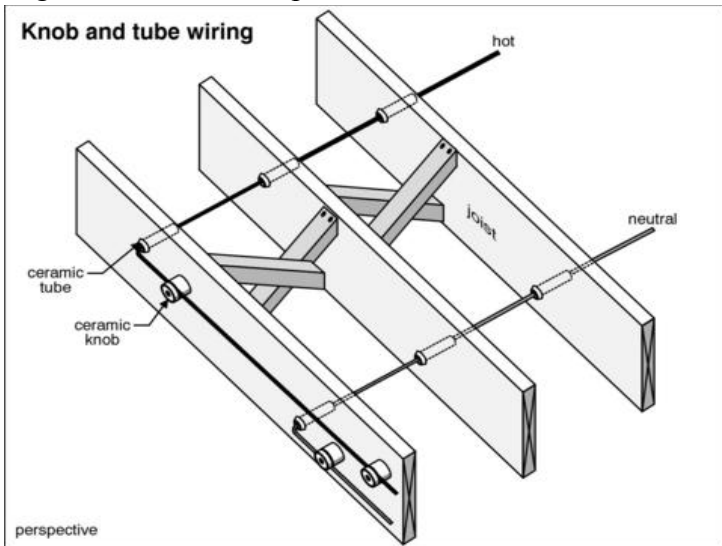


# Everything You Need to Know about Knob and Tube Wiring

## KNOB AND TUBE WIRING

First, let's discuss the history of knob and tube wire: Knob and tube wiring is an early method of electrical wiring that was used in homes and businesses in this area from the late 1800s to the 1920s (*up to the 1940s in some rural areas*). It is named for the white porcelain knobs and tubes that were used to insulate and protect the wires as the wires passed over or through the combustible wood framing. Knob and tube wiring consists of individual insulated copper conductors (*typically nickle/tin plated copper wire coated in rubber and wrapped in cloth/asbestos fabrics*) that are run within wall or ceiling cavities, passing through joist and stud drill-holes via protective porcelain insulating tubes, and supported along their length on nailed-down porcelain knob insulators. Here are typical knob and tube installations:



Knob and tube wiring was the first standardized method of electrical wiring in North America, and it was relatively inexpensive to install. **However, it has a number of drawbacks, including:**

- It is **not grounded**, which means that it does not provide protection against electrical shock.
- The wires are **not protected by a sheathing**, which makes them vulnerable to damage from moisture and pests.
- The wires can **become brittle and break** over time, which can cause a fire hazard.
- It heats up under normal use (this heat damages its insulation and creates a potential fire hazard).
- It **CANNOT BE INSTALLED IN INSULATION** as this creates a fire hazard.
- Many insurance companies will not insure it** without additional expensive "riders".

For these reasons, ***knob and tube wiring is no longer considered to be a safe electrical wiring method.*** In most cases, **it is recommended to have it replaced with modern wiring methods.**

Despite its drawbacks, knob and tube wiring can still be found in many older homes (*1890s-1930s typically*). If you live in a home with knob and tube wiring, it is important to ***have it inspected by a qualified electrician to assess its condition and determine if it needs to be replaced. (or simply re-wire it – which is my recommendation)***

