



## Calculating 1st Hour Demand

Most all domestic hot water usage is in increments of 1 hr. In other words 95% of the people use hot water in only 1 hr. periods. Therefore we can size 'Water heaters' recovery in hour segments called 1st hour delivery on most spec sheets. First hour delivery is computed this way.

52 gallon electric heater with a 4500 watt element equals 20 gal per hour recovery. Add 80% of the tank capacity. That is the amount of water that can be drawn from the heater before it turns cold.

So you have 20 gal plus 80% of 52 gal or 41.6 gal. = 61.6 gal of 1st hour delivery for a 52 gal heater.

Same formula for 80gal 20gal recovery from element plus 80% of 80gal = 64 plus 20 or 84 gal 1st hour delivery from an 80 gal heater.

If you take a 40 gal gas heater using the same 80% formula a 40 gal heater with a 40,000 btu burner will deliver 41 gal recovery per hour.  $40 \text{ gal} \times 80\% = 32 \text{ gal}$  plus 41 gal recovery per hour = 73 gal 1st hour delivery for a 40 gal gas heater.

A 50 gal gas heater using the same burner 40,000 btu (40,000 btu burner is standard in most 40 and 50 gal gas heaters) and the 80% of tank cap or 40 gal tank plus 41 gal recovery from burner you have 81gal 1st hour delivery of hot water from a 50 gas heater.

Basically one can compete with the 40 or 50 gal gas recovery by substituting an 80 gal electric for 50 gal gas. Compared to an 80 gal electric with a 84 gal 1st hour delivery. That's if recovery and 1st hour delivery are the issues.

With the government mandating a sealed combustion on the new gas heaters it adds 90.00 to the wholesale cost of a gas water heater making electric water heater pricing very competitive with gas products.