Electrical System

Note: Electricity is dangerous! You must contact a qualified electrician if you are <u>in any way</u> uncertain how to proceed.

Description

Service cable ❑ Copper ❑ Aluminum ❑ Not visible ❑ Overhead ❑ Underground

Main service size _____ **amps** **Main Service voltage** ❑ 120/240 ❑ 120 only

Main disconnect switch _____ **amps** ❑ Breakers ❑ Fuses

Location of main disconnect _____ ❑ None/not found

Sub panel(s) at _____

Grounding ❑ Copper ❑ Aluminum **Grounded to** ❑ Water pipe ❑ Ground rods ❑ Not visible

Service panel rating _____ **amps** ❑ Breakers ❑ Fuses ❑ Combination

Distribution wiring ❑ Copper ❑ Aluminum ❑ Knob and tube

Limitations

Electrical inspection limited by ❑ Power shut off ❑ Poor/no access to panel ❑ Grounding not visible/accessible
❑ Fuse blocks/main disconnect covers not removed ☑ Components hidden in some areas ☑ Concealed wiring
☑ Alarm and other low voltage systems not inspected

Recommendations and Notes

Service entrance/Conductors/Cables ❑ Exposed connectors ❑ Mast poorly supported/loose/rust/rot
❑ Drip loop inadequate
❑ Wires too low/inadequate clearances ❑ Exposed wiring at/below mast head ❑ Meter loose on wall
❑ Seal conduit/wires at wall ❑ Attention required by Utility Company

Service size ❑ Inadequate - increase to 100/200 amps minimum

Main panel ❑ Loose on wall ❑ Rust ❑ Panel cover loose/missing ❑ Panel openings not covered ❑ Overheating
❑ Abandoned wires beside/inside panel ❑ Damaged fuses/breakers ❑ Poor/inadequate grounding
❑ Double taps ❑ Crowded - consider upgrade to larger or auxiliary panel ❑ Use of marrettes/wire nuts in panel
❑ Unprotected circuits connected to main supply bus (double taps)

Additional/sub panel(s) ❑ Loose on wall ❑ Rust ❑ Panel cover loose/missing ❑ Overheating
❑ Abandoned wires beside/inside panel ❑ Damaged fuses/breakers ❑ Double taps ❑ Poor/inadequate grounding
❑ Crowded - consider further upgrade to larger or auxiliary panel ❑ Use of marrettes/wire nuts in panel

Fuses/breakers ❑ Loose ❑ Overfused - use 15amp breakers/fuses on branch circuits ❑ Damaged

❑ Overfused _____ amp breaker/fuse on _____ amp wire _____ circuit

❑ Overfused _____ amp breaker/fuse on _____ amp wire _____ circuit

Electrical System (2)

Aluminum wiring ❑ Overheating ❑ Loose ❑ Damaged wires ☑ CU/AL outlets/switches recommended
☑ Copper pigtails recommended ☑ Insurance may be an issue (further investigation required)
❑ No damage or overheating seen

Knob and Tube wiring ❑ Brittle ❑ Insulation damaged/missing ❑ Overheating ❑ Abandoned
☑ Insurance may be an issue - expect to replace any knob and tube wiring
☑ Presence of knob and tube in walls/floors/ceilings or other concealed areas not determined

Branch circuits ❑ Loose ❑ Damaged ❑ Exposed wires ❑ Poorly supported ❑ Surface mounted (unprotected)
❑ Abandoned ❑ Wiring not protected where in contact with metal pipes/ducts

Junction boxes ❑ Cover plates missing ❑ Crowded ❑ Loose ❑ Poor/loose connections inside
❑ Needed at _____

Use of extension cords (poor practice) ❑ For garage door opener(s) ❑ Workshop/garage ❑ Basement
❑ Pool/spa equipment ❑ More hard wired circuits/outlets needed

Stove/dryer ❑ Hardwired ❑ Loose wiring ❑ Loose outlet ❑ Outlet upside down/sideways (strain on wire)
❑ Gas - no 240v outlet(s)

Switches/receptacles ❑ Loose/poorly supported ❑ Broken/damaged/obsolete ❑ Exposed wiring ❑ Overheating
❑ Not working ❑ More outlets needed ❑ Safety covers missing/damaged ❑ Too close to tub/shower
❑ Some ungrounded outlets - upgrade to grounded recommended

