

PLUMBING DESIGN

How to Determine the Water Meter & Supply Pipe Size

As per Uniform Plumbing Code 2000

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WATER METER & SUPPLY PIPE SIZING

- * Given: 24 units (6 units/floor) 4-storey condominium building with the floor development length of 22.5 meters. Find for WSFU Value, Water Meter, and Supply Pipe Size for 30 to 45 psi.



PRIVATE ***	Quantity	WSFU Value	WSFU
Water Closet			
Lavatory			
Shower			
Sink			
Clothes Washer			
Bath Tub			

TABLE 6-4

Table 6-5 in RNPC 1999

Water Supply Fixture Units (WSFU) and Minimum Fixture Branch Pipe Sizes³

Inch	mm
1/2	15
3/4	20
1	25

Appliances, Appurtenances or Fixtures ²	Minimum Fixture Branch Pipe Size ^{1,3}	Private	Public	Assembly ⁵
Bathtub or Combination Bath/Shower (fill)	1/2"	4.0	4.0	
3/4" Bathtub Fill Valve	3/4"	10.0	10.0	
Bidet	1/2"	1.0		
Clotheswasher	1/2"	4.0	4.0	
Dental Unit, cuspidor	1/2"		1.0	
Dishwasher, domestic	1/2"	1.5	1.5	
Drinking Fountain or Watercooler	1/2"	0.5	0.5	0.75
Hose Bibb	1/2"	2.5	2.5	
Hose Bibb, each additional ⁷	1/2"	1.0	1.0	
Lavatory	1/2"	1.0	1.0	1.0
Sinks				
Bar				
Clinic Faucet				
Clinic Flushometer Valve				
with or without faucet	1"		8.0	
Kitchen, domestic	1/2"	1.5	1.5	
Laundry	1/2"	1.5	1.5	
Service or Mop Basin	1/2"	1.5	3.0	
Washup, each set of faucets	1/2"		2.0	
Shower, per head	1/2"	2.0	2.0	
Urinal, 1.0 GPF Flushometer Valve	3/4"	See Footnote 6		
Urinal, greater than 1.0 GPF Flushometer Valve	3/4"	See Footnote 6		
Urinal, flush tank	1/2"	2.0	2.0	3.0
Washfountain, circular spray	3/4"		4.0	
Water Closet, 1.6 GPF Gravity Tank	1/2"	2.5	2.5	3.5

**RNPC 1999 WSFU Value is different
from Uniform Plumbing Code 2000**

WATER METER & SUPPLY PIPE SIZING

- * Given: 24 units (6 units/floor) 4-storey condominium building with the floor development length of 22.5 meters. Find for WSFU Value, Water Meter, and Supply Pipe Size for 30 to 45 psi.

PRIVATE ***	Quantity	WSFU Value	WSFU
Water Closet	2	2.5	5
Lavatory	2	1	2
Shower	1	2	2
Sink	1	1.5	1.5
Clothes Washer	1	4	4
Bath Tub	1	4	4
Total			18.5
18.5 x 6 units = 111 WSFU			

TABLE 6-5

Fixture Unit Table for Determining Water Pipe and Meter Sizes

Inch	mm
1/2	15
3/4	20
1	25
1-1/4	32
1-1/2	40
2	50
2-1/2	65

Pressure Range – 30 to 45 psi (207 to 310 kPa)**

- 22.5m Development Length
- 111 is the total WSFU

Maximum Allowable Length in Feet (meters)

Meter and Street Service, Inches	Building Supply and Branches, Inches	40 (12)	60 (18)	80 (24)	100 (30)	150 (46)	200 (61)	250 (76)	300 (91)	400 (122)	500 (152)	600 (183)	700 (213)	800 (244)	900 (274)	1000 (305)
3/4	1/2***	6	5	4	3	2	1	1	1	0	0	0	0	0	0	0
3/4	3/4	16	16	14	12	9	6	5	5	4	4	3	2	2	2	1
3/4	1	29	25	23	21	17	15	13	12	10	8	6	6	6	6	6
1	1	36	31	27	25	20	17	15	13	12	10	8	6	6	6	6
3/4	1-1/4	36	33	31	28	24	23	21	19	17	16	13	12	12	11	11
1	1-1/4	54	47	42	38	32	28	25	23	19	17	14	12	12	11	11
1-1/2	1-1/4	78	68	57	48	38	32	28	25	21	18	15	12	12	11	11
1	1-1/2	85	84	79	65	56	48	43	38	32	28	26	22	21	20	20
1-1/2	1-1/2	150	124	105	91	70	57	49	45	36	31	26	23	21	20	20
2	1-1/2	151	129	129	110	80	64	53	46	38	32	27	23	21	20	20
1	2	85	85	85	85	85	85	82	80	66	61	57	52	49	46	43
1-1/2	2	220	205	190	176	155	138	127	120	104	85	70	61	57	54	51
2	2	370	327	292	265	217	185	164	147	124	96	70	61	57	54	51
2	2-1/2	445	418	390	370	330	300	280	265	240	220	198	175	158	143	133

- The nearest high dev't length of 22.5m is **24m**
 - The nearest high WSFU of 111 is **129**
- ***Therefore use 2" Water Meter and 1-1/2" Supply Pipe**