ROCKINGHAM COUNTY DEPARTMENT OF FIRE & RESCUE
FIRE MARSHAL'S OFFICE
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Plan Review Submittal and Review Guidance

The purpose of this document is to outline the plan review submittals and review requirements for the Rockingham County Fire Marshal's Office in accordance with the Rockingham County Fire Prevention Code.

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General Plan Submittal and Review Information

By Virginia Code and Rockingham County ordinances, the Fire Marshal's Office is responsible for conducting plan review, acceptance testing inspections, general fire prevention inspections, and issue certain operational permits in accordance with the Rockingham County Fire Prevention Code.

The Fire Marshal's Office reviews submitted plans pertaining to:

- Special Use Permits
- Rezoning Permits
- Site Plans
- Special Entertainment Permits
- Roadway Deeds & Driveway Inspections
- Commercial & Targeted Residential Building Plans & Permits
- Fire Protection System Plans & Permits; Including Acceptance Testing.
- Specific Occupancy Type Permit Inspections
- Any review or inspection requested by the other Departments of Rockingham County Government for which the Fire Marshal's Office has jurisdiction.

Rockingham County Fire Prevention Code

In accordance with the Rockingham County ordinances within Chapter 8 Fire Protection Article II Rockingham County Fire Prevention Code, Rockingham County adopts the most recent Virginia Fire Prevention Code, with local amendments, that is duly adopted by the Virginia Board of Housing and Community Development.

The Virginia Statewide Fire Prevention Code can be viewed at:
https://codes.iccsafe.org/codes/virginia

The Rockingham County Fire Prevention Code can be viewed at:
https://library.municode.com/va/rockingham_county/codes/code_of_ordinances?nodeId=CH8FIPR_ARTIIROCOFIPRCO

Plan Review Submittal Requirements

The Rockingham County Fire Prevention Code is referenced for all plan review submittals in addition to applicable NFPA codes referenced within the fire prevention code.

Plan review submittals shall be processed through the Rockingham County Community Development's Evolve public portal at: https://evolve-public.infovisionsoftware.com/rockingham/.

The architect or engineer's contact information and certifications, equipment data sheets, hydraulic or battery calculations, and/or any specialty information needed for review shall be submitted with all plans through the Evolve public portal.

Every effort is made for submitted plans to be reviewed within ten days of receipt to the Fire Marshal's Office but occasionally the time period must be extended. It is imperative for the submitting party to have all information available within their submittal for an orderly turnaround. Any questions about plan submittals or review requirements can be made to the Rockingham County Community Development Office at 540-564-3030 of The Fire Marshal's Office at 540-564-3175.

In accordance with the Rockingham County ordinances, the Fire Marshal's Office is permitted to bill for fees related to plan review, acceptance testing, inspections, and permits as approved by the Rockingham County Board of Supervisors.

The following fee schedule is used for plan review submittals:

Fee Description	Fee Per Device
Hood Suppression Installation	$350.00
Clean Agent Suppression System	$350.00
Sprinkler System Installation	$350.00
# of Sprinkler Heads	$1.10 per head
Fire Alarm System Installation	$350.00
# of Associated Devices	$2.50 per initiating device
Fire Standpipe System Installation	$350.00
# of Standpipe Risers	$5.00 per riser
Fire Pump Installation	$350.00
Private Fire Main Installation	$350 plus $10.00 per fire hydrant
Spray Booth Installations	$350.00
Minor Review and Inspection	$75.00 per system and additional charges based on system type

Site plans submitted for the Fire Marshal's Office review shall contain information regarding the required site plan notes for Fire/Rescue (Appendix A), the ISO fire flow calculation, ingress and egress roadways, roadways marked as fire lanes, fire hydrant and fire department

connection locations, and Knox Box installation locations. Two points of ingress and egress are required on all site plans unless otherwise approved.