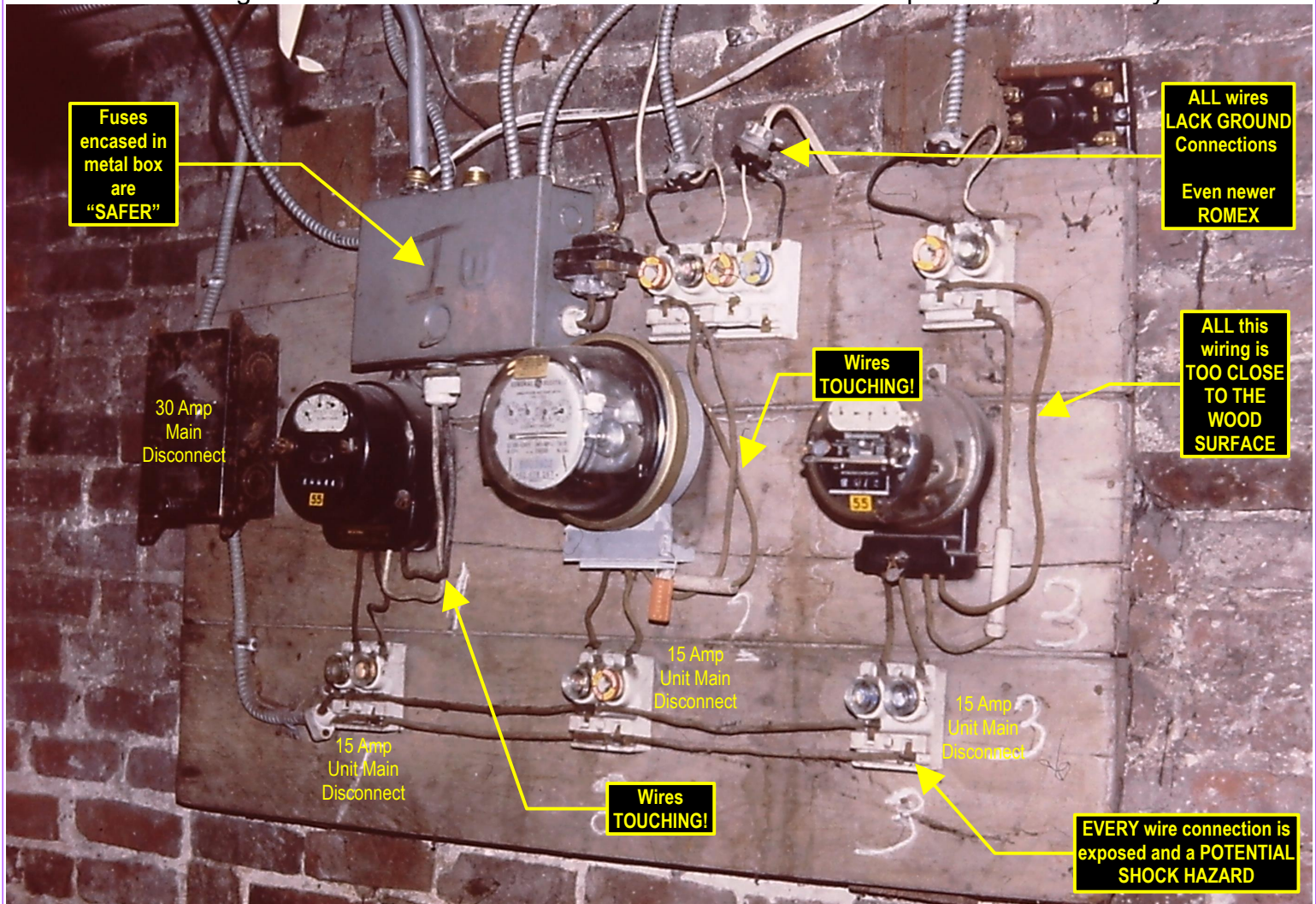
### **Some additional facts about knob and tube wiring:**

- ★ It was first developed in the late 1800s by Thomas Edison.
- ★ It was the most common type of electrical wiring in homes until the 1940s.
- ★ It is still found in some older homes, especially those that are listed on the National Register of Historic Places.
- ★ It is **considered to be a fire hazard** and should be replaced if it is damaged, in insulation or not in good condition.
- ★ If you have knob and tube wiring in your home, it is important to have it inspected by a qualified electrician to assess its condition and determine if it needs to be replaced.

# Everything You Need to Know about Knob and Tube Wiring

## SOME PICTURES OF KNOB AND TUBE ISSUES:

These are images of knob and tube issues we have encountered and pictures sent to us by others.



This set of Knob and Tube wired Electric meters and panels ARE A **SERIOUS POTENTIAL SHOCK AND FIRE HAZARD.**

The wires are installed too close to wood – a **POTENTIAL FIRE HAZARD** (they are *REQUIRED* to be spaced further away – as the wire can get *HOT ENOUGH TO BURN THE WOOD*).