Reverse polarity receptacle at _____

Lights ❑ Exposed bulbs/wiring ❑ Fixtures loose on walls/ceilings ❑ Missing fixtures ❑ Not working
❑ Too low/unprotected ❑ Pot lights poorly installed

Existing ground and arc fault circuit interrupters (G.F.C.I.'s and A.F.C.I.'s) ❑ Tested and working

❑ Ground fault circuit interrupter(s) at _____ **not working - replace**

❑ Arc fault circuit interrupters at panel **not working - replace**

Installation of G.F.C.I.'s recommended at all the following locations

☑ Bathrooms
☑ Exterior outlets (inc. carports)
☑ Whirlpool tubs
☑ Swimming pools and spas
☑ Saunas
☑ Garages
☑ Kitchen outlets beside sink
☑ _____

Installation of A.F.C.I.'s recommended for all bedroom circuits

Smoke Detectors ❑ Present ❑ Working ❑ Install

Electrical System (3)

Note:
All electrical defects are hazards that have the potential to cause fire or serious injury. For your safety, we recommend that where deficiencies are noted, a professionally qualified electrician attend to make repairs immediately.

Additional Notes

Read this.....

Modifications to your electrical panel should be done by a licensed electrical contractor.

Computer and other sensitive electrical equipment fitted with surge protectors, must be installed on grounded circuits to benefit from the protection.

The use of extension cords for permanent fixtures or appliances (such as garage door openers) is relatively common although unsafe practice. Generally extension cords indicate a lack of sufficient electrical receptacles. This is most common in older homes. Be sure that appliances have proper electrical outlets installed nearby.

Relocate any outlets above baseboard heaters. The wires from any appliances in use - could drape over the heater - creating a potential for fire or electrical hazard.

Fuses and circuit breakers are safety devices in your electrical panel that are designed to prevent overloading and potential fire hazards.

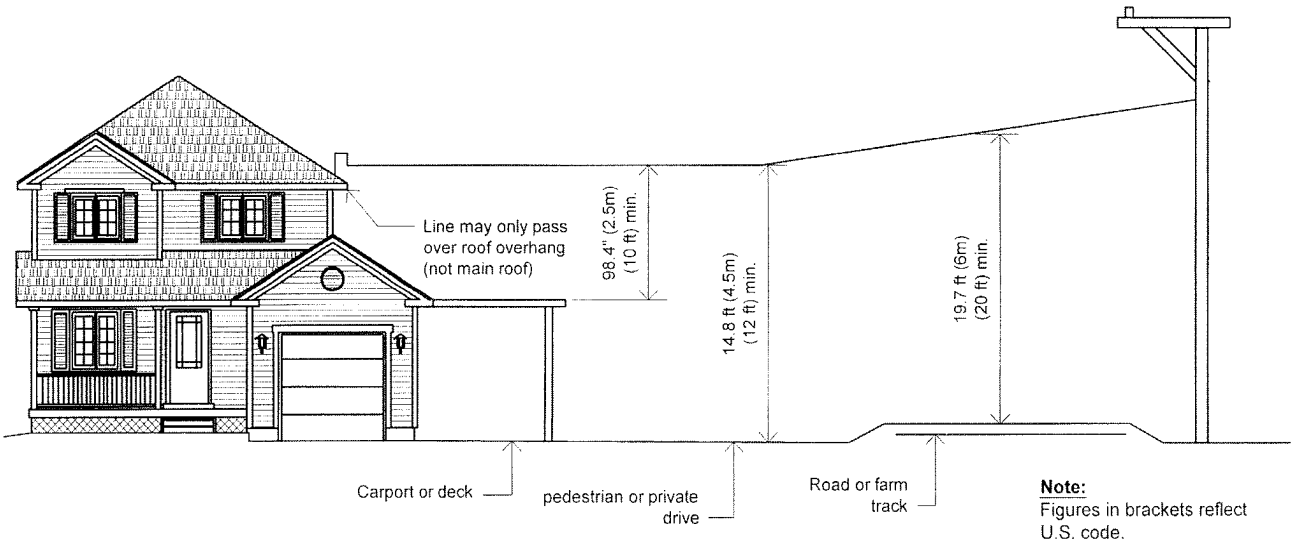
GFCI'S are generally required for exterior outlets, bathroom outlets and in new kitchen construction where receptacles/outlets are being installed within 1 metre of the kitchen sink.

