
Residential Electrical Checklist

Residential Electrical Checklist, which reflects the 2021 edition of the International Residential Code and the NEC 2020 edition. Note: This document does not include all the code changes outlined in the 2021 IRC, the NEC 2020 or City Ordinances

This handout is intended to serve as a guide, not as a replacement for the codes. Licensed builders, owner-builders, and subcontractors are responsible for ensuring full compliance with the adopted codes and ordinances.

Rough-In Inspection: This is performed prior to installing sheetrock. The electrical is roughed in at this time. The meter base and outside disconnect are in place, as are the grounding rods.

- Job address shall be posted in a visible location. (R319.1)
- Permit and approved plans are on the site (R105.7, R106.1.1, R106.3.1)
- Permit information is correct (address, permit number, description of work, etc.) (R106.1.1)
- ComEd Requirements: Refer to the Blue Book by ComEd
- 2 1/2" Riser for 100 Amps. 3" Riser for over 100 amps

ELECTRICAL ROUGH-IN INSPECTION/CHECKLIST (EXTERIOR)

- A readily accessible Emergency Disconnect is required outside the nearest point of entrance of the service conductors and must be permanently marked. (E3601.8)
- All services supplying one- and two-family dwelling units shall be provided with a surge-protective device (SPD) installed in accordance with Sections E3606.5.1 through E3606.5.3
- A grounding electrode system is required at each structure served. Each electrode specified in section E3608 shall be bonded together to form the grounding electrode system. A minimum of 2 grounding electrodes is now required and shall not be less than 6 feet apart. (E3608, E3608.4)

- An intersystem bonding termination is required for Communication Systems, Cable, etc. (E3609.3)
- A receptacle is required on the front and back of each dwelling unit within 6'-6" of grade and on balconies, decks and porches that are accessible from inside the dwelling. (E3901.7)
- A 125-volt, shingle-phase, 15- or 20-ampere-rated receptacle outlet shall be installed at an accessible location on the same level and within 25 feet of the HVAC equipment (E3901.12)
- Fifteen- and 20-ampere, 125- and 250-volt nonlocking receptacles installed in wet locations shall be listed and so identified as weather-resistant type. (E4002.9)
- "In-use covers" are required for outlets located in "wet locations". (E4002.10)

ELECTRICAL ROUGH-IN (PANEL, BONDING, AND GROUNDING)

- The Panel is in place. The Service entrance must be run. Wiring must be run to all locations. (R109.1.2)
- Panel box locations must meet clearance (30 inches wide and 36 inches deep by 6'- 6" high) and cannot be located in a bathroom, clothes closet, or over the steps of a stairway. (E3405.5)
- All breakers installed in the panel with wiring properly terminated at the breakers and terminal bars. Minimum length of 6 inches of free conductor or at least 3 inches outside of openings/boxes (E3406.11.3)
- Ground Fault Circuit Interrupters (GFCI) required in all damp locations and in the following: bathrooms, garages, kitchen countertops, outdoors, crawlspaces, laundry rooms, kitchen dishwashers, unfinished basements and sinks. (E3902.1-3902.18)
- Arc-Fault Circuit-Interrupters (AFCI) required in all branch circuits that supply 120 volt, single-phase, 15 and 20 amp outlets installed in: kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms

sunrooms, recreation rooms, closets, hallways, laundry areas and similar rooms or areas. Areas of modified wiring over six feet (E3902.19-3902.21, E3902.21)

Raceways exposed to different temperatures. Where portions of a raceway or sleeve are known to be subject to different temperatures and where condensation is known to be a problem, shall be sealed with an approved material (E3802.7)

Bond all metal water pipes. (E3609.6)

Where interior metal water pipes are used as part of the grounding electrode system, the connection shall be located not more than 5 feet from the point of entry into the building. (E3611.4)

Bond each portion of a gas piping system that is likely to become energized. (G2411.1)

Where installed in or attached to a building or structure, metal piping systems, including gas piping capable of becoming energized, shall be bonded to the service equipment enclosure or one or more of the grounding electrodes used. The points of attachment of the bonding jumper(s) must be accessible. (E3609.7)

