

# Guidelines for Service Line and Meter Capacities

Service Flows from DWD Internal Study of Various Code Capacities

Meter Flows from AWWA Manual M-22 *Updated 6/11/10*

Tap/Meter/Service Sizing

Maximum rated Velocity is 10 ft/sec

Diameter	Maximum Flow @ Velocity 10 ft/sec (1,2)	High Normal Meter Flows (3)			Associated BFP Diameter @ 10 ft/sec
		Displacement	Meter Type		
			Turbine Class II	Compound	
3/4"	14	15			1"
1"	24	25			1 1/4"
1.5" (4)	55	50	80		2"
2"	98	80	100	80	2 1/2"
3"	220		240	160	4"
4"	391		420	250	6"
6"	881		920	500	8"
8"	1566		1600	800	10"
10"	2447		2500		12"

All flows in gallons per minute (gpm)

- (1) Uniform Plumbing Code A 6.1: Velocities shall not exceed 10 ft/sec  
AWWA Manual M-22, Appendix C: "recommended that the maximum water Velocity in the service be not more than 10 /fs"
- (2) International Plumbing Code Figure E103.3(2): Fluid velocities in excess of 5 to 8 ft/sec are not usually recommended
- (3) AWWA Manual M-22 Table 6.1
- (4) Only Badger meters are manufacturer rated to deliver in excess of 50 gpm for 1 1/2"

## Backflow Preventer Sizing

Maximum rated Velocity is 7.5 ft/sec

	BFP Maximum	
Diameter Inches	7.5	Velocity in ft/sec
0.75	10.3	Flows in gpm
1.00	18.4	
1.25	28.7	
1.50	41.3	
2.00	73.4	
2.50	114.7	
3.00	165.2	
4.00	293.6	
6.00	660.6	
8.00	1174.4	
10.00	1835.1	

## Recommended Flow Capacity for Automatic Sprinkler Connection Taps

Diameter	Flow	Flow	Allowed Combination Domestic Tap Sizes	
Inches	@ 15 fps (1)	@ 20 fps (2)	at $\geq$ 4:1 Ratio <i>or</i> $<$ 8:1 Ratio (ASC:DOM)	
1 1/2"	83 gpm	110 gpm	N/A	
2"	150 gpm	195 gpm	N/A	
3"	331 gpm	441 gpm	N/A	(3" tapping saddle N/A)
4"	590 gpm	780 gpm	3/4"	1"
6"	1,325 gpm	1,760 gpm	1"	1 1/2"
8"	2,350 gpm	3,140 gpm	1 1/2"	2"
10"	3,675 gpm	4,895 gpm	1 1/2"	2"
12"	5,286 gpm	7,050 gpm	2"	3"

(1) From NFPA 20 Section A-2-9.4, ASC systems w/fire pump, 15 fps maximum

(2) Maximum recommended flow velocity w/o fire pump is 20 fps