

Electrical Service and Panel Explained

The electrical service and panel is the heart of the electrical system. For safety, it is vitally important that the electrical service and panel are well maintained. The electrical service size refers to the amount of electricity that can be brought into your home. Until the 1960s “60 amp service” was the norm in most single-family homes. These houses typically had one electric range, an electric dryer, gas furnace and no basement suite. If there have been no electrical additions, such as a basement suite added, then this service size is likely still sufficient today. Since the 1960s a service size of 100 amps and larger is the requirement in new house construction. This is to assure that there is sufficient power available for a modern home.

Is 60 amp service dangerous?

A 60 amp service size, by itself is not inherently dangerous. It just means that only 60 amps of electricity is available to the house on each of the two incoming power wires. If more than 60 amps of electricity is used, the main circuit breaker will trip shutting off the power to the house. This is an inconvenience but *not* a fire hazard. However, 60-amp service represents an *old* electrical service and is likely accompanied by an old electrical panel. Fire hazards are often present in old electrical services and panels.

Fire hazards in old electrical services and panels

Deterioration of service wires: It is not uncommon to find that the insulation on the service wires has deteriorated due to abrading against tree branches, rubbing against the roof or just from age. This is dangerous. If a service wire becomes exposed there can easily be sparks and fire.

Build-up of debris in electrical panel: Surprisingly common, panels are often full of spider-webs and debris. This is typically the result of holes left open due to DIY tinkering at some time over the life of the house. If there is a spark in the panel this debris can easily ignite.

Loose electrical connections: In older panels the electrical connections are often found to be loose. This is a symptom of aging. Loose connections can cause sparks leading to fire. It only takes minutes to tighten up the connections to make the panel safe again.

Break in the electrical ground: In older homes the house grounding consisted of an electrical wire clamped on to

the copper water pipe which goes deep into the earth. It is common to find that the ground clamp has broken off or a portion of the copper water pipe has been replaced with plastic, breaking the ground protection.

Old circuit breakers: Circuit breakers are part of the safety net of the electrical system. If there is a spark due to a fault in an electrical appliance, for example, the circuit breaker should trip instantly protecting the house from fire. Old breakers are prone to not trip quickly. If there is any delay in the circuit breaker tripping, a fire can result.

Hazardous DIY work: In older houses it is common to find hazardous DIY work added in the electrical panel. DIY work includes “oversized circuit breakers” which will not trip when needed, and circuits installed hazardously. DIY work is dangerous, and can easily result in an electrical fire.

How do I determine the service size in my home?

Pre-1950s: If your home was built before 1950 and still has original service it likely has a “*Service box containing the main fuses*”. The rating on the service box (e.g., “100 amps”) is the rating of the box, not the service size. The service size is the rating of the fuses inside the box.

1950s: With the introduction of circuit breakers into homes in the early 1950s a main switch was considered not necessary. Hence, if your home was built in the early 1950s, it is very probable that there is no main switch. Service size is based solely on the wire size.

1960s to present: If your home was built since the 1960s it likely has a “*Combination panel*” (containing both main & distribution circuit breakers). *If* the service is original the number on either of the two main breakers is the service size (e.g., both breakers say 100 amps, service size is 100 amps not 200 amps).

Note: If your service has been upgraded without a permit, which is often the case in old homes, it is possible that the number on the breaker does not indicate the correct service size. This is a dangerous situation.

Best solution: Contact PowerCheck to determine service size, and assure that the existing service and panels are safe.

Can I get my house to PowerCheck’s “Low Risk” rating with 60-amp service? Yes, if it is safe!

Contact PowerCheck for
correct evaluation of your
house electrical safety

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