

## **RESIDENTIAL DWELLING CHECKLIST 2017 NEC (ELECTRICAL SERVICE/SUBPANEL)**

This checklist is a helpful guideline of common code requirements, but does not include all the requirements of the 2017 NEC.

\_\_\_ NEC 230.24(B) – Overhead service conductors rated 600V or less shall have a minimum clearance of 10 Feet from final grade or surface, 12 feet over residential driveways, and 18 feet over public alleys.

\_\_\_ NEC 230.9(A) – Open overhead service conductors shall have a clearance of not less than 3 ft. from windows designed to open, doors, porches, balconies, decks, stairs, or similar.

\_\_\_ NEC 300.5(D) – Underground service conductors buried 18 in. or more below grade, shall have their location identified by a warning ribbon in the trench placed at least 12” above the installation.

\_\_\_ NEC 300.5(D)(1)&(4) – Underground service conductors emerging from grade, where subject to physical damage, shall be installed in rigid metal conduit, intermediate metal conduit, or Schedule 80 PVC conduit above grade to the point of termination. Direct burial cables shall be protected by a raceway at least 18” below grade.

\_\_\_ Chapter 3 – Service raceway shall be securely fastened and supported per the wiring method used.

\_\_\_ NEC 300.7 – An approved material shall be used to seal raceways or sleeves passing from the exterior to the interior of a heated building to prevent condensation from entering service equipment.

\_\_\_ NEC 230.54(F) & (G) – Overhead service conductors shall be arranged so that water will not enter the service raceway.

\_\_\_ NEC 230.53 – Service raceways where exposed to weather shall be suitable for wet locations, and arranged to drain.

\_\_\_ NEC 300.4(G) – Conductors 4 AWG or larger entering an enclosure through a raceway shall be protected by a bushing.

\_\_\_ NEC 110.14(D) – A torqueing tool is required for equipment terminations that specify torque values on the equipment, or in the installation instructions.

\_\_\_ NEC 110.14 – Listed anti-oxidant compound shall be applied on aluminum conductor terminations unless manufacturer’s instructions state it is not required.

\_\_\_ NEC 230.70(A)(1) – The service disconnecting means shall be installed at a readily accessible location either outside a building, or inside nearest the point of entrance of the service conductors.

\_\_\_ NEC 230.70(A)(2) – The service disconnecting means shall not be located in a bathroom.

\_\_\_ NEC 240.24(D) & (E) – Overcurrent devices (breakers/fuses) shall not be located in bathrooms or clothes closets.

\_\_\_ NEC 240.4 – Conductors shall be protected against overcurrent in accordance with their ampacities specified in Table 310.15(B)(16) and 240.4(D). The maximum overcurrent current device (breaker/fuse) for most dwelling unit branch circuits is:

Fuse/Circuit Breaker	Copper (awg)	Aluminum (awg)
15 amp	14	-
20 amp	12	-
30 amp	10	8
40 amp	8	6
50 amp	6	4

\_\_\_ NEC 110.3(B) – Overcurrent devices shall be listed for the panelboard they are installed in.

\_\_\_ NEC 110.26(A) – The working space about electrical service panel/sub-panel shall be at least 3 ft. in front of the electrical panel. The width of the working space shall be 30” or greater, and the height of the space shall extend from the floor to 6 1/2 feet or the height of the panel, whichever is greater.

\_\_\_ NEC 110.26(E) – The space equal to the width and depth of the panel and extending from the floor to 6 feet above the panel is dedicated to the electrical installation. No piping, ducts, or other non-electrical equipment shall be located in this space.

\_\_\_ NEC 110.26(D) – Illumination shall be provided for the working space containing the electrical service/sub-panel.

\_\_\_ NEC 210.4(B) – A means shall be provided (handle tie/2-pole breaker) to simultaneously disconnect all ungrounded conductors of a multi-wire branch circuits at the point the branch circuit originates.

