

COMMISSION ORDER NUMBER _____

A COMMISSION ORDER ESTABLISHING THE MINIMUM REGULATIONS GOVERNING THE DESIGN, INSTALLATION AND CONSTRUCTION OF ELECTRICAL SYSTEMS, BY PROVIDING REASONABLE SAFEGUARDS TO PROTECT THE PUBLIC HEALTH AGAINST THE HAZARDS OF INADEQUATE, DEFECTIVE OR UNSAFE ELECTRICAL INSTALLATIONS; KNOWN AS THE ELECTRICAL CODE OF BOONE COUNTY, MISSOURI.

BE IT ORDAINED BY THE COUNTY COMMISSION OF BOONE COUNTY, MISSOURI, AS FOLLOWS:

SECTION 1. ADOPTION OF THE ELECTRICAL CODE:

That a certain document, one (1) copy of which are on file in the office of Building Official of the Boone County Resource Management being marked and designated as "The National Electrical Code 2017", as published by the National Fire Protection Association, be and is hereby adopted as the Electrical Code of Boone County, Missouri for the control of buildings and structures as herein provided; and each and all of the regulations, provisions, penalties, conditions and terms of "The National Electrical Code 2017", are hereby referred to, adopted and made part hereof, as is more fully set out in this Ordinance, with the additions, insertions, deletions and changes as hereinafter prescribed.

SECTION 2. AMENDMENTS TO THE NATIONAL ELECTRICAL CODE 2017:

The National Electrical Code 2017 is amended by additions, deletions, and changes, including the changing of Articles, Sections, Sub-sections, and Subsection titles, and the addition of new Sections and new Sub-Sections reads as follows:

ADD:

90.10. Plans and specifications: Plans and specifications shall be required for all work involving commercial, industrial, multiple family and buildings used for purposes of public assembly, or as determined by the building official.

90.11. Violation penalties: Any person who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall install, alter or repair electrical wiring in violation of this Code or without a proper permit shall be guilty of a misdemeanor and punishable by fine, or by imprisonment, or by both as directed by a court of law. Each day that a violation continues shall be deemed a separate offense,

90.12. Means of appeal: The owner of a building or structure or any other person may appeal a decision of the building official. Application for appeal may be filed in the office of the Resource Management Department.

90.13. For the purposes of the Electrical Code, the board of appeals appointed under Section 113.1 of the ICC International Building Code/2018 (Boone County Building Code) as adopted, shall serve as the board of appeals for matters referred to it for consideration under the Electrical Code.

Article 100

Add:

Agriculture or Farming Activity: An agricultural activity shall be defined as the cultivating of the soil, producing of crops and the raising of animals for food or fiber and including horticulture, beekeeping, aquaculture, silviculture and forestry. Concentrated animal feeding operations must conform to the Missouri Department of Natural Resource's regulations pertaining to wastewater management and odor control. The raising and keeping of horses for any purpose other than the production of food and fiber is not considered agricultural activity.

Switch, Transfer: Change to read – An automatic or non-automatic device for transferring one or more load conductor connections from one power source to another. The transfer switch on activation shall disconnect all current carrying conductors to include the neutral to prevent back-feed to the utility for all multi-phase services as well as single phase services greater than 400A. Single phase services 400A and less are exempt from this requirement of breaking the neutral.

110.5. Delete in its entirety. Insert: Conductors. Conductors normally used to carry current shall be of copper unless otherwise provided for in this code. Where the conductor material is not specified, the sizes given in this code shall apply to copper conductors. Where other materials are used, the size shall be changed accordingly. Aluminum and copper-clad aluminum will be approved as outside feeders of 100 amperes or larger and must terminate nearest the point of entrance of the feeder; or as designed and recommended by a registered professional engineer or a registered architect.

(FPN) For aluminum and copper-clad aluminum conductors, see Sections 250.120 (B), 310-15.

210.8 Ground-Fault Circuit-Interrupter Protection for Personnel. (A) Dwelling Units. All 125-volt, single-phase, 15- and 20-ampere receptacles installed in the locations specified in 210.8(A)(1) through (10) shall have ground-fault circuit-interrupter protection for personnel.