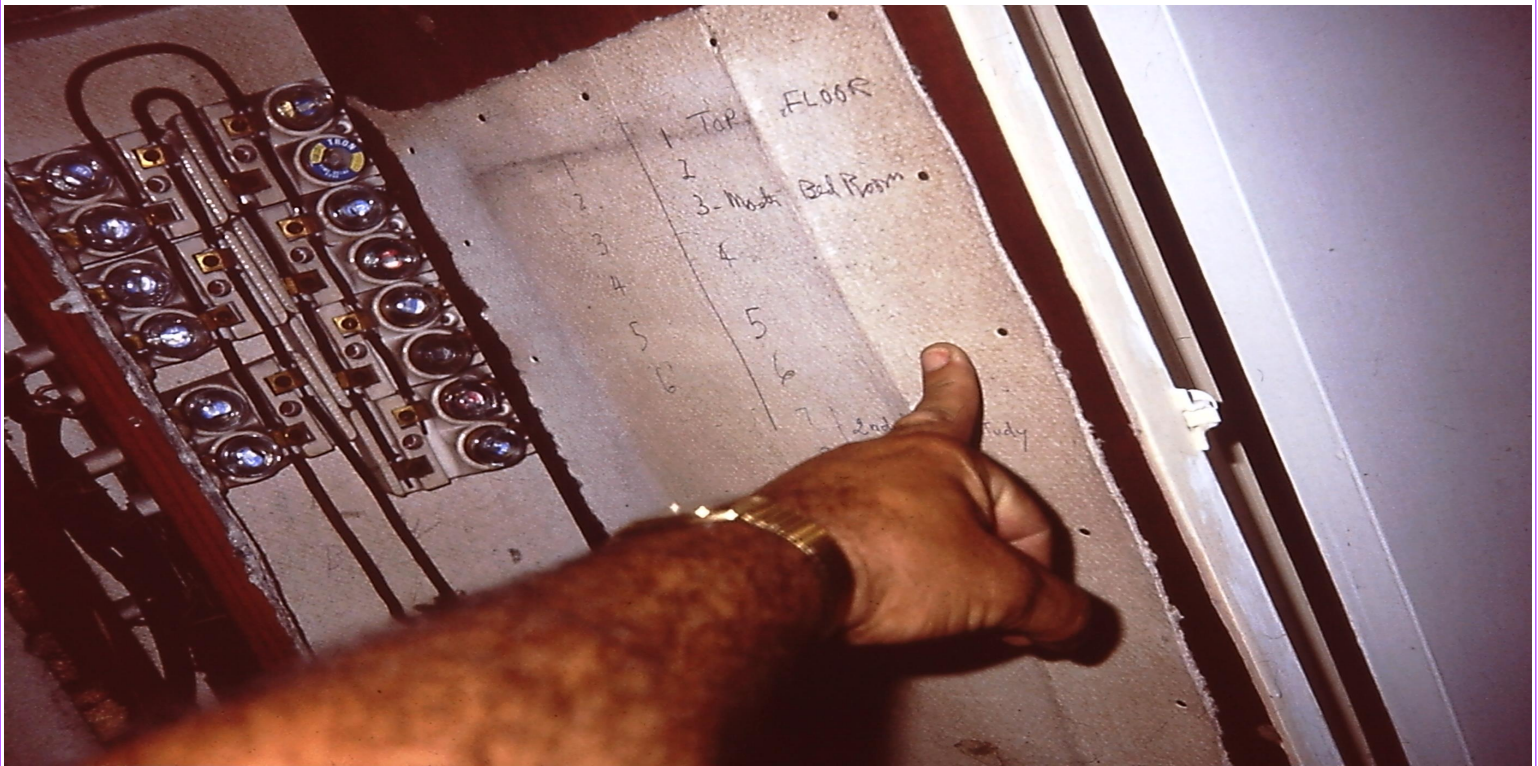
The wires are also installed too close to each other– a **POTENTIAL FIRE HAZARD** (wires too close to each other *MUST* have protection as they can short out if too close or touching)

