

HELP US HELP YOU.
 THE FOLLOWING INFORMATION IS
 REQUIRED TO CORRECTLY SIZE
 A SEWAGE PUMP SYSTEM:



**INFORMATION YOU
 MUST HAVE**

- 1) Job Name & Location
- 2) Name of Plumbing Contractor?
- 3) New construction OR replacement?
- 4) Is this a sewer pump, effluent pump or dewatering pump?
- 5) What is the electrical supply for the pumps (voltage and phase)?
- 6) What is the static head (how high) will the pump have to lift?
- 7) How many feet of pipe will be included on the discharge line?
- 8) What size discharge pipe will lead from the pump?
- 9) List all the fittings that will be included on the pump system.
- 10) How many of each fixture (shown in Figure A) are included in this job?
- 11) What size basin is needed (if known)? Will it be an indoor or outdoor system?
- 12) Simplex or Duplex?
- 13) Rail System - Y or N?

NOTES

DATE

FIGURE A

Fixture Description	Fixture Unit Value
Bathtub, 1-1/2" trap	2
Bathtub, 2" trap	3
Bidet	3
Dental unit or cuspidor	1
Drinking fountain	1/2
Dishwasher, domestic	2
Kitchen sink	2
Kitchen sink with disposal	2
Lavatory, 1-1/2" trap	1
Lavatory, barber/beautician	2
Laundry tray	2
Shower	2
Shower, group (per head)	3
Bathroom group consisting of lavatory, bathtub or shower, and water closet	
- 1.6 gallons per flush (gpf) water closet	5**
- water closet flushing greater than 1.6 gpf	6**
Sink, service type	2
Sink, scullery	4
Sink, surgeons	3
Swimming pool (per 100 gallons)	1
Urinal	4**
Washing machine	2
Water closet	3**
Water softener	4
Unlisted fixture, 1-1/4" trap	2
Unlisted fixture, 1-1/2" trap	3
Unlisted fixture, 2" trap	4
Unlisted fixture, 2-1/2" trap	5
Unlisted fixture, 3" trap	6
Shower, and water closet	6**

** Add 4 fixture units for each flush valve fixture

Pipe Size	Minimum GPM
2"	21
2 1/2"	30
3"	46
4"	78

GPM	FRICTION HEAD IN FEET PER 100' OF SCHEDULE 40 PIPE							
	2"		2 1/2"		3"		4"	
	Plastic	Steel	Plastic	Steel	Plastic	Steel	Plastic	Steel
20	0.73	1.55	0.31	0.65				
25	1.10	2.34	0.47	0.99				
30	1.55	3.28	0.65	1.38				
35	2.06	4.37	0.87	1.84	0.30	0.64		
40	2.64	5.59	1.11	2.35	0.39	0.82		
45	3.28	6.95	1.38	2.93	0.48	1.02		
50	3.99	8.45	1.68	3.56	0.58	1.24		
60	5.59	11.8	2.35	4.99	0.82	1.73		
70	7.44	15.8	3.13	6.64	1.09	2.31	0.29	0.70
80	9.52	20.2	4.01	8.5	1.39	2.95	0.37	0.79
90			4.99	10.6	1.73	3.67	0.46	0.98
100			6.06	12.8	2.11	4.47	0.56	1.19
125			9.18	19.5	3.19	6.75	0.85	1.80
150					4.47	9.46	1.19	2.52
175					5.95	12.3	1.58	3.36
200							2.30	4.30
225							2.56	5.35
250							3.07	6.50
300							4.30	9.11

GPM	RECOMMENDED BASIN DIAMETERS				
	18"	24"	30"	36"	48"
20					
25					
30					
35					
40					
45					
50					
60					
70					
80					
90					
100					
125					
150					
175					
200					
225					
250					

Friction factors for pipe fittings in terms of equivalent feet of straight pipe

Normal Pipe Size	90 Elbow	45 Elbow	Tee (Thru-flow)	Tee Branch Flow	Swing Check Valve	Gate Valve
2"	5.2	2.8	3.5	10.3	17.2	1.4
2-1/2"	6.2	3.3	4.1	12.3	20.6	1.7
3"	7.7	4.1	5.1	15.3	25.5	2.0
4"	10.0	5.0	7.0	22.0	33.0	2.3

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