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ALUMINUM WIRE ISSUES, DON'T BE SHOCKED!

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Across The Board Property Inspections

This issue will address some of the problems with aluminum wiring I commonly find in the home. Many people today ask questions pertaining to aluminum wiring. Most of the concerns are about whether or not it is safe. We will address these issues as well as provide you with some background information. Please do not use any of this information to perform do-it yourself repairs. Always use a licensed electrical contractor.

Aluminum wiring was used from the mid - 1960s to the late 1970s. It was introduced as a less expensive alternative to copper. We sometimes find aluminum wiring in homes older than this that had electrical work done during the 60s or 70s. Aluminum does not conduct electricity as well as copper so we have to use a bigger wire or "conductor" size to solve this problem; however we still run into a few problems with aluminum. The wire tends to creep out from under terminal screws. It can form rust or oxide that is an insulator. Also it can be easier to damage. These issues were known to have caused some house fires because the wires overheated. Because of these problems, aluminum received a bad reputation and is no longer commonly used for branch circuit wiring.

THE GOOD NEWS

Many of the issues with aluminum wiring can be remedied without rewiring the entire house. If we look on the switches and outlets and find a CO/ALR designation stamped on them, there is little reason for concern, because this solves the overheating problem with the wiring. Generally if we do not see this, CO/ALR receptacles should be provided. In this area another common solution to this problem is called pigtailing. They simply use copper from the aluminum wire to the receptacle (Note: The connection from copper to aluminum must be made with Copalum or with split-bolt connectors). This will also solve

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the overheating problem caused by aluminum wire connections, and is more cost effective than replacing the switches and receptacles. It is also important that the panel has a CUAL designation so that it is compatible with aluminum. It is still very common to use aluminum wiring for our service entrance wires (the wires bringing power into the home). These are usually a stranded wire. With stranded wires we want to see an anti-oxidant grease applied to the wire where it is exposed. This again prevents the problem of oxide forming on the wires and creating a dangerous situation.

Figure 1 and 2 shows aluminum wiring on an outlet without proper CO/ALR designation.



Figure 1.



Figure 2.

ADVISING THE CLIENT

Generally speaking if I find issues with some of the connections or equipment in a home with aluminum wiring, I will advise the client to have an electrical audit performed by a licensed electrical contractor. Having an annual inspection done on aluminum wiring to check for loose connections is also safe practice. Aluminum wiring does not have to be a concern if treated properly.

I hope this article will give you a better informed opinion about aluminum wiring.

Please e-mail or phone me with your questions or comments at ben@acrosstheboardinspections.com or 1-306-291-8075.