

# Electrical Inspection Checklist for Single Family Dwellings

**This information intended for reference only, this is not considered a complete set of minimum requirements or replace the requirements of the National Electrical Code.**

**Based on the, 2023 National Electrical Code.**

## Permits and Inspections;

1. An electrical permit and electrical inspections are required for any electrical work associated with new construction, remodeling, replacement, or repair of electrical wiring, and equipment. "Electrical work" means the installation, altering, repairing, planning, or lay out of electrical wiring or equipment for light, heat, power or other purposes. Receptacle outlet replacement(s) in dwelling units requires an electrical permit and inspection. An electrical permit is required prior to the start of any of the described work above.
2. Whom can apply for a permit? A licensed, bonded and insured electrical contractor and their employees. When the electrical work is being performed by a homeowner, the HO then applies for the permit. In signing and submitting a permit application the HO is acknowledging that they own and occupy the home where the work will be performed and they personally and physically will perform all of the electrical work described on the permit application. HO's shall not obtain permits for another entity performing electrical work. (i.e. craigslist or handyman services not properly licensed)
3. Required Inspections; A rough-in inspection is required prior to insulation, sheet-rock, paneling, or other similar materials. Except for final connection to devices and luminaires, all ground and other wires in boxes must be spliced and "pigtailed" prior to the rough-in. Do not install devices such as receptacles or switches prior to the rough-in inspection being approved. Underground wiring must be inspected before the trench is backfilled. If wiring is concealed prior to the rough-in it is required

by code that those materials be removed to make the necessary inspection.

- A final inspection is required when the permitted electrical work is completed and ready to use.

## General Requirements;

1. **All** outlet boxes must be properly secured and remain accessible after work is completed. Junction boxes cannot be hidden behind sheetrock or other permanently installed finishes.
2. **All** 125v, 15 and 20a receptacles installed below 5 1/2 feet must be tamper resistant (TR) type receptacles.
3. Receptacles installed in wet locations or outdoors must be weather resistant (WR) type. The enclosure shall be weatherproof with a cord inserted ("in-use") and be marked "extra duty".
4. All Nonmetallic wiring (NM or Romex) shall be secured every 4 ½ feet. Cables ran through bore holes shall be considered supported. NM cable shall be secured within 12" of outlet boxes without internal cable clamps. All NM cable straps and connectors shall be approved for use with the type of wiring method used.
5. NM cable shall maintain a 1 ¼" clearance from the edge of any framing member or nail plates shall be installed.
6. All wiring used underground or exterior must be listed for wet locations. (i.e. UF cable or type THWN insulation). The interior of raceways installed outdoors or underground is considered a wet location.
7. Standard wiring and overcurrent protection sizes for NM cable; (14awg, 15a), (12awg, 20a), (10awg, 30a), (8awg, 40a), (6awg, 50a). THESE ARE BASED ON COPPER CONDUCTORS.
8. When replacing receptacles for anything such as color or not operational, the requirements of number 2 above and any area AFCI or GFCI protection is required must be met, where applicable.

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9. Box Fill, The number of conductors and devices to be contained within electrical boxes determines the box size. Nonmetallic boxes are marked with their capacity.

#### **AFCI Protection Requirements;**

1. All branch circuits supplying 125v, 15a or 20a outlets or devices in dwelling unit kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, laundry areas, closets, hallways, or similar areas shall be protected by a listed combination type AFCI device. AFCI protection is also required where branch circuits in the above locations are extended, modified, or replaced.
2. AFCI shall be installed in a **READILY ACCESSIBLE** location.
3. AFCI shall be installed at the branch circuit origination point or by other approved means.

#### **GFCI Protection Requirements;**

1. The GFCI shall be installed in a **READILY ACCESSIBLE** location. GFCI protection shall be provided for all 125v – 250v, receptacle outlets installed outdoors, indoor damp and wet locations, in boathouses , crawl spaces, basements (finished or unfinished), laundry areas, garages, accessory buildings, bathrooms, at kitchen countertops, and within 6' of the nearest inside edge of sinks and within 6' from the outside edge of bathtubs and shower stalls. GFCI protection is also required for any **lighting** outlets installed in crawl spaces.
2. GFCI protection shall be provided for outdoors outlets 125 -250v that are readily accessible. This includes HVAC and similar electrical equipment. *Exception; this does not include submersible well or sewer lift pump circuits.*
3. GFCI protection required for all dishwashers and sump pumps that are permanently installed or cord-and- plug connected.

