Aluminum wiring: A leading cause of fire hazards

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The aluminum wiring used in electrical systems installed during the '60s and '70s created a fire hazard throughout the home or building. While the Consumer Product Safety Commission (CPSC) has for the past three decades, widely publicized that aluminum branch-circuit wiring is a fire hazard, insurance companies are just now catching on and are raising premiums accordingly.

The CPSC estimates that two million homes in the United States were built or renovated using electrical circuits with aluminum wiring.

The metal alloys used in many multifamily residential buildings during the '60s and '70s had some critical flaws that made it unsuitable for use as an electrical conductor. The aluminum alloy used at the time expands and contracts substantially, both in length and diameter, with a change in its temperature. Conductors going through numerous cycles of hot and cold temperatures can separate from the attached electrical devices (such as switches, receptacles, lights and circuit breakers), compromising connections and creating severe heat buildup.

In addition, the aluminum used at the time oxidizes when exposed to air creating a poor conductor of electricity, compromising connections and creating additional heat which has the potential to cause a house fire. Even if this does not directly start a fire, the heat can melt and/or burn away insulation, which can create a short that may arc and ultimately spark a fire. This problem is then compounded every time the wire goes through another cycle of heating and cooling.

In a nutshell, aluminum wiring expands, contracts and oxidizes causing excessive heating which can easily result in an electrical house fire. According to the CPSC, fires and even deaths have been caused by this problem.

Recognizing the dangers of aluminum electrical wiring, insurance companies have started to look for aluminum wiring in this vintage of buildings. Where they have found the offending conductors, insurance premiums have skyrocketed, a reflection of how seriously the insurance industry perceives the problem.

To keep insurance prices at a minimum and to eradicate the fire hazard within a home or building, the owner or manager has many remediation options such as having a professional install aluminum-to-copper connectors or remove and replace all aluminum wiring. Each remedial method has its pros and cons and should be evaluated as to its suitability for each particular building.

To immediately reduce the risk of fire in buildings with aluminum electrical wiring, the following steps should be taken:

* Determine if aluminum wiring is present in the building
* Inspect electrical system for signs of aluminum wiring failure
* Install smoke detectors and check that existing detectors are operating correctly

It is all too easy to ignore problems that are unseen, but aluminum electrical wiring hidden behind drywall is still a fire hazard. Likewise, it is easy to believe that aluminum wiring is safe if it has not

caused a problem in a home or building for the past 30 or 40 years, but the longer the connection is allowed to deteriorate, the more likely it is a problem will occur.

Be safe, not sorry and have a professional review your electrical system today.

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