NEW BRUNSWICK ELECTRICAL

# Permits & TSANB

TSANB inspections, permits, Canadian Electrical Code in New Brunswick

16 Expert Answers from Electric IQ

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Q1

# Do I need a permit for bathroom or kitchen reno?

**For bathroom and kitchen renovations in New Brunswick, you'll likely need both building permits (from your municipality) and electrical permits (from TSANB) depending on the scope of work.**

The permit requirements depend on what you're changing. If you're just replacing fixtures, cabinets, and finishes without moving plumbing or electrical, you might only need a building permit. However, most kitchen and bathroom renovations involve electrical work that triggers TSANB permit requirements.

**Electrical work requiring TSANB permits** includes adding new outlets, installing dedicated circuits for appliances, relocating switches or outlets, adding pot lights, installing bathroom exhaust fans, or upgrading electrical for electric ranges, dishwashers, or garbage disposals. Even moving an existing outlet to a new location requires a permit. TSANB permits are required because kitchens and bathrooms have specific code requirements - GFCI protection within 1.5 meters of sinks, proper ventilation circuits, and adequate outlet spacing.

**Building permits from your municipality** are typically required when you're changing the layout, moving walls, altering plumbing rough-in, or doing structural work. Cities like Moncton, Saint John, and Fredericton each have their own building permit departments with slightly different requirements. Rural areas may go through the provincial building permit system.

**The permit process** usually works like this: your contractor pulls the electrical permit from TSANB before starting electrical work, and either you or your contractor gets the building permit from your local municipality. TSANB will inspect the electrical work, and municipal inspectors will check the overall renovation compliance with building codes.

**Why permits matter** - beyond being legally required, permits ensure your renovation meets current safety codes, protects your insurance coverage, and provides documentation for future home sales. Unpermitted electrical work in kitchens and bathrooms is particularly risky given the water and high-power appliance combinations.

Contact your local building permit office and have your electrician handle the TSANB permits. Most licensed contractors are familiar with both processes and can guide you through the requirements for your specific project scope.

Need help finding an electrician familiar with kitchen and bathroom electrical requirements? New Brunswick Electrical can match you with local professionals who handle permits as part of their service.

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Q2

## What electrical work triggers a TSANB inspection?

**Most electrical work in New Brunswick requires a TSANB permit and inspection.** The Technical Safety Authority of New Brunswick (TSANB) requires permits for virtually any electrical work beyond simple replacements, and every permitted job gets inspected before you receive your Certificate of Compliance.

**Work That Requires TSANB Permits and Inspection:**

Any new electrical circuits or modifications to existing circuits trigger permit requirements. This includes installing new outlets, switches, or light fixtures where none existed before, adding circuits for appliances like dryers or dishwashers, and running power to garages, sheds, or outdoor areas. Panel upgrades or replacements always require permits, whether you're upgrading from 100A to 200A service or simply replacing an old Federal Pacific panel with a modern one.

EV charger installations require permits since they typically involve installing a new 240V circuit. Generator installations, both portable transfer switches and whole-home standby generators, need permits and inspection. Any rewiring work, including knob and tube removal or aluminum wiring repairs, requires permits. Hot tub and pool electrical work always needs permits due to the specialized bonding and GFCI requirements.

**Work That Doesn't Require Permits:**

The list of work that doesn't require TSANB permits is much shorter. Homeowners can replace outlets, switches, and light fixtures on a like-for-like basis without permits - but the power must be shut off and the replacement must be the same type (you can't upgrade a regular outlet to GFCI without a permit). Replacing smoke detector batteries and bulbs doesn't require permits, nor does resetting tripped breakers.

**The TSANB Inspection Process:**

Only licensed electrical contractors can pull permits in New Brunswick - homeowners cannot get permits directly. The electrician pulls the permit before starting work, completes the installation according to the Canadian Electrical Code as adopted by New Brunswick, then schedules the TSANB inspection. The inspector verifies the work meets code requirements and issues a Certificate of Compliance if everything passes.

**Why This Matters:**

TSANB inspections protect your safety and ensure insurance coverage. Unpermitted electrical work can void your home insurance and create liability issues if there's ever a fire. The inspection also ensures the work meets current electrical code, which is especially important for older homes that may not have modern safety features like GFCI protection or proper grounding.

If you're unsure whether your project needs a permit, contact TSANB directly at 1-800-999-0813 or check their website at tsanb.ca. When in doubt, it's better to get the permit - the cost is minimal compared to the safety and legal protection it provides.

Need help finding a licensed electrician who can handle permits and inspections properly? New Brunswick Electrical can match you with qualified contractors in your area for free.

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Q3

## What does the TSANB electrical inspection process involve in New Brunswick?

**A TSANB (Technical Safety Authority of New Brunswick) electrical inspection verifies that your electrical work meets the Canadian Electrical Code and NB regulations — it's required before any new or modified electrical work can be energized.**

**How the process works:**

**Step 1: Permit application** Your licensed electrician applies for a wiring permit through TSANB (Technical Safety — Department of Justice and Public Safety). This can be done online, by phone (1-888-659-3222), or at a Service New Brunswick centre. The permit fee depends on the scope of work — typically $100-$400 for residential projects.

**Step 2: Work is completed** The licensed electrician completes the electrical work according to the Canadian Electrical Code (CEC) and NB amendments. The work must remain accessible for inspection — don't close up walls, ceilings, or covers until after inspection.

**Step 3: Inspection request** Once work is complete, the electrician requests an inspection from TSANB. Inspection wait times vary:

- **Urban areas** (Moncton, Fredericton, Saint John): Typically 3-7 business days
- **Rural areas**: May take 7-14 business days depending on inspector availability
- **Urgent requests**: Available for an additional fee in some circumstances

  **Step 4: The inspection itself** A TSANB inspector visits the site and checks:

- Wire sizes match circuit breaker ratings
- Proper connectors, junction boxes, and cable supports
- GFCI and AFCI protection where required
- Grounding and bonding are correct
- Clearances and working space around panels meet code
- Wire fill in boxes doesn't exceed limits
- All connections are accessible (no buried junction boxes)
- The installation matches what was described on the permit

  **Step 5: Pass or deficiency notice**

- **Pass**: The inspector approves the work and you receive a certificate. The circuit can be energized
- **Deficiency notice**: The inspector lists items that need correction. Your electrician makes the repairs and requests a re-inspection. There's typically no additional fee for one re-inspection

  **Common reasons for deficiency notices in NB:**

- Missing AFCI protection on bedroom circuits (required since CEC 2018)
- Improper bonding of water pipes or gas pipes
- Overcrowded junction boxes

- Missing cable staples or supports within required distances
- GFCI protection missing on outdoor, bathroom, or kitchen circuits

**What homeowners should know:**

- You cannot request a TSANB inspection yourself — only the permit holder (licensed electrician) can
- Don't let a contractor tell you "we don't need an inspection" — all permitted work requires inspection
- Keep your inspection certificate — you'll need it when selling your home or filing insurance claims
- If work was done without a permit, you can request a retroactive inspection, but the work may need to be exposed for the inspector to verify it

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Q4

# Are permits required for installing recessed pot lights in New Brunswick?

Yes — installing new recessed pot lights in New Brunswick requires a **TSANB (Technical Safety Authority of New Brunswick) electrical permit** whenever new wiring or new circuits are involved. This applies whether you're adding pot lights to a kitchen renovation, finishing a basement, or upgrading an existing room's lighting.

## When a Permit IS Required

**Adding new recessed lights where none existed before:** This is the most common scenario. Running new wire from the panel or an existing junction box to new pot light locations requires a permit. Every new hole cut in the ceiling for a pot light housing, every new wire run, and every new switch connection is new electrical work that TSANB must inspect.

**Adding pot lights to a new circuit:** If the existing circuits can't handle the additional load (uncommon with LED pot lights but possible in older homes), your electrician will run a new dedicated circuit from the panel. New circuits always require a permit.

**Converting existing fixture types to recessed:** Removing a central ceiling fixture and replacing it with multiple pot lights involves running new wire to each pot light location from the original fixture box. Even though there was already a light there, the new wiring requires a permit.

**Finishing a basement or attic:** Any electrical work in a newly finished space requires a permit — pot lights included. This is typically bundled with the overall electrical permit for the renovation project.

**Adding a dimmer circuit:** If pot light installation includes adding a new dimmer switch where no switch existed, or running a new switch leg, this is new wiring requiring a permit.

## When a Permit Is NOT Required

**Replacing an existing recessed light with a new one (same location, same wiring):** Swapping a burnt-out or outdated recessed fixture for a modern LED retrofit in the same housing, using the same wiring, is maintenance — not new electrical work. No permit needed.

**Installing LED retrofit inserts into existing recessed housings:** If your home already has recessed cans (common with old halogen or CFL fixtures), popping in LED retrofit discs that screw into the existing socket is a simple bulb/fixture swap. No permit.

**Replacing an existing light switch with a dimmer (same box, same wiring):** Swapping a standard toggle switch for a dimmer switch on the same circuit is a like-for-like upgrade. No permit required.

