Aquatic Consulting Services
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Pool Tip #51: Pool Heater Sizing

Pool Heater Sizing for Temperature Maintenance

- Find pool surface area (ft^2)
- Multiplied by 15 -- a constant that represents the BTUs required to raise water temperature one degree per square foot of surface area, then
- Multiply by the desired increase in water temperature over ambient air temperature (maximum temperature rise)
- This will give you the heater output
- After obtaining the required heater output, divide the heater efficiency rating (Ex. ÷ .82) to determine the heater input needed (I = O ÷ E / O = I x E)

Example:

Surface area: 75' x 48' = 3,600 square feet
Desired temperature: 85°
Max. temperature rise: 35°
Heater efficiency rating: 82%
Heater output: 3,600 x 15 = 54,000 x 35° = 1,890,000 BTUs
Required heater input: 1,890,000 ÷ .82 = 2,304,878 BTUs

Pool Heaters - Time Needed to Heat Pool Water

- Determine the number of BTUs needed to raise _____ gallons of pool water from ___° F to ___° F.
- Use the formula **1 BTU will raise 1 pound of water 1° F in 1 hour**
- Multiply the volume in gallons by 8.33 (weight of 1 gallon of water) to determine the weight of the water that must be heated.
- Multiply the water weight by the desired temperature rise to determine the number of BTUs needed.
- Divide the BTUs needed by the available heater output in BTUs to find the number of hours it will take to heat the water.

Example:

Water volume: 165,000 gallons
Temperature rise: 35° F
Water weight: 165,000 gallons x 8.33 = 1,374,450 lbs

1,374,450 lbs x 35° F = 48,105,750 BTUs needed to heat
Heater output: 1,890,000 BTUs
48,105,750 BTUs needed to heat to desired temperature ÷ 1,890,000 BTUs output = 25.4 hours