4. Hydro-massage (Jacuzzi) tubs shall be supplied by an individual branch circuit and shall have GFCI protection. The equipment shall be accessible without damage to finishes. The receptacle shall be installed within 1' of the access into the equipment.
5. All outlets supplying 125 – 250v pools (pumps, lighting, covers) shall have GFCI protection.

#### **Kitchens; General, AFCI, and GFCI requirements apply.**

1. A minimum of 2, 20a small appliance circuits required. These circuits shall feed **only** countertop receptacles with the exception of refrigerator and gas supplied cooktops. No other loads shall be connected.
2. Receptacles shall not be mounted face up on countertops.
3. Fixed in place appliances require individual circuits if connected load is more than 50% of the circuit capacity. (I.e. microwaves, dishwashers, and disposals).
4. No point measured along the countertop shall be further than 2' from a receptacle. (I.e. receptacle spacing should not be more than 4'). Every section of countertop 12" or wider requires a minimum of 1 outlet.
5. Islands and Peninsular countertops; Provisions shall be provided to access the required appliance circuit, to install receptacle(s) in the future, if not installed at current time.
  - a. These are optional receptacle(s), these receptacle(s) are not allowed to be installed below the countertop surface.
  - b. Receptacle(s) shall be in a raised backsplash, or a pop-up type assembly listed for the purpose.

#### **Bath; general and GFCI requirements apply.**

1. At least 1 individual- 20a circuit is required for all bathroom receptacles.
2. At least one receptacle shall be within 3' of the basin and not more 12" below the basin or countertop.
3. AFCI protection as specified in the general requirements (#7) above, is not required in bathroom areas. GFCI requirements apply.

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4. Luminaires over bath and shower stalls need to be wet location rated/ listed.

**General Spaces; General, AFCI, and GFCI requirements apply.**

1. General spaces such as, living rooms, bedroom, dens, and finished basements etc., require an outlet layout measurement that no point along the wall shall be more 6' away (i.e. maximum spacing of 12' between outlets).
2. At least one switched lighting outlet must be installed in each room. This can be either a switched lighting fixture or switched receptacle.
3. The required outlets must be within 5 ½' of the floor to be considered a legal outlet.
4. Any wall space measuring 2' or larger requires a minimum at least one outlet.
5. Please see the general requirements for AFCI and GFCI protections required.
6. **All** 120-250v receptacles in **basements** require GFCI protection.
7. Each unfinished portion of basements require at least one receptacle outlet..

**Laundry areas; General, AFCI, and GFCI requirements apply.**

1. At least 1 individual- 20a circuit is required for the laundry area receptacles.
2. Please see the general requirements for AFCI and GFCI protections required.

**Garages; general and GFCI requirements apply.**

1. At least 1 individual – 20a circuit is required for the garage receptacles. This circuit shall have no other outlets attached with the exception of readily accessible outdoor receptacle outlets. At least one receptacle outlet shall be installed in each vehicle bay and not more than 5 ½' above the floor.
2. Lighting and receptacle outlets mounted above 5 ½' must be connected to a circuit other than the required in #1.
3. All receptacle outlets in the garage require GFCI protection, AFCI protection not required in the garage area.

4. These requirements apply to all attached garages and in each detached garages with electric power.

5. Service entrance doors require exterior illumination.

- Heating equipment requires an individual circuit. (i.e. furnace)
- All HVAC equipment requires a disconnect within sight of the equipment. Outdoor disconnects require the cover to be secured where live parts are accessible.
- All hardwired appliances require an accessible disconnect or lockable circuit breaker (i.e. built in ovens)
- PVC piping emerging from ground is required to have expansion type fittings installed.
- Services and feeders for residential dwelling units shall have an emergency outdoor disconnect installed when service equipment is new or replaced. Emergency disconnects shall be readily accessible and within sight of the structure. Any further questions for services contact the AHJ for further information.