Smoke and Carbon Monoxide detector wiring must be installed and on their own circuit. Smoke Detectors are required inside each sleeping room, immediately outside the sleeping rooms and on each additional story including basements and habitable attics. Carbon Monoxide detectors shall be installed outside of each sleeping area within dwelling units that contain fuel-fired appliances or have attached garages. Where a fuel burning appliance is located within the bedroom or attached bathroom, a carbon monoxide alarm shall be installed within the bedroom. They must be hard wired, interconnected and have battery backup. Refer to manufacture's installation instructions for specific application but in general, the bottom edge must be located within 12 inches of the ceiling and 3 feet from any source of air movement (registers, ceiling fans, etc.). Note: Smoke/Carbon monoxide Detectors located in the bedrooms are required to be Arc-Fault Protected. (R314, R315, E3902.20, 12-14-2)

- Receptacle spacing on walls shall not be more than 12 feet apart, within 6 feet of a door and on any wall over 2 feet in length. (E3901.2.1)
- Fire detection. Rooms and areas within dwelling units, basements and attached garages in which ESS are installed shall be protected by smoke alarms in accordance with Section R314. A heat detector, listed and interconnected to the smoke alarms, shall be installed in locations within dwelling units and attached garages where smoke alarms cannot be installed based on their listing. (R328.7)
- A minimum of two 20-amp circuits are required in the kitchen, one in the laundry, and one for the bathrooms. All must be wired with #12 AWG wire size. (E3703)
- Ceiling outlet boxes used exclusively for lighting shall be capable of supporting a luminaire weighing up to 50 pounds. A luminaire that weighs more than 50 pounds shall be supported independently of the outlet box, unless the outlet box is listed and marked for the maximum weight to be supported. (E3905.6.2)
- Kitchen wall countertop 12 inches or wider shall have a receptacle (E3901.4.1). Receptacles shall be spaced per figures (E3901.4) and (E3901.4.1). Receptacle outlets for Island and peninsular countertops per (E3901.4.2)
- A four wire connection is required for stoves and dryers. (NEC 250.114(3), 250.140)
- Use UL listed fixtures as designed or tested. (Ceiling fans, wet and damp locations, recessed can lights, etc. (E4003.10)
- Luminaries in clothes closets must meet the required clearances from the fixture to the nearest point of storage space. Fixtures designed for incandescent bulbs must meet the required clearances for incandescent luminaries. Inserting a fluorescent bulb in an incandescent luminary will not reduce the clearances required. Incandescent luminaires with open or partially enclosed lamps and pendant luminaires or lamp-holders shall be prohibited. (E4003.12)

ELECTRICAL FINAL INSPECTION/CHECKLIST

- Smoke and Carbon Monoxide detectors shall be operable per the IRC and NFPA 72 & 720.
- Tamper Resistant Outlets are required in all 125 volt 15 and 20 amp receptacles in areas specified in Section (E3901.1, E4002.14)
- All switches, receptacles and junction boxes must have covers on them. Lighting fixtures must have operable bulbs in them. (E4004.1)
- Circuit board must be legibly marked. Unused opening effectively closed. Each disconnecting means shall be legibly marked to indicate its purpose. The marking shall have the durability to withstand the environment involved. (E3404.13, E3404.6)
- No contamination of electrical equipment. (Paint over-spray, insects, bird nests, etc.) (E3404.7)
- Circuit breakers must be sized to match wires. (E3702.14)
- Hydro-massage tub motors and GFCI's must be accessible. Access shall be provided to circulation pumps for Whirlpool Bathtubs in accordance with the Manufacturer's Installation Instructions. A copy is to be provided for the inspectors review on site. (P2720.1)
- Disconnects for dishwasher, waste disposal and trash compactors may be a chord and plug. (E4101.3)
- Disconnect for water heater and HVAC shall be at the unit. (E4101.5)
- A switch controlled lighting outlet is required in every habitable room, bath, hallway, stairway, attached garage, storage and appliances in attics or crawl spaces, basements and each exterior grade exit. (E3903)
- Bathtub or shower spaces cannot have switches, receptacles, pendent fixtures or ceiling fans. (E4003.11)