

Electrical Capacity

In older houses, unless the electrical service has been upgraded, it is not uncommon to find a 30-amp 120-volt service or a 60-amp service at 120 and 240 volts. Any service less than 60-amps at 120/240 volts is considered inadequate according to modern standards. Often homeowners with a small capacity electrical service have found this to be acceptable because they have adjusted to the lower capacity by not using major electrical appliances. A new purchaser may find this to be inadequate and upgrading may be necessary to meet modern electrical needs. The capacity of the electrical service provided to the house should be sufficient to meet the requirements of the electrical appliances. Below is a table that lists typical appliances and their power requirements.

<u>Appliances</u>	<u>Power in Watts</u>	<u>Appliance</u>	<u>Watts</u>
Attic Fan	400w	Microwave oven	1450w
Central air conditioning	6,000w	Range, electric	8,000w
Clothes dryer	4,500w	Portable room heater	1,600w
Dishwasher	1,500w	Room air conditioner	1,100w
Forced air furnace (electric heat)	28,000w	Sauna	8,000w
Freezer	575w	Steam bath generator	7,500w
Garbage disposal	900w	Television (color)	150 - 450w
Hand iron	1,000w	Water heater	2,500 - 4,500w
Instant hot water dispenser	1,000w	Computer	250w
Lamp (each bulb)	25 - 150w	Laser printer	900w

The unit of electrical power is called a "watt." Watts are equivalent to volts times amps ($W = V \times A$). The typical electrical service in medium-sized houses and the corresponding equivalent power capacity is shown in the following table.

<u>Amps</u>	<u>Volts</u>	<u>Watts</u>	<u>Evaluation</u>
30	120	3,300	Inadequate
30	120/240	6,600	Inadequate
60	120	6,600	Inadequate
60	120/240	13,200	Marginal (small house with no major appliances)
100	120/240	22,000	Minimum
150	120/240	33,000	Good
200	120/240	44,000	Very Good

Considering the many electrical appliances that are available to the homeowner, the minimum electrical service that a home should have is 100 amps at 120/240 volts. **However, if the house is small and the intention is not to use many electrical appliances, then 60 amps at 120/240 volts probably will suffice.** When a house is equipped with an electric water heater, electric range, electric clothes dryer and a central air conditioning system, it should have at least a 150-or 200-amp service. If there is any doubt as to adequacy a "LOAD CAPACITY ANALYSIS" should be made by a qualified electrician.