

Information contained in this memo is based upon the basic water supply and distribution pipe sizing requirements found in the 2022 California Plumbing Code (CPC) Chapter 6 and should not be considered a complete source of plumbing code requirements.

Main water service, distribution and fixture supply piping are based on water supply fixture unit (WSFU) loading, distance from water meter or source to farthest fixture, static pressure available at source and pressure head loss or gain.

Water Supply Fixture Unit Values:

- |                             |                                |                                                      |
|-----------------------------|--------------------------------|------------------------------------------------------|
| 1. Toilet – 2.5             | 4. Shower (per head) – 2       | 7. Laundry sink – 1.5                                |
| 2. Bathtub (w/wo shower)– 4 | 5. Kitchen sink – 1.5          | 8. Clothes washer - 4                                |
| 3. Lavatory – 1             | 6. Dishwasher (hot only) – 1.5 | 9. Hose bib – 2.5 for first, + 1 for each additional |

Calculate Pipe Size:

- Determine the approximate total developed length from the water meter or source to farthest outlet, round up if in between lengths. Use this distance column to size the main water service and all branches.
- Determine the approximate static pressure at the meter or source. If pressure exceeds 80 psi, a pressure reducing valve is required.
- Elevation changes may have positive or negative effects on the available pressure supplied to fixtures. To determine available pressure at the fixture, subtract .5 psi from the static pressure for every foot the highest fixture is above the source. Add .5 psi for every foot below the source. Use the resultant pressure range to size the main water service and all branches.
- Determine the demand on the water piping system by adding up the fixture unit values shown above for each section of pipe.
- Using the table below, determine the minimum required water service and/or branch pipe sizes based on the maximum number of fixture units allowed for each section of pipe. The hot water pipes are sized using the same method.
- Table assumes a minimum 3/4" water meter. \* Denotes a 1" water meter. Minimum size water service is 3/4" for any building.
- Additional fixture units and larger pipe sizes are required for irrigation systems. Does not include pipe sizing for Fire sprinklers.

Example:

One toilet (2.5), one lavatory (1), one shower (2), one kitchen sink (1.5), one clothes washer (4) and two hose bibs (3.5) = 14.5 WSFU  
 Assume 75' from water meter to farthest fixture, 58 psi static pressure, 0 head loss/gain, the minimum pipe size required would be 3/4".

**WATER PIPE SIZING CHART IN WATER SUPPLY FIXTURE UNITS**

**MAXIMUM ALLOWABLE LENGTHS**

		40	60	80	100	150	200	250	300	1" Meter	
MINIMUM PIPE SIZES	30-45 PSI	1/2	6	5	4	3	2	1	1	1	
		3/4	16	16	14	12	9	6	5	5	
		1	29	25	23	21	17	15	13	12	
		1-1/4	36	33	31	28	24	23	21	19	
		1-1/2	84	84	79	65	56	48	43	38	*
		2	85	85	85	85	85	85	82	80	*
	46-60 PSI	1/2	7	7	6	5	4	3	2	2	
		3/4	20	20	19	17	14	11	9	8	
		1	39	39	36	33	28	23	21	19	
		1-1/4	39	39	39	39	39	39	34	32	
		1-1/2	85	85	85	85	85	85	80	67	*
		2	85	85	85	85	85	85	85	85	*
OVER 60 PSI	1/2	7	7	7	6	5	4	3	3		
	3/4	20	20	20	20	17	13	11	10		
	1	39	39	39	39	35	30	27	24		
	1-1/4	39	39	39	39	39	39	39	39		
	1-1/2	85	85	85	85	85	85	85	85	*	
	2	151	151	151	151	151	151	130	85	*	