

Water Calc. Worksheet

Name of Project

INFORMATION REQUIRED TO SIZE WATER SERVICE AND WATER DISTRIBUTION:

- 1- Demand of building in water supply fixture units (WSFU); (WSFU) _____
- 1.a. Demand of building in WSFU converted to Gallons Per Minute: (GPM) _____
(Table SPS 382.40-3)

- 2- Elevation difference from main or external pressure tank to building control valve; (feet) _____
- 3- Size of water meter (when required) 5/8" _____ 3/4" _____ 1" _____ other _____
- 4- Developed length from main or external pressure tank to building control valve; (feet) _____
- 5- Low pressure at main in street or external pressure tank. (psi) _____

CALCULATE WATER SERVICE PRESSURE LOSS

(unnecessary for internal pressure tanks)

- 6- Low pressure at main in street or external pressure tank. (value of # 5 above) _____
- 7- Determine pressure loss due to friction in _____ inch diameter water service.
Water service piping material is _____
Pressure loss per 100 ft. = _____ X _____ (decimal equivalent of
service length, i.e. 65 ft = 0.65) **Subtract value of "7"** _____
Subtotal _____
- 8- Determine pressure loss or gain due to elevation, (multiply the value of # 2 above by .434) **Subtract value of "8"** _____
- 9- Available pressure after the bldg. control valve. Subtotal _____

CALCULATE THE PRESSURE AVAILABLE FOR UNIFORM LOSS (VALUE OF "A")

- B. Available pressure after the bldg. control valve. (from "9" above) Value of "B" _____
- C. Pressure loss of water meter (when meter is required) **Subtract value of "C"** _____
Subtotal _____
- D. Pressure at controlling fixture*.
(Controlling fixture is: _____). **Subtract value of "D"** _____
(*Controlling fixture is the fixture with the most demanding pressure to
operate properly which includes the following when determining
fixture performance; loss due to instantaneous water heaters, water
treatment devices, and backflow preventers which serve the controlling fixture.)
Subtotal _____
- E. Difference in elevation between building control valve
and the controlling fixture in feet; _____ X .434 psi/ft. **Subtract value of "E"** _____
Subtotal _____

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F. Pressure loss due to water treatment devices and backflow preventers which serve the controlling fixture. (Water softeners, filters, etc.)

(Pressure loss due to; _____).

F1. WSFU Downstream of Water Treatment Device; _____

F2. Convert wsfu to GPM using **Table 382.40-3**: _____

or

F3. Convert wsfu to GPM using **Table 382.40-3e*** _____

(For individual dwellings only)

F4. Refer to manuf. graph to obtain pressure loss: _____

(If no water treatment device enter "0")

Subtract value of F4 _____

Subtotal _____

G. Pressure loss through tankless water heaters, combination boiler / hot water heaters, heat exchangers which serve the controlling fixture;

Hot water WSFU's; _____ convert to; GPM = _____ (Table 382.40-3)

Refer to manufacturer's pressure loss graph to determine loss at the required GPM;

_____ pressure loss. **Subtract value of "G"** _____

Subtotal _____

H. Developed length from building control valve to controlling fixture in feet _____ X 1.5

Divide by value "H" _____

Subtotal _____

Multiply by: _____ 100

A. Pressure available for uniform loss **"A" =** _____

Water distribution piping is: _____

*Note: The "A" value obtained by using Table 382.40-3e can only be used for an individual dwelling when sizing the water treatment device (water softeners, etc) and no hose bibbs, hydrants, or high flow fixtures are being served by the water treatment device.

Note: High flow fixtures are defined as fixtures that exceed a flow rate of 4 gpm @ 80 psi, and water velocity not exceeding 8 ft. per second.