

VANCOUVER ELECTRICAL REPAIR

Lighting

Pot lights, fixtures, dimmers, smart switches, under-cabinet and exterior lighting for Vancouver's dark winters

4 Expert Answers from Electric IQ

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Motion sensor floodlights on a Maple Ridge garage, hardwire or solar?

For a garage floodlight in Maple Ridge, hardwired wins on reliability, but solar has gotten genuinely competitive for the right situation. The honest answer depends on how much light you need and whether you have an existing exterior circuit to tap.

Hardwired vs. Solar for a Maple Ridge Garage Floodlight

Hardwired gives you consistent, bright output regardless of the season. That matters in Maple Ridge, where October through March brings heavy cloud cover, short days and plenty of rain. A quality hardwired LED motion floodlight runs 2,000 to 5,000 lumens and will trigger reliably every time. Solar units in the same price bracket often drop to 40 to 60 percent of rated output through a BC winter because the panels simply are not charging fully. If the garage is detached and the floodlight is your primary security or safety light, hardwired is the right call.

Solar makes sense when the installation cost of running a circuit is the deciding factor, or when the fixture location is genuinely impractical to wire. A south- or west-facing roofline on a detached garage with no shade from trees or the house can charge a decent solar unit through most of the year. Expect reduced output from November to February, and plan for battery replacement every three to five years. No permit, no electrician, no BC Hydro coordination required.

On the cost side, a hardwired installation in Maple Ridge typically runs \$350 to \$700 for a single floodlight on an existing exterior circuit, including the fixture and labour. If there is no nearby circuit and a new one needs to be run from the panel, add \$500 to \$900 for the circuit, and a permit is required. Maple Ridge runs its own electrical permit and inspection program, so the permit goes through the District of Maple Ridge building department, not Technical Safety BC. Permit fees for a small residential job are typically in the \$75 to \$150 range and should be included in the contractor's quote.

A good solar floodlight with a proper motion sensor costs \$80 to \$250 for the fixture itself, and installation is a DIY-friendly afternoon with basic tools. No permit needed for a solar fixture.

A few things worth knowing for Metro Vancouver's wet climate: hardwired exterior boxes and fixtures must be rated for wet locations, conduit entries need to be sealed against moisture, and any new exterior receptacle or circuit within reach of a hose or rain needs GFCI protection. Corrosion at exterior connections is a recurring fault in this climate, so quality weatherproof covers matter.

If you go hardwired and the garage is detached, the electrician will need to assess whether the existing feeder to the garage has capacity for an additional circuit, or whether a sub-panel or upgraded feeder is needed. That is a quick load calculation, not a major job in most cases.

Before hiring, ask for the electrician's Technical Safety BC licence number and confirm WorkSafeBC coverage. Make sure the permit is included in the quote and that the inspection is booked before drywall or siding goes back.

Want quotes for a hardwired installation? Vancouver Electrical Repair can match you with local Maple Ridge electricians for free.

Q2

Why do my new LED strips hum on the dimmer in my Kerrisdale kitchen?

LED strip humming on a dimmer is almost always a compatibility mismatch between the dimmer's control method and the LED driver, and it is one of the easier electrical annoyances to fix without calling anyone.

What is actually causing the hum

Most dimmers sold before 2018 or so use a technique called phase-cutting: they chop the AC sine wave to reduce average voltage. Incandescent bulbs tolerated this without complaint because a hot filament smooths out the flicker. LED drivers, especially the cheap constant-voltage drivers bundled with strip kits, react to that chopped waveform by vibrating at the switching frequency, typically 120 Hz, which lands squarely in the range human ears find irritating. The strip itself can also vibrate if it is mounted loosely against a surface that acts as a sounding board, like an MDF cabinet face.

A few things make it worse. Older Kerrisdale homes often have 15A lighting circuits that were wired for incandescent loads, so the dimmer may be a legacy leading-edge (triac) model that was never designed for LEDs. Running the dimmer near the bottom of its range amplifies the effect because the phase-cut angle is at its most aggressive. A very short strip, or a strip whose total wattage is well below the dimmer's minimum rated load, causes the same problem.

The fix is almost always a new dimmer rated specifically for LED loads, ideally one that lists your strip's driver brand in its compatibility table. Trailing-edge (ELV) dimmers are generally quieter with LED drivers than leading-edge models. Lutron and Leviton both publish compatibility lists, though I am not recommending a specific brand here, just the category. Budget \$30 to \$80 for a quality LED-rated dimmer at a local electrical supply house.

A few other things to check before you buy anything. Make sure the strip is physically secured flat against its mounting channel or aluminium extrusion, because an air gap lets it rattle. If the driver is a separate brick-style unit sitting in a cabinet, isolate it from the shelf with a piece of foam or rubber, since the driver casing itself can be the noise source. Also confirm the strip's total wattage is within the dimmer's rated range, not just under the maximum but also above the minimum load, which is often printed on the dimmer's label.

Swapping a dimmer is work a homeowner can do on a de-energised circuit: turn off the breaker, confirm the circuit is dead with a non-contact tester, swap the device, restore power. No permit is required for a like-for-like device replacement in BC. If the wiring in the box is aluminum (common in Kerrisdale homes built in the 1960s and early 1970s), do not proceed on your own; aluminum wiring needs CO/ALR-rated devices and proper pigtail by a licensed electrician.

