

Project Address:	435 Eby Creek Rd
Square #:	
Lot #:	
DC Water Tracking #:	
DCRA Tracking #:	

Water Supply Fixture Units Worksheet (MSW1)

Flush Tank

Flushometer Valve

Input Cells

Predominant Supply Systems:

Fixture Type	Occupancy	Type of Supply Control	Number of Fixtures	Load Value	WSFU
Full-bath group**	Private	Flush Tank	54	x 3.60	= 194.40
	Private	Flushometer Valve		x 8.00	=
Half-bath Group**	Private	Flush Tank		x 2.60	=
Bathtub (with/ without shower head)	Private	Faucet		x 1.40	=
	Public	Faucet		x 4.00	=
Bidet	Private	Faucet		x 2.00	=
Combination fixture	Private	Faucet		x 3.00	=
Dishwashing machine	Private	Automatic	30	x 1.40	= 42.00
Drinking Fountain	Office, etc.	3/8" Valve		x 0.25	=
Kitchen sink	Private	Faucet	30	x 1.40	= 42.00
	Commercial	Faucet		x 3.00	=
Laundry tub**	Private	Faucet		x 1.40	=
Lavatory sink	Private	Faucet		x 0.70	=
	Public	Faucet		x 2.00	=
Service sink	Public	Faucet		x 3.00	=
Shower head	Private	Mixing Valve		x 1.40	=
	Public	Mixing Valve		x 3.00	=
Urinal**	Public	1" Flushometer Valve		x 10.00	=
	Public	3/4" Flushometer Valve		x 5.00	=
	Public	Flush Tank		x 3.00	=
Washing machine (8 lb)	Private	Automatic	30	x 1.40	= 42.00
Washing machine (8 lb)	Public	Automatic		x 3.00	=
Washing machine (15 lb)	Public	Automatic		x 4.00	=
Water closet**	Private	Flush Tank		x 2.20	=
	Private	Flushometer Valve		x 6.00	=
	Private	Flushometer Tank		x 2.00	=
	Public	Flushometer Valve		x 10.00	=
	Public	Flush Tank		x 5.00	=
	Public	Flushometer Tank		x 2.00	=
Other				x 5.00	=
Total WSFU:					320.40
Domestic Demand¹:					89.08
					GPM

¹ Domestic demand is calculated as per International Plumbing Code 2012 edition.

** See the definition on page 6

DC Water Use Only

Reviewer's Name:		Date:		The application is:
				Approved
Comment:				Not Approved

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Meter Sizing Worksheet (MSW1)

Proposed Meter Type:

Domestic Service Only
 Combined Fire and Domestic Service

One- or Two-Family Structure

Other Structure



Domestic Meter Size		
a	Total Water Supply Fixture Units (WSFU)	320.4 wsfu
b	Domestic Demand	89.1 gpm
c	Total Hose Bibs and/ or Lawn Sprinkler Demand	10.0 gpm
d	Total Continuous Mechanical Demand	0.0 gpm
e	Total Intermittent Mechanical Demand	0.0 gpm
f	Total DIM (Domestic + Irrigation + Mechanical (cont.) + Mechanical (inter.) Demand	99.1 gpm
g	Domestic Booster Pump Proposed?	<input type="radio"/> Yes <input checked="" type="radio"/> No
h	Pumped Demand	gpm
i	Maximum DIM Demand (higher of g and h)	99.1 gpm
j	Maximum DIM Demand in WSFU	370.5 wsfu
k	The Maximum Developed Length <small>Sheet A</small>	522.0 ft
l	Minimum Available Pressure <small>Sheet A</small>	27.7 psi
Domestic Service Pipe¹ Size		
	2	in
Domestic Distribution Pipe² Size		
	2	in
Domestic Meter Size**		
	2	in

DIM- Domestic Irrigation Mechanical

SAF- System Availability Fee

¹Service Pipe- The pipe from the water main to the water distribution system of the building served. The minimum service pipe size shall be 1" for new construction.

²Distribution Pipe- A pipe within the building structure from the water service pipe to the points of utilization.

The fire service and distribution pipes shall be sized per construction code requirements or by hydraulic calculation in accordance with NFPA 13D, NFPA 13R, or NFPA 13, as applicable. The minimum service pipe size shall be 1" for new construction.

If the designed value of the combined demand in WSFU is different from the above computed value, provide alternative computations per IPC/ IFC for the combined service line pipe size.

The combined service shall be capable of supplying the simultaneous domestic demand and the sprinkler demand required to be hydraulically calculated by NFPA 13, NFPA 13D or NFPA 13R.

Note: If the developed length or water supply fixture units value falls outside the pipe sizing chart, this spreadsheet can not be used for the pipe sizing. The designer can provide either pipe sizing computations per IPC or he/she can use the modified version of the meter sizing worksheet.

**Domestic meter size shall be computed based on the maximum DIM demand excluding fire demand. See AWWA water meter standards on Page 3 to determine domestic meter size. SAF meter size will be same as domestic meter size. The System Availability Fee (SAF) will be based on SAF meter size.

Designer's Name:

Designer's Signature:

DC License #

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Sheet A (MSW1)



Input Cells

Maximum Developed Length

The maximum developed length= (Actual length of pipe between the source of supply and the most remote fixture) X 1.2.

		Dom./ Fire ⁵
a	Distance from water main to curb ¹	120.0 ft
b	Distance from curb to building face	20.0 ft
c	Building Length (at the longest point)	200.0 ft
d	Building Width (at the widest point)	55.0 ft
e	Building Height ²	40.0 ft
f	Length of pipe between source of supply and the most remote fixture (a+b+c+d+e or user entered value) ³	435.0 ft
g	The maximum developed length (value f x 1.2)	522 ft

AWWA Water Meter Standards

Meter Size	High-Normal Flow Rate, gpm	Maximum Flow Rate, gpm
5/8" EX. ONLY (PD*)	10	20
3/4" EX. ONLY (PD*)	15	30
1" (PD*)	25	50
1-1/2" (PD*)	50	100
2" (PD*)	80	160

Source: AWWA, M22, 3rd Ed.

PD*- Positive Displacement

Minimum Available Pressure

Minimum available pressure = minimum static pressure available from the supply source - static pressure loss due to difference in elevations between the water supply source and the highest water supply outlet - meter loss - backflow prevention device/ assembly loss- any other loss (if any).

		Dom./ Fire ⁵
h	Minimum static pressure available from the supply source ⁴	45.0 psi
i	Static pressure loss (building height/2.31)	- 17.3 psi
j	Additional static pressure loss (if any)	- psi
k	Meter loss ⁶	- psi
l	Backflow prevention device/ assembly loss ⁶	- psi
m	Any other loss	- psi
n	Pressure gain due to pump (if any)	+ psi
o	Minimum available pressure (g-h-i-j-k-l+m)	= 27.7 psi

¹This number can be obtained from DC Water by filling out 'Request For Information Form (Meter Sizing Worksheet)'. The form is available on DC Water's website. This number will be negative if the water main is between the road curb and the property line.

²Distance from ground to ceiling of the highest story.

³This value can be overridden if the actual length of the pipe is based on the design data.

⁴This number can be obtained from DC Water by filling out 'Request For Information Form (Meter Sizing Worksheet)'. The form is available on DC Water's website.

⁵Provide this information either for domestic service pipe or fire service pipe whichever is hydraulically more remote.

⁶See pressure loss values based on AWWA standards on Pages 7, 8, and 9 of this worksheet for a reference.