Two-prong outlets are legal but substandard. Generally 2-prong outlets indicate there is no ground present.

Electrical (4)

The electrical system carries the electricity from the Hydro Company's wires in the street (overhead or underground), via conduit through the meter and to the electrical service panel. The electrical panel is the distribution centre (via the branch circuits) for the electricity throughout the building.

Overhead cables must have adequate clearances from the ground, paths, driveways and so on. The diagram shows some of the more common variations. Geographic location may also have a bearing on the height. Always have your qualified electrician check any areas that may be suspect.



The main disconnect is the switch that allows the homeowner to turn off all the electricity to the building. It can be part of the main electrical panel or may be a separate unit nearby or remotely located (often in the garage).

Many condominium unit panels do not have a main disconnect. The home owner can then only turn off individual circuits via the breakers or fuses. Any service work requiring the whole system to be turned off (to change a breaker or add a circuit for instance) must be carried out by a qualified electrician.

The service panel is the metal box where the mains electricity from the street is re-routed to the switches, outlets and appliances throughout the building. Circuits are protected by fuses or breakers which must be correctly sized for the circuit or branch wiring.

It's not uncommon to find circuits overfused. The branch circuit wiring might for instance be rated at 30 amps but the fuse or breaker protecting it might be rated at 40 amps. If there is an overload on that branch circuit, it will not blow or trip. The wires will become excessively hot and possibly cause a fire.

Electrical (5)

Branch circuit wiring is the collection of electrical wires that carry the electricity throughout the building. It may be copper, aluminum or a mixture of the two.

Be sure that branch circuits are properly protected by fuses or breakers. The use of larger fuses or any attempts to prevent fuses blowing or breakers from tripping by adding extraneous materials (silver paper or foil for instance) creates a significant fire and electrical hazard.

Knob and tube wiring was installed in some buildings until the 1950's. Today it's mainly considered to be obsolete. In some jurisdictions, despite the fact that it may be in good condition, many insurance companies will refuse or at the very least impose onerous conditions until it has been replaced.
If you buy a home with this style of wiring, expect to re-wire the building in the very near future.

Aluminum wiring was installed in many areas until the late 1960's and early 1970's. It's potential to oxidize in damp conditions, thereby creating a potential for overheating and fire, has made it unpopular. Aluminum wiring can usually be corrected by pig tailing to receptacles or switches marked co/alr.

If it's in good condition, there's no reason to change it, although we always recommend the installation of "copper pigtails".
This exercise involves adding a short section of copper wire (a pigtail) to each exposed wire - throughout the building. The special connectors used are air tight, thus reducing the likelihood of oxidization of the aluminum.

In some jurisdictions, insurance companies are requiring an electrical safety certificate or may refuse insurance if you have this sort of wiring.

Ground Fault Circuit Interrupters (G.F.C.I.'s) are the special outlets with the 'test and reset' buttons (often black and red). They must be installed to all bathroom and exterior outlets as well as to some special plumbing fixtures like whirlpool or air tubs, spas, swimming pools and to some outlets in kitchens more recently.

Never install a G.F.C.I. where you intend to plug in a fridge or freezer. The induction motors on these devices can fool the G.F.C.I. into believing there's a fault. The G.F.C.I. trips and unless you happen to notice quickly, your food will spoil.

Arc Fault Circuit Interrupters are now required for bedroom circuits in all new construction, effective January 2002.
Note that some tract builders may have permits that pre-date the requirement, even though the homes aren't completed yet. It seems that in certain circumstances, these homes may be exempt. Check with your local Chief Building Official's office or with the Electrical Safety Authority for your area for a definitive answer.

Arc Fault Circuit Interrupters are installed only on 15 and 20 amp circuits.
They help to prevent fire caused by arcing at outlets and switches.

A.F.C.I.s vs G.F.C.I.s

Don't confuse the two.....

A.F.C.I.s detect arcing and help protect against fire hazards.

G.F.C.I.s detect ground faults and help to protect against a shock hazard.

They are NOT interchangeable