## The Permit Process

The TSANB permit process for pot light installation is straightforward and shouldn't intimidate homeowners:

- **Your electrician applies for the permit** — This is standard practice. Licensed electricians in New Brunswick handle the paperwork as part of their service. The application is submitted to TSANB with a description of the work.
- **Permit fee:** Typically **$75–$150** for a residential lighting project. The fee scales with the scope of work — a simple 4-light kitchen installation is at the lower end; a full-house pot light retrofit is higher.
- **Work is completed** — Your electrician installs the pot lights according to CEC (Canadian Electrical Code) requirements.
- **Inspection is requested** — After the work is done, the electrician contacts TSANB to schedule the inspection.
- **TSANB inspector visits** — Typically within **5–10 business days**. The inspector checks:

  - Wire gauge matches circuit amperage - Connections are properly made (wire nuts, approved connectors) - IC-rated housings used where insulation contact is possible - Proper clearances maintained around fixtures - AFCI protection on bedroom circuits (current CEC requirement) - Switch placement meets code (accessible, proper height) - Grounding is continuous and connected
- **Pass or correction** — If everything meets code, you get approval. If corrections are needed (rare with experienced electricians), you fix the issues and request re-inspection.

## CEC Requirements for Recessed Lights

Your electrician will handle code compliance, but it helps to understand the key requirements:

**IC Rating (Insulation Contact):** If the ceiling cavity above the pot light contains insulation (which it does in most NB homes — especially in cathedral ceilings, between floors, and in attic spaces), the pot light housing **must be IC-rated**. IC-rated fixtures are designed to be safely covered with insulation without overheating. Non-IC fixtures require a **3-inch clearance from insulation** on all sides — difficult to maintain in practice.

**AT Rating (Airtight):** Current energy codes in New Brunswick require airtight pot light housings in insulated ceilings. Air leaking through non-airtight pot lights wastes energy and can cause moisture problems in the attic (warm moist air condensing on cold surfaces). AT/IC-rated fixtures cost only **$2–$5 more** than non-rated versions.

**AFCI Protection:** The current CEC requires **arc-fault circuit interrupter (AFCI) breakers** on circuits serving bedrooms. If your pot lights are in a bedroom or a circuit that passes through a bedroom, an AFCI breaker is required. AFCI breakers cost **$40–$60 each** — significantly more than standard breakers but mandatory for code

compliance.

**Circuit Loading:** While LED pot lights draw very little power (typically **8–15 watts each**), the CEC still requires proper circuit sizing. A standard 15-amp lighting circuit can safely support dozens of LED pot lights, but your electrician will verify the total load including any other fixtures on the circuit.

## Typical Costs for Pot Light Installation in NB

| Scope | Cost (installed, including permit) | |-------|----------------------------------| | 4 pot lights in kitchen | $600–$1,200 | | 6 pot lights in living room | $800–$1,500 | | Full basement (12–20 pot lights) | $2,000–$4,500 | | Whole house retrofit (30+ pot lights) | $4,500–$8,000 | | Per pot light (average) | $120–$250 |

Costs include fixtures, wiring, switches, dimmers, labour, and TSANB permit. Prices are higher when ceiling access is difficult (no attic above, finished space above, cathedral ceilings requiring fishing wire through closed cavities).

## Why Permits Matter — Even for "Just Lights"

Some homeowners question whether a permit is necessary for "just adding a few lights." Here's why it matters:

**Insurance:** Unpermitted electrical work can void your home insurance claim if a fire originates from or near the unpermitted work. Insurance adjusters specifically look for signs of unpermitted electrical modifications after fire losses.

**Home sale:** Home inspectors in New Brunswick routinely note signs of electrical work without permits — mismatched wire gauges, junction boxes without covers, non-code-compliant installations. This can reduce your home's sale price or require remediation before closing.

**Safety:** The TSANB inspection catches errors that create fire risk — wrong IC rating near insulation, loose connections, overloaded circuits, missing AFCI protection. Even experienced DIYers miss these details.

**Cost perspective:** The TSANB permit adds only **$75–$150** to a project that typically costs $1,000–$4,000. That's 2–7% of the total cost for professional verification that the work is safe. It's one of the best-value safety checks available.

## DIY Pot Light Installation in NB

Can homeowners install pot lights themselves? Technically, New Brunswick allows homeowners to do electrical work on their own home — but you still need the TSANB permit and inspection. In practice, pot light installation involves:

- Cutting precise holes in ceilings
- Fishing wire through enclosed cavities

- Making multiple wire connections in tight spaces
- Understanding IC/AT ratings and clearances
- Potentially working in attic spaces with limited access

  Most homeowners find this beyond comfortable DIY territory, and the labour savings don't justify the risk when a licensed electrician charges **$75–$150 per fixture** for installation. A professional also moves faster (experienced electricians can install 6–8 pot lights in half a day) and handles the permit paperwork.

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**Q5**

## What are the electrical code requirements for a secondary suite or in-law apartment in New Brunswick?

Secondary suites (also called in-law apartments, granny flats, or accessory dwelling units) are increasingly popular across New Brunswick — driven by housing shortages, aging parents needing nearby care, and rental income potential. The electrical requirements for a legal secondary suite are substantial and represent one of the more complex residential electrical projects.

### NB Building Code and Zoning Context

Before diving into electrical requirements, understand the regulatory framework:

- New Brunswick adopted the **National Building Code of Canada (NBC)** as its provincial building code, with some local amendments
- Secondary suites must comply with **Part 9 of the NBC** (housing and small buildings)

- Municipal zoning must allow secondary suites — Moncton, Fredericton, Saint John, Dieppe, and Riverview have all updated zoning to permit secondary suites in certain residential zones, but restrictions vary
- A **building permit** from your municipality is required, which triggers electrical, plumbing, and building inspections
- **TSANB electrical permit** is required for all electrical work in the suite

## Electrical Service Requirements

### Separate or Shared Service?

**Option 1 — Separate electrical meter and panel (recommended for rental suites):**

- The suite gets its own electrical meter, its own panel, and its own NB Power account
- Requires NB Power to install a second meter base (or a multi-meter stack)
- The tenant pays their own electricity — eliminates disputes and simplifies landlord accounting
- Requires adequate service capacity — you may need to upgrade from 200-amp to a **320-amp or 400-amp service** to feed both units, or install a separate 100-amp service for the suite
- Cost for separate meter/panel: **$3,000–$6,000** (panel, meter base, service entrance work, NB Power coordination)

**Option 2 — Shared service with sub-panel:**

- The suite is fed from a sub-panel connected to the main home's electrical panel
- One NB Power meter, one bill (landlord pays electricity or includes it in rent)
- Less expensive to install: **$1,500–$3,000** for the sub-panel and wiring
- Must verify the main panel has adequate capacity for both units — a load calculation is essential
- Simpler for family situations (in-law suite) where separate billing isn't needed

**For rental income properties, separate metering is strongly recommended.** NB Power can advise on requirements for adding a second residential meter.

### Panel Size for the Suite

- **Minimum 60-amp sub-panel** for a small bachelor/studio suite (under 500 sq ft) with no electric heat
- **100-amp panel** recommended for a one-bedroom suite, especially with electric baseboard heat (common in NB)
- **125–150 amp panel** for a larger two-bedroom suite with full kitchen and electric heat

### Required Circuits (CEC Minimums)

The Canadian Electrical Code specifies minimum circuit requirements for dwelling units. A secondary suite, even if small, is considered a **separate dwelling unit** and must meet all CEC dwelling unit minimums:

### Kitchen

- **Two dedicated 20-amp small appliance branch circuits** — these serve only kitchen countertop outlets and dining area outlets (not refrigerator, dishwasher, or lighting)
- **One dedicated 20-amp circuit for the refrigerator** (recommended, though CEC allows it on a general circuit)
- **One dedicated circuit for the dishwasher** if installed (20-amp)
- **One dedicated circuit for the range/oven** — typically a **40-amp, 240V circuit** for a standard electric range, or a **20-amp, 120V circuit** for a countertop oven in a small suite
- All kitchen countertop outlets must be **GFCI-protected**
- Outlets within **1.5 metres of a sink** must be GFCI-protected

### Bathroom

- **One dedicated 20-amp circuit** for the bathroom outlet(s)
- All bathroom outlets must be **GFCI-protected**
- Bathroom lighting can share a general lighting circuit (not the bathroom outlet circuit)
- **Exhaust fan** required by building code — can share the lighting circuit or have its own

### Laundry (if included)

- **One dedicated 20-amp circuit** for the laundry outlet
- **One dedicated 30-amp, 240V circuit** for the electric dryer (or 120V if gas dryer, rare in NB)

### General Circuits

- **Bedroom outlets:** Minimum one general-purpose 15-amp circuit per room (can be shared across bedrooms/living areas following CEC spacing rules)
- **Living room:** Outlets on general circuits, spaced per CEC (every 1.8 metres along walls, within 900mm of any door)
- **Lighting:** Separate lighting circuit(s) — CEC requires switched lighting at every room entrance
- **Smoke and CO detectors:** Hardwired, interconnected (see Fire Safety section below)

### Heating

- **Electric baseboard heat circuits:** Each baseboard heater typically needs its own dedicated circuit or shares with one other heater. A 1,500W baseboard needs a **15-amp, 240V circuit**; larger heaters (2,000W) need a **20-amp, 240V circuit**.
- For a one-bedroom suite with baseboard heat in NB, expect **3–5 heating circuits** consuming 15–25 amps total at 240V
- **Heat pump:** If installing a mini-split heat pump (increasingly common and supported by NB Power rebates), a **dedicated 20–30 amp, 240V circuit** is needed

### Hot Water

- If the suite has its own electric water heater: **dedicated 30-amp, 240V circuit** for a standard 40-gallon tank
- If sharing the main home's water heater: no additional circuit needed (but plumbing code has requirements for shared water systems)

### Typical Circuit Count for a One-Bedroom Suite

| Circuit | Amps/Voltage | Count | |---------|-------------|-------| | Kitchen small appliance | 20A / 120V | 2 | | Kitchen range | 40A / 240V | 1 | | Kitchen fridge | 15A / 120V | 1 | | Bathroom outlet | 20A / 120V | 1 | | Laundry outlet | 20A / 120V | 1 | | Dryer | 30A / 240V | 1 | | General outlets | 15A / 120V | 2–3 | | Lighting | 15A / 120V | 1–2 | | Baseboard heat | 15-20A / 240V | 3–5 | | Water heater | 30A / 240V | 0–1 | | Smoke/CO detectors | 15A / 120V | shared | | **Total circuits** | | **13–18** |

This is why a **100-amp panel with 20+ spaces** is the right starting point for most secondary suites in New Brunswick.

