



WATER SERVICE AND WATER METER SIZING GUIDELINES

May 1, 2016

CVWD Pressure Zone _____ (A) See Pressure Zone Table (page 3) (HGL) _____ (C) See Pressure Zone Table (page 3)

**Include
on
Plans**

Domestic Water Meter and Service Run Table									
Lot No.	PZ (HGL) + ½ Res Ht (E)	Meter Elev.	Static Pressure at meter (psi)	Fire Sprinkler Demand/Pressure (gpm _{max} /psi _{min})	Domestic Water Demand/Pressure (gpm _{max} /psi _{min})	Service Run Length (ft)	Customer Side of Meter Pressure	Service Run Size (inches)	DW Service Meter Size
				/	/				
				/	/				
				/	/				

The Engineer of Record (EOR) is responsible for calculating and designing the required service line and meter size based on the critical pressure and fire sprinkler and/or domestic water demands needed at each lot. The above table must be placed on the Domestic Water Plans for first plan check.

Guidelines for calculating the water service line and meter size are:

1. Determine the CVWD pressure zone for the meter and HGL based on half full reservoir (See CVWD Pressure Zone Table)
2. Determine the elevation at each meter location in Average Mean Sea Level (AMSL)
3. Calculate the static pressure (P_M)

$$P_M = \frac{\left(HGL + \frac{1}{2} Res\ ht \right) - meter\ elevation}{2.31}$$

4. Determine the service run length from the domestic water main to the meter
5. Determine worst case condition of the Fire Sprinkler or Domestic Water demand and pressure
6. The EOR must determine the total head loss (in psi) at the required critical gpm flow rate. Losses typically include the following:
 - a. Meter – Head loss based on the proposed meter
 - b. Service line – Head loss based on the proposed service line size
 - c. Fittings – Head losses from all fittings and valves to the customer side of the meter

- d. Head losses from backflow devices or other appurtenances
7. Subtract all head losses from the static pressure to determine the available pressure on the customer's side of the meter. If the available pressure or flow on the customer's side of the meter is less than the worst case required pressure and/or flow, repeat the calculations using the next larger meter/service line combination size. Repeat process until the required pressure and flow criteria is satisfied.
 8. Also refer to the California Residential Code, Title 24, Part 2.5, R313 and NFPA - 13D, for additional information regarding the sizing of service lines.

Additional Information

Typical service/meter combinations are as follows, although other combinations may be approved subject to CVWD's discretion. However, meter sizes cannot exceed the service line size.

1" service	3/4" meter
1.5" service	1" meter
2" service	1.5" meter
2" service	2" meter

Type K Copper information:

Size	C_{HW}	I.D.
5/8"	130	0.652
3/4"	130	0.745
1"	130	0.995
1 1/2"	130	1.481
2"	130	1.959

Typical fittings that are included in the head loss calculations include corporation stops, angle meter stops, ball valves, and check valves. See the manufacturer's data sheets for head loss factors. Refer to CVWD's "Approved List of Materials" for approved products. This information may be found at our website at <http://www.cvwd.org/208/Development-Design-Manual>.

CVWD currently uses the following meters. See the manufacturer's head loss curve tables to determine the head loss through the meter at the required flow rate:

- Master Meter – 3/4" Multi-Jet Meters (max. 30 gpm)
- Master Meter - 1" Multi-Jet Meters (max. 50 gpm)
- Master Meter – 1 1/2" Multi-Jet Meters (max. 100 gpm)
- Master Meter - 2" Multi-Jet Meters (max. 160 gpm)

CVWD Pressure Zone Table				
(A)	(B)	(C)	(D)	(E)
Pressure Zone	Res No.	Elev. (HGL)	Ht (ft)	Elev + 1/2 ht
Area 23	7101	13	32	29
Bighorn	6502	1140	20	1150
Cahuilla Hills	5501	1040	21	1050.5
Cahuilla Hills	6501	1040	20	1050
Canyon	6603	940	32	956
Date Palm	3571-1	565	32	581
ID 13	8111	13	32	29
ID 15	8121	13	24	25
ID11	1092-2	47	24	59
ID 6	5503	840	21	850.5
ID 6	6602	840	20	850
Indio Hills	4711-1	1335	16	1343
Ironwood	5648	684	32	700
Ironwood	6615	684	32	700
Lake Cahuilla	6725	145.5	32	161.5
Lake Cahuilla	6726	145.5	32	161.5
Lower ID 8	3501-1	1040	24	1052
Lower Indio Hills	4701	1145	11	1150.5
Lower La Quinta	6630-1	235	32	251
Lower La Quinta	6630-2	235	32	251
Lower Thousand Palms	4602	335	24	347
Lower Thunderbird	5514	492	32	508
Marrakesh	5643-1	545	24	557
Marrakesh	5643-2	545	24	557
Mecca	6806	-148	24	-136
Mecca	7993	-186	24	-174
MHPZ	MHPZ	500	32	516
Middle La Quinta	6631-1	350	32	366
Middle La Quinta	6631-2	350	32	366
Middleton Road	7802	60	24	72
Mirada	5505	825	32	841
North Shore (152N)	7102	120	32	136
North Shore (152S)	7103	120	32	136
Palm Desert Highway	5617-1	400	24	412
Palm Desert Highway	5617-2	400	24	412
Palm Desert Highway	5644	400	24	412

CVWD Pressure Zone Table Continued				
Quarry Ranch	6730	8	24	20
Rancho Mirage	5510-1	443	24	455
Rancho Mirage	5510-2	443	24	455
Sky Mtn	4603	435	32	451
Sky Mtn	5504-1	435	32	451
Sky Mtn	5504-2	435	32	451
Sun City	4730	290	32	306
Upper Bighorn	6503	1240	24	1252
Upper ID 8	3601	1425	30	1440
Upper La Quinta	6632-1	482	24	494
Upper La Quinta	6632-2	482	24	494
Valley	5509-1	335	24	347
Valley	5509-2	335	24	347
Valley	5513	335	24	347
Valley	5655	335	24	347
Valley	5690	335	24	347
Wide Canyon (1616)	3602	1616	24	1628