



# Valley Regional Fire Authority Office of the Fire Marshal

2905 C Street SW, Auburn, WA 98001  
 Phone: (253) 288-5870 ♦ Fax: (253) 288-5970  
[www.vrfa.org/FireMarshal](http://www.vrfa.org/FireMarshal) ♦ [Fire.Marshall@vrfa.org](mailto:Fire.Marshall@vrfa.org)



Acceptance Testing/Inspection Checklist for:

## Fire Service Line Underground Flush

This checklist is intended as a guide to assist customers with preparing for their inspections. We endeavor to keep all information updated, but the inspector/reviewer has ultimate authority to decide any issues. Please contact the VRFA to get specific information concerning your project.

### Applicable Codes and Standards:

- COA– City of Auburn Municipal Code (2015)
- 2015 IFC– International Fire Code, 2015 Edition
- NFPA 13 – NFPA Standard for the Installation of Automatic Sprinkler Systems (2013)
- NFPA 24 – NFPA Standard for the Installation of Fire Service Mains (2010)

### Inspection Basics:

Yes	No	Item	Code Section
		Building address posted and visible from the street?	2015 IFC: 505.1 2015 IFC 110.5
		Applicable construction permit posted?	2015 IFC 105.3.5 , 2015 IFC 110.5
		Approved plans on site?	2015 IFC 105.4.6

\*If any of these are “No” – the inspection may be failed immediately

### Key Information:

Yes	No	Item	Code Section
		Is the hose adequately sized? (no smaller than 4”)	NFPA 13/24, 10.10.2.1
		Is the hose adequately anchored? Ensure that you’re witnessing the test at a safe distance. Is there a place for the water to go?	NFPA 13/24, 10.10.2.1 NFPA 13/24, 10.10.2.1.4
		Is the water main valve fully opened? If inadequate flow is evident during the test, it may be necessary to verify if other water main valves are closed.	NFPA 13/24, 10.10.2.1
		Does the water appear to flow smoothly without evidence of a possible obstruction? Check burlap bags for stones, rocks, etc.	NFPA 13/24, 10.10.2.1.2
		Does the water appear to flow consistently clear? The water may fluctuate between clear and dirty initially so when in doubt, let it run.	NFPA 13/24, 10.10.2.1.3

		Is the water moving with sufficient velocity (10ft/sec)? Determine velocity by dropping a pebble in the flow and see how quickly it moves 10 feet. Never stick a pitot gauge in a flush flow. Debris can come out with sufficient force to damage the gauge or injure you.	NFPA 13/24,10.10.2.1.3
		Ensure that the NFPA "Contractor's Material and Test Certificate for Underground Piping" is being completed. Final approval requires a completed report.	NFPA 13/24,10.10.1

Yes	No		
		Is work and /or test approved by the VRFA?	
		Is further work and/or testing required? (see punch list below)	

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## TESTING AND FLUSHING

### NFPA 24: 10.10.2.1\* Flushing of Piping.

**10.10.2.1.1** Underground piping, from the water supply to the system riser, and lead-in connections to the system riser, including all hydrants, shall be completely flushed before the connection is made to downstream fire protection system piping.

**10.10.2.1.2** The flushing operation shall be continue until water flow is verified to be clear of debris.

**10.10.2.1.3\*** The minimum rate of flow shall be in accordance with **Table 10.10.2.1.3**.

**Table 10.10.2.1.3 Flow Required to Produce Velocity of 10 ft/sec (3.0 m/sec) in Pipes**

Nominal Pipe Size		Flow Rate	
in.	mm	gpm	L/min
2	50	100	380
2½	65	150	570
3	75	220	833
4	100	390	1500
5	125	610	2300
6	150	880	3350
8	200	1560	5900
10	250	2440	9250
12	300	3520	13,300

**10.10.2.1.3.1** Where the flow rates established in **Table 10.10.2.1.3** are not attainable, the maximum flow rate available to the system shall be acceptable.

**10.10.2.1.4** Provision shall be made for the proper disposal of water used for flushing or testing.

Testing of fire protection underground piping, from the point of connection to inside of the building, shall be in accordance with NFPA 24 and 13. Testing shall consist of a hydrostatic test at not less than **200 psi for two hours**.

Sprinkler underground supply piping, from the point of connection to aboveground system riser assembly shall be flushed in accordance with NFPA 24. See NFPA Table 9-1.1 for required flow to meet the velocity requirement of 10 Ft. per Second. A general rule of thumb is:

- To flush **4"** underground pipe and direct water to a remote area use **(2) 2½ hose lines**.
- To flush **6"** underground pipe and direct water to a remote area use **(3) 2½ hose lines**.
- To flush **8"** underground pipe and direct water to a remote area use **(3) 2½ hose lines**.
- To flush **10"** underground pipe and direct water to a remote area use **(4) 2½ hose lines**.