Fire Lane Marking Requirements

Curb/Pavement Markings (Preferred)

- All markings shall be made with red, traffic grade paint, appropriate for the surface to which it will be applied.
- All curbs located in designated fire lanes shall be indicated by red paint.
- In areas where there is no curb on the outside edge of the fire lane the outside edge shall be indicated by a six-inch wide red strip.
- In areas where these markings can be used in place of signs, curb markings shall be substituted for signs. The spacing of pavement markings shall not exceed 70 feet or 35 feet diagonally when placed on both sides of the access road. Curbs markings shall read:

(4-inch white letters on 6-inch red painted curb or pavement line marking)

Sign Specifications (Gravel or Grass Areas Unable To Be Painted)

- Metal construction.
- 12 inches by 18 inches.
- Red reflective letters on a white background.
- 3/8-inch red trim strip around the outer edge of the sign.
- Signs shall read: NO PARKING FIRE LANE.
- Signs are to be mounted 7 feet from bottom of the sign to the ground.
- Signs shall be securely mounted to the post.
- Spacing between signs shall not exceed 70 feet or 35 feet diagonally when placed on both sides of the access road
- Signs shall be mounted perpendicular to the flow of traffic. If fire lane is in an area of two-way traffic signs shall be provided facing both directions.

- All designated fire lanes will be designed to hold apparatus weight of seventy thousand (70,000) pounds or thirty-five (35) tons and shall be surfaced to provide all weather driving capabilities.
- The minimum fire lane width is twenty (20) feet and shall have an unobstructed vertical clearance of thirteen (13) foot six (6) inches. Where the height of the building, or portion of, is equal to thirty (30) foot or higher, the minimum width of the fire lane is twenty-six (26) foot.
- Fire lanes shall be provided to within one hundred fifty (150) feet of all portions of the building as measured by an approved vehicular travel route. A minimum of two sides of a building shall have marked fire lanes.
- Turns in fire lanes shall be constructed with a minimum radius of 25 feet at the inside curb line and a minimum radius of 50 feet at the outside curb line. Two hundred fifty two inches (252) is the minimum design radius for any turns or traffic management area within the fire lanes.
- Where a dead end fire lane exceeds one hundred fifty feet (150) an approved turnaround shall be provided.
- Gates located within the path of any fire lane shall be located a minimum of thirty (30) feet away from the public right-of-way and shall open inward. The clear opening provided through gates shall be at least 2 feet wider than the travel way. Locked gates shall have an approved means of operation for the fire department.

Fire Hydrant Installation and ISO Compliance Requirements

Fire hydrants shall be installed in accordance with the requirements of the Rockingham County Fire Prevention Code and the Public Works manual. Any reference to distance shall be measured along an approved path of travel for fire apparatus operating at the site.

- Fire hydrants shall be sized with a 5 ¼-inch barrel and equipped with one 4 ½-inch and two 2 1/2-inch connections. All threads shall be national standard thread (NST).
- Fire hydrants shall be installed using 8-inch pipe with a minimum flow of 1,000 g.p.m. A 6-inch service line is allowed to the fire hydrant at a maximum length of twenty five (25) feet.
- No fire hydrant shall be placed closer than fifty (50) feet from the face or overhang of any building to be protected.
- A three (3) foot clear space shall be maintained around the circumference of fire hydrants.
- Where fire hydrants are subject to impact by a motor vehicle, impact protection, guard posts or another approved means for protection shall be provided in accordance with the Rockingham County Fire Prevention Code.

Fire Hydrant Painting

- Hydrant bonnet and caps shall be color coded to indicate hydrant flow and painted with safety grade paint:
    - Rate capacity of 1,500 g.p.m. or greater: light blue
    - Rated capacity of 1,000 to 1,499 g.p.m.: green
    - Rated capacity of 500 to 999 g.p.m.: orange
    - Rated capacity less than 500 g.p.m.: red
    - Hydrant barrels: silver

- Where fire hydrants are installed as part of a private fire main system, the listed color scheme shall be reversed (i.e. barrel color indicates g.p.m. flow and the bonnet and caps are silver).
- In residential areas, fire hydrants shall be provided at each intersection and intermediate fire hydrants will be spaced not to exceed six hundred (600) feet.
- In business, commercial, or industrial areas, fire hydrants shall be provided at each intersection and intermediate fire hydrants will be spaced not to exceed three hundred (300) feet.