The *live wire connections* are all exposed. Every wire connection and screw are all exposed and can easily be touched – **A SERIOUS POTENTIAL SHOCK HAZARD.**

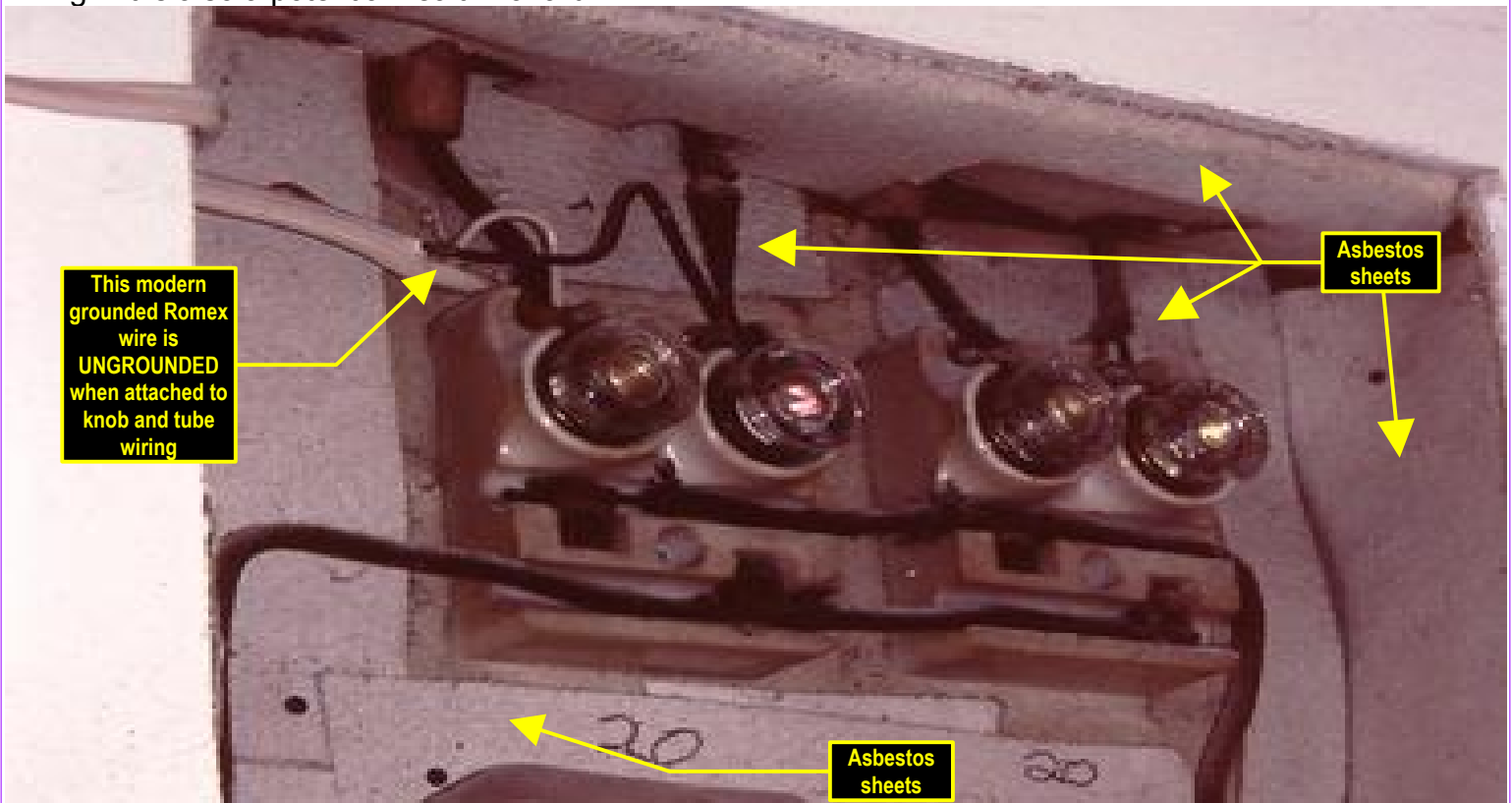
The main disconnect for the 3 unit building is ONLY 30 AMPS – 120 VOLTS and is **insufficient** for ANY modern needs. Each unit also has only one 15 Amp 120 volt main – and are also **insufficient** for any modern needs. *If you plugged in large appliances you could blow the unit's or building's main fuses!*

