by manufacturer's specifications.

509.1 [VSFPC 507.5.1] Location. Fire hydrant location must be located along an approved fire apparatus access way with a maximum setback of 8 ft. from the face-of-curb or edge of the pavement.

- **509.1.1 Specifications.** Maximum height is 24 in.; minimum is 16 in. to the center of the 4½ in. connection measured from finished grade.

- **509.2.1 Hydrant spacing- commercial building.** The maximum travel distance to a fire hydrant from the building is 400 ft. as measured along an approved fire apparatus access roadway.
- **509.3.1 Hydrant spacing- one- and two-family dwelling.** The maximum travel distance to a fire hydrant from the building is 500 ft. as measured along an approved fire apparatus access roadway.
- **[NFPA 24 §7.2.3] Distance from building.** The minimum distance of the fire hydrant shall be to the building is 40 ft. The height of the building & the collapse zone are factors in determining the proper distance.
  Exceptions.
  - Distance may be reduced to 20 ft. from the building if the exterior wall is fire-rated.
  - The minimum distance may be reduced further only for buildings without adequate space due to building setbacks.

510.1 Number of hydrants. The minimum number of hydrants is dependent upon the needed fire flow & maximum travel distance. A flow rate greater than 1500 gpm will require an additional fire hydrant.

511.1 [VSFPC §3312.1] Water supply availability. An approved water supply must be provided as soon as combustibles are present on site.

512.1 [VCC 912.6] The backflow prevention device. Refer to the applicable Virginia Construction Code for installation requirements. For backflow prevention devices installed on a private fire main, show the location of the backflow prevention device in a hot box.

513.1 Vehicle impact protection. Where vehicle impact protection is required, refer to VSFPC §312 for installation specifications. Posts or other barriers shall be shown on the plan sheet along with details.

514.1 Existing public fire hydrants. Existing public hydrant system are considered as available to meet minimum needed fire flows provided:

- The hydrant is located on the same side of the roadway. Hydrants located across a divided roadway shall not be accepted.
- Hydrants located across the roadway at intersections or undivided roadways where the daily traffic volume is less than 30,000 vehicles may be considered as available.

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Private Water Supply

515.1 Private fire service mains and their appurtenances. Private fire Service Mains and associated equipment are installed on private property by private property owners for fire protection needs and are intended to serve only their facilities.

516.1 [VSFPC §507.2.2] Aboveground tanks. Refer to NFPA 22 - Standard for the Installation of Water Tanks for Private Fire Protection. The proposed location is approved by the Fire Marshal.

517.1 Permits. Permits are required for the installation of the private water supply system & associated equipment and are obtained through the Permits and Inspections office.

517.1.1 Existing systems & equipment. A permit is required for the replacement, relocation, or removal of the private water supply system and associated appurtenances.

518.1 Action plan. Property owners of private fire service mains and their appurtenances are responsible for maintaining these systems in working order at all times and must submit an action plan to the Fire Marshal's Office for approval.

519.1 [VSFPC §501.3; §507.2.1] Private Fire Main System. Installation standards shall conform to NFPA 24 *Installation of Private Fire Mains and Their Appurtenances* and this document.

519.1.1 [VSFPC §501.3 & §507.3] Hydraulic Calculations. The existing or proposed water main must be able to supply the needed fire flow without going below 20 psi residual. Provide the fire flow calculations, see VBFD Fire Flow Worksheet. Hydraulic modeling for the private fire service main must show the approved flowrate can be met at hydraulically most demanding point.

520.1 [VSFPC §912.2] Fire department connection. Where required by the applicable building code and NFPA standard; the location of the FDC is approved by the Fire Chief.

520.1.1 [VCC 912.2.1] Location. FDC(s) must be visible and recognizable from the street or nearest fire apparatus access on private property, no closer than 40 feet from the building. Show the location of the FDC on a plan sheet.

520.1.2 Remote Fire department connection. A remote fire department connection may be permitted to supply multiple buildings on the same lot.

520.1.3 Hydrant spacing. The FDC must be 3 feet – 50 feet from a fire hydrant.

Exception. Wall-mounted FDCs installed on NFPA 13R systems with a pipe size of 1½-in. will not be required to meet the hydrant spacing.

520.1.4 Unapproved locations. The FDC shall not be located in the public right-of-way, or under glass panels or other building features that may shear off during a fire event.

520.1.5 Height. The FDC shall not be set less than 2 ft. and no more than 3 ft. above finished grade.

520.1.6 FDC Detail. A remote, free-standing drawing is available and must be shown on the plan.

520.1.7 [NFPA 13 & 24] Signs. Additional signage may be required to more accurately identify the FDC. Refer to VSFPC & NFPA 24 for sign requirements.

520.1.8 Marking. Where required, FDCs shall be painted Regal Red.

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SECTION 6 LP-GAS CONTAINER OUTSIDE STORAGE

601.1 [VSFPC §107.1] Plans. Plans must be submitted for LP-gas cages located outside of buildings prior to installation**.** Contact a fire plan examiner in the FMO for all inquiries.

601.1.1 Plan requirements. Below is information to be included in the plan submission:

- A site plan showing the location of the proposed cage(s).
- Show proximity to buildings, opening, lot lines, vehicle traffic flow, and other hazards.
- Business name and address.
- Contact information of applicant.
- Quantity & size of cylinders.
- Type of protection.
- Required signage.

