

When Should I Upgrade My Electrical Service/Panel?

What is an electrical panel?

The main panel is where the primary power source is distributed to the branch circuits throughout the house or building. If you think of your home electrical system as having branches and twigs like a tree, your electrical panel is the tree trunk. The power from the electric utility company flows through conductors to your home and into the panel. From the panel, the current flows into major electrical runs (per breaker), which then dwindle into smaller and smaller branches (outlets and switches), serving every part of your home. If too much power were to flow into the wires in your home, they could melt. Fires could start. If you were to accidentally touch a damaged overloaded wire, you could receive an electrical shock. To prevent more electrical flow than the wires are designed for, your electrical service panel is supposed to detect the problem and stop the flow (break the circuit). In older electrical panels, a fuse blows. In newer ones, a circuit breaker flips off.

Properly functioning circuit breakers are very important for your family's safety and the safety of your home. Your electrical panel also needs to be big enough to handle your family's electrical requirements. If you put up an addition or add a central air conditioning unit, for example, you may need a bigger panel to handle the increased electrical load. This is called a "panel upgrade" or "service upgrade."

Reasons for upgrading your main electrical service and panel

Older panels have limits on the available space to add circuits or fuses. Some panels have maxed out their available circuits. Many old panels are of inferior quality and simply stop working and need to be replaced. With the new appliances and devices we now have in our homes, we find that older homes don't have sufficient power available to handle this increased demand. Therefore, a "service change" is required. This may include not only upgrading your electric panel, but upgrading your meter socket, the wire between the meter and panel, the wire between the utility and the meter and the grounding system.

A panel upgrade or replacement is usually required to alleviate a problem with an existing panel. A breaker might overheat and the buss bar gets burned. The conductors between the meter and panel may become loose and burn out the main lugs. Other common reasons to change out an existing panel are due to obsolescence and outdated technology. Split-buss panels, cheap builder-grade panels, panels contaminated by water, paint and corrosive environments are often candidates for replacement. Also, panels long ago manufactured by Zinsco and FPE have many issues and are considered a hazard by the industry.

How do I know if my electrical panel is too small and should be upgraded?

When adding central air, hot tubs or large appliances, your home doesn't automatically provide the additional power you need. If your electric equipment is drawing too much demand, you may need an upgraded electrical panel.

Here are some common situations that call for upgrading your electrical panel:

- You moved to a house with old undersized service
- Adding central air conditioning
- You're planning on the addition of an oven, hot tub, A/C, plugging in extra vehicles in the winter
- You're planning an addition to your home.
- You're renovating your kitchen.

Electrical Panel Replacement for Safety

Modern electrical panels are generally well-designed and safe. However, earlier electrical panels may create fire or shock hazards. Even if they may have been safe when originally installed, fuse boxes and breaker boxes can become unsafe with age. Some electrical panels that can pose safety issues are:

- Fuse boxes
- Federal Pacific Electric Company electrical panels
- Zinsco electrical panels
- Pushmatic electrical panels

Fuse Box Safety Issues

Some older panels have fuses rather than breakers. In the era when fuse boxes were installed, homes used considerably less power. Fuse boxes were designed for 30-60 amps of power however the appliances and electronics of today often require 100-200 amps of power or more.

When fuses blow there is a temptation to keep increasing the size of the fuses so that they won't blow so often. But, oversizing fuses allows for overloading and overheating of wires, creating a fire risk. In the past it was even common practice to put a penny in the opening to replace a blown fuse. This is really dangerous because it creates a fire hazard since a penny won't break the circuit if it's overloaded!

What is my next step?

If you suspect that your electrical service panel is not providing your home with sufficient power or may be unsafe, contact your electrical contractor.