Electrical: Knob and Tube Wiring

Knob and tube wiring gets its name from the knobs, or insulators, used to keep the wires isolated from objects and the ceramic tubes used to line holes (for example, through wooden floor joists). This type of wiring was installed up until the year 1950 and, although not common, can still be found in use today.

Knob and tube wiring is different from modern day wiring in that it consists of only two wires; a hot and neutral, there is not a ground wire. Both wires run separately to fixtures as opposed to all three wires contained within one plastic sheath like in today's applications.

Although knob and tube wiring is a workable system, the potential fire hazards far outweigh its use for modern day installations. Here are some of the main hazards with this type of wiring:



This image shows knob and tube wiring supplying power to a light fixture.

- Its presence indicates old, outdated wiring that has not been updated. It will typically be below 100-amp service, which is undersized for today's modern-day electrical demands.
- Knob and tube wiring does not utilize circuit breakers, which increases the risk of fire.
- It only has hot and neutral wire, with no electrical ground, and is therefore considered unsafe in kitchens, bathrooms, laundry rooms and outdoors. You cannot install a Ground Fault Circuit Interrupter outlet with knob and tube wiring.
- The hot and neutral wires can accidentally make contact, which is a potential fire hazard.
- The cloth and rubber insulation may be dry and brittle, exposing the bare wires.
- In-line splices in walls are installed without junction boxes, exposing a potential fire hazard from an uncontained spark caused by arcing following mechanical failure of the splice.
- Knob and tube wiring are designed to let heat dissipate to the surrounding air. With energy efficiency upgrades that involve covering the exposed wires with insulation, this negates this cooling effect, increasing the chances of overheating and fire.

If any part of your building's electrical system functions with knob and tube wiring, it presents a potential fire hazard. This wiring is old, outdated, not insulated and is not able to adequately handle the electrical demands of modern-day appliances. This wiring should be replaced by a licensed electrical contractor.

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