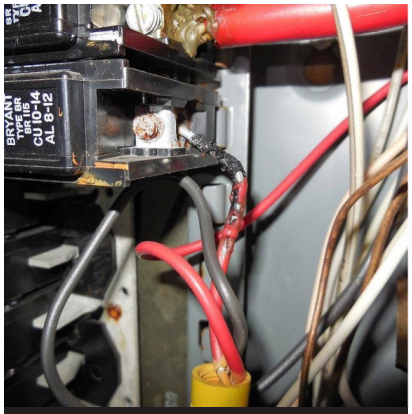
Aluminum Wiring

Aluminum wiring is electrical wiring made with aluminum instead of standard copper. Aluminum wiring is still used today in certain applications. Service wires coming into many homes consist of aluminum wiring, and there are plenty of aluminum 240-volt circuits in use. Those applications are acceptable.



Scorched wiring at the connection *From CPSC*

The wiring that's dangerous and of major concern is a specific type of aluminum alloy that was used in the mid-1960s until 1972. If a structure was built or an addition was added during this time period, this type of aluminum wiring may have been used. If so, this can significantly increase the risk of a structure fire.

These aluminum wires were used for aluminum branch circuit connectors. They're wires that typically feed 15-amp and 20-amp circuit breakers in houses and office buildings. The wiring was used to connect the breakers to outlets, switches, and lights. This type of wiring still exists in many structures. Most of these structures are homes, offices, multi-tenant housing, and commercial spaces. If you're unsure, you should contact an electrician specializing in aluminum wire repair as soon as possible.

There are several dangers with this type of aluminum wiring:

- Connections between aluminum wires, outlets, and switches deteriorate over time and become a fire hazard.
- Electrical resistance can build up inside the wire, and the wire gets hotter at points of resistance. These points of connection can eventually become so hot, they ignite the material around them.
- Electricity in the wire may also arc as it attempts to contact the connected device. This creates another possible ignition source for a fire.

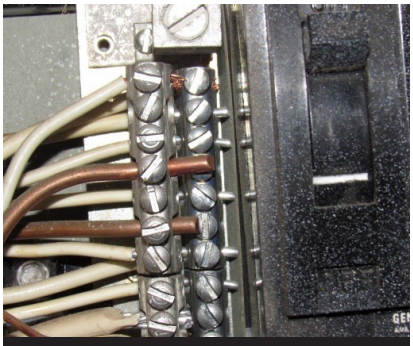
How is aluminum wiring identified?

The easiest and most obvious place to identify aluminum wiring is inside the main electrical panel. Aluminum wires are the color of aluminum and easily recognizable from copper and other metals. These photos illustrate.

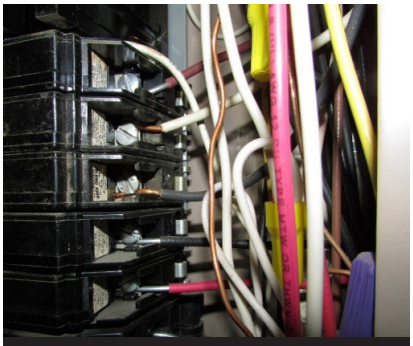
Aluminum wiring is also identified as "aluminum" or the initials of "AL" appear on the plastic coating.

Tin Coated Copper Wires

Tin-coated copper wire can often look like aluminum, but it doesn't pose the same hazard. It's typically smaller than aluminum and will have a cloth jacket around it. This type of wiring is older and might be past its serviceable lifespan. If this wiring is found, a qualified electrician should be hired to evaluate whether it's aluminum and if it poses any other type of fire hazard.



Aluminum neutral wires



Aluminum wire connections

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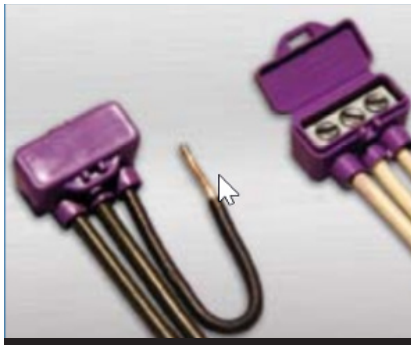
Copalum Crimp connection



The AlumiConn Connector

If aluminum wiring is found, what should be done?

Aluminum wiring should be evaluated by a qualified electrician experienced in analyzing and evaluating this type of exposure. Not all licensed electricians are experienced in electrical wiring repairs.

According to the Consumer Product Safety Commission, there are two recommended methods for correction of aluminum wiring.

1. Rewire the building with copper wiring. This is the most effective long-term repair. This should be considered the best practice solution and is West Bend's preferred method of repair.

2. The second method involves the splicing of aluminum wire to copper wire with one of two specialty-designed connectors. They are Copalum crimp connections or Alumicon connectors. The repaired terminals should be marked with CO/ALR, which stands for Copper/Aluminum revised.

https://inspectapedia.com/aluminum/AMP_COPALUM_Connectors.php

Important note: CO/ALR connections cannot be used for all parts of the wiring system, such as ceiling-mounted light fixtures or permanently-wired appliances. These types of connections can loosen over time.

Due to these limitations, West Bend does not recommend either of these repair methods.

There are also methods that use applications of antioxidant pastes for wires that are multi-strand or that are too large to be effectively crimped. But this is not recommended by the Consumer Product Safety Commission and, therefore, is not recommend by West Bend.

Pig tailing is never an acceptable repair to connect aluminum wiring to copper wiring.

For assistance addressing these or other safety-related hazards,
please contact your local West Bend loss control representative or email losscontrol@wbmi.com.

From CPSC

Sources

http://www.structuretech1.com/wp-content/uploads/2012/09/Aluminum-Wiring-Repair-CPSC.pdf
https://structuretech.com/aluminum-wiring-2/

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