

Undersized Electrical Service in older homes

A surprising number of older homes throughout North America still have 60 or 70 amp electrical service. This was no problem when the homes were built, but it is woefully inadequate for a modern family fully equipped with high-tech appliances, computers and electronic gizmos unimagined just a few decades ago. A well-equipped family, moving from a new 200-amp home or apartment to an older house, may find the lights flickering the second they are plugged in. Or they may find the outlets ungrounded, eventually zapping junior's newest video game, dad's irreplaceable computer data or, just as the first heat wave hits, the vital air conditioner. The demands a 60 amp service places on the older home's electrical system can far exceed its capacity. It will work only so long as no-one tries to cook and do laundry at the same time, since a modern dryer can draw 30 amps and a modern stove can draw 40 amps. It takes an electrician or a professional home inspector to determine the correct electrical rating in a home, identify the type of wiring, and at the same time detect any potentially dangerous conditions in the electrical panel. Many home inspectors review more than 30 items in the electrical panel alone. An untrained person should exercise care in even touching an electrical panel in a new house. If this becomes necessary, stand on a rubber mat or thick Styrofoam insulation. Even then, touch the panel with one hand behind your back – because a current that can't find the ground through your insulated feet might find an alternative path if your other hand is touching a metal object. Knock on the panel lightly with the knuckles of your right hand to ensure it is not energized. Use your right hand even if you are left-handed, because if an electric current does pass through your body it is better not to pass through the side containing your heart. Then lay the palm of your hand on the panel cover, feeling for hot spots. You will require an expert to measure or visually compare the size of wires entering the box. Never take the cover off the panel if you are not trained in electrical safety. You can't rely on simply reading the electrical rating stamped on the service box, disconnect switch, or the electrical meter because these are manufacturer's notices indicating only the maximum service allowed for that equipment. Nor can you simply add up the amps of all the fuses, since oversized fuses are not uncommon. Every time you deal with the electrical panel, you should turn off the main power switch. But take care in case you unintentionally damage computers, trip the burglar alarm, or just cause someone the inconvenience of having to reset half a dozen clocks throughout the house. You should be on the lookout for aluminum wiring, which was common in residential construction during the fifties, sixties and seventies in some parts of the country. Look at wires coming out of the panel – aluminum wires are larger than copper wires and you'll find "AL" stamped on the sheathing. While not necessarily unsafe, aluminum wiring does present certain problems. Because it expands, aluminum wire tends to come loose from its connections. It also tends to oxidize so if it is joined directly to copper wire it

can corrode, two situations that can lead to overheating.

It's also quite easy to determine if the home's electrical system is grounded. Just look for a copper wire clamped to the pipe on the street side of the water meter or to a rod driven into the ground near the electric meter. If it is disconnected, seriously corroded, or missing – call an electrician because grounding is an essential safety feature, protecting against lightning and shock. Leave electricity to electricians and detailed inspections to inspectors, but a few simple observations can provide peace of mind or cause you to seek professional attention to keep your house productive and safe.