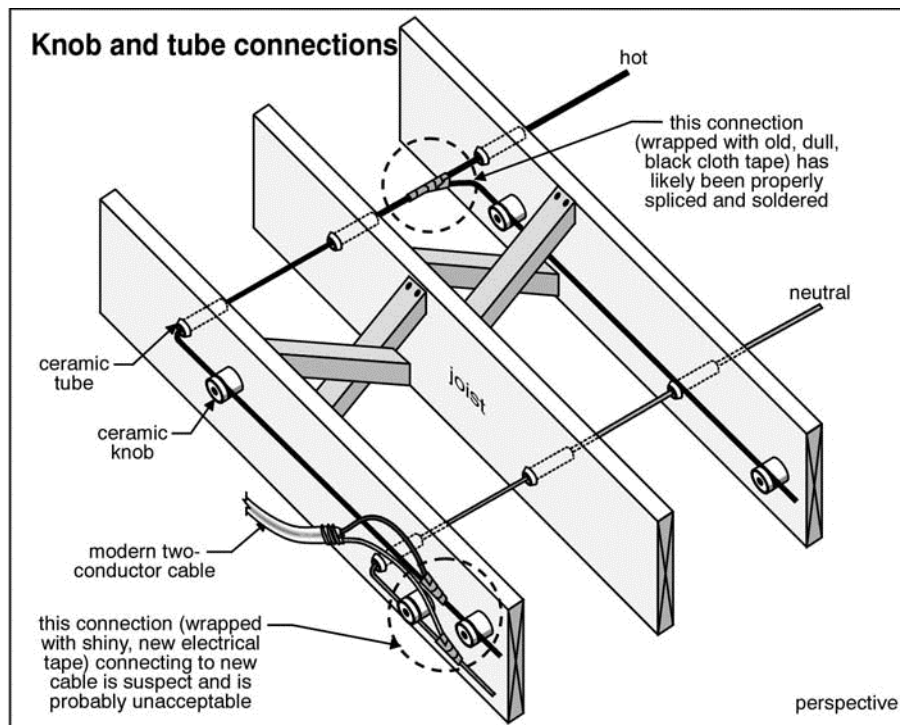


## OLD WIRING

Recently some of our clients have reported back that they have had difficulty securing homeowners insurance for the house they want to purchase because we (correctly) identified that the house has “knob & tube” wiring. Many insurance companies consider knob & tube wiring unsafe (or at higher risk), due primarily to its age. And, as many of you know, mortgage companies require insurance before closing on a new home, thus, no insurance = no mortgage = no house! Naturally, real estate agents have also become very upset with us when we report that the electrical system was “functional”, “serviceable” or in good condition, only to realize the deal is falling apart because the insurance is saying it is not. Let’s take a look at what all the fuss is about.

### Knob & tube wiring

Knob and tube wiring gets its name from the way it is installed. There are ceramic tubes when the wires run through lumber framing, and knobs when the wires run along or next to lumber framing. The two wires (there is no ground wire) are separated about four inches apart, one is the black “hot”, and the other is the white “neutral” (although some knob & tube wires are not different colors). The connections for knob & tube wiring are open and visible. The wires are spliced and soldered together with older style fibrous electrical tape around the splices. Knob & tube wiring was installed in houses up until about 1945, although in rural areas until about 1950.



### Modern wiring

There are three types of modern wiring; romex, armored cable, and conduit. Most cities and suburbs now require conduit, but allow small sections of armored cable. Rural areas in McHenry, Kane, and Lake Counties still allow romex. Romex is a flexible plastic sheathed bundle of insulated wires, usually three or four wires (one being a bare ground wire). The romex bundle is usually white, but recent styles include yellow and underground romex is usually gray. Armored cable is like romex but

has a metal flexible cover. Conduit is a rigid pipe (metal or plastic) with wires inside the pipe. Conduit is the most time consuming and expensive to install. All modern wiring has connections that are made inside metal junction boxes.

Modern wiring is usually #14 gauge or #12 gauge wires. A #14 gauge wire is capable of handling up to 15 amps, while #12 gauge can handle 20 amps of electricity. Knob & tube wiring was usually #12 gauge, although some #14 was used.

### **So what's the problem?**

The problem has little to do with the original wiring itself; it has to do with how the wires have been maintained. Most old houses did not have many electrical outlets. As our electrical needs changed, unsuspecting homeowners would “add” outlets in the rooms by splicing into the existing old wires, making improper splices and improper taping. Having completed over 4000 home inspections in the Chicagoland area, I have seen first hand many splices wrapped with things like; duct tape, hockey tape, masking tape, scotch tape, plastic bags, shoe laces, and even band-aids. Sometimes there is no insulation at all over the splice.

When additional outlets are added, it could cause the fuses (or breakers) to blow. The unsuspecting homeowner then puts in 25 or 30 amp fuses to “solve” the problem. Allowing 25-30 amps to flow through these wires causes them to overheat, thus causing the insulation and copper wire to become brittle. Brittle wire has a higher risk of arching to something flammable.

### **What about grounding?**

Knob and tube wiring does not have a ground wire. A ground is necessary if you are plugging in appliances that have a third prong in the plug. However, if the knob and tube wiring is limited to bedrooms, living room, dining room, etc, this is not necessarily a hazard. Plugging in a two prong lamp, TV, or clock is just as safe as a three prong grounded outlet.

### **Conclusion**

Knob and tube wiring is not necessarily dangerous. If installed properly, with the insulation in good condition and not abused with over splicing and connections, can provide many more years of reliable service. It is wiring that has been abused that is the potential hazard. On its own, knob & tube wiring is not inherently a problem. If the knob & tube wiring in on top of the attic floor, it could be easily nicked or the insulation could be worn off, causing a safety hazard. If the knob & tube wiring is in a traveled area, even for “just storage”, I recommend it be protected or replaced.

At Home Check America we believe the insurance companies rejection of knob & tube wiring is a knee jerk reaction reminiscent of their immediate reactions to EIFS siding, 60-amp panel boxes, fuse boxes, radon, and now also with mold. We hope the insurance industry will realize that this is not a black and white issue (no pun intended), and that the real issue is the condition of the wiring not the type.



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