

ACWWA Water Demand Estimate and Meter Sizing Using Fixture Values

(Based on AWWA M22 Manual, Second Edition and ACWWA Rules and Regulations)

ACWWA Project Number Concession Stand Water Demand

Building address or number 2222 N. Alamo St. San Antonio, Texas 78215

Residential or Non-Residential Non-Residential ▼

Pressure Zone at Project 90 ▼
(Obtained from ACWWA or Hydrant Test)

Fixture or Appliance	Fixture Value (at 60 psi)	Number of Fixtures	Subtotal Fixture Value
Toilet (tank)	4	47	188
Toilet (flush valve)	35	0	0
Urinal (wall or stall)	16	15	240
Urinal (flush valve)	35	0	0
Bidet	2	0	0
Shower (single head)	2.5	0	0
Sink (lavatory)	1.5	24	36
Kitchen Sink	2.2	1	2.2
Utility Sink	4	1	4
Dishwasher	2	0	0
Bathtub	8	0	0
Clothes Washer	6	0	0
Hose connections (with 50 ft of hose)			
1/2 in.	5	1	5
5/8 in.	9	0	0
3/4 in.	12	0	0
Miscellaneous			
Bedpan washers	10	0	0
Drinking fountains	2	6	12
Dental units	2	0	0
Combined Fixture Value			487.2
Demand (gpm)			88
Pressure Adjustment Factor			1.25
Total Adjusted demand (gpm)			110
Required ACWWA Meter Size			2"

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ACWWA Project Number Field House Water Demand

Building address or number 2222 N. Alamo St. San Antonio, Texas 78215

Residential or Non-Residential Non-Residential ▼

Pressure Zone at Project 90 ▼
(Obtained from ACWWA or Hydrant Test)

Fixture or Appliance	Fixture Value (at 60 psi)	Number of Fixtures	Subtotal Fixture Value
Toilet (tank)	4	30	120
Toilet (flush valve)	35	0	0
Urinal (wall or stall)	16	20	320
Urinal (flush valve)	35	0	0
Bidet	2	0	0
Shower (single head)	2.5	20	50
Sink (lavatory)	1.5	20	30
Kitchen Sink	2.2	0	0
Utility Sink	4	2	8
Dishwasher	2	0	0
Bathtub	8	0	0
Clothes Washer	6	2	12
Hose connections (with 50 ft of hose)			
1/2 in.	5	0	0
5/8 in.	9	0	0
3/4 in.	12	1	12
Miscellaneous			
Bedpan washers	10	0	0
Drinking fountains	2	2	4
Dental units	2	0	0
Combined Fixture Value			556
Demand (gpm)			93
Pressure Adjustment Factor			1.25
Total Adjusted demand (gpm)			116.3
Required ACWWA Meter Size			2"

6" Fire Protection Line Flow Calculations			
Item	Qty	Factor for Eq. Length	PSI Drop
6" Tee Branch Flow	1	12	0.235
6" Gate Valve	1	2.9	0.057
6" Turbine Meter	1	Given Value	11.000
6" Detector Check Valve			
6" Tee Line Flow	3	3.5	0.205
6" 1/8 Bend	1	3.8	0.074
6" x 4" Reducer	1	2.9	0.057
6" 1/4 Bend	2	5.1	0.200
6" PVC MJ Restrained Pipe	654	1.956psi/100 foot	12.792
Elevation Difference	11	0.433psi/1 foot	4.763
Total PSI difference from meter to furthest connection =			29.383
PSI @ furthest connection =			60.62

4" Domestic Water Supply Line Flow Calculations			
Item	Qty	Factor for Eq. Length	PSI Drop
4" Tee Branch Flow	1	11.8	0.231
4" Gate Valve	3	2.5	0.147
4" Turbine Meter	1	Given Value	7.000
Backflow Prevention Device	1	Given Value	10.000
4" 1/8 Bend	1	3.8	0.074
4" Tee Line Flow	2	2.9	0.113
4" x 2" Reducer	1	2.9	0.057
4" 1/4 Bend	5.1	5.1	0.509
4" PVC MJ Restrained Pipe	682	1.953psi/100foot	13.319
Elevation Difference	11	0.433 psi/1 foot	4.763
Total PSI difference from meter to furthest connection =			36.213
PSI @ furthest connection =			48.79

Min PSI required = 25.00

Total Flow Usage for Water Lines and outputs of components selected

Domestic Water Demand = 351.8 gpm

Size of Domestic Water Meter Chosen = 4" Turbine Meter

Output of 4" Turbine Meter = 630 gpm ok

Fire Meter Demand = 2000 gpm

Size of Fire Line Meter Chosen = 6" Turbine Meter w/Detector Check Valve

Output of 6" Turbine Meter w/Detector = 2800 gpm ok