

# Inspect Tips



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## OHM'S LAW

**Q** With today's concern about energy, how can one tell how much energy an appliance draws?



**A** With the following easy-to-apply

**Ask The Inspector**

Ohm's Law formula you can figure out how much current (amps) any appliance or lighting will draw.

The easiest way to figure out the amperage being used is to divide the voltage into the wattage.

Here are some examples:

- 100 W light bulb ÷ 110 V = .9 amps
- 60 W light bulb ÷ 110 V = .54 amps
- 4500 W water heater ÷ 220 V = 20.4 amps
- 4800 W clothes dryer ÷ 220 V = 21.8 amps
- 1500 W hair dryer ÷ 110 V = 13.6 amps

KEY: W = watts / V = volts 

## Shedding Light on Electrical Systems

### Sizing the Electric Service?

When trying to determine the size of the electrical service, the primary factor is the size of the cable coming into the house. The size can be determined by measuring the width of the cable as follows:



- 60 amp cable is approximately 3/4" wide
- 100 amp cable is approximately 15/16" wide
- 150 amp cable is approximately 1 3/16" wide
- 200 amp cable is approximately 1 7/16" wide

The cable will dictate the size of the fuses or breaker needed to protect it.

### Sizing the Fuses or Breakers

The size of the fuse or breaker is dictated by the size of the wire as follows: 1.) 14 gauge wire = 15 amp 2.) 12 gauge wire = 20 amp 3.) 10 gauge wire = 30 amp.

14 gauge wire is normally the smallest wire that you will find in the service panel. 12 gauge is a little thicker than 14 gauge, and

10 gauge is thicker than the 12 gauge, and is normally used for 220 volt circuits.

You may be able to read the wire size on the outer insulation of the wire or you can buy a wire gauge from an electric supply store.

### How to Determine the Condition of Wiring

The condition of the old wire depends on the amount of usage, the age, and the manufacturer. The concern with the wire is the insulation around the wire more than the wire itself. This is because the insulation is the more vulnerable component.

The easiest way to know the condition of the wire is to bend it where it has not been bent. If you can bend it 180° and you do not expose the conductor, the wire is very good.

If you expose the conductor, the wire may still be okay. This will depend on

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# Buying an Air Conditioner

Things you should know when buying an air conditioner.

1. You should size an air conditioner carefully because, in most areas of the country, air conditioning units serve to dehumidify as well as to cool. A unit that is too large will certainly cool, however, it will not remove enough moisture from the air (dehumidify). You will still be uncomfortable because of the moist air and will have to call on the oversized unit to reduce the temperature three or four degrees more than if you had a properly sized unit.
2. Check the unit for efficiency. On the newer units you can look at the energy guide sticker. If you do not have an energy guide sticker, or you would like to know what it means, compare the BTUs or tonnage of the air conditioning unit to the electrical draw in amperage.



**Example:** If you have one ton of air conditioning (one ton is equivalent to 12,000 BTUs) and your unit draws 7.2 amps, it would be more efficient than a one-ton unit that draws 8.0 amps.

**NOTE:** You simply check the metal label on the air conditioning unit and look for the full load amps (FLA) or rated load amps (RLA) of the compressor. 🏠

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how much it is exposed and how resilient the insulation is.

If you cannot bend the wire 90° without exposing the conductor, the wire is probably marginal or worse.

If the insulation around the wire falls apart when you bend it, the wire probably needs replacement.

## 220 Volt Circuits

Almost all residential electrical services are single phase, which is what you need to make 220 volt circuits. This means there are two 110 volt poles and a ground.

The easiest way to determine if you have a single phase service would be to look at the weather head or mast head that is bolted to most houses up at or near the roofline. If you can see three wires connected, you have a single phase 220 volt service. If you have underground service, you will have to remove the cover panel to determine if you have single phase or not.

We recommend hiring a competent electrician for electrical improvements or repairs.

**NOTE:** The size or amperage of the electric service is different than the voltages. ⚡

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