ISO Fire Flow Compliance

Fire flow shall be calculated for each structure using “ISO’s Needed Fire Flow” formula. Fire hydrants shall be provided to meet the calculated fire flow one (1) fire hydrant for every one thousand (1,000) g.p.m. for fire flow needed. Fire flow credit for existing fire hydrants may be accepted at the following intervals:

- 1000 GPM maximum credit for hydrants within 300 feet of structure
- 670 GPM maximum credit for hydrants 301 to 600 feet of structure
- 250 GPM maximum credit for hydrants 601 to 1000 feet of structure
- Fire Hydrant greater than 1,000 feet from the structure will not be counted

Structures protected by automatic sprinkler systems, or equipped with a fire department standpipe, shall have a dedicated fire hydrant for the fire department connection located within 50 feet of the connection. This fire hydrant is dedicated to the connection and does not count toward the ISO fire flow requirements.

Knox Box Program Requirements

A Knox Box is required on any business, multi-family residential, commercial, or industrial building that has an NFPA 72 compliant fire alarm system. A residential sized Knox Box is recommended on all one (1) and two (2) family homes but is not required.

Knox Boxes can be ordered at www.knoxbox.com by searching through Virginia with the fire department name of "Rockingham Co Fire & Rescue".

Orders will only be accepted for a 3200 series Knox Box with hinged door unless otherwise approved by the Fire Marshal's Office.

All Knox Boxes shall be mounted at six (6) feet at the top of the box and within ten (10) feet of the designated entry door where the box is readily visible. Prior to mounting, the Fire Marshal's Office recommends scheduling a field verification installation location.

Once a Knox Box is installed, the installer shall contact the Fire Marshal's Office at 540-564-3175 to be secured with the proper keys, electronic cards, or both. Prior to scheduling the appointment all required keys shall be available and tested for proper operation.

The red Knox Box sticker that comes with the box shall be installed in the top right corner of the entry door the Knox Box is installed at unless otherwise approved by the Fire Marshal's Office.

In accordance with the Virginia Statewide Fire Prevention Code, the Fire Marshal's Office may require access to, or within a structure or an area, where access is normally restricted for the purpose of lifesaving and fire-fighting purposes.

Keys Required in Knox Box

- One master key
- One key for each different exterior and interior lock
- One fire department elevator over-ride key
- One key for each floor or wing
- One key for the fire alarm control panel
- One key with any locked fire protection system
- One key for locked roof hatches
- Other keys deemed necessary by the Fire Marshal's Office

All keys shall be individually labeled with a durable label in a legible fashion.

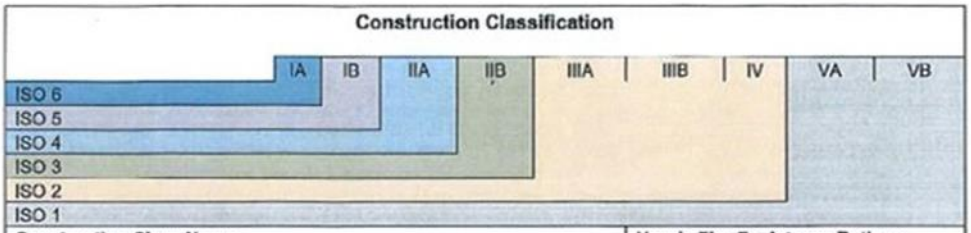
Appendix A

Rockingham County Dept. of Fire and Rescue Required Site Plan Notes:

1. Required fire hydrants shall be installed and operational prior to combustible materials arriving on site. Fire hydrants shall be located and operational within 300 foot of construction with a 3 foot clear space maintained around the circumference of the fire hydrants. Where fire hydrants are subject to impact by a motor vehicle, guard posts or other approved means shall comply with the provisions of the Rockingham County Fire Prevention Code.
2. The fire department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants.
3. Vehicle access for firefighting shall be provided to within 150 feet of all portions of the building under construction. Access shall be provided by either temporary or permanent roads, capable of supporting the weight of fire apparatus, up to 37.5 tons, under all weather conditions. If the building height is greater than 50 feet, vehicle access for firefighting shall be within 50 feet of the building under construction.
4. Vehicle access shall be provided to within 50 feet of any in-service fire department connection.
5. Posts, fences, vehicles, trash, storage, building supplies, bushes, trees, landscaping, dumpsters, utilities and other materials or objects shall not be placed or kept near fire hydrants, fire department inlet connections or fire protection control valves in a manner that would prevent such equipment or fire hydrants from being immediately discernible.
6. Temporary construction fences, barriers, or gates shall be able to be readily moved or opened in the event of an emergency. Afterhours access through gates shall be provided.
7. Temporary street identification signs shall be placed at each intersection by the developer prior to any construction beginning. Signs shall be of durable material capable of withstanding all weather conditions. Letters shall be in a contrasting color to the background upon which they are placed. Sign letters shall be a minimum of 3 inches in height. Bottom of sign shall be mounted a minimum of 8 feet and a maximum of 10 feet above the ground upon which it is installed. The developer shall contact the county when temporary signs have been erected. The developer shall be responsible for keeping these signs in place until such time as permanent signs are erected.
8. Temporary fuel tanks shall be provided with impact protection, or in an area not directly adjacent to vehicular traffic, no smoking signage and a fire extinguisher within 20 feet
9. Any temporary on-site hazardous materials shall be stored and used in accordance with the Rockingham County Fire Prevention Code and have MSDS information readily available.
10. No smoking will be allowed in or around buildings under construction, staged combustible material, or combustible waste materials.

11. Buildings under construction shall have fire extinguishers readily available.
12. Combustible waste shall not be accumulated in or around buildings and/or on the site.
13. Fire lanes shall be designated and marked in accordance with Rockingham County's standard for designation and marking of fire lanes. An on site visit shall be scheduled with the Fire Marshal's Office prior to the placement of any signs or markings designating a fire lane.
14. Based on the project, the Fire Marshal's Office may deem it appropriate for the creation of a pre-fire plan or tours by fire department personnel which will be coordinated with the job superintendent.
15. The job superintendent, or responsible party, shall be responsible for maintaining site conditions in accordance with the above requirements during construction.

Appendix B



Construction Class Name	Hourly Fire-Resistance Ratings
Fire Resistive (ISO Class 6, IBC Type IA)	• I-A: 3 hours
Modified Fire Resistive (ISO Class 5, IBC Type IB)	• I-B: 2 hours
Masonry Noncombustible (ISO Class 4, IBC Type IIA)	• II-A: 1 hour
Light Noncombustible (ISO Class 3, IBC Type IIB)	• II-B: no hourly rating required
Joisted Masonry (ISO Class 2, IBC Type IIIA, IIIB, & IV)	
Frame Construction (ISO Class I, IBC Type VA & VB)	

TYPE IA (ISO 6):	The main structural elements are noncombustible. Examples of these materials would be masonry and concrete. Basically, all concrete construction.
TYPE IB (ISO 5):	The main structural elements are noncombustible. Examples of these materials are heavy steel with spray-on insulation or enclosed in double layers of sheetrock. Basically, protected steel construction.
TYPE IIA (ISO 4):	The main structural elements of the walls are masonry or concrete. The roof support is unprotected metal beams or bar joists.
TYPE IIB (ISO 3):	The main structural elements of the walls and roof are unprotected steel. These are light-weight metal buildings like "Butler Buildings" and Quonset Huts. Caution - If metal siding is affixed to wood members, construction is TYPE VB.
TYPE IIIA (ISO 2):	A combination of building construction comprised of exterior walls of masonry or concrete and roof/floors of combustible material that has been treated to have at least a 1-hr fire resistance rating.
TYPE IIIB (ISO 2):	Same as TYPE IIIA, except that the roof/floors of combustible materials have no fire resistance rating. This is the most common of ISO 2 construction where the underside of the roof is seen with wood construction but the walls are masonry or concrete.
TYPE IV (ISO 2):	Known as heavy timber or mill construction in which the exterior walls are of noncombustible materials. Interior building elements utilize wood structural members and heavy wood decking. Building elements do not contain concealed spaces and contain systems that prevent a fire from the exterior into unprotected openings.
TYPE VA (ISO 1):	A wood-framed building. Protected construction having all major building elements with at least a 1-hour fire-resistance rating. Exception: non-load bearing interior walls and partitions having no rating.
TYPE VB (ISO 1):	A wood-framed building having no fire-resistance ratings. This is the most commonly seen ISO 1 construction.

