OTTAWA ELECTRICAL

Panels & Wiring

Panel capacity, subpanels, and the wiring feeding them

3 Expert Answers from Construction Brain

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Q1

What are the best practices for knob and tube wiring replacement?

Knob and tube wiring replacement requires complete removal and rewiring with modern cable - it cannot be safely "upgraded" or partially replaced. This is a major electrical project that must be done by ESA-licensed electricians with proper permits and inspections.

Complete System Replacement is Essential

The most critical practice for knob and tube replacement is understanding that partial upgrades don't work. You cannot simply add GFCI outlets or splice modern wire onto old knob and tube - the entire system must be removed and replaced with modern NMD90 cable. This includes all the old ceramic knobs, tubes, and cloth-wrapped wiring throughout your home.

Proper Planning and Assessment

Before starting any work, a licensed electrician should conduct a thorough assessment of your entire electrical system. This includes mapping all existing circuits, identifying where knob and tube runs through walls and ceilings, and determining the best routing for new cables. The assessment should also evaluate your electrical panel - homes with knob and tube often have outdated 60A or 100A panels that need upgrading to modern 200A service to meet current electrical demands.

ESA Permit and Inspection Requirements

In Ontario, knob and tube replacement requires ESA permits for each circuit being replaced. Your electrician will pull these permits before starting work, and ESA inspectors will verify the installation meets Ontario Electrical Safety Code requirements. The inspection process typically involves a rough-in inspection (before drywall) and a final inspection once all connections are complete. This permitting process protects you legally and ensures insurance coverage.

Modern Safety Features Integration

Best practice includes installing all required modern safety features during replacement. This means GFCI protection within 1.5 meters of water sources (kitchens, bathrooms, laundry), AFCI protection for bedroom circuits, and proper grounding throughout the system. Your new wiring should include a proper equipment grounding conductor - something knob and tube completely lacks.

Minimizing Damage During Installation

Experienced electricians use techniques to minimize wall and ceiling damage during replacement. This includes using existing pathways where possible, strategic access holes, and careful planning of new circuit routes.

However, some drywall repair is inevitable - budget for patching and repainting affected areas.

Timing and Coordination

The best time for knob and tube replacement is during major renovations when walls are already open. If you're planning kitchen or bathroom renovations, coordinate with your electrician to replace wiring in those areas first. For occupied homes, electricians typically work room by room to maintain power to essential circuits during the project.

Insurance and Safety Considerations

Many insurance companies in Ottawa either refuse coverage or charge higher premiums for homes with knob and tube wiring, especially when combined with modern insulation. Replacement eliminates these insurance issues and removes serious fire risks associated with 80+ year old wiring systems.

Cost and Timeline Expectations

In Ottawa's 2025 market, complete knob and tube replacement typically costs $15,000 - $35,000 depending on home size and complexity. A 1,200 square foot home usually takes 3-5 days for a two-person crew. Homes requiring panel upgrades add $3,500 - $5,500 to the total cost.

For a comprehensive assessment of your knob and tube system and replacement planning, Electrical Ottawa connects you with ESA-licensed electricians from the Ottawa Construction Network who specialize in heritage home electrical upgrades.

Q2

What is the best way to replace knob and tube wiring in an older home?

Knob and tube wiring replacement requires complete rewiring by ESA-licensed electricians - it's not a DIY project and most insurance companies won't cover homes with active knob and tube systems.

Replacing knob and tube wiring is one of the most complex electrical projects in older homes, but it's essential for safety and insurability. The process involves running entirely new wiring throughout your home since knob and tube systems lack the grounding conductor required by modern electrical code and often can't handle today's electrical demands.

The replacement process starts with a comprehensive assessment by a licensed electrician who will map your existing circuits and plan the new electrical layout. This typically involves installing a new 200-amp electrical panel (most knob and tube homes have inadequate 60-100 amp services), then running new 14 AWG and 12 AWG copper wiring with proper grounding throughout the house. The old knob and tube wiring is completely removed - it

cannot be left in place even if disconnected, as this creates confusion for future electrical work.

Access is the biggest challenge in knob and tube replacement. Electricians need to route new cables through walls, floors, and ceilings, which often requires strategic opening of drywall, especially around outlets, switches, and junction points. In Ottawa's older homes (many built 1900-1950), this work is complicated by plaster walls, narrow stud bays, and limited basement/attic access. Experienced electricians use techniques like fishing wires through existing pathways and minimizing wall damage, but some patching and repainting is inevitable.

ESA permits and inspections are mandatory for knob and tube replacement. Your electrician will pull permits before starting work, and ESA inspectors will verify the installation meets current Ontario Electrical Safety Code requirements. This includes proper GFCI protection within 1.5m of sinks, AFCI protection for bedroom circuits in newer installations, and adequate circuit capacity for modern electrical loads.

Expect significant costs for this work in Ottawa - complete knob and tube replacement typically ranges from $15,000 to $35,000 depending on your home's size, accessibility, and how much drywall repair is needed. While expensive, this investment immediately improves safety, allows proper insurance coverage, increases home value, and provides the electrical capacity needed for modern appliances, EV chargers, and smart home systems.

Timeline varies but most knob and tube replacements take 3-7 days of electrical work plus additional time for drywall repair and painting. Your electrician will coordinate power shutoffs to minimize disruption, often working room by room to keep parts of your home functional.

For a comprehensive assessment of your knob and tube system and a detailed replacement plan, request a consultation from Electrical Ottawa's ESA-licensed electricians who specialize in heritage home electrical upgrades.

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Q3

What is the process for replacing knob and tube wiring?

Knob and tube wiring replacement is a major electrical project that requires complete rewiring of affected circuits by ESA-licensed electricians, typically costing $15,000-$35,000 for a full home in Ottawa.

Knob and tube wiring, common in homes built before 1950, lacks a ground wire and uses outdated insulation that becomes brittle over time. When insulation is blown over these wires, it creates a serious fire hazard since the wires rely on air circulation for cooling. Most insurance companies in Ontario either refuse coverage or charge significant premiums for homes with active knob and tube wiring.

The Replacement Process

The project begins with an ESA-licensed electrician conducting a thorough assessment to identify all knob and tube circuits throughout your home. They'll determine which circuits are still active, map the electrical layout, and plan the new wiring routes. This assessment is crucial because knob and tube often runs through walls, attics, and basements in ways that aren't immediately obvious.

Next, the electrician pulls the necessary ESA permits before any work begins. The replacement involves installing new 14 AWG or 12 AWG copper wiring with proper grounding throughout the home. This typically requires running new cables through walls, which may involve some drywall work to access wire pathways. The old knob and tube wiring is completely removed - it cannot simply be abandoned in place according to Ontario Electrical Safety Code requirements.

Panel and Safety Upgrades

Most homes with knob and tube also have outdated electrical panels that need upgrading. A typical project includes upgrading from a 60A or 100A service to a modern 200A panel with proper circuit breakers. The new wiring will include GFCI protection for bathrooms, kitchens, and other wet locations as required by current ESA standards, plus AFCI protection for bedroom circuits in accordance with modern safety requirements.

Timeline and Disruption

A complete knob and tube replacement typically takes 3-7 days depending on your home's size and complexity. The work requires shutting off power to sections of your home, so plan for temporary inconvenience. Your electrician will coordinate with ESA for the required inspection, which usually occurs within 3-5 business days of completion.

Cost Considerations in Ottawa

Expect to invest $15,000-$35,000 for complete knob and tube replacement in an average Ottawa home, with costs varying based on home size, accessibility, and panel upgrade requirements. While this represents a significant

investment, it eliminates fire risks, satisfies insurance requirements, and adds substantial value to your property. Many Ottawa homeowners find their insurance premiums decrease significantly after replacement.

For a detailed assessment of your knob and tube situation and a free estimate, Electrical Ottawa connects you with ESA-licensed electricians from the Ottawa Construction Network who specialize in heritage home electrical upgrades.

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