

# building knowledge

## The Insight Scoop

### House Insurance and Electrical Issues - Part I

#### KNOB AND TUBE WIRING

Recently, many of our customers have expressed frustration about obtaining house insurance for their newly purchased home in regards to electrical issues such as "knob & tube wiring; 60 amps service; or aluminum wiring".

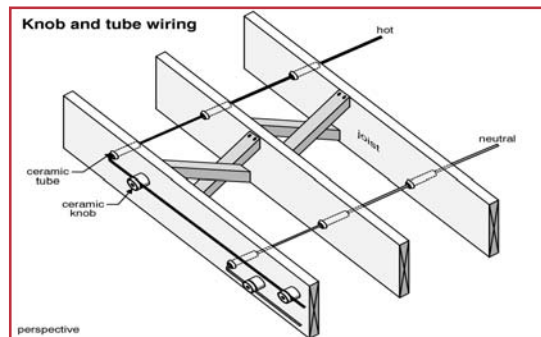
Needless to say an inability to insure the house you wish to purchase can add further stress to the home buying experience.

Due to an increasing amount of concerned customers and Realtors, RMC INSIGHT has decided to further investigate these issues. This article entitled "Knob and Tube Wiring" is Part I of 3 articles dealing with electrical issues that may directly create challenges while trying to insure a home.

#### WHAT IS KNOB & TUBE WIRING

Knob and tube wiring is commonly found in houses built before the 1950s. In a 2003 - CBC Marketplace Broadcast, reporter Wendy Mesley stated that "More than 1.5 million Canadian homes were built with knob and tube wiring."

The illustration below demonstrates a typical knob and tube wiring set-up.



#### KNOB & TUBE vs MODERN WIRING - Comparison Chart

##### KNOB & TUBE

Wire covered with a rubber-and-cloth insulation sheathing often referred to as "loom".

Black (hot) & White (neutral) wires run separately & parallel to each another about 12" apart. There is no ground wire.

Porcelain insulating tubes were placed in structural components (studs, floor joists, beams, rafters, etc.) and the wiring ran inside these tubes. This protected the wires from deterioration from rubbing against the woodwork.

Porcelain knobs were used to run or carry the wire along the structural members.

Connections are visible, there are no junction box. The connections were made by splicing, soldering and taping the wires together with old, dull black cloth tape.

Circuit wiring was often 12 gauge copper capable of handling 20 amps fuse.

##### MODERN WIRING

Wire covered with plastic sheathing.

Black & white wires are bundled along with a ground wire into a plastic sheathing.

Being more resistant, the wiring can run directly through the holes in structural members.

The wires can be stapled against the structural members.

Connections are enclosed in a junction box.

Typically 14 gauge copper wire capable of handling 15 amps fuse or breaker.

#### ABOUT US

RMC INSIGHT has been delivering excellent value to our clients since 1995.

- Our home inspectors are known for their professionalism and honesty.
- Our Inspectors perform a maximum of two inspections per day, ensuring quality time with every client.
- If you have any additional concerns after your inspection, you can call us for a free telephone consultation.
- We promise to help you "know your home".

## House Insurance and Electrical Issues - Part I: Knob & Tube (cont.)

### THE HOME INSURANCE INDUSTRY POSITION

Charming as they may be, old homes are increasingly being considered high risk by Underwriters, and some insurance brokers are finding it difficult to find coverage for them. Each insurance company has its own underwriting standards and their goal is to minimize their risk exposure.

Many, if not all, insurers regard knob and tube wiring as:

- an obsolete non-grounded system that represents an increased shock and fire hazard.
- associated with a 60 amp service which is usually not capable of handling the electrical requirements for the modern home of today.

The general consensus amongst insurance companies is that the dwelling must not contain more than 10% knob & tube wiring. A system evaluation from a qualified licensed electrician is often required and if the system is deemed unsatisfactory it would need to be upgraded within a specific time frame (usually 30 days).

### WHY IS KNOB AND TUBE CONSIDERED A PROBLEM?

Although the BC Safety Authority does not consider knob and tubing installations to be hazardous per se, they admit that this wiring method is very old and often has been subject to deterioration, tampering, and general misuse. Many requirements have changed over the years which means that unless up-grading has taken place by qualified persons, the current electrical installation is most likely not adequate for the purpose. The BC Safety Authority Branch strongly recommend that a "Licensed Electrical Contractor" assist in evaluating the safety of older electrical installation.

### HOME INSPECTOR'S ROLE

The scope of the home inspector's role in the visual examination of the electrical system is defined in the CAHPI(BC) Standards of Practice, which can be downloaded from our website.

RMC INSIGHT concurs with the BC Safety Authority Branch that the problem with knob and tube wiring often does not lie with the wiring itself but rather with the amateurish modifications and extensions of the circuits done by homeowner handymen. Some of the most common problems that we find as home inspectors with knob and tube wiring include:

- Sheathing/insulation material damaged as a result from either overheating (caused by over fusing) or mechanical damage (caused by items stored against or on top of wires in basement or attic spaces)
- Poorly joined connections - improper splicing
- Unprotected wires, pinched wiring, amateur circuit extensions, and unfastened runs
- Attic insulation covering knob and tube wiring - potential fire hazard
- Fused neutrals (2 fuses on a single circuit) - this situation is hazardous and can cause electrical shock

Many older homes have undergone renovations and unfortunately many renovations are not done by professional contractors. Poor quality of workmanship and the possibility of poorly joined connections could cause an argument for upgrading and replacing the older wiring. For that reason, when we encounter knob and tube wiring during our home inspection process, our report will state *"Knob and tube wiring present: some insurance companies may not insure home with this type of wiring. Replace with safer, modern, grounded wiring system."*

### CONCLUSIONS & RECOMMENDATIONS

If your house was built pre-1950s, it most likely contains knob and tube wiring. It is our opinion that the home insurance industry will continue to have issues with this type of wiring and in some cases, require that it be replaced before homeowners insurance coverage is given.

In order to preempt this issue, sellers and listing realtors may want to have the electrical system evaluated by a "licensed electrical contractor" up front as part of the Disclosure Statement to help the sale of the property. If you are buying an older home be sure you make your offer to purchase *"Subject to a satisfactory home inspection"*. Your home inspector will be able to confirm the presence of knob and tube. You may also need the system evaluated by a professional electrician.

The electrician's report should contain: 1) the approximate % of knob and tube wiring in use; 2) the overall condition of the wiring and; 3) a quote to upgrade if deemed necessary.

### SOURCES

BC ELECTRICAL SAFETY AUTHORITY:  
[www.safetyauthority.ca](http://www.safetyauthority.ca)  
INSURANCE BUREAU OF CANADA: [www.ibc.ca](http://www.ibc.ca)  
BC BROKER MAGAZINE:  
June/July 2003 & August 2004  
[www.ibabc.org](http://www.ibabc.org) (Insurance Broker's Assoc. BC)

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