



Sizing Of A Residential Water Heater

Like any household appliance, the water heater has a very specific job to perform and it must do its job to the homeowner’s complete satisfaction 24 hours a day, every day, for years and years. Water heating requirements for the home have increased steadily. As a result, the last water heater purchased by the homeowner now may be too small to satisfy household needs. In addition, rising energy costs have become a concern. *Operating costs* now can be just as important in making the buying decision as the initial price of the new water heater itself!

Investigate your pattern of hot water usage. Some sample questions may include:

- Number of people in the family; kids, teenagers
- How many bathrooms, garden tub or hot tub
- Automatic dishwasher
- Clothes washer

How many family members will routinely take a shower in any given hour. For instance, if all four of the children take a shower between 7 - 8 PM daily to get ready for bed, you may have a high usage demand. If both parents take their showers in the morning, Mom gets a load of clothes in the washing machine and turns the dish washer on before everyone leaves for school and work, you may have a high usage demand. Focus on your usage pattern and consumption factors.

Peak Hour Demand is the key. Peak hour demand is the busiest one-hour usage period. This may be in the morning, evening or some other time during the day. Accurate calculation of the demand is essential to proper water heater sizing.

Look at the following sample of a typical peak hour demand for this family of three.

<i>Household Activity</i>	<i>Avg Gallons per activity</i>	<i>Times/Activity per hour</i>	<i>Total hot water used</i>
Shower or bath	20	3	60
Shave	2	1	2
Hands/Face Washing	4		
Hair Shampoo	4	1	4
Dish Washing by hand	4	1	4
Automatic Dishwasher	14		
Food Preparation	5		
Automatic clothes washer	32		
Total peak hour demand			70 gallons

After you have calculated the actual peak hour demand load, you can use a make and model chart to choose the correct water heater within +/- 2 gallons capacity. When selecting the proper size look for the ‘first hour rating’ on the model chart. The ‘first hour rating’ is a function of the initial storage capacity plus the ability of the water heater to heat while in use. In the example above, you would select a Rheem residential electric water heater with a 65 gallon storage capacity.

Use the chart above to calculate your Peak Hour Demand. Be honest - then check your water heater’s rating plate for the capacity. Are you close?