

ACCESS

ELECTRICAL $\pm$ CONSTRUCTION

A PRACTICAL HOMEOWNER GUIDE

The Homeowner's Guide to Electrical Upgrades

A safer, more comfortable home starts with a thoughtful plan.



Safety / Upgrades / Backup power / Checklist

503-642-4333

www.accesselectricalco.com

01 / START WITH SAFETY

Know what needs attention.

A recurring electrical symptom deserves a closer look before you plan cosmetic upgrades.

Warning signs to take seriously [1]

Repeated breaker trips, flickering or dimming lights, buzzing at outlets or switches, and warm or discolored outlets can signal an electrical problem. A qualified electrician can identify the cause.

Your next step

Stop using the affected outlet or equipment and arrange professional evaluation. Avoid repeatedly resetting a tripping breaker. Never remove the panel cover or open electrical equipment to investigate.

Smoke, fire, or an immediate threat?

Leave the area and call 911 from a safe location. Do not touch hot, sparking, or damaged electrical equipment.

Three protections to ask about [2]

GFCI: helps protect people from ground-fault shock hazards.

AFCI: helps reduce fire risk from hazardous electrical arcing.

Surge protection: helps limit damaging voltage surges. It does not replace GFCI or AFCI protection.

Ask your electrician which protections fit your existing wiring and the requirements for your project.

02 / EVERYDAY IMPROVEMENTS

Make your home work better.

Start with the rooms and routines that frustrate you most.

01 Better lighting

Combine room lighting with focused light at counters, desks, mirrors, and work areas. Choose compatible LED lamps, fixtures, and dimmers together to help avoid flicker or poor dimming.

02 Outlets where you need them

If extension cords have become a permanent arrangement, discuss a better outlet layout. An electrician can evaluate the wiring and circuit capacity before adding outlets.

03 Outdoor convenience

Plan lighting around entrances, steps, and frequently used paths. Outdoor outlets and fixtures need equipment and protection suitable for the location.

04 Protection for modern electronics

Ask about whole-home surge protection alongside suitable point-of-use protection for sensitive equipment. Select a coordinated solution for your home. [2]

A useful lighting habit

Compare lumens for brightness. LED lighting can use substantially less energy than incandescent lighting. [3]

03 / PLAN FOR BIGGER CHANGES

Think ahead before you buy.

An EV, a remodeled kitchen, or new electric equipment can change what your home needs.

Adding an EV charger? [4]

Share your vehicle model, daily driving needs, parking location, and future plans with your electrician. Charger selection should match your charging routine and the capacity available at home.

Does the panel need an upgrade?

That answer starts with an assessment of equipment condition and a load calculation. Empty breaker spaces alone do not establish available electrical capacity. Ask whether load management could support your plans before assuming a larger service is necessary. [4]

Planning a remodel?

Identify future appliances, lighting, outlet locations, and workspace needs before walls are finished. Discuss wiring routes, circuit needs, and any coordination with other trades.

Understand what drives the price

Equipment choice, wiring distance, access, existing conditions, service changes, and permit or utility coordination can all affect the scope. Request a written estimate that explains what is included and how changes will be handled.

Ask before work starts: Who handles permits and inspections? Will power be interrupted? Who handles patching and finish repairs?

04 / EMERGENCY BACKUP POWER

Keep the essentials running.

Backup power can reduce disruption, protect essentials, and bring peace of mind during an outage.

What backup power can protect

Prioritize refrigeration, key lights, phone charging, and selected heating controls or pumps. Keeping a sump pump running may help reduce water damage; a well pump may preserve water access. Each load must be included in the design.

Portable gasoline generators

Usually a lower upfront cost than installed standby systems. You must position, start, connect, and refuel the unit safely. Gasoline storage and fuel availability during an outage need advance planning. [5]

Dual-fuel, tri-fuel, and inverter models

Some portable models use gasoline and propane; tri-fuel models may also use natural gas. Inverter describes the power technology, not the fuel. Output and runtime vary by model and fuel; confirm the rating for your chosen fuel. [8]

Permanently installed standby generators

Natural-gas or propane systems can start automatically and supply selected circuits through an automatic transfer switch. Natural gas depends on utility gas service; propane depends on tank capacity and refills. Neither guarantees unlimited runtime. [7]

05 / GENERATOR INSTALLATION

How power reaches your home.

