



Stafford County Fire and Rescue Department Office of the Fire Marshal

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Guidelines and Specifications For:

Fire Flow

Applicable Codes and Standards:

- VSFPC - Virginia Statewide Fire Prevention Code (2018)
- IFC – International Fire Code (2018) Appendix B
- SCWSS – Stafford County Water and Sewer Standards
- SCC – Stafford County Code
- FPH – National Fire Protection Association Fire Protection Handbook (20th edition)

General Requirements	Code Section																																																												
<p>All new buildings served by public water must have adequate capacity to be capable of delivering not less than the following fire flows at 20 psi:</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Distance Between Buildings</th> <th style="text-align: left; padding: 2px;">Single Hydrant to Meet Flow Requirements</th> <th style="text-align: left; padding: 2px;">Two Hydrants Within Five Hundred Feet of Structure to Meet Flow Requirements</th> </tr> </thead> <tbody> <tr> <td colspan="3" style="padding: 5px;">One and Two Family Dwellings:</td> </tr> <tr> <td style="padding: 2px;">31 Ft. and greater</td> <td style="padding: 2px;">1,000 GPM</td> <td style="padding: 2px;">1,000 GPM</td> </tr> <tr> <td style="padding: 2px;">11 Ft. - 30 Ft.</td> <td style="padding: 2px;">1,000 GPM</td> <td style="padding: 2px;">1,500 GPM</td> </tr> <tr> <td style="padding: 2px;">10 Ft. or less</td> <td style="padding: 2px;">1,500 GPM</td> <td style="padding: 2px;">2,000 GPM</td> </tr> <tr> <td colspan="3" style="padding: 5px;">Townhouses & Multiple Units:</td> </tr> <tr> <td colspan="3" style="padding: 2px;"></td> </tr> <tr> <td colspan="3" style="padding: 5px;">Apartments, Hotels, Motels, Offices, Hospitals, Nursing Homes:</td> </tr> <tr> <td colspan="3" style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">1 - 3 Stories</td> <td colspan="2" style="padding: 2px;">2,000 GPM</td> </tr> <tr> <td style="padding: 2px;">Over 3 Stories</td> <td colspan="2" style="padding: 2px;">2,500 GPM</td> </tr> <tr> <td colspan="3" style="padding: 5px;">Schools:</td> </tr> <tr> <td colspan="3" style="padding: 2px;"></td> </tr> <tr> <td colspan="3" style="padding: 2px;">2,500 GPM</td> </tr> <tr> <td colspan="3" style="padding: 5px;">Mercantile, Retail Stores, Shopping Center, etc.:</td> </tr> <tr> <td colspan="3" style="padding: 2px;"></td> </tr> <tr> <td colspan="3" style="padding: 2px;">2,500 GPM</td> </tr> <tr> <td colspan="3" style="padding: 5px;">Industrial Storage Buildings, Repair Garages, Service Stations:</td> </tr> <tr> <td colspan="3" style="padding: 2px;"></td> </tr> <tr> <td colspan="3" style="padding: 2px;">2,500 GPM</td> </tr> </tbody> </table> <p><u>Notes:</u></p> <ol style="list-style-type: none"> 1. In areas of mixed-use development, the higher fire flow shall govern. 2. Where the size and scope of the development exceeds these requirements, additional flow shall be provided in accordance with ISO (Insurance Services Office) requirements. <p>The available water storage system shall have adequate capacity to sustain required fire flows for a minimum of three (3) hours.</p> <p>Minimum fire flows must be available from the most hydraulically remote fire hydrant serving the building or facility being protected. Fire flows should be in addition to the daily domestic or commercial water supply demand.</p>	Distance Between Buildings	Single Hydrant to Meet Flow Requirements	Two Hydrants Within Five Hundred Feet of Structure to Meet Flow Requirements	One and Two Family Dwellings:			31 Ft. and greater	1,000 GPM	1,000 GPM	11 Ft. - 30 Ft.	1,000 GPM	1,500 GPM	10 Ft. or less	1,500 GPM	2,000 GPM	Townhouses & Multiple Units:						Apartments, Hotels, Motels, Offices, Hospitals, Nursing Homes:						1 - 3 Stories	2,000 GPM		Over 3 Stories	2,500 GPM		Schools:						2,500 GPM			Mercantile, Retail Stores, Shopping Center, etc.:						2,500 GPM			Industrial Storage Buildings, Repair Garages, Service Stations:						2,500 GPM			<p>VSFPC 507.3 SCWSS 2.1.5</p>
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<p>Where the source of supply cannot deliver the minimum fire flow at 20 psi, Appendix B of the IFC (based on the ISO Fire Flow Formula) may be consulted for up to a 50% reduction where approved but no less than 1500gpm. Otherwise, the structure must be provided with NFPA 13 sprinklers and fire resistive construction.</p>	<p>SCWSS 2.1.5 IFC B105 SCC 12-62, 507.3</p>																																																												
<p>Where approved on-site or public water is not available, a dry hydrant or other approved water supply for fire protection should be identified or provided within at least 1 road mile of any new facilities, buildings and developments (including subdivisions of 5 or more lots).</p>	<p>SCC 12-62, 507.1</p>																																																												
<p>Where a development includes a water source of at least 3,000 cubic feet (22,442 gallons), a dry hydrant shall be provided and where the surface area is more than 3 acres in size, at least two dry hydrants shall be provided in approved locations.</p>	<p>SCC 22-118(6)</p>																																																												