Exception No. 1 to (2) Garages and accessory buildings. Receptacles in locations that are not readily accessible. (e.g., on the ceiling of a garage).

Exception No. 2 to (2) Garages and (5) Unfinished basements. A single receptacle or a duplex receptacle for two appliances located within dedicated space for each appliance that, in normal use, is not easily moved from one place to another and that is cord-and-plug connected in accordance with 400.7(A)(6), (A7), or (A8).

Add the following Exception to (3) Outdoors. GFCI receptacles located in exterior soffits and used for seasonal decorative lighting are not required to be readily accessible.

Exception to (7) Sinks. Where the receptacles are installed within 1.8 m (6 feet) of the outside edge of the sink.

(a) Receptacles installed for specific appliances such as clothes washers, refrigerators, garbage disposals, dishwashers, and microwave ovens shall not be required to be GFCI protected where located within 6 feet of laundry, utility, kitchen or wet bar sink in a dwelling.

(b) A duplex receptacle may be used for a single appliance provided the duplex receptacle is located behind the appliance which, in normal use, is not easily moved and the receptacle is not readily accessible for the use of power tools. This receptacle must be marked "not GFCI protected". Receptacles installed under the exceptions to 210.8 (A)(7) shall not be considered as meeting the requirements of 210.52 (G).

210.8(D) Kitchen Dishwasher Branch circuit. Delete this section

210.12 Arc-Fault Circuit-Interrupter Protection.

210.12 (A) Dwelling Units. All 120-volt, single phase, 15 – and 20 – ampere branch circuits supplying outlets installed in dwelling unit bedrooms and for smoke detectors shall be protected by a listed arc-fault circuit interrupter, combination-type installed to provide protection of the branch circuit. The rest of 210.12 (A) remains as stated.

Add the following Exception No. 4: Arc-Fault Circuit Interrupter Protection is not required in one and two-family dwellings which are regulated by the International Residential Code.

210.52 Dwelling Unit Receptacle Outlets (C) Countertops. Delete 2017 C (3) section and replace with 2014 C(3)

(3) Peninsular Countertop Spaces.

At least one receptacle outlet shall be installed at each peninsular countertop space with a long dimension of 600 mm (24 in.) or greater and a short dimension of 300 mm (12 in.) or greater. A peninsular countertop is measured from the connecting edge.

(5) Receptacle outlet location. Exception to (5): Delete the second sentence to the first paragraph that reads; "Receptacles mounted below a countertop in accordance with this exception shall not be located where the countertop extends more than 150mm (6 inches) beyond its support base." The rest of the section remains as stated. This deletion is to allow the placement of the receptacle no more than 12 inches below the countertop, and anywhere the countertop extends beyond its support base.

Add the following Exception to (E). (3): A receptacle is not required at an existing structure.

210.52 (G)(1) Receptacles in Garages. Delete first sentence, as follows: In each attached garage, and in each detached garage with electric power, the branch circuit supplying receptacles shall not supply outlets outside the garage." Retain second sentence: "At least one duplex receptacle shall be installed for each car space."

210.63 Heating, Air-conditioning, and Refrigeration Equipment Outlet: Existing exception to be shown as Exception No. 1: and add: Exception No. 2: Rooftop and exterior equipment on one- and two-family dwellings.

210.64 Electrical service areas. In other than 1- and 2-family dwellings, a 120-volt, 15- or 20-amp receptacles shall be required within 50-feet of the electrical service equipment. Add second sentence, as follows: "The receptacle shall be readily accessible and located within sight of the service equipment."