602.1 [VSFPC §6109.2] Exposure hazards. Cylinders must be located on a flat, stable surface and located where protected from excessive temperature rise, physical damage, or tampering. Refer to the VSPFC Chapter 61 and NFPA 58 for requirements.

603.1 Inspection. A field inspection is required before final approval is given. Contact a fire plan examiner to schedule.

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SECTION 7 NOTICES

- The proposed fire department access road is required to be constructed to accommodate 82,000 lbs. of imposed vehicle loading to support fire apparatus and a vertical clearance of 13 feet 6 inches. Maintenance of the fire apparatus access road shall be maintained by the property owner or their agent.
- The contractor shall call the Fire Prevention Bureau within 24 hours of installing fire lanes. Contact number is 757-385-8555. Final approval is subject to a field inspection.
- No landscaping of any type shall be placed so as to encroach on the required minimum width of fire apparatus access roads.
- A Knox Key Box is required at the main entrance for this building. Additional Knox Devices may be required, as applicable, by the Fire Code Official. Contact the Fire Prevention Bureau at 757-385-4228 to coordinate the ordering and approval process. They may be ordered at www.knoxbox.com. VSFPC §506.1.
- Installation of a Knox over-ride switch is required and shall be located per the Fire Code Official and installed per the manufacturer's specifications. Contact the Fire Prevention Bureau for product and order information at 757-385-4228.
- A Knox Remote Power Box is required for all electric fence installations. Contact the Fire Prevention Bureau for product and order information at 757-385-4228.
- To schedule underground inspections of private fire main and any applicable appurtenance, call the Fire Prevention Bureau at 757-385-8555 before 9 am the day of the desired inspection and testing is to be performed. Have the permit number available. All inspections and other requirements shall pass for the permit to be finalized. Installation permits are obtained through the Permits and Inspections office at 2875 Sabre St. #500, Virginia Beach, 757-385-4211.
- Property owner is responsible for the inspection, testing, and maintenance of the private fire service main and their appurtenances as required in NFPA 25. The inspection, testing and maintenance form is available upon request and must be submitted to the Fire Prevention Bureau after completion.
- Property owner is responsible for the inspection, testing, and maintenance of the Dry Hydrant and its appurtenances as required in NFPA 1142. The inspection, testing and maintenance form is available upon request and must be submitted to the Fire Marshal's Office after completion.
- No landscaping of any type shall be placed within a three-foot radius of any fire hydrant, fire pump test header, fire department sprinkler system connection, fire department standpipe connection or fire suppression control valve. Landscaping in the area of fire hydrants, fire pump test headers, fire department sprinkler connections or fire department standpipe connections shall be of the type that will not encroach on the required three-foot clear radius or cause damage from underground roots on maturity of the landscaping.
- Fire safety during construction and demolition shall be adhered to per both the Virginia Construction Code & Virginia Statewide Fire Prevention Code, Chapter 33 and NFPA 241.
- Other notices may be required on an as needed basis.

CITY OF VIRGINIA BEACH
Fire Department

SECTION 8 FIELD INSPECTIONS AND TESTS

801.1 [VSFPC 507.2.1; NFPA 24] Installation. Refer to NFPA 24 for installation and testing standards. Installation work shall be done by experienced and responsible persons holding a Virginia contractor license and per the approved plan. Unapproved field changes will result in a failed inspection and a re-inspection fee may be applied.

801.1.1 Required inspection and testing. To schedule an inspection and test, call 757-385-8555. Please leave a detailed message including a person of contact with a phone number, permit number, and a preferred date and time. For same day service, call before 9:00 am.

801.1.2 General guidelines. Listed below are general guidelines per NFPA 24.

- Depth of cover shall be 3 feet from the top of the pipe to finished grade.
- A 10’ gap shall be provided and maintained between the private fire main and the city connection until the detector check and domestic water meter are installed.
- All pipe openings are to be covered, as needed.
- The contractor is responsible for providing an adequate water supply for flushing and for the hydro testing with a suitable location for water run-off.
- If using city water, the contractor shall consult with the Department of Public Utilities for connection requirements.
    1. The fire lines may be flushed after the installation of the detector check.
    2. Straight connections are not allowed.
    3. The domestic water service shall not be flushed.
- The detector check valve shall be protected against damage.
- Hydro testing- FDC line is tested at 200 psi or 50 psi greater than working pressure, whichever is greater, for 2 hours. Fire main only is tested at 150 psi for 2 hours.
- Flow test: results shall be recorded on the Virginia Beach Fire Department Private Hydrant and Maintenance Report, see Annex A. No other form will be accepted.
- Private hydrant paint colors:
    a. Barrel: Rust-Oleum (or equivalent), #7765 Regal Red
    b. Bonnet & caps: Rust-Oleum (or equivalent), #7727 Royal Blue
    c. Draft hydrant: Caps: Rust-Oleum (or equivalent), #7727 Royal Blue

802.1 Inspections and tests will be failed for the following:

- A permit has not been obtained from the Permits and Inspections office.
- The contractor is not ready.
- The contractor is not on-site.
- Installation of the water supply does not meet the approved plan.
- Installation and testing not meeting the criteria as set forth in NFPA 24 and other applicable standards.
- The flushing line is not acceptable due to inadequate size, holes, tears, or coupling issues.

- The flushing hose line is not mechanically secured and creates a dangerous atmosphere for the Inspector and contractors.
- Unsafe practices