Appendix C

Use Group & Occupancy Classification

A-1	Assembly intended for production/viewing of performances or movies
	(i.e. Theaters, Halls, Studios with Audience)
A-2	Assembly intended for food & drink consumption
	(i.e. Banquet Halls, Casinos, Nightclubs, Restaurants, Taverns, Bars)
A-3	Assembly intended for worship, recreation, or amusement
	(i.e. Arcades, Courts, Gyms, Funeral Home, Lecture Rooms, Libraries, Museums, and
	Places of Worship)
A-4	Assembly intended for viewing indoor sports events with seating included
	(i.e. Arenas, Skating Rinks, Swimming Pools)
A-5	Assembly intended for participation or viewing of outdoor activities
	(i.e. Bleachers, Grandstands, Stadiums)
B	Business intended for office, professional services, or service oriented
	(i.e. Ambulatory Care, Animal Hospitals, Banks, Beauty Shops, Car Wash, Civic Admin,
	Outpatient Clinic, Educational Higher Than The 12th Grade)
E	Educational with 6 or more persons and up to 12th grade & day care facilities with
	5 or more children older then 2.5 years
F-1	Factory intended for assembly, disassembly, fabricating, finishing, etc. classified as
	moderate fire hazard
	(i.e. Aircraft, Appliances, Automobiles, Bakeries, Clothing, etc.)
F-2	Factory intended for fabrication or manufacturing of non-combustibles which during
	finishing are classified as low fire hazard
	(i.e. Ice, Metal, Glass, Brick, Ceramic)
H-1	Detonation Hazard
	(i.e. Explosives, Class 4 Oxidizers)
H-2	Deflagration or Accelerated Burning Hazard
	(i.e. Class I-III Flammable or Combustible Liquids-Open Container,
	Dust, Flammable Gas, Class 3 Oxidizers)
H-3	Combustion or Physical Hazard
	(i.e. Class I-III Flammable or Combustible Liquids-Closed Container,
	Consumer Fireworks, Flammable Solids, Class 2 Oxidizers, Water Reactive)

H-4	Health Hazard
	(i.e. Corrosives, Highly Toxic or Toxic Materials)
H-5	Semiconductor Fabrications Facilities & Comparable Research and Development
I-1	Institutional intended for 16 or more persons who reside on a 24 h.r. basis and receive
	custodial care
	(i.e. Assisted Living, Residential Board & Care, Halfway Homes)
I-2	Institutional intended for persons receive care on a 24 h.r. basis and are incapable or
	self-preservation
	(i.e. Hospitals, Nursing Homes, Psychiatric Hospitals)
I-3	Institutional intended for 5 or more persons who are under restraint or security
	(i.e. Correctional or Detention Centers, Jails, Prisons)
I-4	Institutional intended for 5 or more persons who receive less than 24-hour care
	(i.e. Adult or Child Care)
M	Mercantile for display and sale of merchandise and stocked goods
	(i.e. Department Store, Drug Stores, Retail, Motor Fuel Dispensing)
R-1	Residential containing sleeping units with transient occupants
	(i.e. Hotels, Motels)
R-2	Residential containing sleeping units or two or more dwelling units were occupants
	are permanent
	(i.e. Apartment Buildings, Dormitories, Timeshares)
R-3	Residential with permanent occupants not classified in R-1 or R-2
	(i.e. Buildings With Less Than 2 Units, Care Facilities with 5 or Less Persons, etc.)
R-4	Residential with more than 5 but less than 16 who reside 24 h.r. basis in supervised
	environment and receive custodial care
	(i.e. Assisted Living, Residential Board & Care, Halfway Homes)
R-5	Residential single- or two-family dwellings
S-1	Storage with Moderate Fire Hazard
	(i.e. Aerosols, Aircraft Hanger, Furniture, Glue, Lumber, Motor Vehicle Repair, Tires,)
S-2	Storage with Low Fire Hazard
	(i.e. Cement, Dairy, Food, Glass, Meats, Metals, Stoves, etc.)