220.14.(J) Dwelling Occupancies: Delete "one-family, two-family" and add the following requirements for one- and two-family dwellings:

- (1) In one- and two-family dwellings, a 15-amp rated general purpose circuit shall be limited to a maximum of eight receptacle outlets or openings, or eight lighting outlets or openings, or any combination of receptacle outlets and lighting outlets totaling not more than eight.
- (2) In one- and two-family dwellings, a 20-amp rated general purpose circuit shall be limited to a maximum of ten receptacle outlets or openings, or ten lighting outlets or openings, or any combination of receptacle outlets and lighting outlets totaling not more than ten.
- (3) In one- and two-family dwellings, the small appliance circuits serving the kitchen countertop and similar areas, shall be limited to not more than two receptacle outlets or openings for the first two such circuits; the third and succeeding small appliance circuits shall be limited to not more than three receptacle outlets or openings per circuit.
- (4) In one- and two-family dwellings, the microwave receptacle outlet shall be a dedicated 20-amp rated circuit and shall share with no other outlets.

230.50 Protection Against Physical Damage. (B) (1) Service Entrance Cables (3) Schedule 40 rigid nonmetallic conduit or equivalent.

230.70(A)(1). Add: Inside the nearest point of entrance is defined as the first full stud space inside the structure.

250.50 Grounding Electrode System. All grounding electrodes as described in 250.52(A)(1) through (A)(7) that are present at each building or structure served shall be bonded together to form the grounding electrode system. Where none of these grounding electrodes exist, one or more of the grounding electrodes specified in 250.52(A)(4) through (A)(8) shall be installed and used, except where there exists a metal water pipe in contact with earth for 10 feet or more, for one- and two-family dwellings, a single grounding electrode as required by the serving electrical utility shall be permitted to fill the requirements of Article 250.50.

250.52(A)(3) Concrete-Encased Electrode—Add Exception: Buildings governed by the International Residential Code are exempt from the requirement that a concrete-encased electrode serve as part of the grounding electrode system.

250.53. Grounding Electrode System Installation. (A)(2) Supplemental Electrode Required. Delete.

300.5 Underground Installations: (D) protection from Damage: (3) Service conductors: Warning tape shall be installed a minimum of six (6) inches below grade and not less than twelve (12) inches above the electrical cables or conduit in all underground installations of 50 volts or more.

300.5 D (4) Enclosure and Raceway Damage: Enclosure and Raceway Damage: Remove electrical metallic tubing from the list of approved protection.

300.11 Securing and Supporting. (B)(2) Non-Fire Rated Assemblies: Add exception: One 3/4-inch raceway or smaller, with maximum conductor fill (for example, twelve #12 AWG), shall be permitted to be supported by the ceiling support wires.

314.23 (B)(1) Nails and Screws: Add last sentence to paragraph: "Screws may be installed through the interior sides of a nonmetallic box to mount or fasten the box in place regardless of its listing and labeling provided the heads of the screws are covered or coated with a nonmetallic material."

334.12 Uses Not Permitted. (A) Types NM, NMC and NMS. Types NM, NMC and NMS cables shall not be permitted as follows: Delete the following in its entirety: (2) "Exposed in dropped or suspended ceilings in other than one- and two-family and multi-family dwellings."

334.12 (B) types NM and NMS. Types NM and NMS cables shall not be used under the following conditions or in the following locations. Exception: Type NMS cable shall be permitted in wet or damp locations.

334.15 (B) Protection from Physical Damage: Where schedule 80 PVC is stated in paragraph, replace with schedule 40 PVC or better. Cable shall be protected from physical damage where necessary by rigid metal conduit, electrical metallic tubing, Schedule 40 PVC conduit or other approved means. Where passing through a floor, the cable shall be enclosed in rigid metal conduit, intermediate metal conduit, electrical metal tubing, Schedule 40 PVC conduit or other approved means extending at least 150 mm (6 inches) above the floor.

334.80 Ampacity. The ampacity of Types NM, NMC and NMS cable shall be determined in accordance with 310.15. The ampacity shall be in accordance with the 60 degrees C (143 degrees F) conductor temperature rating. The 90 degree C (194 degree F) rating shall be permitted to be used for ampacity derating purposes, provided the final derated ampacity does not exceed that for a 60 degree C (140 degree F) rated conductor. The ampacity of Types NM, NMC and NMS cable installed in cable tray shall be determined in accordance with 392.11.

