

## **What Owners Need to Know About Wiring Dangers**

By Sandra Fleishman

Washington Post Staff Writer

David Hannemann and his wife were aware when they bought their Ellicott City home 18 years ago that it had aluminum electrical wiring, a known fire hazard. But they waited until this February to make the fix that has long been recommended by the Consumer Product Safety Commission. It wasn't the safety consideration that made them act. It was their belief that insurance companies will soon crack down on people who own homes such as theirs, wired in part with aluminum rather than copper.

"My wife worked in insurance, and she suggested we'd better do it," said Hannemann, a federal employee in Washington. The underwriter at his wife's former agency "told her he wouldn't write the line anymore" unless a house had been repaired as the CPSC recommends, Hannemann said.

About 2 million U.S. homes are believed to have been built with aluminum branch-circuit wiring, which for three decades has been a widely publicized fire hazard. The CPSC is more anxious than ever because Americans are loading up on high-tech appliances and products that draw more current. That's exacerbating the basic problem of overloaded circuits, which can result in overheated plugs and outlets that catch fire.

Tens of thousands of houses in the Washington area have such wiring, according to estimates by local home inspectors and real estate agents.

Insurers say they haven't moved industry-wide to limit coverage of aluminum-wired houses or to require the recommended fixes. Some local real estate and insurance agents say, however, that they're seeing signs that insurers are taking a harder look at such houses, especially if other red flags pop up during home inspections and appraisals.

Officials at Nationwide Mutual Insurance Co., State Farm Insurance Co. and Allstate Insurance Co., for example, say aluminum wiring could trigger a requirement for an electrical inspection before a policy is issued. Two local Nationwide agents last week were blunter, saying they wouldn't write a policy on an aluminum-wired house unless their underwriter cleared it based on additional information.

Those familiar with the issue here say houses with aluminum wiring are concentrated in Bowie, Columbia, Rockville, Reston, Dale City, Woodbridge and Laurel, all communities that were developed during the mid-1960s and early 1970s when aluminum wiring briefly dominated the homebuilding market.

Local real estate agents say they have almost never heard of aluminum wiring being a deal-breaker in a home sale. But they acknowledge that it can cause concern if it comes up on the home inspection report. Some also said they worry that these days, when people are increasingly waiving home inspections because of the competitive real estate market, buyers don't even know about the potential hazard and the need for

repairs.

### ***Discovery Kills House Sale***

The discovery of aluminum wiring during a recent home inspection played a considerable role in killing one \$800,000 sale in Bethesda, said W.C. & A.N. Miller agent Liz Smith.

Her clients were already nervous about spending that much money, she said. When the wiring was found during the home inspection and the would-be buyers learned that replacing it would cost \$15,000 to \$25,000 while the CPSC-approved repair would cost \$5,000, they became more rattled. After phone calls to local insurance agents suggested other possible hurdles, the buyers bolted.

Heather Mayeaux, a first-time buyer in Bowie who learned during a home inspection in October that her dream house had aluminum wiring, also said she was taken aback by the discovery and by the roughly \$3,500 cost to make the repairs the CPSC recommends.

The sellers had not disclosed any electrical problems with the 37-year-old, three-bedroom rambler. The inspector indicated that about half of the wiring was aluminum.

"But what was more of a surprise was when the electrician really went in to do the work," Mayeaux said. "With the extent of damage that was there, it was surprising that the house had not burnt down.

"She said, "When I saw that, let's just say that I was really glad we had it addressed right away." She and the sellers split the repair cost, Mayeaux said.

The CPSC has been warning since the early 1970s that homes built or renovated from 1965 to 1973 with aluminum branch-circuit wiring are a fire risk.

Branch-circuit wires are those that distribute electricity to each room from the service panel. In other words, they're the wires that run to lights, switches and most outlets. They're much smaller versions of the heavier, high-voltage aluminum wires that typically run to the house from the street or that run inside the house from the service panel to major appliances.

Builders started substituting aluminum for copper branch wiring in homes in the mid-1960s when copper prices soared. In addition to the 2 million homes that the CPSC estimates were built or modified with aluminum during the eight years when it was the cheaper alternative to copper, other homes built or updated later might have some of the material because it remained on dealers' shelves.

The percentage of homes involved, though, is small -- there are about 107 million housing units in the United States.

The CPSC started raising alarms after a 1974 home fire in Hampton Bays, N.Y., in

which two people died. Fire officials blamed the fire on a faulty aluminum wire connector at an outlet.

Numerous complaints from homeowners about overheated outlets and switches led to a commission research project. The research showed that homes wired with aluminum wire made before 1972 are 55 times more likely to have one or more connections reach "fire hazard conditions" than is a home wired with copper. Modified wire, switches and outlets that were made after 1972 still didn't pass muster, according to the federal agency.

### ***Hazard Not Always Recognized***

The problem, the researchers said, is not the wire itself or the insulating cable, but the connections where the splices are. "That is where the burnouts occur," said Jesse Aronstein, a longtime CPSC research consultant.

The CPSC tried to get the material recalled, but lost in court, Aronstein said. The commission was able only to conduct a public-information campaign, warning homeowners of potential danger.

The product, however, sank under the weight of the criticism, Aronstein said. "By the mid-'70s electricians would have had to be crazy or desperate to put it in" because of the publicity, he said. "Basically it died by its own reputation.

"Agency officials say that what's upsetting is that many homeowners still don't recognize the hazard. Although the agency estimates that "tens of thousands" of homeowners have heeded its advice and installed a specific repair system called a COPALUM crimp connector, many more have not.

"All fires are of concern to us, but electrical fires concern us more because they occur behind the drywall and are hard to detect and to react to. When it comes through the wall, it is a fully involved fire," said Scott Wolfson, an agency spokesman.