Appendix D

Rockingham Co. Fire Marshal's Office
Inspection Checklist

Certificate of Occupancy:

Building Exterior:

- Address Posted
- Knox Box Installed & Secured with Keys
- Fire Lanes Marked Per Standard
- Fire Hydrants Installed Per Site Plan
- Fire Hydrants Facing Correct Direction
- Fire Hydrants Protected From Damage
- Fire Hydrants Free Of Obstructions
- Fire Hydrants Flow Tested
- Fire Hydrants Color-Coded
- FDC Located Per Approved Plans
- Outside Fuel Sources Properly Protected
- Outside Doors Properly Labeled

Building Interior:

- Exit Lights Operational
- Egress Lights Operational
- Exits And Exit Paths Unobstructed And Clearly Marked
- Approved Hardware On Exit Doors
- Interior Doors Properly Labeled
    - Sprinkler Rooms Electrical Rooms
    - Fire Alarm Rooms Mechanical Rooms
- Floor Plan with Alarm Zones Posted at Alarm Panel
- All Penetrations through Fire Rated Assemblies Properly Sealed
- Fire Egress Plans Posted As Required
- Fire Safety And Evacuations Plans Provided As Required
- Fire Extinguishers Installed And Marked

Fire Protection Systems:

- Fire Sprinkler Acceptance Test
- Fire Alarm System Acceptance Test
- Fire Detection System Acceptance Test
- Hood Suppression System Acceptance Test
- Fire Pump Acceptance Test
- Spray Booth Acceptance Test
- Other Fire Protection Acceptance Test

Sprinkler System:

General
- Approved Plans On-Site
- Underground Hydro Completed
- System Rough-in Inspection Completion
- Underground Flush Completed
- System Hydro Completed
- Back Flow Preventer Forward Flow-Tested
- Main Drain Installed As Approved
- Water Control Valves Are Monitored As Supervisory And Report To FACP
- Flow Switches Are Monitored As Alarm and Report to FACP
- Exterior Flow Alarm Initiates Within 5 Minutes And Has Proper Signage
- Supply Valve Must Be Indicating Type
- Permanent Riser Signage Posted
- Permanent Hydraulic Calculation Signage

FDC
- Underground Hydro Completed
- Underground Flush Completed
- Approved Caps In Place
- Area or Building Served Identified
- Check and Drip Valve Installed
- FDC Connects To Riser As Approved
- Is Of Approved Height and Size
  Is Properly Supported

Sprinkler
- Extra Sprinklers In Place Per NFPA
- Sprinkler Wrench Provided
- Sprinklers Spaced As Approved; Not Within 4 Inches of Wall
- Sprinklers Not Painted Or Covered
- Proper Type and Temperature Installed
- Escutcheon Plates Are In Place

System Pipe
- Pipe Layout and Size Installed As Approved
- Vertical Sprigs > 4 Feet Supported
- Main and Branch Lines Supported
- Hangers Not Within 3 Inches Of Upright Sprinklers

Dry/Pre-action Systems
- Compressor Installed As Approved; Has Min. ½ Inch Fill Line And Fills System In 30 Minutes
- Pre-action and Deluge Are Tripped By Detection Activation
- Riser Room Is Heated > Or = 40^{o}F

- Air Pressure Is Set At Least 20 PSI Above Trip Pressure
- Water Reaches Farthest Point Within Required Time Frame

Alarm System:

