



Aluminum Branch Wiring

If you own a home, or are considering the purchase of a home, constructed between the late 1950's and the mid 1970's, your home may contain aluminum branch electrical wiring. What is aluminum branch wiring, why is it a potential concern, and most importantly, what can be done to eliminate any risk posed by aluminum branch wiring to the safety of your home?

Many electrical conductors are still manufactured from aluminum wire. Chances are, if you live in a recently constructed home, that the service feed that supplies power to your home is made from stranded aluminum. Modern conductivity systems using aluminum wire also incorporate special antioxidants and fastening lugs, designed and approved for aluminum wire. Most homes built today will utilize copper wire for the branch electrical circuits, even though the power feed to the home is supplied by aluminum wiring.

Copper wire has a higher ampacity, the ability to carry electrical current, than does aluminum wire. Generally, if aluminum wiring is used, the gauge of the wire must be one size larger for an aluminum conductor of the same amperage than for a copper conductor. Additionally, the aluminum wire will expand more than will copper, due to heating under the same amperage load. This expansion and subsequent contraction is the root of the problem with aluminum branch wiring.

When aluminum branch wiring expands due to heating under load, the connections between the wiring and the fixtures may become loosened. Additionally, when a connection is loosened, oxidation that forms on the newly exposed surface of the aluminum wire is not as conductive as the wire itself. The US Consumer Product Safety Commission has determined that aluminum branch wire circuits pose a potential fire risk to home in which this system is installed.

If your home was built with in the period listed above, and you suspect that aluminum branch wiring may be present, contact a qualified, licensed, electrician to evaluate your wiring and make any necessary modifications. Specially approved fixtures and connectors are available to properly join aluminum wires to each other and to cooper wire conductors, so that the aluminum wire conductor itself does not have to be replaced. If you are contemplating the purchase of a home the was built or modified within the target period, ask your home inspector to check for the

presence of aluminum branch wiring, and to note any potential problems that are found.

Aluminum branch wiring is a potential threat to the safety of your home. However, taking steps to determine if a problem exists, and then mitigating that problem through the use of proper fixtures and connectors, will safely minimize that risk and create a safe home environment for you and your family.

R. Scott Devers is President of On The Level, Professional Home Inspections of Bakerton. He will answer questions on this or other related topics via email at levelinspections@juno.com