Statistics on fires caused by aluminum wiring aren't kept, but the possibility still frightens federal officials and consumer advocates. An estimated 40,000 electrical fires of all kinds occur in homes each year, causing about \$2 billion in property damage and killing three people each day, the agency said.

Wolfson said his agency's fears about consumer inaction have grown recently because the COPALUM system's manufacturer had at one point indicated it might drop the product at the end of this year.

A press release issued by the CPSC in May 2003 praised Tyco Electronics Corp. for agreeing to continue production of the device and to continue licensing and training of installers until at least 2005. Tyco bought the original manufacturer, AMP Inc., in 1999.

Over the past year, Wolfson said, the agency "has been trying to get the word out to consumers about COPALUM, to let them know that there is this excellent resource out

there before it is too late.

"Last week, however, Tyco representative Paul Lavenberg said, "The intention right now is not to discontinue in 2005. . . . We expect it will continue on indefinitely.

"Wolfson said the agency is pleased with that, but still encourages homeowners to act quickly to prevent fires. While electricians over the years have recommended different devices to address the problem, Wolfson said the COPALUM system remains the only repair CPSC endorses.

The system sounds like a combination of copper and aluminum -- and it is. Its proponents, however, contend it's a much stronger combination than other connectors. The Tyco product attaches a copper wire to the aluminum wire leading to each junction box using a crimping power tool that applies about 10,000 pounds of force.

The "cold weld" that's formed as a result is "a permanent bond that eliminates electrical arcing or glowing connections and creates a safer electrical connection at outlets, switches, lights, circuit breakers and panelboard terminals," the CPSC said.

Other connectors and devices made by other manufacturers are cheaper, but the CPSC says they're not as reliable. That includes "pigtail" repairs that use twist-on connectors and CO/ALR switches and outlets marketed specifically to handle aluminum wire.

"Some 'pigtail' repairs made with twist-on connectors may be even more prone to failure than the original wire connection," the CPSC's consumer booklet says.

The CO/ALR products, which are specifically listed by Underwriters Laboratories Inc. for use with aluminum wire, do "perform better with aluminum wire when installed carefully and according to best electrical practices" than the original switches and outlets, says the booklet. But because the connectors aren't available for all parts of the wiring system, the agency advisory says the device is "an incomplete repair." It notes that CO/ALR devices have also failed in lab tests.

Because of the cost, some electricians and home inspectors contacted recently said they recommend the cheaper alternatives despite the consumer agency's insistence on COPALUM. Others back the COPALUM recommendation. "The CPSC says the only fix that they . . . [recommend] is the COPALUM system, and as home inspectors we go with the most authoritative source," said Mark Dewey, home inspector at HomePro Services Inc. in Falls Church.

Inspector J.D. Grewell of J.D. Grewell & Associates in Silver Spring also advocates the COPALUM repair. Some electricians "will say that pigtail is as good as a COPALUM splice, but it makes it worse," he said.

### ***Seeing Is Believing***

Ellicott City homeowner Hannemann, who just made the repairs after 18 years, said the cost put him off for a long time. "People are funny about this kind of thing," he said. "It's a lot of money to spend on something you can't see."

"When he finally saw some of the burnt wire nuts, he said, he thought the six-day retrofit was time and money well spent."

The COPALUM connectors, which have to be installed at every junction box in a house, cost about \$35 to \$62 per junction, according to local authorized installers. The average single-family house has about 100 junction boxes.

The CPSC would be happiest if homeowners eliminated all the aluminum wiring and replaced it with copper. But the regulators recognize that the cost of doing so is considered prohibitive in most cases.

Because the national electrical code requires that aluminum wire be stapled every few feet inside the drywall, it can't just be pulled out and replaced, said Brian Smith, owner of All Things Electric in Dickerson. Replacing the wiring means not only a hefty price tag for the electrical work but also thousands more for new drywall.

Rewiring might work in houses where major renovations are already planned or where the wires are easily accessible, local electricians said.

"If you have a rambler with an unfinished basement, for instance, that would be ideal to rewire," said Jeff Smith of Electrical Wiring Limited in Kensington, a COPALUM installer. But he said most homes don't have that kind of access.

"A lot of times people ask me for an estimate on rewiring," said Bob Krebs, vice president of Hawkins Electric Services in Hyattsville, another authorized COPALUM installer. "But I won't even give them one 'cause you might as well tear the whole house down."

"Not all homes built during the period when aluminum was used are automatic candidates for a problem, said home inspector Stephanie Bowman of HouseMaster Inc. of Rockville. Some builders never abandoned copper."

"I've seen it the most in Bowie," Bowman said of aluminum wire. "There's like a 50-50 chance that we'll see it there" when the company inspects houses built in that time frame.

Bowman said most homebuyers are surprised when she mentions the aluminum wiring, and some seem to be interested in remediation. But she thinks "quite a few just live with it, and every couple years have it reinspected to see if the connections are tight."

"Joe Huff, an agent with Llewellyn Realtors in Rockville, said some of the neighborhoods where he works are also filled with aluminum-wired houses. When a home inspector finds the wiring, he said, the sellers will usually pay to fix the problem."

as the CPSC has urged. If they balk, Huff said he tells them that it might smooth the way to quick settlement, particularly because the issue, now that it has been identified, would have to be disclosed to any other potential buyer.

Sellers might insist on splitting the cost or on making the buyer pay for the repairs, but "generally I have persuaded my sellers that it's a pretty small price to pay to make sure a deal goes through," Huff said. *The CPSC's booklet, which includes information on the repair it recommends, is available via the Internet at [What Owners Need to Know About Wiring Dangers](#) or from the commission's toll-free hotline at 800-638-CPSC; TTY 800-638-8270; Maryland TTY 800-492-8104.* © The Washington Post Company