

# WATER USAGE ESTIMATING CHARTS

## For Water Treatment Equipment

### APARTMENTS (Est. people per apartment @ 50 gal. per person)

NUMBER OF APARTMENTS	5	10	15	20	30	40	50
Total Water Usage (Gal./Day)	750	1,500	2,500	3,000	4,500	6,000	7,500
Estimated Total Flow (gpm) - Flush Valves	53	70	85	95	115	133	150
Estimated Total Flow (gpm) - Flush Tanks	25	38	50	57	73	90	105
Hot & Cold - Toilets Bypassed (Gal./Day)	390	960	1,350	1,800	2,700	3,600	4,500
Estimated Hot & Cold Flow (gpm)	18	28	37	45	55	65	75
Hot Water Only (Gal./Day)	250	500	750	1,000	1,500	2,000	2,500
Estimated Hot Flow (gpm)	14	24	30	38	47	55	62

### MOTELS & TRAILER PARKS (Est. 2-1/2 people per unit @ 40 gal. per person)

NUMBER OF UNITS	25	50	75	100	200	300	400
Total Water Usage (Gal./Day)	2,500	5,000	7,500	10,000	20,000	30,000	40,000
Estimated Total Flow (gpm) - Flush Valves	100	135	165	195	305	405	475
Estimated Total Flow (gpm) - Flush Tanks	55	85	115	145	225	305	375
Hot & Cold - Toilets Bypassed (Gal./Day)	1,250	2,500	3,750	5,000	10,000	15,000	20,000
Estimated Hot & Cold Flow (gpm)	37	55	70	85	145	95	235
Hot Water Only (Gal./Day)	850	1,700	2,500	3,350	6,700	10,000	13,400
Estimated Hot Flow (gpm)	30	47	60	70	115	157	195

### SCHOOLS (Est. 25 gal./day per Student). SEE "FLOW RATE ESTIMATING CHART" on page 2 for flow (gpm).

NUMBER OF UNITS	100	200	300	400	600	800	1,000
Total Water Usage (Gal./Day)	2,500	5,000	7,500	10,000	15,000	20,000	25,000
Hot & Cold - Toilets Bypassed (Gal./Day)	1,500	3,000	4,500	6,000	9,000	12,000	15,000
Estimated Hot & Cold Flow (gpm)	830	1,700	2,500	3,300	5,000	6,700	8,300

### RESTAURANTS

See FLOW RATE EST. CHART for flow (gpm).

### HOSPITALS

Total Water Usage	8 gal./patron	National average water usage for hospitals is 250 gal./day per bed. Consult hospital for more accurate figures.
Food Prep. Only (Hot & Cold)	3 gal./patron	
Food Prep. Only (Hot)	1-1/2 gal./patron	
Cocktail Bar Facilities	2 gal./patron	

### COMMERCIAL

### CLOTHES

### WASHER

1. Obtain capacity (lbs.) from customer or table found below.
2. Calculate USAGE (gal./cycle) and FLOW RATE (gpm) from formulas A & B.

**FORMULA A:** Capacity (lbs.) x 2-1/2 = Gallons/Cycle

**FORMULA B:**  $\frac{\text{Capacity (lbs.)}}{2}$  = Flow Rate (gpm)

Tumbler Size (In.)	Clothes Capacity (lbs.)	Tumbler Size (In.)	Clothes Capacity (lbs.)	Tumbler Size (In.)	Clothes Capacity (lbs.)	Tumbler Size (In.)	Clothes Capacity (lbs.)
30 x 16	25	36 x 42	125	42 x 96	400	44 x 126	575
24 x 36	48	36 x 54	165	42 x 108	450	48 x 84	460
30 x 30	60	42 x 42	175	42 x 126	510	48 x 96	535
30 x 36	70	42 x 48	200	44 x 54	245	48 x 120	680
30 x 42	80	42 x 54	225	44 x 64	300	48 x 126	715
30 x 48	95	42 x 64	265	44 x 72	330	54 x 84	600
36 x 60	90	42 x 72	300	44 x 48	385	54 x 96	680
36 x 36	110	42 x 84	350	44 x 96	440	60 x 96	900

# FLOW RATE ESTIMATING CHART

## For Water Treatment Equipment

The following information has been prepared as a guide for estimating maximum flow rates for private and public buildings. The numbers assigned the various fixtures are based on a combination of flow rate and probability of use.

TYPE OF FIXTURE	UNITS -PRIVATE-	UNITS -PUBLIC-
Bar Sink	1	2
Bathtub	2	4
Bedpan Washer	--	10
Bidet	2	4
Combination Sink & Tray	3	--
Dental Unit or Cuspidor	--	1
Dental Lavatory	1	2
Drinking Fountain	1	2
House Bibb or Sill Cock (Std. type)	3	5
House Trailer (each)	6	6
Laundry Tub or Washer	2	4
Lavatory	1	2
Lawn Sprinkler	1	1
Shower	2	4
Sink; Service (Janitor's)	2	4
Sink or Dishwasher	2	4
Sink (flushing rim, clinic)	--	10
Sink (Wash-up, each set of fixtures)	--	2
Sink (Circular Spray)	--	4
Urinal (Wall or Stall)	--	5
Urinal (Flush Tank)	--	3
Water Closet:		
Flushometer Valve	6	10*
Tank Type	3	5*

\*Double this amount for schools

### INSTRUCTIONS FOR USE

- Count and total the number of each type of fixture to be serviced by the water conditioner.
- Multiply the number of each type of fixture by the UNIT COUNT given in the "Fixture Unit Table."
 