### Fire Safety Electrical Requirements

Fire safety is the most critical aspect of secondary suite electrical work:

**Smoke detectors:**

- Hardwired (not battery-only) with battery backup
- **Interconnected** — when one alarm sounds, all alarms in the suite sound
- Required in: every bedroom, hallway outside bedrooms, every level of the suite
- Must also be interconnected with the main dwelling's smoke alarms if it's a shared building (so both units are alerted)

**Carbon monoxide detectors:**

- Required if any fuel-burning appliance serves the suite (gas stove, oil furnace, gas water heater)

- Also required if the suite has an attached garage
- Hardwired with battery backup, interconnected with smoke alarms

**AFCI protection:**

- Current CEC requires **arc-fault circuit interrupter (AFCI) breakers** on all circuits serving bedrooms
- AFCI breakers cost **$40–$60 each** — a notable cost factor when a suite has multiple bedroom circuits

**Fire separation:**

- The electrical work must maintain the **fire separation** between the main dwelling and the suite (typically 30-minute or 1-hour fire-rated assembly)
- Electrical boxes in fire-rated walls must be properly installed and firestopped
- Penetrations through fire-rated assemblies must be sealed with approved firestop materials

## Costs for Secondary Suite Electrical

| Scope | Cost Range | |-------|------------| | Sub-panel only (shared meter) | $1,500–$3,000 | | Separate meter + panel | $3,000–$6,000 | | Complete suite wiring (15–18 circuits) | $5,000–$10,000 | | Electric baseboard heat (3–5 circuits) | $1,000–$2,500 | | Smoke/CO detector system (hardwired, interconnected) | $300–$600 | | TSANB permit | $100–$250 | | **Total (complete electrical for 1BR suite)** | **$8,000–$18,000** |

The wide range reflects the difference between a basic suite (shared meter, minimal finishes) and a fully independent unit (separate meter, full kitchen, in-suite laundry, electric heat).

## TSANB Inspection Process

Secondary suite electrical is typically inspected in **two stages:**

- **Rough-in inspection:** After wiring is run but before drywall is installed. TSANB verifies wire routing, box placement, proper stapling, fire-stopping, and circuit layout.
- **Final inspection:** After all devices (outlets, switches, fixtures, panel) are installed and energized. TSANB verifies everything works, GFCI and AFCI protection is in place, and the installation meets CEC.

Both inspections are included in the permit fee. The rough-in inspection is critical — it's the only time the inspector can see the wiring inside the walls. Missing this inspection means potentially tearing out drywall later if issues are found.

## Key Mistakes That Fail Inspection

- Missing GFCI protection in kitchen, bathroom, or laundry
- Missing AFCI protection on bedroom circuits
- Smoke detectors not hardwired or not interconnected
- Fire-rated assembly penetrations not firestopped
- Insufficient outlet spacing (CEC requires outlets every 1.8 metres along walls)
- Kitchen countertop outlets on general circuits instead of dedicated 20-amp small appliance circuits
- Shared neutral between suite and main dwelling circuits (each dwelling unit must have electrically independent circuits)

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Q6

## What is the electrical code for swimming pools and hot tubs in New Brunswick?

### Electrical Code Requirements for Pools and Hot Tubs in New Brunswick

Swimming pools and hot tubs combine electricity with water — making the electrical installation requirements among the strictest in the CEC. All pool and hot tub electrical work in NB requires a TSANB permit and must be done by a licensed electrician.

### Hot Tub Electrical Requirements

**Circuit:**

- Dedicated 240V circuit — most hot tubs require 40A or 50A

- Must not be shared with any other device or outlet
- Wire gauge: 6 AWG copper for 50A, 8 AWG copper for 40A
- GFCI protection: **Mandatory** — either a GFCI breaker at the panel or a GFCI disconnect

**Disconnect switch:**

- Required within sight of the hot tub
- Must be at least 1.5 metres (5 feet) from the hot tub water's edge
- Must be no more than 9 metres (30 feet) from the tub
- Must be lockable
- Must be readily accessible (not behind the tub or behind a fence with a locked gate)

**Bonding:** All metal within 1.5 metres of the hot tub must be bonded (connected to the equipment grounding system):

- Metal fences, railings, and posts
- Metal deck fasteners and structural supports
- Water pipes (metal)
- The hot tub frame/shell if it has metal components
- A bonding grid or perimeter bonding conductor in the concrete pad (if poured concrete)

Bonding prevents voltage differences between metal objects that could cause shock if you touch two surfaces simultaneously.

**Receptacles near hot tubs:**

- No receptacles within 1.5 metres of the inside wall of the hot tub
- Receptacles between 1.5m and 3m must be GFCI-protected
- At least one receptacle must be provided between 1.5m and 3m for maintenance equipment

## Swimming Pool Electrical Requirements

**General:**

- All pool electrical equipment must be on GFCI-protected circuits
- Underwater lights must operate at 12V (through a transformer) or be specifically listed for pool use at higher voltages with GFCI protection
- The pool pump, heater, and other equipment each need dedicated circuits

**Pump circuit:**

- Dedicated circuit sized to the pump motor (typically 20A for up to 1.5 HP, 30A for larger pumps)
- GFCI breaker at the panel
- Disconnect switch within sight of the pump

**Clearances:**

- **No overhead wires** within 3.7 metres (12 feet) horizontally from the pool edge, or 4.5 metres (15 feet) vertically above the pool water level. This includes utility lines, phone cables, and any other overhead conductors. If NB Power's service drop crosses your planned pool location, the pool must be moved or the lines must be relocated.
- No receptacles within 1.5 metres of the pool's inside wall
- Receptacles between 1.5m and 3m must be GFCI-protected
- Lighting fixtures within 1.5m of the pool edge must be at least 3.7m above the water surface (if not specifically pool-rated)

**Bonding (equipotential bonding grid):** This is the most complex and most critical requirement:

- A continuous copper conductor (minimum 6 AWG) must encircle the pool within 600mm (2 feet) of the pool's inside edge
- Connected to all metal pool components: ladder anchors, diving board supports, reinforcing steel in the deck, metal fencing, handrails, and any metal within 1.5m of the pool
- The pool water itself must be bonded (through a listed pool bonding device or through the metal pump housing connected to the bonding grid)
- For concrete pools: the reinforcing steel (rebar) in the shell serves as the bonding grid, with tie-wires to the bonding conductor
- For vinyl-liner or fiberglass pools: a separate bonding grid must be installed in the deck or around the pool perimeter

### Above-Ground Pools

Above-ground pools have similar electrical requirements but with some simplifications:

- GFCI-protected pump circuit (dedicated)
- Bonding of the pool frame (metal wall, top rail, bottom rail)
- Disconnect within sight of the pump
- Same receptacle clearance rules (1.5m minimum from pool edge)

- No overhead wire clearance issues in most cases (above-ground pools are lower)

### Installation Costs in NB

| Component | Cost | |-----------|------| | Hot tub circuit (50A, GFCI, disconnect, typical 15m run) | $1,000–$2,500 | | Hot tub circuit with panel upgrade | $3,500–$7,000 | | In-ground pool electrical (pump, lights, bonding, heater circuit) | $3,000–$8,000 | | Above-ground pool electrical (pump circuit, GFCI, bonding) | $500–$1,500 | | Pool house/cabana sub-panel and circuits | $2,000–$5,000 | | TSANB permit | $75–$150 |

### TSANB Permit and Inspection

Pool and hot tub electrical always requires a TSANB permit. The inspection is thorough:

- **Pre-pour inspection** (in-ground pools): Inspector verifies the bonding grid before concrete is poured. If you pour concrete before the inspection, you may need to break it up to prove the bonding is correct.
- **Final inspection:** Verifies all circuits, GFCI protection, disconnects, bonding, and clearances.

Schedule the pre-pour inspection well in advance — TSANB inspection wait times during NB's short pool-installation season (May–July) can be longer than usual.

### Common Violations

- Missing or incomplete bonding (most common — especially metal fencing near the pool)
- GFCI protection missing on the pump or heater circuit
- Disconnect switch too close to or too far from the hot tub
- Receptacles within the 1.5m exclusion zone
- Overhead power lines too close to the pool (sometimes not noticed until inspection)
- Using indoor-rated equipment outdoors

### NB-Specific Notes

**Winterization:** Most NB pool owners close their pools from October to May. When winterizing, turn off pool circuit breakers at the panel. Don't just unplug equipment — de-energize at the panel to prevent accidental energization.

**Hot tub in winter:** NB hot tub owners run their tubs year-round. The GFCI breaker may trip more frequently in winter due to moisture and temperature-induced condensation. If it trips repeatedly, have the electrician check for moisture intrusion in the disconnect, the tub's control panel, or the underground wiring.

