

# Loss Prevention Safety Tip



Loss Prevention  
Program

By Red River Mutual

## ALUMINUM WIRING

Aluminum wiring, used in some homes from the mid 1960's to the early 1970's, is a potential fire hazard. The U.S. Consumer Product Safety Commission research shows that "homes wired with aluminum wire manufactured before 1972 are 55 times more likely to have one or more connections reach "Fire Hazard Conditions" than are homes wired with copper. Property and lives have been lost due to this hazard.

Warm cover plates, discoloration of switches or receptacles, flickering lights or the smell of hot plastic insulation may be evidence of problems related to aluminum wiring. These conditions are found in many homes with aluminum wiring, confirming that this is a common and widespread hazard.

### CAUSES OF FIRE:

- **Loose Connections:** Aluminum wire expansion and contraction cycles cause loose connections and change in shape at screws. Faulty connections can become hot enough to start a fire without tripping a circuit breaker!
- **Overheating and Arcing:** This occurs at termination of connections or at aluminum/copper wire splices using unapproved connectors.
- **Corrosion:** If aluminum and copper wires are improperly spliced, Corrosion can occur as they are dissimilar metals.

### RECOGNIZING ALUMINUM WIRE:

Where wiring is visible in the attic or basement, examine the insulation for markings that indicate the use of aluminum, such as "KAISER", "ALCAN", "ALUMINUM", "AL", "ALUM", "AC" or "ACM".

### UPGRADING ALUMINUM-WIRED HOMES:

- **Rewire:** Completely rewire the home with copper. This is strongly recommended as the best and most permanent solution.
- **"Pigtailing":** This eliminates the aluminum wire connection to switches and outlets by splicing in a short length of copper wire. A certified connector must be used. A COPALUM crimping system creates a cold weld between copper and aluminum wire and is regarded to be a permanent, maintenance-free repair.
- **CO/ALR Outlets:** Replace all outlets and switches with those marked with the letters CO/ALR. This greatly reduces the most frequent failures.

### CHECK ALL CONNECTIONS:

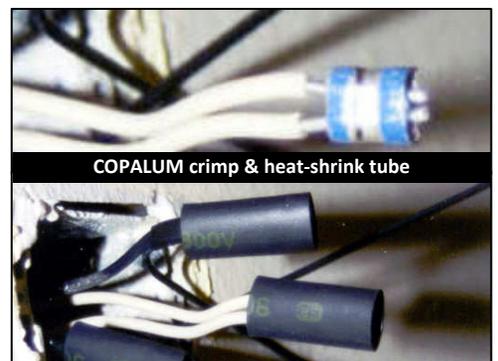
Regardless of the method chosen for dealing with outlets and switches, the aluminum connections in the circuit breaker panel and at all junction boxes and receptacles should be inspected by a licensed electrician. At the



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COPALUM crimp & heat-shrink tube

circuit breaker panel, verify that each aluminum wire is coated with corrosion inhibitor. Have your electrician apply the specified torque to each screw terminal to make sure it has not loosened over time. When re-making a connection remember to abrade the wire to remove the aluminum oxide layer and immediately apply additional corrosion inhibitor before re-connecting any aluminum wire.

**See more loss prevention tips at [www.preventingloss.com](http://www.preventingloss.com)**

While the safety recommendations in this report are based on apparent and obvious conditions that were found at the time of inspection, the report does not purport to identify all hazards or guarantee compliance with any standards, codes, ordinances or regulations. It is not legal or expert advice, and should not be used in place of consultation with appropriate professionals. Any person relying on this information does so entirely at their own risk. Red River Mutual denies all responsibility for any liability, loss, injury or risk which is incurred as a direct or indirect result of the use of any of the recommendations in this report.