The switch panel is usually called transfer equipment. It keeps utility and generator power separated. [5, 7]

Portable: an inlet plus transfer equipment

For home circuits, an electrician installs a correctly rated outdoor power inlet and compatible manual transfer equipment. A selected-circuit transfer panel can supply essentials without powering every circuit. Operation is manual. [5]

Standby: generator plus automatic transfer switch

A fixed outdoor unit connects to the fuel supply and an automatic transfer switch (ATS). The ATS detects an outage, transfers the supported loads after startup, and returns them to utility power when service stabilizes. There is a brief interruption. [7]

What the installation team evaluates

Loads: running demand and motor-starting surges.

Site: exhaust clearances, service access, noise, and base.

Fuel: gas line and meter capacity or propane supply.

Electrical: panel compatibility, wiring route, grounding, and transfer equipment. [7]

Before the project is complete

Confirm permits, inspections, fuel-trade coordination, startup testing, circuit labels, and homeowner training. Ask for a written scope covering equipment, site work, utility coordination, and future servicing. [7]

06 / BACKUP POWER PLANNING

Choose capacity. Plan for safety.

Essential-circuit backup and whole-home backup have different equipment, fuel, and budget needs.

Size for what matters

List what must run together. Central heat pumps, electric heat, water heaters, cooking, and EV charging can require substantial capacity. A system may need automatic load management to prioritize loads; a whole-home connection does not mean every appliance can run at once. [7]

Portable generator safety [5, 6]

Operate outdoors at least 20 feet from the home, with exhaust directed away from doors, windows, and vents. Never run one in a garage or other enclosed space, even with doors open. Use battery-backed CO alarms on every level and outside sleeping areas.

Safe connections and fuel [5]

Never connect a generator to a household wall outlet: backfeeding can endanger occupants and utility workers. Home wiring needs approved transfer equipment. Keep portable units dry using manufacturer-approved protection; shut down and let the engine cool before refueling.

A readiness plan you can maintain

Follow the manufacturer maintenance schedule, plan fuel supplies, and practice operation. Standby placement must meet its installation manual and local requirements. Medical equipment needs a separate continuity plan; startup is not instant.

07 / YOUR PROJECT WORKSHEET

Bring a clear wish list.

Use this page to prepare for a call or site visit. Observe only; leave covers and equipment closed.

- ☐ List the rooms or equipment involved.
- ☐ Note symptoms, when they occur, and what was running.
- ☐ List appliances, EV charging, and essential backup power loads.
- ☐ Gather room photos and any existing plans.
- ☐ Choose your must-haves and optional improvements.
- ☐ Discuss budget, timing, access, and expected power interruptions.

My top three priorities

My target timing and budget

Questions for the electrician

08 / TAKE THE NEXT STEP

Let's plan your next upgrade.

Have a concern or a project in mind? Contact Access Electrical + Construction to discuss your home and the next step.

ACCESS ELECTRICAL + CONSTRUCTION

503-642-4333

13525 SW Farmington Road
Beaverton, OR 97005

www.accesselectricalco.com

Helpful reading

- [1] Electrical Safety Foundation: warning signs
- [2] Electrical Safety Foundation: home safety devices
- [3] U.S. Department of Energy: lighting efficiency
- [4] U.S. EPA: getting started with home EV charging
- [5] ESFI: generator safety and transfer switches
- [6] CDC: preventing carbon monoxide poisoning
- [7] Generac: standby generator installation planning
- [8] Champion: example of tri-fuel inverter technology

About this guide

General planning information, not a diagnosis or installation manual. Electrical work should be evaluated and performed by a qualified electrician. Applicable requirements depend on location, project scope, and existing conditions.

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