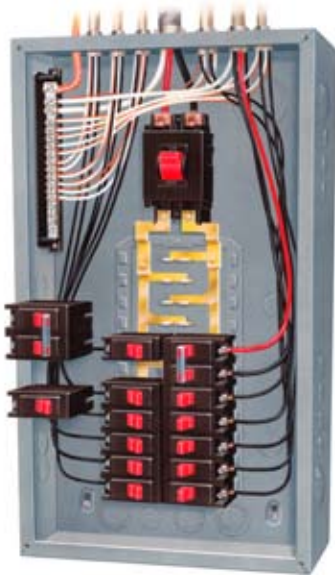


Home Owner Information Guide 22.0



Common Electric Concerns

This information has been compiled to assist homebuyers and home owners in their understanding of the issues common to residential electric systems. All electric work should be performed by a qualified licensed electrician. In some cases, the presence of electric defects, problematic components, or antiquated systems may be an issue in obtaining homeowner insurance.



ELECTRICAL SERVICE ISSUES

The use of electric appliances and devices has increased substantially since the first homes were wired for electricity. For the typical size home, 100 amps is generally considered the minimum acceptable electric capacity. For large homes or homes occupied by the typically modern family making use of many of the electric devices now available, at least 150 ampere would be more appropriate. All electric homes generally require a 200 amp service. While a certain service size may have been adequate for a particular home in

the past, any renovation work or the upgrading of major appliances may necessitate an increase in the capacity of the panel and/or household service.

The service lines which carry electric power from the utility company to a house can be buried or run overhead. Overhead lines must have adequate clearance over all points on the property and the house to avoid accidental contact (ladder, poles, etc.). Tree limbs and other vegetation must also be kept clear of the lines. A damaged service line or connection presents a potential hazard. The utility is usually responsible for maintenance to the point where the line connects to the house.

ELECTRIC PANELS

The main panel is the connection point between the incoming service lines and the house wiring. It typically contains a service disconnect (the main shut-off), overload protection (circuit breakers or fuses), and associated conductors (wiring). All circuits in the panel should be clearly labeled so that a particular circuit can be readily located in an emergency or for servicing needs. It is generally recommended, and now often required, that there be a main disconnect to shut down the house's electrical system quickly and easily. If there is no main, consideration should be given to providing one, particularly if there are numerous submains or household circuits.

The rating of circuit breakers and fuses must be compatible with the connected wire. Oversized fuses or circuit breakers present a potential hazard. The standard household wire sizes are 14 AWG (American Wire Gauge) and 12 AWG; these conductors should be protected by 15 and 20 amp

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Common Electric Concerns (continued)

fuses or breakers, respectively. Multiple circuits connected to a single overload device are often found. While this practice is common, the potential for an operational nuisance or overload hazard may exist. It is good practice (and in many cases required) to have only one wire connected to an individual circuit breaker or fuse.

GROUNDING AND POLARITY

Electric continuity or bonding must be provided from all points in an electrical system to a grounding electrode (rod). Ungrounded components should be corrected. Older two-prong electrical receptacles without grounding provisions do not allow for the proper grounding of appliances. While an adapter may work in certain temporary situations, permanently grounded three-prong receptacles are recommended in locations where appliance grounding is required. In some situations, rewiring of the circuit(s) may be necessary. Another common condition, reverse polarity, occurs when the electric conductors on a circuit are reversed or improperly connected at a receptacle, or other device. While the affected device may function, the potential for electrical shock under certain circumstances exists and should be rectified. If a spot check of a system indicates improper grounding or reverse polarity in areas, the entire system should be checked as a precautionary measure.

KNOB AND TUBE WIRING

This is the type wiring originally used in many older homes. While it may still be functional, there are likely areas with damaged insulation and other concerns. It is a two-wire system that is not compatible with modern appliances that require grounding. If present, an electrician should check all areas to determine the repairs or upgrade work required.

ALUMINUM WIRING ON HOUSEHOLD CIRCUITS

While now commonly used primarily on main service lines and major appliance circuits, aluminum wiring was also used on household circuits between 1964 and the mid 1970s. The inherent characteristics of aluminum, and the

wiring methods and/or materials used for household circuits, resulted in faulty connections, which created hazardous conditions. Since then, warnings about fire concerns and the development of new devices designed for aluminum led to remedial work being done on many systems. However, it is still generally recommended that all aluminum systems be checked prior to title transfer, and periodically thereafter, to determine if remedial work is required.

FEDERAL PACIFIC ELECTRIC STAB-LOK SYSTEMS

Issues have been raised regarding the inherent safety of FPE Stab-Lok panels installed in many homes prior to 1990. Concerns focus on the ability of breakers to properly trip under overload conditions and the suitability of breaker connections. Some of these panels have already been repaired; many other panels are older and are at the point where repair or an upgrade may even be needed for other reasons. In any case, it is generally recommended that FPE Stab-Lok panels be inspected by an electrician knowledgeable with the associated issues. In many cases, replacement may be recommended.

GROUND-FAULT AND ARC-FAULT INTERRUPTERS

Ground-Fault Circuit-Interrupters (GFCI) are personnel safety devices that have been required for new electric work in certain high-hazard locations (e.g., kitchens, bathrooms, and exteriors) for many years. Even if not required at construction or with completion of electric work, it is generally recommended that GFCIs be installed in all high-hazard areas. Arc-Fault Circuit-Interrupters (AFCI) are designed to reduce hazards associated with frayed wires and arcing, particularly in areas such as living rooms and bedrooms. If not present consider adding for safety. Should a GFCI or AFCI "trip," without a readily detectable cause, the circuit in question should be checked by a licensed electrician. Regular testing of GFCIs and AFCIs using the built-in tester is recommended.

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