Aquatic Design & Supplies Inc.
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Common Formulae & Calculations

Volume of water: (use average measurements)
Rectangle or Square: **L x W x D x 7.48 =** Volume of Pond Water (in gallons)
Circle: **R x R x 3.14 x D x 7.48 =** Volume of Pond Water (in gallons)
(**R**adius is half the distance across a circle)

Hose Diameter for Waterfall Pumps:
1” max. flow 1000 GPH
1 1/4” max. flow 2000 GPH
1 1/2” max. flow 3000 GPH
2” max. flow 5000 GPH

Electrical Consumption:
[amps x volts x hours per day (operating)**/ 1000] x cost per kilowatt hour**
(approx. $.10 Indianapolis area.) **= cost of electricity per day**

Pond Liner Calculator: (use max. dimensions)
L + 2D + 3 = Length of Liner Required
W + 2D + 3 = Width of Liner Required

Stone Calculators (for water features only)
Pond; **L x W / 49 =** tons of stone (river rock = 1/3 of stone tonnage)
Stream; **3/4 ton of stone per 10’L & 3’W** (river rock = 1/3 of stone tonnage)
Waterfalls; **H x W x 1.5 x 140 =** pounds
(Stone Wall; **6”H x 10”W x 30’L = approx. 1 ton of stone**)

Head Pressure & Pipe Loss (for excessively tall and/or long runs)
Head pressure is the amount of vertical height (starting at water surface) that the pump must overcome to discharge at the top of a water feature. The length of the hose can also increase the overall head pressure. Excessive head pressure can tremendously reduce a pumps performance. Each pump will list it’s head loss on a chart or graph. **Measure the total vertical height then add one foot for every 15’ of pipe run.** Be sure to choose the appropriate pump and hose combination to suit your situation.

Calculating pond-less reservoir size
First calculate the amount of water that will be in the waterfall/stream.
Multiply length x width x .33 x 7.48 = Gallons of water in waterfall/stream.
The volume of the reservoir needs to be 2 to 3 times the amount of water in the waterfall/stream. The gravel in the reservoir displaces approximate 60% of the water volume.
To determine the water volume of a pond-less reservoir,
Multiply length x width x depth x .4 x 7.48 = gallons in reservoir.