If a new LED-compatible dimmer does not solve it, the strip driver itself may simply not be dimmable, or the strip wattage may be too low for any phase-cut dimmer to handle cleanly. In that case a PWM (pulse-width modulation) controller on the DC side of the driver is the cleaner solution, though that changes the wiring arrangement and is worth a quick conversation with an electrician.

If you want a licensed electrician to assess the circuit and swap the dimmer properly, Vancouver Electrical Repair can match you with a local one for free.

Q3

Is a motion sensor porch light in North Vancouver a job for an electrician?

For a straight swap of an existing porch light fixture for a motion sensor model, you likely do not need an electrician at all. If you are replacing a fixture on an existing box with a new fixture of similar wattage, that is a like-for-like replacement and does not require a permit in BC. A reasonably handy homeowner can do it safely with the breaker off.

When it gets more involved

The answer changes depending on what you actually have out there. A few situations that push this into licensed-electrician territory:

If there is no existing exterior box and you want to add a new circuit or a new outlet location, that is new wiring and requires a permit. Both the District of North Vancouver and the City of North Vancouver run their own electrical permit and inspection programs, so the permit for new exterior wiring comes from the municipality rather than Technical Safety BC. The work would need a licensed contractor and a Technical Safety BC inspection.

If the existing box is old and ungrounded (common in pre-1970s North Vancouver homes), swapping the fixture is still straightforward, but you will want to confirm the box is properly rated for outdoor use and that the fixture you buy is rated for wet or damp locations, whichever applies to your porch exposure. A wet-location rating matters on the North Shore given how much rain hits exposed soffits from October through April.

If the existing wiring is aluminum (a real possibility in North Vancouver homes built between roughly 1965 and 1976), the termination at the fixture matters. Aluminum wiring needs CO/ALR-rated devices or a proper copper pigtail at every connection. A homeowner doing a quick fixture swap can unknowingly make a poor connection on aluminum wire, which is a fire risk. If you are not sure what you have, a quick look at the wire colour (silver-grey rather than copper-orange) at the box will tell you.

The one thing not to skip: turn the breaker off at the panel and confirm the circuit is dead with a non-contact voltage tester before touching any wiring. Do not rely on the wall switch alone.

For a simple fixture-for-fixture swap on a grounded copper circuit with a proper outdoor box already in place, this is a reasonable DIY job on a Saturday morning. Budget about \$30-\$80 for a decent motion sensor fixture and an hour of your time. If you find aluminum wiring, an old ceramic box, or no box at all, call a licensed electrician. A service call in Metro Vancouver runs \$150-\$300 for the first hour, and a straightforward exterior fixture installation or small repair typically lands between \$200 and \$450 all in.

If you want a local electrician to take a look and give you a quote, Vancouver Electrical Repair can match you with one for free.

Why do my Surrey LED pot lights flicker on the dimmer?

LED pot lights flicker on a dimmer almost always because the dimmer switch and the LED driver are not compatible. Most dimmers sold before 2015 were designed for incandescent bulbs, which have a simple resistive load. LEDs draw far less current and respond to the dimmer's phase-cutting signal differently, producing flicker, buzzing or a narrow usable range before the lights drop out entirely.

What is actually causing it

A dimmer works by rapidly switching the power on and off many times per second. Incandescent filaments respond smoothly because they stay warm between pulses. An LED driver is a small electronic circuit, and if it was not designed to work with that specific dimmer's control method (leading-edge, trailing-edge or ELR), it either flickers visibly, hums, or refuses to dim below 30 percent before cutting out. The fix is usually one of three things, in order of cost:

First, check whether the dimmer is rated for LED loads. Look for "LED compatible" or a wattage rating that lists LEDs separately. A dimmer rated for 600W incandescent may only handle 150W of LED, and even then only with specific driver types. Swapping to a Lutron Caseta, Leviton Decora Smart or another LED-rated trailing-edge dimmer costs \$30 to \$80 for the switch itself and is often all that is needed.

Second, check the minimum load. Some dimmers need at least 25 to 40 watts on the circuit to regulate properly. Four pot lights at 8 watts each is only 32 watts, which can fall below that threshold. Adding one more fixture, or choosing a dimmer with a lower minimum load rating, solves it.

Third, check the pot lights themselves. Not all LED fixtures or retrofit trims are dimmable. The packaging or the driver label will say "dimmable" explicitly. Non-dimmable LEDs flicker or fail immediately on any dimmer. If the fixtures are original to a Surrey home built between the mid-1990s and 2010s, there is a reasonable chance they were installed with compact fluorescent trims that were later swapped for LED retrofits without changing the dimmer.

A neutral wire matters here too. Newer smart dimmers require a neutral wire at the switch box to function correctly. Many older Surrey homes wired with a switch loop have only a hot and a switched hot at the box, no neutral. Installing a smart dimmer without a neutral on a switch-loop circuit causes exactly this kind of flicker and can damage the dimmer over time. An electrician can confirm what is in the box in about 15 minutes.

For the permit question: swapping a dimmer switch for another dimmer switch on an existing box is a like-for-like replacement and does not require a permit in Surrey. Surrey runs its own electrical permit and inspection program

(not Technical Safety BC), so if any new wiring or circuit work is involved, the permit comes from the City of Surrey's building department.

Replacing the dimmer switch itself is within what a reasonably handy homeowner can do safely on a de-energised circuit, but if the flickering is coming from a loose connection, a failing driver inside the fixture, or a wiring issue at the box, that is a job for a licensed electrician.

Want quotes for this? Vancouver Electrical Repair can match you with local Surrey electricians for free.

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