Swimming Pool and Spa Calculations Worksheet

Name of Facility: _____________________________________________________________
Address: ____________________________________________________________________
City: ____________________________    State: ______________    Zip Code: __________
Facility Representative: ________________________________
Telephone Number: ______________________    Fax Number: ______________________
Type of Unit: ☐ Swimming Pool    ☐ Spa    ☐ Falling Entry Pool    ☐ Wading Pool
☐ Other: ________________________
Certified Pool Operator: _____________________    Telephone Number: _________

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Surface Area:

Rectangle/Square = Length (ft.) x Width (ft.)
= _____ ft. x _____ ft.
Area = _____ ft.²

Circle = \( \pi r^2 \)
= 3.14 x Radius (ft.) x Radius (ft.)
= 3.14 x _____ ft. x _____ ft.
Area = _____ ft.²

Triangle = Length (ft.) x Width (ft.) ÷ 2
= _____ ft. x _____ ft. ÷ 2
Area = _____ ft.²

Abstract = 0.45(A (ft.) + B (ft.)) x Length (ft.)
= 0.45( _____ ft. + _____ ft.) x _____ ft.
Area = _____ ft.²

For multi-sided units, divide the pool into known shapes and calculate the area for each individual shape. Then add the answers together to get the total surface area.

Depth:

Average Depth = (Shallow Depth (ft.) + Deep Depth (ft.)) ÷ 2
= ( _____ ft. + _____ ft.) ÷ 2
Average Depth = _____ ft.

For units with more than one area (example - a diving well with a constant depth, two different sloped sections, etc.) perform the calculations for each.
Volume:

Volume = Surface Area (ft.²) \times \text{Average Depth (ft.)} \times 7.48 \text{ (gal./ft.³)}
= _____ \text{ ft.²} \times _____ \text{ ft.} \times 7.48 \text{ gal./ft.³}
Volume = _______ gallons

For units with more than one area (examples - a diving well with a constant depth, two different sloped sections, etc.) perform the Average Depth calculation for each. Then, perform the Volume calculation for each section and add the answers together to get the total volume of the unit.

Turnover Rate:

Turnover Rate (hr.) = Volume (gal.) ÷ Flow Rate (gal./min.) ÷ 60 (min./hr.)
= _______ \text{ gal.} ÷ _____ \text{ gal./min.} ÷ 60 \text{ min./hr.}
Turnover Rate = _____ hours

The Flow Rate is a measurement that can be taken directly from the flow meter, which is located on the piping near the pump and/or filter. Please be sure to note this measurement in “Gallons Per Minute” as most flow meters offer multiple units of measure.

Maximum Bather Load:

Bather Load = Surface Area (for each section) ÷ Health Code Bather Capacity (see chart)
= _____ \text{ ft.²} ÷ _____ \text{ ft.²/bather}
Bather Load = _____ bathers

For pools with two or more areas (deep end, shallow end, diving well, etc.) perform the calculations for each area and add the answers together to get the total number of bathers.

Health Code Bather Capacity:

<table>
<thead>
<tr>
<th>Pool (surface area of the deck less than the surface area of the pool)</th>
<th>Shallow Area</th>
<th>Deep Area</th>
<th>Diving Area</th>
<th>Entry Area (slides, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 ft.² per bather</td>
<td>20 ft.² per bather</td>
<td>300 ft.² per bather</td>
<td>150 ft.² per bather</td>
<td></td>
</tr>
<tr>
<td>Pool (surface area of the deck equal to, or up to twice the surface area of the pool)</td>
<td>15 ft.² per bather</td>
<td>18 ft.² per bather</td>
<td>300 ft.² per bather</td>
<td>150 ft.² per bather</td>
</tr>
<tr>
<td>Pool (surface area of the deck greater than twice the surface area of the pool)</td>
<td>12 ft.² per bather</td>
<td>15 ft.² per bather</td>
<td>300 ft.² per bather</td>
<td>150 ft.² per bather</td>
</tr>
<tr>
<td>Spa</td>
<td>9 ft.² per bather</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Certified Operator (print name) ________________________________ Certification Type and Number ________________________________

Certified Operator (signature) ________________________________ Date ________________________________

Revised: 04-06-11