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Q7

# What are the most common electrical code violations found in New Brunswick homes?

## Common Electrical Code Violations in New Brunswick Homes

Whether you're buying a home, renovating, or just want to ensure your home is safe, knowing the most frequently cited electrical code violations helps you identify potential hazards. These are the issues TSANB inspectors and home inspectors find most often in NB homes.

### 1. Missing GFCI Protection (Most Common)

The CEC requires GFCI-protected receptacles near water sources. The most common locations found without GFCI in NB homes:

- **Bathroom outlets** — especially in homes built before 1990
- **Kitchen outlets within 1.5m of sink** — older kitchens often have none
- **Outdoor receptacles** — frequently overlooked
- **Garage receptacles** — many NB garages have standard outlets
- **Unfinished basement outlets** — damp environments without protection

  Fix: Replace standard outlets with GFCI receptacles ($15–$25 each) or install GFCI breakers ($40–$80 each). A whole-house GFCI upgrade runs $600–$1,500.

### 2. Open Junction Boxes / Missing Cover Plates

Every electrical junction (where wires are spliced) must be enclosed in an accessible box with a cover plate. Common violations:

- Junction boxes in attics or basements left without covers
- Wire splices made outside of a box ("flying splices" in walls or ceilings)
- Boxes buried behind drywall during renovations (must remain accessible)
- Missing blank cover plates on unused boxes

  Fix: Install cover plates ($0.50–$2 each) on all open boxes. Enclose any exposed splices in proper junction boxes ($5–$15 each plus labour).

### 3. Overcrowded (Overfilled) Electrical Boxes

The CEC specifies box fill calculations — the maximum number of wires, devices, and clamps allowed in each box size. Violations occur when:

- Too many wires are crammed into a small box (common when circuits are added over the years)
- A smart switch or GFCI outlet (which are physically larger than standard devices) is forced into a shallow box
- Cable clamps are missing and wires enter the box without strain relief

  Fix: Replace with a larger box if overcrowded. For renovations, use deep boxes (3.5" depth vs. standard 2.5") to allow adequate space.

### 4. Improper or Missing Grounding

- **Three-prong outlets with no ground wire** — the most common violation in homes built before 1970. Someone replaced the original 2-prong outlet with a 3-prong without adding a ground.
- **Missing bonding on water pipes, gas pipes, or metal ductwork**
- **Ground rod missing or disconnected** — the connection from your panel to the ground rod outside your home
- **Improper grounding of sub-panels** — sub-panels must have separate ground and neutral buses, bonded only at the main panel

  Fix: Add ground wires, install GFCI protection (code-compliant alternative for ungrounded outlets), or rewire as needed. Ground rod installation: $200–$400.

### 5. Overfusing / Wrong Breaker Size

Using a breaker or fuse rated higher than the wire gauge allows:

- 20A breaker on 14 AWG wire (should be 15A max)
- 30A fuse on 14 AWG wire in old fuse boxes (extremely dangerous)
- Double-tapped breakers (two wires on a single-pole breaker not rated for it)

  Fix: Replace with correctly sized breakers. If the circuit needs more capacity, run new properly sized wiring. Double-tapped breakers need either a tandem breaker or an additional breaker slot.

### 6. Exposed or Unprotected Wiring

- NMD90 cable run across exposed surfaces without protection (must be protected from physical damage within 1.5m of floor in accessible areas)
- Cable not secured within 300mm of boxes and every 1.2m along runs
- Missing nail plates where cables pass through studs or joists within 32mm of the edge

- Romex used outdoors (NMD90 is for indoor dry locations only — outdoor/underground requires NMWU or conduit)

  Fix: Add cable staples, nail plates, and conduit protection where required. Replace improperly used cable types.

### 7. Improper Bathroom and Kitchen Wiring

- Kitchen counter receptacles not on 20A dedicated circuits (two required by CEC)
- Bathroom outlets sharing a circuit with hallway or bedroom outlets
- Exhaust fan not vented to exterior (vented into attic or soffit instead)
- Light fixtures in shower/tub zone not rated for wet locations

### 8. Extension Cords as Permanent Wiring

Using extension cords as permanent wiring is a code violation and fire hazard. Common in NB homes:

- Extension cord run through a wall, ceiling, or under a carpet
- Power strip daisy-chained to another power strip
- Extension cord permanently powering a window AC unit or space heater

  Fix: Install permanent outlets where needed. A new outlet installation costs $200–$400.

### 9. Unpermitted Work

Strictly speaking, any electrical work beyond basic maintenance that was done without a TSANB permit is a code violation. Signs of unpermitted work:

- Amateur wiring (inconsistent wire colours, electrical tape instead of wire nuts, exposed copper)
- Circuits not matching the panel directory
- New outlets or fixtures with no record of permits
- Work that doesn't match the home's original vintage (modern devices in unusual locations without proper routing)

### 10. Smoke and CO Detector Deficiencies

- Missing smoke detectors on required levels
- Smoke detectors past 10-year expiration
- No CO detectors where required (near fuel-burning appliances)

- Detectors not interconnected in new construction or major renovation

### What to Do About It

If you suspect your NB home has code violations:

- **Have a TSANB-licensed electrician do a safety inspection** ($200–$400 for a typical home)
- **Prioritize safety issues** — missing GFCIs, overfused circuits, ungrounded outlets, and open junction boxes are the highest-risk items
- **Fix violations before selling** — home inspectors report these to buyers, who either negotiate the price down or demand repairs
- **Don't panic about older code standards** — existing wiring installed to the code in effect at the time of installation is grandfathered. Violations occur when work was done improperly, when modifications didn't meet the code at the time, or when safety equipment is missing.

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Q8

## Do I need a permit to replace a light fixture or ceiling fan in New Brunswick?

### Permits for Light Fixture and Ceiling Fan Replacement in New Brunswick

This is one of the most frequently asked electrical questions, and the good news is that most fixture replacements don't require a permit. Here's the clear breakdown.

### No Permit Needed

You do NOT need a TSANB electrical permit for:

- **Replacing a light fixture with another light fixture** in the same location, using the same wiring and electrical box
- **Replacing a ceiling fan** with a new ceiling fan in the same location (assuming the existing box is fan-rated)
- **Swapping a light fixture for a ceiling fan** IF the existing electrical box is fan-rated (see below)
- **Replacing light switches** — including upgrading to dimmers or smart switches
- **Replacing receptacles** — including upgrading to GFCI or tamper-resistant outlets
- **Changing light bulbs or ballasts**

  These are considered maintenance and like-for-like replacements. No new wiring is involved, no new circuits are added, and the existing electrical infrastructure is unchanged.

### Permit Required

You DO need a TSANB electrical permit for:

- **Adding a new light fixture where none existed** — requires running new wiring and installing a new electrical box
- **Moving a light fixture to a new location** — involves new wiring, even if you're eliminating the old location
- **Adding a new circuit** for additional lighting
- **Running new wire** through walls, attics, or ceilings
- **Installing recessed pot lights** where none existed (new wiring, new boxes, new circuit potentially)
- **Adding an exhaust fan** where there wasn't one (requires new wiring and possibly ductwork)

  The general rule: **existing location, existing wiring = no permit. New location, new wiring = permit required.**

### The Ceiling Fan Box Issue

This is the most common gotcha with ceiling fan installation. Standard light fixture electrical boxes are rated for the static weight of a fixture (typically up to 23 kg / 50 lbs). Ceiling fans create **dynamic loads** — the rotating blades generate forces that a standard box isn't designed to handle.

**Fan-rated boxes** are reinforced and anchored to the ceiling joists to handle the vibration and torque of a spinning fan. They're labelled "Suitable for Fan Support" or "Fan Rated" on the box.

If your existing box is NOT fan-rated and you want to install a ceiling fan:

- The box must be replaced with a fan-rated box
- If the existing box is accessible from above (attic), this is a straightforward swap: $100–$250 by an electrician
- If there's no attic access (finished floor above), a retrofit fan brace ($20–$40 for the hardware) can be installed through the existing hole. An electrician charges $150–$300 for this.
- No TSANB permit is typically required for replacing the box, as you're not running new wiring

## DIY vs. Hiring an Electrician

**DIY-appropriate (if you're comfortable):**

- Replacing a light fixture: turn off breaker, verify power is off with a tester, disconnect old fixture, connect new fixture (match wire colours: black to black, white to white, ground to ground or green), mount, and test
- Replacing a switch or outlet
- Replacing a ceiling fan on an existing fan-rated box

**Hire an electrician:**

- Any fixture weighing more than 23 kg
- Ceiling fan installation where you're unsure about the box rating
- Any fixture in a high or awkward location (cathedral ceilings, stairwells)
- Adding new light locations or circuits
- If you encounter unexpected wiring (no ground, aluminum wiring, knob-and-tube)

## Costs for Common Fixture Work in NB

| Work | DIY Cost | Electrician Cost | |------|----------|------------------| | Replace light fixture (same location) | $0–$50 (fixture not included) | $75–$200 | | Replace ceiling fan (fan-rated box exists) | $0–$50 | $150–$300 | | Install ceiling fan (box upgrade needed) | Not recommended DIY | $200–$450 | | Install new fixture (new location, new wiring) | Not legal DIY in NB | $250–$500 + permit | | Install 6 recessed pot lights (new) | Not legal DIY in NB | $900–$1,800 + permit |

## Fixture Selection Tips for NB Homes

**Ceiling height:** Many NB bungalows and split-levels have 7.5–8 foot ceilings. Flush-mount or low-profile fixtures are better than hanging pendants in these spaces. Ceiling fans need at least 7 feet of clearance from blade tips to floor (8 feet or more is ideal).