PRIVATE -- motels	PUBLIC -- office buildings
apartment building	hospitals
trailer parks	country clubs
group of homes	schools
- Find the total FIXTURE COUNT by adding up the values found in step 2.
- Using the correct table on page 3, find the FIXTURE COUNT closest to the calculated value. The figure given in the right-hand column is the approximate maximum gpm required.

### EXAMPLE:

TYPE OF FIXTURE	QTY.		UNIT COUNT		TOTAL
Water Closet (F.V.)	8	x	10	=	80
Shower	10	x	4	=	40
Lavatory	15	x	2	=	30
Total FIXTURE UNIT COUNT				=	150 = 80 GPM

Water supply outlets for items not listed above shall be computed at their max demand, but in no case less than the following:

3/4 - inch pipe	1	2
1/2 - inch pipe	2	4
3/4 - inch pipe	3	6
1 - inch pipe	6	10

# FIXTURE COUNT TABLES A & B

**NOTE:**

FOR SYSTEMS USING "HOT ONLY", COUNT ONLY THOSE FIXTURES USING HOT WATER/USE 75% OF THE TOTAL FIXTURE COUNT AS THE VALUE FOR SELECTING THE PROPER FLOW RATE (GPM).

<b>TABLE A</b>	
for use with FLUSHOMETER VALVE water closets	
FIXTURE COUNT	PEAK FLOW RATE (GPM)
--	5
--	10
--	15
--	20
8	25
13	30
20	35
28	40
37	45
47	50
60	55
75	60
90	65
110	70
125	75
150	80
170	85
195	90
220	95
250	100
300	110
350	120
425	130
475	140
550	150
625	160
700	170
775	180
850	190
925	200
1075	220
1250	240
1400	260
1575	280
1750	300
1925	320
2100	340
2275	360
2475	380
2675	400
2850	420
3000	440
4000	530
5000	600

<b>TABLE B</b>	
for use with TANK TYPE water closets	
FIXTURE COUNT	PEAK FLOW RATE (GPM)
7	5
12	10
20	15
30	20
40	25
55	30
70	35
85	40
100	45
125	50
150	55
175	60
200	65
225	70
250	75
275	80
300	85
325	90
350	95
375	100
425	110
475	120
525	130
575	140
625	150
700	160
750	170
800	180
875	190
950	200
1075	220
1250	240
1400	260
1575	280
1750	300
1925	320
2100	340
2275	360
2475	380
2675	400
2850	420
3000	440
4000	530
5000	600

Based on Western Plumbing Officials UNIFORM PLUMBING CODE and the NATIONAL PLUMBING CODE.

# WATER USAGE ESTIMATING CHARTS

## For Water Treatment Equipment

This chart should be used as a guide for estimating daily water consumption where meter readings are not available.

FACILITY	WATER USAGE	FACILITY	WATER USAGE
<b>Assembly Halls</b>	2 gal./seat	<b>Food Service Operation</b>	
<b>Apartment Buildings</b>	150-200 gal./unit	Average Restaurant	70 gal./seat
<b>Barber Shops</b>	55 gals./day/chair	24 Hour Restaurant	100 gal./seat
<b>Beauty Salons</b>	270 gals./day/station	Curb Service	50 gal./car space
<b>Bowling Alleys</b>	75 gal./lane	Tavern	20 gal./seat
<b>Camps</b>		<b>Hotels</b>	.256 gpd/sq. ft.
Day (no meals)	15 gals./person/day	<b>Institutions</b>	
Resorts (day & night with limited plumbing)	50 gals./person/day	Hospitals	250 gal./bed
Tourists (with central bath and toilet facilities)	35 gals./person/day	Rest Homes	100 gal./bed
<b>Country Club</b>		<b>Laundries</b>	
per resident member	100 gal./day	Coin Operated	2.17 gpd./sq. ft.
per non-resident member	25 gal./day	Commercial	.253 gpd/sq. ft.
<b>Dance Halls</b>	2 gal./person	<b>Motels</b>	100 gal./unit
<b>Department Stores</b>	0.216 gpd/sq. ft. of sales area	<b>Office Building</b>	20 gal./employee
<b>Factories</b> (excluding process water)		<b>Schools</b>	
without shower	25 gal./person/shift	Boarding	80 gal./student
with shower	35 gal./person/shift	Day (with Cafeteria, gym and showers)	25 gal./student
<b>Farms</b>		Day (with Cafeteria only)	20 gal./student
Cow, Beef	12 gal./day	Day (no Cafeteria or gym)	15 gal./student
Cow, Dairy	20 gal./day	<b>Service Stations</b>	1,000 gal./1st bay
Goat	2 gal./day	500 gal./add'l bay	
Hog	4 gal./day	or estimate	10 gal./vehicle
Horse	12 gal./day	<b>Shopping Centers</b>	.160 gpd/sq. ft.
Mule	12 gal./day	<b>Stores</b>	400 gal./toilet rm.
Sheep	2 gal./day	<b>Theatres</b>	
Steer	12 gal./day	Drive-In	5 gal./car space
Chickens - per 100	10 gal./day	Movie	2 gal./seat
Turkeys - per 100	18 gal./day	<b>Trailer Parks</b>	100 gal./space