



WATER CALCULATION WORKSHEET

CITY OF MIDDLETON
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Property _____ Permit No. _____

Information Needed For Service & Distribution Sizing

1. Demand of building in G.P.M. _____.
2. Low pressure at main in street _____.
3. Difference in elevation. Main to meter _____ . Pressure loss in _____ P.S.I.
4. Difference in elevation. Meter to highest fixture _____ . Pressure loss in _____ P.S.I.
5. Size of water meter _____ . Pressure loss in _____ P.S.I.
6. Distance main to meter _____ . Pressure loss in _____ P.S.I.
7. Distance meter to furthest fixture _____.

Your First Goal Is To Find The Available Pressure After The Water Meter. To obtain this, you must:

1. Find pressure loss due to friction in water service. If using "K" copper, look at "K" copper chart [H62.13 (4) (c) Table 16A]. Using the G.P.M. demand of building, go horizontally to size of service you want to use. Look straight down and find pressure loss per 100'.

Example: Demand of building is 20 G.P.M. We think a 1" service is necessary. Follow 20 G.P.M. to the 1" line. Look straight down, the pressure loss per 100' is approximately 17 lbs. On this building we have a 120' service. The method used for finding this loss is $\frac{17}{100} = \frac{X}{120}$

X = Pressure loss through service. You must cross multiply and divide $17 \times 120 - 100 = 20$ lbs. loss due to friction.

2. Find pressure loss due to elevation (main to meter). Take this distance and multiply by .434.
3. Find pressure loss due to meter. Look at last page in Water Distribution Manual.
4. Add together loss due to friction (Step 1). Loss due to elevation (Step 2) and loss due to meter (Step 3). Subtract these from the minimum street pressure. This gives you available pressure after the water meter.

Using The Following Formula, Find Uniform Pressure Loss. $A = \frac{B - (C+D+E) \times 100}{F}$

Where

- A. _____ Pressure available for uniform loss P.S.I./100.
- B. _____ Available pressure after water meter.
- C. _____ Pressure needed at furthestmost or controlling fixture.
- D. _____ Difference in elevation between water meter and highest fixture in feet X .434.
Pressure loss in _____ P.S.I.
- E. _____ Pressure loss due to heater, softener, etc.
- F. _____ Total length between water meter and furthest fixture in feet X 1.5 (loss due to fittings and valves).
- G. _____ **Size of water service.**
- H. _____ Distribution pipe size after meter.

With uniform pressure loss, go to applicable Table per distribution sizing.