**Damp/wet ratings:** Fixtures in bathrooms (damp location), covered porches (damp), and open exterior locations (wet) must be rated accordingly. The rating is on the fixture's label.

**LED compatibility:** If replacing fixtures controlled by a dimmer switch, ensure both the new fixture/bulbs and the dimmer are LED-compatible. Mismatched dimmers cause flickering, buzzing, and shortened LED life. Replace old incandescent dimmers with LED-rated dimmers ($30–$60) during the fixture swap.

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Q9

## What permits do I need for a bathroom renovation electrical in New Brunswick?

### Electrical Permits for Bathroom Renovations in New Brunswick

Bathroom renovations frequently involve electrical work — new lighting, exhaust fans, heated floors, GFCI outlets, and sometimes new circuits. Here's what requires a permit and what doesn't in NB.

### When You Need a TSANB Electrical Permit

A permit is required for:

- **Adding new circuits** to your electrical panel (e.g., a dedicated circuit for a heated floor)
- **Running new wiring** behind walls or through ceilings
- **Adding new outlets** where none existed before
- **Installing a new exhaust fan** if it requires a new circuit or new wiring
- **Relocating outlets, switches, or light fixtures** to new positions (involves new wiring)
- **Installing electric in-floor heating** — this is a dedicated 240V circuit in most cases
- **Adding a whirlpool/jetted tub** — requires a dedicated GFCI-protected circuit

## When You Likely Don't Need a Permit

- **Replacing a light fixture** on an existing circuit (same location, same wiring)
- **Replacing an existing outlet** with a GFCI outlet (same location, no new wiring)
- **Replacing an existing exhaust fan** with a similar model (same location, same wiring)
- **Replacing existing switches** (dimmer swap, smart switch)

The general rule: if you're using existing wiring in existing locations, no permit needed. If new wire is being run or new electrical boxes installed, get a permit.

## Common Bathroom Electrical Requirements (CEC)

When doing permitted bathroom electrical work in NB, the CEC requires:

**GFCI protection:**

- All bathroom receptacles must be GFCI-protected
- Receptacles within 1.5 metres of a bathtub or shower must be GFCI-protected
- The GFCI can be at the outlet itself or as a GFCI breaker at the panel

**Dedicated circuits:**

- Bathrooms should have at least one 20-amp circuit for receptacles
- Electric in-floor heating needs its own dedicated circuit (typically 15–20A at 240V for a standard bathroom)
- Whirlpool tubs need a dedicated 20-amp GFCI-protected circuit

**Exhaust fan:**

- The NB Building Code requires mechanical ventilation in bathrooms without operable windows
- Fan must be vented to the exterior — not into the attic or soffit
- Fan capacity should match room size: minimum 1 CFM per square foot, or 50 CFM minimum

**Lighting:**

- Fixtures in shower/tub enclosures must be rated for wet locations
- Fixtures above tubs (but not in the shower spray zone) need damp-location rating
- Recessed lights near insulation must be IC-rated (Insulation Contact)

## Permit Process and Costs

The TSANB electrical permit process for a bathroom renovation:

- **Your licensed electrician applies** — permit cost is typically $50–$100 depending on scope
- **Rough-in inspection** — TSANB inspector checks wiring before walls are closed up. This is critical — don't close the walls before inspection or you'll need to open them again
- **Final inspection** — after all fixtures and devices are installed and connected
- **Turnaround time** — 3–5 business days for inspections in Moncton, Fredericton, and Saint John. Rural areas may be slightly longer.

### Typical Bathroom Electrical Costs in NB

| Work | Cost Range | |------|----------| | GFCI outlet replacement (existing location) | $100–$175 per outlet | | New outlet (new location, new wiring) | $200–$400 per outlet | | Exhaust fan replacement (same location) | $150–$300 | | New exhaust fan (new location + venting) | $400–$800 | | Recessed LED lighting (4–6 lights) | $600–$1,500 | | Vanity light fixture replacement | $100–$200 | | Electric in-floor heating (typical 40 sq ft bath) | $800–$1,800 (materials + install) | | Heated towel rack (hardwired) | $300–$600 | | Full bathroom electrical (gut renovation) | $2,000–$5,000 |

### Coordination with Other Trades

Bathroom renovations involve sequencing between trades:

- **Demolition** complete
- **Plumber** does rough-in
- **Electrician** does rough-in (new circuits, boxes, wiring)
- **TSANB electrical rough-in inspection**
- **Insulation and vapour barrier**
- **Drywall**
- **Tile/flooring** (in-floor heating goes under tile)
- **Fixtures** — electrician returns for final connections
- **TSANB final electrical inspection**

  Missing the rough-in inspection is the most common and most costly mistake — if drywall is already up, the inspector may require you to open walls for visual verification. Coordinate your electrician's schedule with the TSANB inspection timeline to avoid delays.

### Hiring for Bathroom Electrical in NB

Always use a TSANB-licensed electrician for bathroom work. The combination of water and electricity makes bathrooms one of the highest-risk areas in a home. Get 2–3 quotes, confirm they'll handle the permit, and ask whether they coordinate directly with TSANB for inspection scheduling.

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Q10

# How long does it take to get a TSANB electrical inspection in New Brunswick?

## TSANB Electrical Inspection Timelines in New Brunswick

The Technical Safety Authority of New Brunswick (TSANB) is responsible for all electrical inspections in the province. Whether you're building a new home, renovating a kitchen, or installing an EV charger, here's what to expect for inspection scheduling and timelines.

## Current Typical Wait Times

Inspection scheduling varies by region and season:

| Region | Typical Wait | Peak Season Wait | |--------|-------------|------------------| | Moncton / Dieppe / Riverview | 3–5 business days | 5–8 business days | | Saint John / Quispamsis / Rothesay | 3–5 business days | 5–8 business days | | Fredericton / Oromocto | 3–5 business days | 5–8 business days | | Miramichi / Bathurst / Campbellton | 5–7 business days | 7–10 business days | | Rural NB / smaller communities | 5–10 business days | 7–14 business days |

**Peak season** is May through October when new construction and renovation activity is highest. Winter inspections are typically faster to schedule.

## Types of Inspections

**Rough-in inspection:** Done after wiring is installed but before walls are closed (drywall, insulation covering wires). The inspector verifies:

- Correct wire gauge for each circuit
- Proper box placement and fill calculations
- Grounding and bonding
- Cable protection (nail plates, stapling, support)
- GFCI and AFCI protection where required

  **Final inspection:** Done after all devices, fixtures, and cover plates are installed. The inspector verifies:

- All circuits functioning correctly
- GFCI and AFCI devices working (tested on-site)
- Proper labelling of the panel directory
- Cover plates on all boxes

- Outdoor fixtures and receptacles properly weatherproofed

  **Service entrance inspection:** For panel upgrades, new service installations, or meter relocations. Must pass before NB Power will connect or reconnect service.

## The Permit and Inspection Process

- **Licensed electrician applies for permit** — this can be done online through TSANB's portal or by phone. Permits are typically issued same-day or next business day.
- **Work proceeds** — your electrician completes the installation according to the CEC and the scope described on the permit.
- **Request inspection** — your electrician calls or submits an online request for inspection. You'll receive a scheduled date.
- **Inspection day** — the TSANB inspector visits the site. Inspections are scheduled in time blocks (morning or afternoon), and the inspector may arrive anytime within that window. Someone must be present to provide access.
- **Pass or deficiency notice:**

  - **Pass** — the inspector signs off and the permit is closed. For service work, they notify NB Power. - **Deficiency** — the inspector provides a written list of items that need correction. Your electrician makes the fixes and requests a re-inspection. Re-inspections typically take 2–5 business days to schedule.

## Permit Costs

TSANB electrical permit fees are based on the scope of work:

| Work Type | Approximate Fee | |----------|----------------| | Minor work (single circuit, outlet, fixture) | $50–$75 | | Panel upgrade | $75–$100 | | Residential renovation (multiple circuits) | $75–$150 | | New home (full electrical) | $200–$400 | | Commercial projects | $200–$1,000+ |

These fees are typically included in your electrician's quote or invoiced as a line item.

## Tips for Faster Inspections

- **Book early** — your electrician should request the inspection as soon as rough-in is complete, not when the drywaller is scheduled for the next day. Build 5+ business days of buffer.

- **Have the site ready** — the inspector needs clear access to the panel, all junction boxes, and the work area. Remove ladders, materials, and debris that block access. If it's a rough-in, leave the ceiling and walls open.
- **Panel directory completed** — for final inspections, the panel must have a legible, accurate circuit directory. Inspectors commonly flag missing or incorrect labelling.
- **Permit posted** — the electrical permit should be posted or readily available at the job site.
- **Ask your electrician to be present** — while not always required, having the electrician available during inspection speeds up any questions the inspector has and allows immediate correction of minor deficiencies on the spot.

### What Happens Without an Inspection?

Skipping the TSANB inspection means:

- The permit remains open indefinitely on TSANB's records
- Home insurance may not cover electrical fire damage if the work wasn't inspected
- Future buyers will discover the open permit during due diligence
- NB Power may refuse to connect service for uninspected service entrance work
- If unpermitted electrical work is discovered later, TSANB can require opening walls for inspection at the homeowner's expense

Always close your permits. It protects you now and when you sell.