General

- Approved Plans On-Site
- FACP and Annunciator(s) Installed As Approved
- Zone Legend Posted At Approved Location
- Fire Alarm Zones Are Identified On FACP/Annunciator As Approved
- Fire Alarm System Supplied By Dedicated Circuit, Labeled, And Circuit Breaker Locked Out
- Has Communication Means As Approved
- Installed Wire Type And Gauge Are Approved
- Device Locations Installed As Approved
- Pull Stations Installed As Approved

Operations

- Fire Alarm Audible Devices Operated
- Fire Alarm Visual Devices Operated and Set to Correct Intensity Setting
- Heat and Smoke Detectors Tested
- Flame Detection and Air Sampling Tested
- Other System Activation Activates Alarm
- Fire Alarm Audible/Visual Devices Operated With Sprinkler Flow
- Sprinkler Tamper Causes Trouble Signal and FACP Buzzer Indicator
- HVAC Devices Are Monitored As Supervisory and HVAC Units Shut Down With Activation of Device
- Magnetic Door Hold Openers Operated
- Emergency Phone Jacks Tested
- Trouble Signal When Circuit Removed
- Device Off Line Trouble Signal Tested
- System Activates For 5 Minutes on Batteries Only
- ECC Receives Signal With Correct Location, Address, and Zone Activated.
- Knox Box Installed and Keys Secured

Hood Suppression System:

General

- Approved Plans On-Site
- Pipe Size and Layout As Approved
- Plenum and Duct Protection As Approved
- All Hood Penetrations Sealed
- Nozzle Type Meets Approved Plans
- Nozzle Placement Meets Approved Plans
- Pull Station Installed As Approved
- Manual Pull Activates System

- Building Fire Alarm or System Audible/Visual Device Operates
- Fuel/Power Shut Down Device Shuts Down All Equipment Under Hood
- Shut Down Device Requires Manual Reset
- Operation of Detection Device Operates System
- Wet Test Preformed With Rust Inhibitor
- Nozzles Cleaned and Replaced
- Chemical Container Installed, Accessible, And Pressure Gauge in Operable Range
- Maintenance Tag On System
- Grease Filters Stamped With “Listed Grease Filter”
- Class K Extinguisher Installed < Or = 30 Foot

Standpipe System:

General
- Approved Plans On-Site
- Location and Size Comply With Plans
- Wet Systems Protected From Freezing
- Underground Hydro Completed
- Underground Flush Completed
- System Hydro Completed
- Permanent Hydraulic Calculation Signage
- Main Drain Installed As Approved
- Manual Valves Operate And Secured
- Supply Valve Must Be Indicating Type
- Riser Supported As Approved
- Outlet Valves Function And Installed As Approved
- Hose Connection Threads Undamaged And Caps Hand Tight
- Roof Valves Comply With Plans

FDC
- Underground Hydro Completed
- Underground Flush Completed
- Approved Caps In Place
- Area or Building Served Identified
- Check and Drip Valve Installed
- No Shut-Off Valve In FDC
- FDC Connects To Riser As Approved
- Is Of Approved Height and Size
- Is Properly Supported

Operation
- Flow Test At Most Remote Outlet Meets System Design
- Flow Test At Each Roof Outlet Meets Required Pressure And Flow
- Pressure Regulating Valves Flow Tested And Verified PSI Setting
- Auto And Semi-Auto Systems Tested And Flow Time Requirements Met

Underground Flush:

- In Order To Meet Flushing Requirements A Minimum GPM Flow Is Required Based On Pipe Size
    - 4 inch=390 GPM
    - 6 inch=880 GPM
    - 8 inch=1560 GPM
    - 10 inch=2440 GPM
    - 12 inch=3520 GPM
- Formula to Determine Flow
    - $29.83 \times Diameter^2 \times SQRT(Pressure)$

Appendix E

PRIVATE ROAD AND RIGHT OF WAY SPECIFICATIONS

Roads and Access Way
Private roads and access ways shall be all-weather surfaces capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds and have a clear height of 13 feet 6 inches. The grade shall not exceed 10 percent; Exception: steeper grades may be permitted by the fire code official when constructed in accordance with the chart below. Dead-end roads in excess of 150 feet in length shall be provided with turn-arounds as approved by the code official.

