



# CITY OF PORTAGE

## BUILDING DEPARTMENT

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## ELECTRICAL GUIDE FOR HOMEOWNERS ACCORDING TO 2003 IRC W / INDIANA AMENDMENTS

### SERVICE:

Minimum is 100 amp 3 wire #4 copper or #2 aluminum wire in 1-1/2" or 2" conduit with minimum clearances of 3 feet horizontally from a window or door and 10 feet vertically from a walking surface.

Service distribution panel boards may not be located in closets or bathrooms and circuits must be clearly marked.

Service neutral must be identified in the panel and at the meter.

Underground services must be 2 1/2" pipe.

### GROUNDING:

Neutral at distribution panel must be bonded to:

- A. An 8ft. driven ground. (NIPSCO Standard ER-1-220-B)
- B. Street side of water system.
- C. Service neutral.

Grounding bushings must be used on service conduit.

If system is bonded to the water pipe, a bond around the water meter must be made.

Bonding of gas line to water pipe shall be made.

Minimum size bonding wire is #8 copper bare wire for 100-amp service and #4 copper for 200-amp service.

Each connection must have an approved ground clamp and bonding clamps.

### BRANCH CIRCUITS:

Minimum wire size shall be #14 wire on a 15-amp breaker and #12 wire on a 20-amp breaker.

Kitchen counter tops must have a minimum of two (2) 20-amp branch circuits.

Kitchen counter space outlets shall be installed at each wall counter space 12 inches or wider. Receptacle outlets shall be installed so that no point along the wall line is more than 24 inches, measured horizontally from a receptacle outlet in that space.

Kitchen countertop islands must have at least one receptacle.

All receptacles in kitchen that serve counter spaces shall have ground-fault circuit-interrupter protection for personnel.

All receptacles installed on 15 and 20-ampere circuits shall be of the grounding type.

All receptacles installed in bathrooms must be ground-fault circuit-interrupter protected and on a separate 20-amp circuit.

In every kitchen, family room, living room, parlor, library, den, sunroom, bedroom and recreation room, receptacles shall be placed so no point shall be more than six (6) feet from an outlet.

Laundry, utility, and bar sink receptacles. All 125-volt, single-phase, 15 and 20 ampere receptacles that are located within 6 feet of the outside edge of a laundry, utility or wet bar sink shall have ground-fault circuit-interrupter protection for personnel.

A minimum of one (1) 20-amp dedicated branch circuit must be provided for the laundry area receptacles, including one (1) receptacle within 6 feet of the intended appliance location.

Bathroom. At least one wall receptacle outlet shall be located within 36 inches of the outside edge of each lavatory basin and all receptacles shall have ground-fault circuit-interrupter protection for personnel.

A ground-fault circuit-interrupter shall protect crawlspaces, garages, and outdoor receptacles. There shall be at least two outdoor receptacles, one in the front and one in the rear of the home and at least one receptacle in the basement and garage.

### **SWIMMING POOLS (2008 NEC):**

Receptacles that provide power for pool equipment must be located at least 10 feet from the inside of the pool wall or not less than 6 feet from the inside of the pool wall if the receptacle is a GFCI protected single twist-lock grounding type.

Not less than one GFCI protected 125V 15 or 20-ampere rated general purpose branch circuit receptacle must be located not less than 6 feet or more than 20 feet from the inside wall of the pool.

All receptacles located within 20 feet of the inside wall of a swimming pool must be ground-fault-circuit-interrupter protected.

An accessible equipment disconnect must be provided within site of direct-wired pool equipment and located not less than 5 feet from the inside wall of the pool.

Overhead service conductors within 10 feet of the pool wall must be not less than 22.5 feet above the pool.

Equipotential Bonding:

The perimeter surface, including unpaved surfaces, extending 3 feet beyond the pool wall, all metal parts of electrical pool equipment, all metal parts of the pool structure and accessories, all miscellaneous metal parts within 5 feet of the pool wall must be bonded with a minimum 8 AWG solid copper wire

### **LIGHTING:**

At least one wall switch controlled lighting outlet shall be installed in every habitable room, bathroom, stairway, attached garage, hallway and outdoor entrance.

At least one wall switch controlled lighting outlet shall be installed in the attic, under floor storage, utility room and basement where used for storage or equipment needing service.

A three-way switch is required at each floor level where difference is more than six (6) steps.

Cord connected fixtures, hanging fixtures, lighting track, pendants, and ceiling-suspended paddle fans shall not have any parts located within 3' horizontally and 8' vertically from the top of a bathtub rim or shower stall threshold.

### **GENERAL:**

Holes bored in studs, joists or rafters for wiring shall be located a minimum of 1-1/4 inches from the edge or protected with a nail guard plate.

A box must be installed at each conductor splice point, outlet, switch point or junction point and must be installed flush with any combustible finished surface or setback no more than 1/4 inch from a noncombustible surface.

There shall be a visible means of disconnect on furnace or air conditioner. Each shall be on a separate circuit.

Hallways of ten (10) feet or more in length shall have at least one outlet.

When a light is installed in a closet, a surface mounted or recessed incandescent fixture with a complete enclosed lamp or a fluorescent fixture is required. (NO BARE BULBS)

At least 6" of wire should be left at any outlet, junction or switch point.

Romex must have a bare wire for bonding.

Romex has to be strapped one foot from box and every 4-1/2 feet after that.

Conduit must be strapped three feet from box.

If ground system does not exist, polarized plugs or GFCI protected circuits must be employed. Where it is reasonable all outlets shall be removed from knob and tube and/or BX.

If water supply is a well, you must install a water ground, a driven ground and a well ground.

For maximum conductors, including grounds, in junction boxes - see TABLE.

Each internal clamp must be counted as one conductor.

TABLE:

7 #14 or 6 #12 wires in a 4"x1-1/2" octagonal box.

10 #14 or 9 #12 wires in a 4"x1-1/2" square box.

7 #14 or 6 #12 wires in a 3"x2"x2-3/4" box.

Hot tub or Jacuzzis circuits must be GFCI protected and the motor has to be accessible.

The required depth underground feeders must be buried is 24" for direct burial cable, 18" for approved non-metallic conduit and 6" for rigid metal conduit.

When interior alterations or additions occur, smoke alarms may be required to meet standards of new construction; interconnected and hard wired. (See: *SMOKE ALARMS*)

**This Guide contains abbreviated Code sections. All installations must comply with the current Indiana Electrical Code.**

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