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**Q11**

# Do I need arc fault breakers when renovating my home in New Brunswick?

## Arc Fault Breakers (AFCI) Requirements for New Brunswick Renovations

Arc fault circuit interrupters (AFCIs) are one of the most significant electrical code requirements that New Brunswick homeowners encounter during renovations — and one of the most commonly misunderstood. Whether you need them depends on the scope of your renovation, which rooms are involved, and what version of the Canadian Electrical Code applies to your project.

### What AFCIs Do

An AFCI breaker detects dangerous electrical arcs — the kind caused by damaged wiring, loose connections, pinched cables, and worn insulation. These arcs generate enough heat to ignite surrounding materials (wood framing, insulation, dust) but may not draw enough current to trip a standard breaker. AFCIs detect the unique electrical signature of an arc and trip the circuit before a fire can start.

AFCIs are different from GFCIs:

- **GFCI** protects people from electrocution (detects current leaking to ground)
- **AFCI** protects the home from fire (detects arcing faults in the wiring)
- Both are available as breakers or as combination outlets

#### Current CEC Requirements (2024 Code Cycle)

New Brunswick adopts the Canadian Electrical Code with provincial amendments through TSANB. The current requirements for AFCI protection are:

**Required in new construction:**

- All 125V, 15 and 20-amp circuits in **bedrooms**
- The CEC has been expanding AFCI requirements with each code cycle, and some jurisdictions are moving toward whole-house AFCI protection

  **The renovation trigger:** When you renovate an existing New Brunswick home, the CEC requires that **new or modified circuits** meet current code — including AFCI requirements. This means:

- **Adding a new bedroom circuit:** AFCI breaker required
- **Replacing an existing bedroom circuit** (new wiring, new breaker): AFCI required
- **Extending an existing bedroom circuit** (adding outlets, running new wire): AFCI required on the entire circuit

- **Panel upgrade** (replacing all breakers): Many TSANB inspectors require AFCI on bedroom circuits as part of the upgrade since all breakers are being replaced anyway

**What doesn't trigger the requirement:**

- Replacing a breaker of the same type without modifying the circuit wiring
- Replacing outlets or switches on existing circuits without rewiring
- Minor repairs (fixing a broken connection, replacing a single damaged section of wire)

### The Grey Area — What Inspectors Actually Enforce

The CEC's renovation trigger is interpreted slightly differently by different TSANB inspectors. In practice, here's what New Brunswick homeowners encounter:

**Strict interpretation:** Any work requiring a permit on a bedroom circuit triggers AFCI. This includes adding a single outlet to an existing bedroom.

**Moderate interpretation:** Only circuits that are substantially modified or newly created require AFCI. Swapping a panel and moving existing wires to new breakers without changing any wiring may not trigger AFCI if the inspector takes a moderate view.

**Best practice:** Ask your TSANB inspector or your licensed electrician **before starting the work** what their expectation is. A 5-minute phone call prevents a failed inspection and costly rework.

### Cost of AFCI Breakers

- **AFCI breaker (15 or 20A):** $45-$70 each (vs. $8-$15 for a standard breaker)
- **Dual-function AFCI/GFCI breaker:** $65-$90 each
- **AFCI outlet (alternative to breaker):** $35-$50 each — can be installed at the first outlet on the circuit instead of using an AFCI breaker. This is sometimes more cost-effective.

For a typical bedroom with 2 circuits, the AFCI upgrade adds **$90-$180** to the project. For a whole-home panel upgrade with 6-8 bedroom circuits, it adds **$350-$600**.

### Common AFCI Issues in Older New Brunswick Homes

**Nuisance tripping** is the #1 complaint about AFCI breakers in older homes. Several conditions common in New Brunswick housing stock can cause AFCIs to trip when there's no real arc:

- **Older appliances with brush motors** (vacuum cleaners, power tools, hair dryers) generate electrical noise that AFCIs can interpret as arcing. This has improved significantly in newer AFCI breakers (post-2015 models) but is

still an occasional issue.

- **Shared neutral circuits** (multi-wire branch circuits common in 1970s-1990s wiring) can cause AFCI trips because the neutral carries unbalanced current that the AFCI misinterprets.
- **Long cable runs** with slight voltage fluctuations can trigger sensitive AFCI detection.
- **Fluorescent light fixtures** with aging ballasts generate electrical noise during startup.

**Solutions for nuisance tripping:**

- Replace the AFCI breaker with a current-generation model — newer designs have better filtering
- Install an AFCI outlet at the first receptacle instead of using an AFCI breaker — some electricians find these less prone to nuisance trips on older wiring
- Identify and correct the underlying issue (replace the noisy appliance, separate the shared neutral, replace the fluorescent ballast)
- Have an electrician evaluate the circuit for actual wiring issues that the AFCI may be correctly detecting

## AFCI Requirements by Room (Current CEC)

| Room | AFCI Required (New/Modified Circuit)? | |------|---------------------------------------| | Bedrooms | **Yes** — all 15/20A circuits | | Living room | Recommended, may be required in future code cycles | | Dining room | Recommended | | Hallway | Recommended | | Kitchen | No (GFCI required instead for countertop circuits) | | Bathroom | No (GFCI required) | | Laundry | No (GFCI required) | | Garage | No (GFCI required) | | Basement (unfinished) | No (GFCI required) | | Basement (finished bedroom) | **Yes** | | Outdoor | No (GFCI required) |

## Renovation Scenarios and AFCI Requirements

**Scenario 1: Finishing a basement with 2 bedrooms** All bedroom circuits need AFCI. The recreation room, bathroom, and utility areas do not (but bathroom and unfinished areas need GFCI). Budget: $130-$250 for 3-4 AFCI breakers.

**Scenario 2: Kitchen renovation (no bedroom work)** No AFCI required — kitchen circuits need GFCI on countertop receptacles and dedicated 20-amp circuits, but not AFCI.

**Scenario 3: Panel upgrade (replacing all breakers)** Technically, if no circuit wiring is modified, existing bedroom circuits don't require AFCI. In practice, many TSANB inspectors expect AFCI on bedroom circuits since you're already replacing breakers. Budget: $300-$600 for 6-8 AFCI breakers. This is a reasonable investment given the fire protection benefit.

**Scenario 4: Adding outlets to a bedroom** The entire circuit the new outlets connect to now requires AFCI protection, not just the new outlets. Budget: $45-$70 for the AFCI breaker.

**Scenario 5: Converting a room to a bedroom (home office ? bedroom)** The circuit serving the room now needs AFCI since it's a bedroom. This is often overlooked when homeowners repurpose rooms.

### The Bottom Line

AFCI breakers add $45-$90 per circuit to your renovation budget. Given that they prevent the type of electrical fires that are most common in older homes — fires caused by damaged wiring inside walls that you can't see or smell until it's too late — the investment is worthwhile even where it's not strictly required. New Brunswick's housing stock includes thousands of homes with 40-80+ year old wiring behind finished walls, exactly the condition where AFCIs provide the most benefit.

Always discuss AFCI requirements with your electrician and, if possible, your TSANB inspector before starting the renovation. Getting clarity upfront costs nothing and prevents expensive surprises at inspection.

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Q12

## What are the electrical code requirements for a secondary suite or in-law suite in New Brunswick?

### Electrical Code Requirements for Secondary Suites in New Brunswick

Secondary suites — also called in-law suites, garden suites, or accessory dwelling units — are increasingly popular across New Brunswick as homeowners look to house aging parents, generate rental income, or address the province's housing shortage. The electrical requirements for these suites are more complex than a typical renovation because you're essentially creating a separate dwelling unit within or attached to an existing home.

## What Defines a Secondary Suite Electrically

Under the Canadian Electrical Code and New Brunswick building regulations, a secondary suite is a self-contained living unit with its own:

- Kitchen or cooking facilities (minimum a cooktop and sink)
- Bathroom
- Sleeping area
- Separate entrance (in most NB municipalities)

Once a space meets these criteria, it triggers **full residential electrical requirements** for the suite — not just the lighter standards that apply to a bedroom addition or finished basement.

### Electrical Panel Requirements

**Option 1: Dedicated sub-panel for the suite (most common)**

A separate sub-panel dedicated to the secondary suite is the standard approach in New Brunswick. This provides clear separation of circuits, easier load management, and the ability to install a separate meter if desired.

- **Minimum sub-panel size:** 60 amps for a small suite (bachelor/1-bedroom under 500 sq ft with electric cooking but no electric heat). Recommended: 100 amps for future flexibility.
- **100-amp sub-panel** for larger suites or suites with electric baseboard heat, which is common in New Brunswick where natural gas isn't available in many areas.
- **Feeder wire from main panel:** 6 AWG copper for 60A, 3 AWG copper for 100A
- **Cost:** $1,500-$3,500 for the sub-panel installation, depending on distance from main panel

**Option 2: Separate electrical service**

Some municipalities in New Brunswick allow (or require) a completely separate electrical service with its own meter for the secondary suite. This is more common for detached secondary suites (garden suites, converted garages) than for suites within the main house.

