



ROANOKE COUNTY DEVELOPMENT SERVICES
Office of Building Safety
COMMERCIAL FIRE SPRINKLER SYSTEM
SUBMITTAL CHECKLIST



Project Name: _____	Date: _____
Occupancy Address: _____	
Owner: _____	Telephone: _____
Occupant/Tenant: _____	Telephone: _____
Owner's Address: _____	
Designer: (print) _____	Signature _____
Address: _____	
Telephone: _____	Fax: _____
Email: _____	

This checklist is to accompany all plan submittals. Complete set of drawings, scaled to 1/8" or 1/4" per foot.² Included with the submittal must be a graph sheet, plotted on semi-logarithmic graph paper, showing water supply curves and system requirements. Design, layout, and installation is to be done in accordance with the current edition of the Uniform Statewide Building Code and all adopted standards.* Information on shop drawings should include all of the following applicable items:

Y N/A

- Dimensioned site plan showing entire building and indicating area served by system.
- Point of compass (i.e. direction of north)
- Ceiling construction
- Full height cross section
- Location of all fire walls and partitions
- Complete floor plan indicating occupancy of each room or area
- Any questionable spaces, e.g. concealed spaces, etc., where no sprinklers are installed
- Size of water main in street³
- Alternate/Additional water supply showing pressure and elevation³
- Make, type, and nominal orifice size of all sprinklers
- Temperature rating and location of any high-temperature sprinklers
- Number of sprinklers on each riser and on each system by floors and total area by each system on each floor
- Type and location of alarm bell and supervisory method
- Pipe material and schedule to be used
- Type and location of hangers, sleeves, braces and methods of securing sprinklers¹



- Underground pipe size, length, location, weight, material, point of connection to main, type of valves, meters, valve pits, and depth to top of pipe
- When the equipment is installed as an addition to an existing system, enough of existing system shall be indicated on plans to make all corrections clear and indicate the effect, if any, on existing remote areas
- Name, address, and phone number of contractor
- Hydraulic reference points are to be shown by a number and/or letter designation
- System design criteria showing the minimum rate of water application (density), the design area of water application and the water required for hose streams both inside and outside
- FDC location(s) in accordance with approved civil drawings; please verify with the Roanoke County Fire Marshal's Office prior to submittal

Information on calculations should include all of the following applicable items:

Y N/A

- Location, name of owner/occupant, name of designer and address, and building identification
- Description of hazards
- Hazard/Commodity classifications
- Design area of water application
- Minimum rate of water application i.e., density
- Area of sprinkler coverage
- Building height
- Storage height
- Storage method
- Total water requirements, as calculated, including allowance for hose demand water supply information
- Location and elevation of static and residual test gauge with relation to the riser reference point
- Water supply data including date, size, and location of main and recent supply test flow data indicating flow, static, residual pressure, and whom test was conducted by
- If design is a gridded system, sketch must be attached to indicate flow quantities and directions for lines with sprinklers operated in the remote area
- Sprinkler description and discharge constant (K value)
- Hydraulic reference points
- Flow, gpm
- Pipe diameter (actual) and length
- Equivalent pipe length for fittings and components
- Friction loss in psi per foot of pipe and total friction loss between reference points
- Elevation difference between reference points
- Required pressure in psi at each reference point
- Velocity pressures and normal pressure if included in calculations

¹Piping hanging supports in areas with a seismic design category of other than A or B must be reviewed and approved by the registered design professional in accordance with the USBC.



²Fire protection system design is considered engineering work and must be done under the supervision of the design professional of record, where applicable with State Law. Sprinkler shop drawings must first be submitted to the design professional, where applicable and stamped "approved" prior to submittal to our office.

³The design of an adequate water supply, i.e., fire pump, storage tank, etc., must be conducted by a registered design professional with an adequate knowledge and understanding of fluid mechanics, hydraulics, and the appropriate codes and standards.

Δ If the occupancy is other than light or ordinary hazard (group 1), the applicable attached letters indicating the owner's intended use must be included with submittal. Due to the complexity of some hazards, an engineering analysis of hazards and storage methods, conducted by a registered design professional, may be required at the discretion of this office.

*Currently adopted edition of applicable standards for general design/installation:

- *Virginia Construction Code 2021; International Fire Code 2021*
- *NFPA 13-2019 Installation of Sprinkler Systems*
- *NFPA 13R-2019 Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height*
- *NFPA 13D-2019 Installation of Sprinkler Systems in One-and Two-family Dwellings and Manufactured Homes*
- *NFPA 14-2019 Installation of Standpipe and Hose Systems*
- *NFPA 20-2019 Installation of Stationary Pumps for Fire Protection*

