



Course: Electrical
Section: Electrical Technician



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Breaker Panel Simulation

What You Will Do

Learn how a breaker panel distributes power and why circuits trip when overloaded.

Materials You Will Need

- Paper
- Pencil
- Scissors
- Computer with printer (optional)

What is a Breaker Panel?

A breaker panel is what creates all the circuits in your house. Every light and appliance is connected to it. Each circuit is designed to handle a specific amount of power measured in amps. If a circuit is overloaded (like when too much is connected to it), it can start a fire. Breakers are designed to automatically break a circuit to stop the flow of electricity when a circuit is overloaded.

Setup

1. Write the names and amps for each appliance on a sheet of paper.
2. Cut them out so that you have a small strip of paper for each appliance.
3. On another sheet of paper, draw a breaker panel.
4. Label each breaker with the room name that it connects to and the maximum amount of amps that circuit can handle.

Breaker Panel

- Kitchen – 20 amps
- Bedroom – 15 amps
- Living Room – 15 amps
- Bathroom – 20 amps
- Laundry – 20 amps
- Garage – 15 amps

Appliance Cards

- Microwave = 12 amps
- Toaster = 8 amps
- Hair Dryer = 12 amps
- TV = 2 amps
- Lamp = 1 amp
- Vacuum = 10 amps
- Washer = 10 amps
- Space Heater = 13 amps
- Gaming Console = 3 amps

Directions

1. Assign appliances to each circuit.
2. Add up the amps for all of the appliances assigned to each circuit.
3. If the total exceeds the breaker size, the breaker trips. If not, you're safe.

Example:

Kitchen 20A:

Connect the (microwave 12A) plus the (toaster 8A) = 20A *safe*

Then add the (coffee maker 8A) to that same breaker = 28A *TRIPPED*

