



**Marion County
Board of County Commissioners**

Building Safety ♦ Plans Review

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Simplified total dynamic head calculation worksheet

Determine maximum system flow rate: Minimum flow required 35 gpm

1. Calculate pool volume: $\frac{\text{Surface area}}{\text{Surface area}} \times \frac{\text{Avg depth}}{\text{Avg depth}} \times 7.48 \text{ (gallons per cubic foot)} = \frac{\text{volume in gallons}}{\text{volume in gallons}}$

2. Determine preferred turnover time in hours: $\frac{\text{Hour}}{\text{Hour}} \times 60 \text{ (min. per hour)} = \frac{\text{Turnover time in minutes}}{\text{Turnover time in minutes}}$

3. Determine Maximum Pool Flow Rate: $\frac{\text{Gallons}}{\text{Gallons}} / \frac{\text{Turnover in minutes}}{\text{Turnover in minutes}} = \frac{\text{flow rate}}{\text{flow rate}} + \frac{\text{Add water feature flow}}{\text{Add water feature flow}} = \frac{\text{Pool Flow Rate}}{\text{Pool Flow Rate}}$

Spa jets _____ x _____ gpm each jet = _____ flow rate

For single pump pool/spa combo use the higher flow rate on #3 or #4 in the following calculations

Branch piping to be _____ inch to keep velocity @ 6 fps max at _____ gpm Maximum System Flow Rate (see note below)

Trunk piping to be _____ inch to keep velocity @ 8 fps max at _____ gpm Maximum System Flow Rate (see note below)

Return piping to be _____ inch to keep velocity @ 10 fps max at _____ gpm Maximum System Flow Rate (see note below)

Determine simplified TDH

1. $\frac{\text{Length of return pipe}}{\text{Length of return pipe}} \times \frac{\text{Ft of head per 1 ft. of pipe}}{\text{Ft of head per 1 ft. of pipe}} = \frac{\text{TDH in piping}}{\text{TDH in piping}}$

2. $\frac{\text{Length of suction pipe}}{\text{Length of suction pipe}} \times \frac{\text{Ft of head per 1 ft. of pipe}}{\text{Ft of head per 1 ft. of pipe}} = \frac{\text{TDH in piping}}{\text{TDH in piping}}$

TDH in piping _____

Filter loss in TDH (from filter data sheet) _____

Heater loss in TDH (from heater data sheet) _____

TOTAL SIMPLIFIED TDH _____

Pump Selection _____ using pump curve @ simplified TDH and system flow rate
Pump model and size (h. p.)

Suction Outlet Cover _____ system flow rate must not exceed approved cover flow rate
Make and model

PLAN 8 – REV 8-5-14

“Meeting Needs by Exceeding Expectations”