\_\_\_ NEC 200.2(B) – A grounded (neutral) conductor shall not depend on a connection through a metal panelboard enclosure.

\_\_\_ NEC 408.3(A)(2) – Barriers must be installed at service conductor terminations so no live parts are exposed when the main disconnect is turned off, with the exception of more than one service disconnect in a single enclosure.

\_\_\_ NEC 408.41 – Within the electrical panelboard, each grounded conductor shall terminate on an individual terminal.

\_\_\_ NEC 408.4 – Every circuit and circuit modification shall be legibly identified on the circuit directory as to its clear, evident, and specific purpose of use.

\_\_\_ NEC 408.7 & 110.12(A) – Unused openings for circuit breakers, and panelboard enclosure, shall be properly closed.

\_\_\_ NEC 250.50 – All grounding electrodes present at each building or structure shall be bonded together to form the grounding electrode system. Acceptable electrodes include metal underground water pipe, concrete encased electrode, a rod, pipe, or plate electrode, the metal frame of a building/structure, and a ground ring.

\_\_\_ NEC 250.50(exp.) – The concrete encased electrode, where present, on newly poured footings shall be connected to the grounding electrode system. The rebar in the footing shall be exposed if means have not been provided for this connection.

\_\_\_ NEC 250.53(D)(2) – Metal underground water pipe shall be supplemented with another acceptable electrode.

\_\_\_ Article 250.68(C) – The connection of the grounding electrode conductor to the metal water piping system shall be located within 5 ft. of the water services entrance to the building.

\_\_\_ NEC 250.53(D)(1) – A bonding jumper shall be installed around the utility water meter where removal of the water meter opens the grounding electrode path of the water piping system.

\_\_\_ NEC 250.53(A)(2) – A single rod, pipe, or plate electrode shall be supplemented with an additional acceptable electrode listed in this article (metal underground water pipe is not part of this list). If the single rod, pipe, or plate electrode has a resistance of 25 ohms to earth or less, a supplemental electrode is not required.

\_\_\_ NEC 250.66 – The grounding electrode conductor at each building or structure shall be sized to Table 250.66, except as permitted. A rod, pipe, or plate electrode shall not be required to be larger than a 6 AWG copper wire. A concrete encased electrode conductor shall not be required to be larger than a 4 AWG copper wire.

\_\_\_ NEC 250.64(C) – Grounding electrode conductors shall be installed in a continuous length without a splice, unless the splice is of the irreversible type.

\_\_\_ NEC 250.24(A)(1) – The grounding electrode conductor shall be connected to the terminal or buss to which the grounded service conductor is connected at the service disconnect, or connected to the equipment grounding buss where the properly sized main bonding jumper is installed between the grounded terminal conductor buss and the equipment grounding terminal buss.

\_\_\_ NEC 250.64(D) – When a building has 2 or more service disconnects in separate enclosures (i.e. Duplex, Triplex), either a separate grounding electrode conductor sized in accordance with 250.66 can be installed to each service disconnect, or the use of a common grounding electrode tap outside the service disconnect enclosures with all GEC conductors properly sized to 250.66 can be used.

\_\_\_ NEC 250.28 – A main bonding jumper shall be installed at the service disconnect enclosure, the main bonding jumper shall be a wire, bus, screw, or similar.

\_\_\_ NEC 250.92 – All metal enclosures and conduit systems containing service conductors shall be bonded together. Standard locknuts or bushings shall not be considered a means of bonding the service raceway to the enclosure.

\_\_\_ NEC 250.94 – An intersystem bonding terminal shall be provided at the service disconnect or metering equipment location external to the enclosure. The terminal shall consist of at least 3 open terminals for other system bonding only.

\_\_\_ NEC 250.24(A)(5) – Sub-panels shall maintain separation between the grounded (neutral) conductors and the non-current carrying metal parts of equipment/grounding conductors.

For further information, call the Electrical Inspector at 763-767-6567.