**Panels like this are RARE – but *should ALWAYS BE RE-WIRED for safety.***

# Everything You Need to Know about Knob and Tube Wiring



This old hallway electric “panel” is actually a wood box built into the wall with **ASBESTOS “PAPER”** lining the interior. After a number of fires, asbestos products (*which provide good fire protection*) were installed on the inside of wood electrical fuse enclosures to try to lessen the fire risk. NOW we know that asbestos is a potential hazard (*the fibers it gives off float in the air and are linked to cancers*) and this is obviously not just outdated wiring – it is also a potential health hazard.



# Everything You Need to Know about Knob and Tube Wiring

Just because you have a newer electric panel, and/or newer wiring – THIS DOES NOT MEAN ALL KNOB AND TUBE WIRING HAS BEEN REMOVED/CUT! Very often - upper floors, ceiling/wall light fixtures, and other areas where the wire is both hidden and difficult to re-wire can STILL HAVE LIVE KNOB AND TUBE.

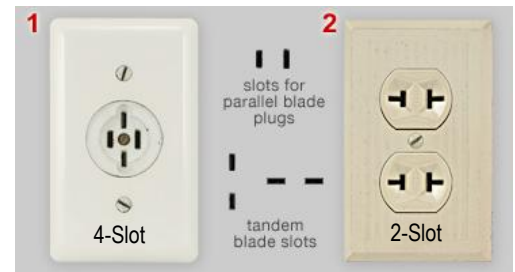
If your home is old enough to have originally had knob and tube wire - I STRONGLY ADVISE that you have an electrician evaluate the home fully for any live knob and tube – INCLUDING opening and checking ALL outlets/switches/lights/junction boxes to find all active old wiring. (If you do this, I also strongly advise that you get a letter from your electrician that specifies that the entire house was opened up and checked for knob and tube and that NONE was active (or get this letter AFTER re-wiring). Having such a letter can help PROTECT YOU FROM YOUR INSURANCE COMPANY in the event they try to not pay a fire claim....

## Signs of possible hidden live/active knob and tube wire:

- Old 2-slot (*and antique 4-slot*) outlets. These outlets were used in old ungrounded wiring systems and could indicate hidden/active knob and tube wiring.



Visit the online Plug and Socket Museum



- Outlets installed in baseboards on walls. Outlets which are installed (often sideways) in the low wood baseboards are OFTEN originally wired with knob and tube wiring.

- Old Wall light fixtures directly over outlets. This was the common way that the wall lights were wired in knob and tube wiring systems.



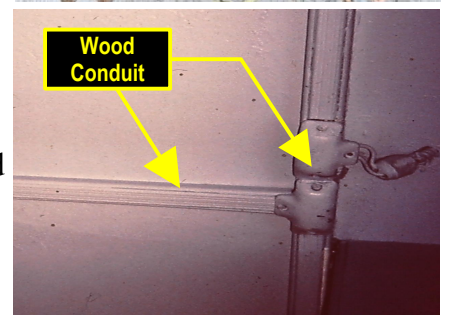
- Antique light fixtures (wall or ceiling). If the fixtures are old enough to be from the “knob and tube era” – then there is a good potential they are wired with knob and tube.



- Old push-button style switches. These type of switches were used mostly with knob and tube wire. These switches are also known to “arc” (*they give an internal spark*) when used and can cause other problems.



- Old surface mounted wood encased knob and tube wiring. Knob and tube installed in an existing building was often run on the walls and ceilings and encased in special wood “conduit”. This posed both a potential shock and fire hazard.



# Everything You Need to Know about Knob and Tube Wiring

Other knob and tube signs in basement and exposed framing areas:

