OTTAWA ELECTRICAL

Electrical Safety

Warning signs, hazards, grounding, and safety issues

3 Expert Answers from Construction Brain

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Table of Contents

1. Is it safe to use extension cords for appliances long term?
2. My lights flicker when the furnace kicks on - is this dangerous?
3. Is it dangerous to overload a circuit?

Q1

Is it safe to use extension cords for appliances long term?

No, extension cords should never be used as permanent wiring solutions for appliances. Extension cords are designed for temporary use only and can create serious fire and electrocution hazards when used long-term.

Why Extension Cords Are Dangerous for Permanent Use

Extension cords lack the safety features of permanent wiring. They're not protected inside walls, making them vulnerable to damage from foot traffic, furniture, and pets. The connections at both ends create resistance points that generate heat, and over time, these connections can loosen, creating arcing and fire risks. Most extension cords also aren't rated for the continuous loads that appliances draw - a space heater pulling 1,500 watts through an undersized extension cord can overheat the wire and start a fire.

Under the **Ontario Electrical Safety Code**, extension cords cannot be used as permanent wiring. They're prohibited from being run through walls, ceilings, or floors, and they cannot be daisy-chained together. Insurance companies often deny claims for fires caused by improper extension cord use, especially when used as permanent solutions. The ESA considers this a code violation that creates liability for homeowners.

Appliances That Commonly Cause Problems

High-draw appliances are particularly dangerous on extension cords. Space heaters, window air conditioners, microwaves, and power tools can easily overload a standard household extension cord. Even smaller appliances like coffee makers or toasters can be problematic if the extension cord isn't properly rated. The issue isn't just the appliance's power draw - it's the sustained load over time that causes heat buildup in the cord.

The Safe Solution: Dedicated Circuits

The proper solution is installing dedicated outlets where you need them. A licensed electrician can run new circuits from your electrical panel to provide permanent, code-compliant power. This typically costs $300-600 per new outlet in Ottawa, depending on the distance from the panel and any obstacles like finished walls. For high-draw appliances, dedicated 20-amp circuits may be required instead of standard 15-amp circuits.

When Extension Cords Are Acceptable

Extension cords are safe for temporary use - think holiday lights, occasional power tool use, or temporarily powering a device while rearranging furniture. Use only CSA-approved cords rated for your specific application, and never exceed the cord's amperage rating. Outdoor extension cords should be used outdoors, and indoor cords should never be used in wet locations.

If you're relying on extension cords because you don't have enough outlets, it's time to upgrade your electrical system. **Electrical Ottawa can assess your power needs and install proper outlets where you need them.** This investment in permanent wiring eliminates fire risks, satisfies insurance requirements, and adds value to your home while keeping your family safe.

Q2

My lights flicker when the furnace kicks on - is this dangerous?

Flickering lights when your furnace starts is typically not dangerous, but it indicates your electrical system is being overloaded and needs attention from a licensed electrician.

When your furnace motor starts up, it draws a large surge of power (called "inrush current") that can temporarily drop the voltage in your home's electrical system. This voltage drop causes lights to dim or flicker momentarily. While this won't immediately harm you, it signals that your electrical system may be undersized for your home's current demands.

Common causes include:

- **Undersized electrical panel** - Many Ottawa homes still have 100-amp panels that struggle with modern electrical loads
- **Shared circuits** - Your lights and furnace may be on the same circuit, which violates current Ontario Electrical Safety Code requirements
- **Voltage drop from utility connection** - Loose connections at your meter or service entrance
- **Aging wiring** - Older homes with knob and tube or early aluminum wiring may not handle modern loads efficiently

In Ottawa's older neighborhoods like the Glebe, Westboro, or Sandy Hill, this issue is particularly common in homes built before 1980. These homes often have 100-amp electrical services that were adequate when installed but now struggle with modern appliances, computers, and heating systems.

When flickering becomes concerning: If lights flicker severely (dimming by 50% or more), stay dim for several seconds, or if you notice other electrical issues like outlets not working or breakers tripping frequently, this requires immediate attention. These symptoms could indicate dangerous loose connections that pose fire risks.

ESA requirements mandate that major appliances like furnaces have dedicated circuits. If your furnace shares a circuit with lighting, this violates current code and should be corrected. While existing installations may be grandfathered, it's worth upgrading for safety and performance.

Next steps: Have a licensed electrician evaluate your electrical panel capacity and check for proper circuit separation. In many cases, upgrading from a 100-amp to 200-amp panel solves flickering issues permanently. This typically costs $2,000-$3,500 in Ottawa and often pays for itself through improved efficiency and home value.

For a professional assessment of your electrical system's capacity, Electrical Ottawa offers free consultations to help determine if a panel upgrade or circuit modifications would resolve your flickering lights safely and permanently.

Q3

Is it dangerous to overload a circuit?

Yes, overloading a circuit is extremely dangerous and can cause fires, damage to your electrical system, and potentially electrocution. Circuit overloads are one of the leading causes of electrical fires in Canadian homes, making this a serious safety concern that every homeowner should understand.

When you draw more electrical current through a circuit than it's designed to handle, several dangerous things happen. The wiring heats up beyond safe levels, which can melt wire insulation and create arcing between conductors. This excessive heat can ignite nearby combustible materials like wood framing, insulation, or drywall. Even if a fire doesn't start immediately, repeated overloading degrades the wire insulation over time, creating ongoing fire risks that may not manifest for months or years.

Circuit breakers are your first line of defense against overloads, but they're not foolproof. A 15-amp circuit should trip when you exceed 15 amps, but breakers can fail or may not trip quickly enough to prevent wire damage. Some older homes in Ottawa still have the original Federal Pacific or Zinsco panels, which are notorious for breakers that fail to trip during overloads - these panels are considered fire hazards and should be replaced immediately.

In Ottawa's older neighborhoods like the Glebe, Westboro, or Sandy Hill, many homes still have 60-amp or 100-amp electrical services that were adequate decades ago but struggle with today's electrical demands. When you plug multiple high-draw appliances into circuits designed for much lighter loads, you're creating a dangerous situation. A typical 15-amp bedroom circuit can safely handle about 1,800 watts, but a space heater alone can draw 1,500 watts - add a hair dryer or vacuum cleaner and you're in dangerous territory.

Signs your circuits are overloaded include frequently tripping breakers, dimming lights when appliances start up, warm outlet covers or switch plates, burning smells, or flickering lights. If you're experiencing any of these symptoms, shut off the circuit immediately and call a licensed electrician. Under the Ontario Electrical Safety Code,

any investigation of overloaded circuits typically requires ESA permits and professional assessment.

Common overload scenarios in Ottawa homes include using extension cords for permanent appliances, daisy-chaining power bars, running space heaters on bedroom circuits, or plugging high-draw kitchen appliances into the same circuit. Many homeowners don't realize that a microwave, toaster, and coffee maker on the same circuit will almost certainly cause an overload.

The solution often involves adding dedicated circuits for high-draw appliances, upgrading your electrical panel to 200-amp service, or redistributing loads across existing circuits. A licensed electrician can perform a load calculation to determine if your current electrical service meets your needs safely. For homes needing panel upgrades, expect costs between $2,000-$3,500 in the Ottawa market, but this investment prevents potentially catastrophic fires.

Never ignore circuit overloads - they represent a genuine fire and safety hazard. If you're frequently resetting breakers or notice any warning signs, contact Electrical Ottawa for a professional electrical assessment. Our ESA-licensed electricians can evaluate your electrical system's capacity and recommend safe solutions to meet your power needs.
