

Knob & Tube Wiring – Past its Prime

Over the past few years, we've received an increasing number of calls from owners of older homes who have questions about knob & tube wiring. While we have always had calls from people concerned about the safety of the wiring or about upgrading the electrical systems in their older homes, many of the calls are now from prospective buyers or their real estate agents.

Why all the interest these days? It is because folks are discovering that an increasing number of homeowners insurance underwriters are refusing to cover homes that have active knob & tube wiring, or will do so only at a significantly higher rate.

Obviously, the insurance industry is concerned about the safety of knob & tube wiring. But, is it really so dangerous? And, what is knob & tube wiring, anyway? Home Inspector William Kibbel III presents a good explanation on The Old House Web (www.oldhouseweb.com), from which the following is adapted, with some additions of more accurate descriptions.

Basically, knob & tube is a wiring system, popular through the mid 20th century, that uses porcelain insulators (knobs) for running wires through unobstructed spaces and porcelain tubes to protect wires running through studs and joists. While safe if properly installed and maintained, there are two main drawbacks to knob & tube systems. 1) They don't have an equipment grounding conductor, thus grounded (3-prong) outlets cannot be installed and 2) fuses and switches were often placed on the neutral wire. This means that removing a fuse or shutting off a switch does not turn off the voltage throughout the circuit.

There are also a number of factors due to the age of these systems, some well over 80 years old, that can cause serious safety hazards.

As household power needs grew over the years, alterations and additions to original systems by well-meaning but unqualified people overloaded the original fuses. The easy solution was to install larger fuses. Unfortunately, larger fuses allow more current to flow through the system than was originally intended, leading to more heat in the conductors. This heat causes the insulation on the wire to become brittle and eventually disintegrate.

Heat directly above ceiling lights and in un-vented attics can also degrade the wire insulation. In addition, some types of insulation used on knob & tube wiring seem to be a “delicacy” for the critters that find their way into old homes. They can make short work of the insulation covering the wires.

Another concern is insulation on top of knob & tube wiring. This is a major fire hazard. One of the safety features of knob & tube is that the porcelain knobs suspend the wire in open air to dissipate heat. Loose and rolled insulation counteracts the original “open air” installation of knob & tube wiring.

The bottom line is this: If you have an older home and are not sure if the wiring is safe, have it checked by a licensed electrician, whether or not you are planning to sell or change your homeowners insurance company. Any necessary rewiring could entail a major investment, but an electrician with in-depth knowledge of old homes can determine the most cost efficient means of ensuring the safety of you and your family and maintaining the insurability of your home.