- Requires NB Power to install a second meter base
- Separate 100-200 amp panel
- Allows individual billing — important for rental suites
- Cost: $4,000-$8,000 including NB Power connection fees

- Check with your municipality — some New Brunswick communities require separate metering for rental suites

### Main Panel Assessment

Before adding a secondary suite, your main panel must have sufficient capacity to supply the suite's sub-panel:

- **200-amp main service:** Can typically support a 60-100 amp sub-panel for the suite, provided existing loads leave adequate capacity. Most post-1990 New Brunswick homes have 200-amp services.
- **100-amp main service:** Almost certainly needs upgrading to 200 amps before adding a suite. Common in pre-1990 New Brunswick homes, especially in Moncton's north end, older Saint John neighbourhoods, and smaller communities. Upgrade cost: $2,500-$4,500.
- **60-amp fuse panel:** Definitely requires a full service upgrade. These panels don't have the capacity or the safety features needed. Budget $3,000-$5,000.

### Required Circuits for the Suite

The CEC requires the secondary suite to have the same minimum circuits as any dwelling unit:

**Kitchen:**

- 2 dedicated 20-amp circuits for countertop receptacles (12 AWG wire)
- 1 dedicated circuit for refrigerator (15 or 20 amp)
- 1 dedicated circuit for dishwasher (if installed)
- 1 dedicated circuit for range/cooktop (40-50 amp, 240V for electric; 15 amp for gas ignition)
- 1 dedicated circuit for microwave (if built-in, 20 amp)

**Bathroom:**

- 1 dedicated 20-amp circuit for bathroom receptacles
- GFCI protection on all bathroom outlets
- Exhaust fan (can share lighting circuit)

**Laundry (if included):**

- 1 dedicated 20-amp circuit for washing machine
- 1 dedicated 30-amp, 240V circuit for electric dryer

**General:**

- Lighting circuits for all rooms (15 amp)
- General receptacle circuits (15 amp, spaced per CEC — every 1.8m along walls)

- Dedicated 15-amp circuit for furnace/heating system
- Smoke and CO detector circuits (can be interconnected with main house)

**Heating (if electric):**

- Dedicated circuits for baseboard heaters — typically 240V, sized to the heater wattage
- A 1-bedroom suite with electric baseboard heat may need 4,000-8,000 watts of heating, requiring 20-40 amps of dedicated 240V heating circuits

## Safety Requirements

**Smoke and carbon monoxide detectors:**

- Smoke detectors required in every bedroom, outside each sleeping area, and on every level of the suite
- CO detectors required outside sleeping areas if the suite has fuel-burning appliances or an attached garage
- Detectors must be hardwired with battery backup (not battery-only)
- Interconnection: When one alarm sounds, all alarms in the suite must sound. Some municipalities require interconnection with the main house detectors as well.

**GFCI protection:**

- Bathroom receptacles
- Kitchen receptacles within 1.5m of a sink
- Laundry receptacles
- All receptacles in unfinished areas (utility rooms, mechanical rooms)
- Outdoor receptacles serving the suite

**AFCI protection:**

- Required on all bedroom circuits (CEC 2018+)
- Recommended for living areas

**Emergency egress lighting:**

- Not required for most residential secondary suites, but some municipalities require illuminated exit paths

## Fire Separation Requirements (Affects Electrical)

New Brunswick building code requires fire separation between the main dwelling and the secondary suite — typically a 30-minute or 1-hour fire-rated assembly. This directly affects electrical work:

- **All electrical penetrations through fire-rated walls and ceilings must be fire-stopped** using approved fire-stop sealant or putty pads around electrical boxes
- **Electrical boxes in fire-rated walls** must be installed with minimum 600mm (24 inch) separation between boxes on opposite sides of the wall, or use fire-rated electrical boxes
- **Recessed lights** in fire-rated ceilings must be IC-rated (insulation contact) and covered with fire-rated enclosures

  Failing fire separation requirements is one of the most common reasons secondary suite inspections fail in New Brunswick.

### Permit and Inspection Process

**Building permit:** Required from your local municipality. Cost varies — typically $200-$500 in New Brunswick municipalities.

**Electrical permit:** Required from TSANB. Cost: $100-$200 for a secondary suite scope.

**Inspections:** Multiple inspections are typically required:

- **Rough-in inspection** — After wiring is run but before walls are closed (drywall, insulation). TSANB inspector verifies wire routing, box placement, circuit layout, proper stapling, and fire-stopping.
- **Final inspection** — After everything is connected and operational. Tests GFCI function, smoke/CO detectors, circuit identification, grounding, and overall code compliance.

  **Zoning approval:** Check your municipal zoning bylaws before starting. Not all zones in every New Brunswick municipality permit secondary suites. Moncton, Fredericton, and Saint John have all updated their bylaws in recent years to allow secondary suites in more residential zones, but restrictions vary.

### Total Electrical Cost Estimate

| Component | Cost Range | |-----------|------------| | Main panel upgrade (if needed) | $2,500-$4,500 | | Sub-panel installation (100A) | $1,500-$3,500 | | Kitchen circuits (5-7 circuits) | $2,000-$4,000 | | Bathroom circuit + GFCI | $400-$800 | | General circuits (lighting + receptacles) | $1,500-$3,000 | | Electric heat circuits (if needed) | $800-$2,000 | | Smoke/CO detectors (hardwired) | $300-$600 | | TSANB permits + inspections | $200-$400 | | **Total (without main panel upgrade)** | **$6,700-$14,300** | | **Total (with main panel upgrade)** | **$9,200-$18,800** |

The electrical component typically represents **25-35% of the total secondary suite construction cost** in New Brunswick. For a complete in-law suite conversion of an existing basement, total project costs (all trades) typically run $40,000-$80,000 depending on the level of finish.

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Q13

# Do I need a permit to install a ceiling fan where a light fixture was in New Brunswick?

## Do You Need a Permit to Replace a Light Fixture with a Ceiling Fan in New Brunswick?

In most cases, **yes — you need an electrical permit from the Technical Safety Authority of New Brunswick (TSANB)** to install a ceiling fan where a light fixture was. This surprises many homeowners because it seems like a simple swap, but there are important structural and electrical differences between a light fixture and a ceiling fan that make this more than a like-for-like replacement.

## Why a Permit Is Required

The Canadian Electrical Code, which New Brunswick adopts with provincial amendments, considers a ceiling fan installation as **new electrical work** rather than a simple fixture replacement for several reasons:

**1. Different box requirements:** A standard light fixture electrical box is rated for static loads of 23 kg (50 lbs). A ceiling fan creates dynamic loads — the spinning motion generates forces that a standard box wasn't designed to handle. The CEC requires a fan-rated electrical box (marked with a fan symbol or "Acceptable for Fan Support") that can handle both the weight (up to 35 kg) and the vibration. If the existing box isn't fan-rated, it must be replaced.

**2. Wiring changes may be needed:** If you want a fan with a separate light kit controlled by independent switches, you'll need a 3-wire cable (14/3 NMD90) run to the box instead of the standard 2-wire cable. This is definitely new electrical work requiring a permit.

**3. Structural support:** The fan must be mounted to a support bracket secured to ceiling joists, not just to the electrical box. In many New Brunswick homes — especially older bungalows and split-levels common in Moncton's north end and Riverview — the existing light fixture may be mounted to a shallow pan box nailed to a single joist, which isn't adequate for a ceiling fan.

## When You Might Not Need a Permit

There is a grey area that TSANB acknowledges. If **all** of the following conditions are met, the work may be considered maintenance rather than new installation:

- The existing electrical box is already fan-rated (check for the fan marking inside the box)
- You're using the existing wiring without modification
- The fan's total weight is within the box's rating

- No new switches or circuits are being added
- The mounting bracket connects directly to a joist or approved support bar

  However, even in this scenario, many New Brunswick municipalities and insurance companies prefer to see a permit and inspection on file. The permit cost is typically **$50-$75** — a small price compared to potential insurance claim denials if an improperly installed fan causes damage.

### The Permit Process

Applying for a TSANB electrical permit is straightforward:

- **Your electrician applies** through the TSANB online portal or by calling their office
- **Permit fee** ranges from $50 to $100 depending on the scope
- **Work is completed** according to CEC requirements
- **TSANB inspector visits** to verify the installation — this is typically scheduled within 5-10 business days of the completion notification
- **Certificate of compliance** is issued once the work passes inspection

  The inspection specifically checks that the fan box is properly rated and secured, wiring connections are correct, the circuit isn't overloaded, and the fan operates safely.

### Cost to Have It Done Professionally

Hiring a licensed New Brunswick electrician to install a ceiling fan typically costs:

- **Simple swap (fan-rated box already exists):** $150-$250 plus the cost of the fan
- **Box replacement needed:** $200-$350, which includes removing the old box, installing a fan-rated pancake box or brace bar, and mounting the fan
- **New switch wiring (separate fan/light control):** $350-$500, which includes running new 14/3 cable and installing a double switch
- **Permit and inspection:** $50-$100 additional

### Can You DIY This in New Brunswick?

New Brunswick allows homeowners to do electrical work on their own primary residence, but you still need to obtain the permit yourself and have the work inspected by TSANB. This is different from some provinces where only licensed electricians can pull permits.

That said, ceiling fan installation involves working overhead, potentially modifying the electrical box support, and ensuring proper wiring connections — if you're not confident in your skills, the $150-$350 for professional installation is money well spent. An improperly mounted ceiling fan can fall, cause electrical shorts, or create a fire hazard.

### Bottom Line

Pull the permit. At $50-$75, it's cheap insurance that the work is done safely and to code. If you ever sell your home, having permits and inspection certificates on file for electrical work adds confidence for buyers and avoids issues during the home inspection process.

