

# HOMEOWNER ELECTRICAL PERMITS

## Applying for a Homeowner Permit

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## Cables

- USEB cable is no longer an option for feeding 240-volt power to a detached garage or other out building. Electrical and gas need to be separated. Requirements for teck, NMWU, or PVC installations.
- Where cables run along or pass through holes in joists or studs, the holes must be at least 32 mm (1¼ in.) back from the joist or stud face. If not, the cable must be protected by metal protection plates or cylindrical bushings. Protection of cables in concealed and exposed locations (see Figure 1). Do not drill holes in roof trusses.
- Cables are to be secured within 300 mm (1 ft.) of every box and at intervals of no more than 1.5 m (5 ft.) over the run.
- At rough-in, Loomex must be stripped and entered into boxes, bonds installed and splices completed, with at least 150 mm (6 in.) of wire extending out at each outlet box for splicing, terminating and connecting equipment.
- Armoured cable shall be run in a manner such that the mechanical and electrical continuity of the armour is maintained over the run, and the armour of cables shall be mechanically and electrically secured to all equipment to which it is attached. An anti-short is required in some instances to protect the wires from the armour.

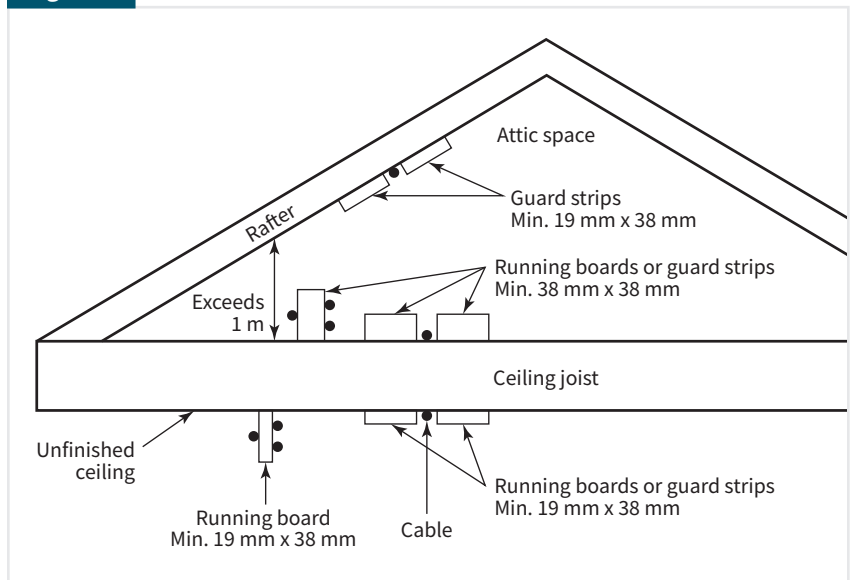
## Boxes

- Vapour hats are required on all boxes, pot lights, and bath fans where wall or ceiling vapour barrier is required.
- Maximum numbers of conductors permitted in boxes:

Box type	Dimensions	Conductor size	Usage
Octagon (15 in. <sup>3</sup> )	4 x 4 x 1½ in.	9	Light or junction box
#1104 (12½ in. <sup>3</sup> )	3 x 2 x 2½ in.	5	Switch or plug
#1004 (15 in. <sup>3</sup> )	3 x 2 x 3 in.	7	Switch or plug

- When a dimmer switch, timer, USB receptacle or GFCI receptacle is used in an outlet box, reduce the maximum number of conductors by 3.
- All boxes must be accessible after installation is complete.
- All boxes larger than 4 x 4 in. need a second support, and gangable boxes need to be supported from stud to stud.

**Figure 1**



## Receptacles

- Receptacles must be installed along finished walls so that no point is more than 1.8 m (6 ft.) horizontally from a receptacle (i.e., a maximum of 3.6 m (12 ft.) between plugs). Exceptions are bathrooms, kitchens, hallways, laundry and utility rooms, closets, and walls less than 1 m (3 ft.) wide. No point in a hallway should be more than 4.5 m (15 ft.) from a receptacle.
- For kitchens, a sufficient number of receptacles (5-15 split or 5-20R) along the wall at counter work surfaces so that no point along the wall line is more than 900 mm from a receptacle. At least one receptacle installed at each permanently fixed island counter space and peninsula counter space.
- Split receptacles installed along the wall of kitchen counter works surfaces shall be fed with 3-wire cables. No more than two split receptacles shall be connected to a 3-wire circuit. No other outlets shall be connected to these circuits. A two pole 15 amp breaker is required for split receptacles (not an option within 1.5 m of the sink).
- All 15 and 20 amp receptacles located within 1.5 m (5 ft.) of any sink must be ground fault protected. Exceptions are receptacles installed behind and intended for stationary appliances like fridges, microwaves, washing machines, etc.
- Receptacles in bathrooms must be ground fault protected and located within 1 m (3 ft.) of any one wash basin and switches shall not be less than 500 mm (19½ in.) from a tub or shower (must be GFCI protected within 1 m).
- All 15 and 20 amp receptacles must be arc fault protected. Some exceptions are bathroom and kitchen counters, kitchen only fridge receptacles, and sump pump receptacles with a single receptacle.
- All 15 and 20 amp receptacles must be tamper resistant. Some exceptions are receptacles rendered inaccessible and located above 2 m from the floor.
- Outdoor receptacles must be installed on a separate circuit, but more than one can be on the same circuit. They must be arc fault and ground fault protected and require wet location covers marked for extra duty.
- At least one receptacle shall be installed on a balcony or porch that is not classified as a finished room.

## Circuits

- The maximum breaker size for general purpose circuits needs to be sized to coincide with breaker, wiring, and end device (plug, switch or light fixture).
- A maximum of 12 outlets is permitted on 15 amp circuits and 16 outlets on 20 amp circuits for general purpose circuits.
- Separate circuits are required for the following: refrigerators, receptacles in a laundry room, microwaves installed in a wall cabinet/shelf, outdoor receptacles, furnace and central vacuum systems. Some other loads may require a separate circuit.
- At least one separate circuit is required for a garage and at least one receptacle for each car space and overhead door opener.
- Smoke and carbon monoxide detectors are required to be installed on every floor, including smoke detectors in each bedroom that are all interconnected electronically. They need to be installed on a general lighting circuit and not on an arc fault or ground fault circuit.

## Other

- When designing the basement or renovating existing areas, panel boards shall not be located in closets, bathrooms, or undesirable locations.
- An identified conductor (neutral) is required at any switch location, or wireless switching is an option.
- Furnace switch must be brought down to an accessible height and located between the furnace and the exit.
- Recessed lighting fixtures shall not be installed in insulated ceilings unless the fixtures are designed and approved for such installations (i.e., marked with “suitable for use with thermal insulation” or “IC rated”).

This document is intended as a resource for homeowners within the City of Lethbridge who are qualified to perform residential electrical work themselves. It does not permit someone who is not a certified journeyman electrician to perform residential electrical work on their own. If you have questions about homeowner electrical permits, contact Planning & Design.