

Aluminum wiring explained

Does your home have “aluminum wiring”?

Between 1965 and 1975 aluminum wiring was commonly installed in new house construction. If your home was built during this period chances are you have “aluminum wiring” present. Aluminum wiring refers to the electrical wires that run from the electrical panel to the lights, switches and outlets throughout the house. If installed correctly at the time with outlets and switches approved for aluminum, and there has been no tinkering or alterations to the aluminum wiring over the years then the aluminum house wiring should be in fine condition today. In the 1960s, basements were rarely wired at time of house construction, except for an outlet for the washing machine and a basement light. Therefore in these houses, the aluminum wiring is usually limited to the main and top floors of the house plus the light and outlet for washing machine in the basement. If there has been any new wiring installed in your house since 1975, the wiring will likely be copper.

What are the concerns with aluminum wire?

During the aluminum years, electrical contractors wired the aluminum to outlets and switches that were compatible with aluminum wire. These early outlets and switches had a marking “CU/AL”, meaning approved for both copper and aluminum. If we see all aluminum circuits correctly wired on to these approved outlets and switches your house is likely in fine shape today.

Unfortunately we find that in most houses with aluminum wiring the original outlets and switches have been swapped for newer, modern outlets that are not approved for use with aluminum wire. Over time, on these replacement outlets and switches connected directly to aluminum wire the electrical connections get loose, heat is then generated, melting the wire insulation, resulting in sparks and possibly an electrical fire.

What are the solutions to assure that the aluminum wiring is safe today?

Outlets and switches approved for aluminum are still available. Printed on these outlets and switches is the marking “CO/ALR” to confirm that they are approved for both copper and aluminum. Use of these outlets and switches is an excellent solution to keeping your aluminum wiring safe; however they are often hard to come by.

An alternative to aluminum rated outlets and switches is called, “*Copper pigtail*”. Copper pigtail entails that in the electrical box behind the outlet or switch a short piece of copper wire, called a “pigtail” is connected to the aluminum wire. This pigtail then connects to the standard outlet or switch. A *special* wire connector is used to connect the aluminum to the copper pigtail. It is essential that the correct wire connectors are used. The correct wire connectors for joining aluminum to copper wire are colour coded either dark brown or purple (#63/65 wire connectors). There is no substitute. Often in houses with aluminum wire we find standard (30 series) wire connectors in yellow, blue, red or black on aluminum-copper connections. These are not correct and not safe with or without antioxidant paste. The fire hazard has simply been shifted from the outlet to the wire connector.

An additional comment

All electrical connections tend to loosen slightly over time, but aluminum connections tend to loosen more quickly than those of copper. Regardless of the type of wiring, all houses over 40 years of age should have the electrical connections checked to see that they are correct and tight. Loose electrical connections can and do result in the melting of electrical wire insulation, followed by sparks and possibly fire. A house with aluminum wire and appropriate electrical connections, properly maintained, can be equally as safe as a house wired with copper.

Contact PowerCheck for
correct evaluation of your
house electrical safety

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