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Q14

## Do I need a permit to replace my electrical panel in New Brunswick?

### Do You Need a Permit to Replace an Electrical Panel in New Brunswick?

Yes — a TSANB (Technical Safety Authority of New Brunswick) permit is absolutely required for any electrical panel replacement in New Brunswick. This is not optional and there are no exceptions for homeowners doing the work themselves. The permit requirement applies whether you are upgrading from 100A to 200A, replacing a recalled panel, or simply swapping a panel in the same location with the same amperage.

**How the Permit Process Works**

- **Application** — Your electrician (or you, if doing it yourself as a homeowner) applies to TSANB for an electrical installation permit. Applications can be submitted online through TSANB's portal or in person at their offices in Fredericton (main office), Moncton, or Saint John.
- **Permit fee** — For a panel replacement, the typical permit fee is $75-$150. If the panel replacement includes a service size upgrade (e.g., 100A to 200A) that also requires NB Power to modify their connection, the permit scope increases and the fee may be $150-$250.
- **Work proceeds** — Once the permit is issued, the electrical work can begin. For a straightforward panel swap, this is typically a 1-day job.
- **Inspection** — After the work is complete, a TSANB inspector must inspect the installation before it is energized (or before the cover goes back on the panel). You or your electrician calls TSANB to schedule the inspection. In the Moncton, Saint John, and Fredericton areas, inspections are usually available within 2-5 business days. Rural areas may take slightly longer.
- **Certificate** — If the installation passes inspection, TSANB issues a certificate of compliance. This document is important — your insurance company may request it, and it becomes part of the property's electrical record.

  **What the Inspector Checks**

  - Panel is properly rated and CSA approved
  - All connections are torqued to manufacturer specifications
  - Wire sizing matches breaker ratings on every circuit
  - Grounding electrode system is complete and properly bonded
  - AFCI breakers installed on bedroom circuits (required by current CEC even when replacing a panel — this catches many homeowners off guard)
  - GFCI protection present for bathroom, kitchen, laundry, garage, and exterior circuits
  - Panel is accessible with proper working clearance (minimum 1 metre in front, 750mm wide)
  - Circuit directory is complete and accurate
  - Meter base and service entrance are in acceptable condition

    **Common Reasons Panels Fail Inspection**

  - Missing AFCI breakers on bedroom circuits — the current Canadian Electrical Code requires AFCI protection for bedrooms, and when you replace a panel, the new installation must meet current code requirements. AFCI breakers cost $40-$60 each and you typically need 2-4 for bedroom circuits. Budget an extra $80-$240

- Double-tapped breakers — two wires landed on one breaker terminal. This is a common shortcut that inspectors catch immediately
- Improper bonding — the neutral bus and ground bus must be bonded at the main panel (and separated at sub-panels)
- Insufficient working clearance — panels installed in tight closets or behind storage may not meet the 1-metre clearance requirement

**What Happens If You Skip the Permit**

The consequences are significant:

- **Insurance** — If an electrical fire originates at an unpermitted panel installation, your home insurance claim can be denied. New Brunswick insurance companies routinely investigate fire origins and check for TSANB compliance.
- **Sale complications** — When selling your home, a home inspector will note the panel replacement. Buyers and their lawyers will ask for the TSANB certificate. No certificate means the buyer can demand a new permitted installation or reduce their offer by $3,000-$5,000.
- **Fines** — TSANB can issue fines for unpermitted electrical work. While enforcement is complaint-driven, a disgruntled neighbour, tenant, or insurance adjuster can trigger an investigation.
- **Safety** — The inspection exists because panel installations done incorrectly kill people. Loose connections, improper wire sizing, and missing safety devices cause fires and electrocution. Even experienced DIYers make mistakes that an inspector would catch.

**Can Homeowners Replace Their Own Panel?**

New Brunswick law allows homeowners to perform electrical work on their own single-family residence. However, a panel replacement involves working on energized conductors (the service entrance cables remain live even when the main breaker is off — only NB Power can de-energize those) which makes this one of the most dangerous electrical jobs possible. Most homeowners should hire a licensed electrician.

If you do choose to do it yourself, you MUST still obtain the TSANB permit, have NB Power disconnect service before you begin (call 1-800-663-6272 to schedule, typically 2-3 business days notice), and schedule the TSANB inspection afterward.

**Cost of a Panel Replacement**

A licensed electrician in New Brunswick typically charges:

- **100A to 200A upgrade** (most common): $2,500 - $4,500

- **Same-size panel swap** (e.g., replacing a recalled panel): $1,500 - $2,500
- **Panel relocation** (moving to a different wall): $3,000 - $5,500

  These prices include the TSANB permit, panel hardware, breakers, labour, and inspection coordination. Get at least 3 quotes from TSANB licensed electricians in your area.

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Q15

## What happens if I do electrical work without a permit in New Brunswick?

**Doing electrical work without a TSANB permit in New Brunswick can result in fines, insurance claim denials, problems selling your home, and most importantly, serious safety hazards from uninspected work.** The consequences compound over time and often surface at the worst possible moment.

**Fines and enforcement.** TSANB has the authority to issue orders to comply and fines for unpermitted electrical work in New Brunswick. If an inspector discovers unpermitted work — during a routine inspection, a renovation permit for adjacent work, or a complaint — they can require you to have the work exposed for inspection, which may mean opening up finished walls and ceilings. The cost of exposing, inspecting, and repairing unpermitted work is almost always more than doing it properly in the first place.

**Insurance implications are the biggest financial risk.** This is where unpermitted work really hurts. If you have a fire or electrical incident, your insurance company's investigator will determine the cause. If the fire is traced to unpermitted electrical work — a DIY panel modification, an improperly wired circuit, or a junction box hidden behind drywall — your insurance company can deny the entire claim. We're talking about the difference between a covered loss and paying $200,000+ out of pocket to rebuild your home. Insurance companies in New Brunswick are

increasingly thorough about investigating electrical fires, and unpermitted work is one of the first things they look for.

**Selling your home becomes complicated.** When you sell, the buyer's home inspector will examine the electrical panel and visible wiring. Unpermitted work is often obvious to a trained eye — amateur wire runs, non-standard connections, missing junction box covers, and mismatched breakers all raise red flags. In New Brunswick's real estate market, buyers can (and do) request that all electrical work be brought up to code as a condition of sale. This means paying an electrician to assess, repair, and permit the work retroactively — often at 2 to 3 times what it would have cost to do it right originally, because the electrician may need to open walls to trace and verify the work.

**The safety risk is the most serious consequence.** Electrical code exists because improperly installed wiring kills people and burns down homes. Common DIY electrical mistakes include using the wrong wire gauge for the breaker size (causes wire overheating), not securing cables properly (causes damage over time), missing ground connections (eliminates shock protection), improper junction boxes (hidden connections that can arc and ignite), and overloading circuits beyond their rated capacity.

**What requires a TSANB permit in New Brunswick.** Any new circuit, any panel work, any new outlet or switch on a new circuit, EV charger installation, generator installation, hot tub wiring, rewiring, and essentially anything beyond replacing an existing outlet, switch, or light fixture with the same type in the same location.

**If you already have unpermitted work.** The best course of action is to hire a TSANB-licensed electrician to assess the work, make any corrections needed, and pull a retroactive permit. Yes, it costs money, but it's far less than the potential consequences of leaving it. Most electricians in New Brunswick handle this regularly and can work with TSANB to get existing work inspected and approved.

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Q16

## Do I need a TSANB permit to install a Level 2 EV charger in my garage in New Brunswick?

**Yes, you absolutely need a TSANB permit to install a Level 2 EV charger in New Brunswick.** Any new dedicated circuit — and a Level 2 charger requires a dedicated 240V circuit rated at 40 to 50 amps — requires a permit from the Technical Safety Authority of New Brunswick and a follow-up inspection.

Here's how the process works. Your licensed electrician submits a permit application to TSANB before any work begins. The electrician then installs the dedicated circuit from your electrical panel to the charger location in your garage, mounts the charging unit, and makes all connections. Once the work is complete, a TSANB inspector visits to verify everything meets the Canadian Electrical Code — proper wire gauge (typically 6 AWG copper for a 50 amp circuit), correct breaker size, appropriate cable routing, and secure mounting of the EVSE unit.

**The permit fee for an EV charger installation is typically $100 to $200**, and the inspection is usually scheduled within 3 to 5 business days after your electrician submits the request. The inspection itself takes about 15 to 30 minutes.

**What happens if you skip the permit?** Installing an EV charger without a TSANB permit in New Brunswick can result in fines, and more importantly, your home insurance company may deny a claim if an electrical fire is traced to unpermitted work. If you ever sell your home, a buyer's home inspector will flag the installation, and you'll need to have it retroactively permitted and inspected — which costs more than doing it right the first time.

**Before your electrician arrives**, there are a few things to check. First, verify your panel has capacity for the new circuit. Most Level 2 chargers draw 32 amps continuously (on a 40 amp breaker) or 40 amps (on a 50 amp breaker). If your home has a 100 amp panel that's already close to full, you may need a panel upgrade first. Second, measure the distance from your panel to the charger location — longer runs require heavier gauge wire and cost more. Third, decide between a hardwired unit or a NEMA 14-50 outlet that lets you plug in a portable charger.

**The total cost for a Level 2 EV charger installation in New Brunswick runs $1,200 to $1,800** if your panel has capacity, or $3,000 to $5,000 if a panel upgrade is needed. NB Power may also offer incentives for EV infrastructure — check their current rebate programs before scheduling the work.

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