Road Grade (% of Slope)	*Roadbed, Type, and Drainage*	*Surfacing*
0 to 5%	Crowned (three (3) percent) with side ditch and culver pipes spaced at two hundred (200) foot maximum, or outsloped (three (3) percent) with dips spaced at one hundred fifty (150) foot maximum.	Designed and built to support fire apparatus weighing at least 75,000 pounds.
5 to 10%	Crowned with (three (3) percent) side ditch and culvert pipes spaced at one hundred fifty (150) foot maximum, or outsloped (three (3) percent) with dips spaced at one hundred fifty (150) foot maximum.	Designed and built to support fire apparatus weighing at least 75,000 pounds.
10 to 15%	Crowned (three (3) percent) with side ditch and culver pipes spaced at one hundred forty (140) foot maximum	Crushed aggregate or pit run aggregate.
15 to 20%	Crowned (three (3) percent) with side ditch and culver pipe spaced at one hundred thirty (130) foot maximum.	Crushed aggregate.
Above 20%	Crowned (three (3) percent) with erosion control stone lined side ditch and culver pipe spaced at one hundred twenty (120) foot maximum.	Asphalt pavement or asphalt surface treatment (chip and seal).

Turns
Turns in roadways shall maintain the minimum width. Turns shall be constructed with a minimum radius of 25 feet at the inside edge and 50 feet at the outside edge.

Gates
Gates shall be located a minimum of 30 feet away from the public right-of-way and shall open inward. The clear opening provided through gates shall be 2 feet wider than the travel way.

Restricted Access
Where emergency vehicle access is restricted because of secured access roads or where immediate access is necessary for life-saving or firefighting purposes, the fire code official is authorized to require a key box to be installed in an accessible location. The key box shall be of the type approved by the code official and shall contain keys to gain access as required by the code official.

Designation as a Fire Lane
The fire code official reserves the right to designate any private road as a fire lane.

PRIVATE RIGHT-OF-WAY STANDARDS
(LANES) FOR A-1 AND A-2 DIVISIONS
IN ROCKINGHAM COUNTY

RIGHTS-OF-WAY MUST BE CONSTRUCTED PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY. VERIFICATION SHALL BE BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT

1. PRIVATE RIGHT-OF-WAY SERVING NO MORE THAN TWO NON-FAMILY PARCELS AND FAMILY DIVISIONS: *

Width of 20 feet with 12-foot roadbed and a clear height of 13 feet 6 inches and meeting the additional standards listed below.

2. 50-FOOT PRIVATE RIGHT-OF-WAY:

Width of 50 feet with a 20-foot roadbed and a clear height of 13 feet 6 inches and meeting the additional standards listed below.

ADDITIONAL STANDARDS REQUIRED FOR ALL PRIVATE RIGHTS-OF-WAYS.

1. Rights-of-way shall be all weather roads designed to accommodate the load and turning radii for fire apparatus.

2. The grade shall not exceed 10 percent. **EXCEPTION**: steeper grades may be permitted by the fire code official when terrain or other circumstances make it impractical to meet the 10 percent requirement and other mitigation measures can be agreed upon jointly by the fire code official and party responsible for the construction of the right-of-way.

3. Dead-end rights-of-way in excess of 150 feet in length shall be provided with turn arounds as approved by the code official.

4. Where emergency vehicle access is restricted because of gates, the gates shall be located a minimum of 30 feet away from the public right-of-way and shall open inward. The clear opening provided through gages shall be 2 feet wider than the travel way. The fire code official is authorized to require a key box to be installed in an accessible location. The key box shall be the type approved by the code official and shall contain keys to gain access as required by the code officials.

*If the parties involved choose to put in a 50' right-of-way, they will have to meet the standards for the 50' right-of-way.

Code References:
International Fire Code (adopted by Virginia as the Virginia Statewide Fire Prevention Code and adopted by Rockingham County as the Rockingham County Fire Prevention Code)

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