Where more than two NM cables containing two or more current-carrying conductors are installed, without maintaining spacing between the cables, through the same opening in wood framing that is to be fire- or draft-stopped using thermal insulation, caulk or sealing foam. The allowable ampacity

of each conductor shall be adjusted in accordance with Table 310.15 (B)(3)(a). The rest of 334.80 is deleted in its entirety.

338.10 Uses Permitted. (B)(4)(a) Interior Installations. In addition, the provisions of this article, Type SE service-entrance cable, used for interior wiring, shall comply with the installation requirements of Part II of Article 334, excluding 334.80.

404.2.(C): Switches Controlling Lighting Loads: Delete.

404.9 Provisions for General-Use Snap Switches. (B) Grounding: Add exception 4: In one- and two-family dwellings, switches mounted to non-metallic boxes with non-metallic face plates shall not be required to be effectively grounded.

404.10 Mounting of Snap Switches. (B) Box Mounted. Add last sentence to paragraph, as follows: "The requirement for machine-threaded screws shall not apply to plastic outlet boxes."

406.4 General Installation requirements. (D) Replacements. Add exception: Soffit receptacles and/or lighting.

406.5 Receptacle Mounting. Add last sentence to first paragraph. "The requirement for Machine-threaded screws shall not apply to plastic outlet boxes."

406.9 Receptacles in Damp or Wet Locations

(A) Damp locations. A receptacle installed outdoors in a location protected from the weather or in other damp locations shall have an enclosure for the receptacle that is weatherproof when the receptacle is covered (attachment plug cap not inserted and receptacle covers closed.)

An installation suitable for wet locations shall also be considered suitable for damp locations.

A receptacle shall be considered to be in a location protected from weather where located under roofed open porches, canopies, marquees and the like, and will not be subjected to a beating rain or water run-off. The rest of 406.8 (A) is deleted in its entirety.

(B) Wet Location.

- 1) 15- and 20- ampere receptacles in wet locations. 15- and 20- ampere, 125- and 250- volt receptacles installed in a wet location shall have an enclosure that is weather-proof whether or not the attachment plug cap is inserted. Weatherproof "in-use or bubble" covers not required. The rest of 406.8 (B) is deleted in its entirety.

406.12 Tamper-Resistant Receptacles for Dwelling Units. Delete in its entirety. Delete "business offices and corridors from (5).

410.24 (B) Access to Boxes. Delete.

422.16 (B) Specific Appliances Amend (2) (6) The receptacle for a built-in dishwasher shall be permitted in the space adjacent to the space occupied by the dishwasher. The receptacle serving a

built-in dishwasher shall be permitted in the space occupied by the dishwasher unless mfg. instructions require the plug to be in an adjacent cabinet.

Add: (5) Storage-Type Water heaters. Storage-type water heaters shall be permitted to be cord-and-plug connected with a flexible cord rated at 30 amperes. Cord will not be required to be listed for this use.

440.14 Location. Add: Exception No 3: Cord-and-plug connected appliances.

Article 545. Manufactured Building.

ADD:

545.14. Release from liability: Due to the fact that the Boone County Resource Management is unable to properly inspect wiring, outlets, junction boxes, etc., in manufactured buildings, the owner is responsible for insuring, that all electrical components are in compliance with this code.

Article 550. Mobile Homes and Mobile Home Parks.

550.34. Release from liability: Due to the fact that the Boone County Resource Management is unable to properly inspect wiring, outlets, junction boxes, etc. in manufactured buildings, the owner is responsible for insuring, that all electrical components are in compliance with this code.

600.6 Disconnects. (A)(1): Change the wording of the first sentence as follows

"Disconnects for signs and for outline lighting systems shall be located at the point where the feeder or branch circuits(s) enters the sign enclosure or pole, and shall disconnect all ungrounded conductors where they enter the sign enclosure or pole."

680.43 Indoor Installations: Delete Exception No. 2.

680.74 Bonding: Delete the last sentence.