

BOONE COUNTY AMENDMENTS TO THE 2020 NEC

ARTICLE III. ELECTRICAL CODE

Sec. 18-56. Standards and specifications adopted.

(a) The county board hereby adopts the 2021 International Building Code, Appendix K, by the International Code Council and the 2020 National Electrical Code (NFPA 70), published by the National Fire Protection Association, except as provided in subsection (b) of this section.

(b) The county board hereby amends portions of the 2021 IBC, Appendix K and the National Electric Code (NFPA 70) with local amendments as contained in sections 18-57 and 18-58.

Sec. 18-57. Local amendments to the 2021 International Building Code Appendix K.

(a) Revise *Section 101.1* to read as follows:

1. Section 101.1 Title. These regulations shall be known as the Boone County Electrical Code – Administrative Provisions of Boone County, Illinois and shall be cited as such and will be referred to herein as ‘this code’.

(b) Revise *Section 102.1* to read as follows:

1. Section 102.1 Definitions. The following definitions shall be used in Chapter 1 to clarify terms.

i. Electrical contractor. Whenever the term “electrical contractor” is used, it shall mean any person, firm, or corporation undertaking the execution of electrical work or engaged in the business of installing or altering by contract electrical equipment for utilization of electricity, supplied for light, heat, or power, not including radio apparatus or equipment for wireless reception of sounds and signals, and not including apparatus, conductors and other equipment installed for or by public utilities, including common carriers, which are under jurisdiction of the Illinois Commerce Commission for use in their operation as public utilities; the term “electrical contractor” does not include employees employed by such contractor to do or supervise such work, nor does it include homeowners who do their own work in their own home.

ii. 102.1 Electrical equipment. Whenever the term “electrical equipment” is used, it shall mean conductors and equipment installed for the utilization of electricity supplied for light, heat, or power, but does not include radio apparatus or equipment for the wireless reception of sounds and signals, and does not include apparatus, conductors, and other equipment installed for or by public utilities, including common carriers which are under the jurisdiction of the Illinois Commerce commission for use in their operation as public utilities.

(c) Revise *Section 104.1* to read as follows:

1. Section 104.1 Work exempt from permit. Exemptions from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any laws or ordinances of this jurisdiction. *Permits* shall not be required for the following:

- i. Listed cord and plug connected temporary decorative lighting, provided they are not within tents requiring a permit.
- ii. Replacement of plug and switch receptacles, light fixtures and ceiling fans weighing less than 35 lbs. without changing box or wiring.
- iii. Repair or replacement of branch circuit overcurrent devices of the required capacity in the same location.
- iv. Temporary wiring for experimental purposes in suitable experimental testing laboratories.
- v. Electrical wiring, devices, appliances, apparatus or equipment operating at less than 25 volts and not capable of supplying more than 50 watts of energy.
- vi. Replacement of lamps or connection of portable electrical equipment to approved permanently installed receptacles.
- vii. Repair or replacement of interior or exterior wall and ceiling coverings (such as plaster, gypsum board or paneling), provided:
 - a. not more than 50% of coverings in a room are removed,
 - b. framing is not exposed to the extent where smoke alarms are required to be wired to the building's electrical system and be interconnected by section 907.2.10 of the *International Building Code*,
 - c. electrical systems are not being resized, rearranged or added to.
- viii. Ordinary repairs that do not include:
 - a. cutting away of any framing within a ceiling, floor, wall, partition or portion thereof,
 - b. removal or cutting of any structural beam or load bearing support,
 - c. removal or change of any required means of egress, or rearrangement of parts of a structure affecting means of egress requirements,
 - d. addition to, alteration of, replacement or relocation of any electrical wiring or other work affecting public health or general safety.

Exemption from the permit requirements of this code shall not be deemed to grant authorization for work to be done in violation of the provisions of this code or other laws or ordinances of this jurisdiction.

(d) Revise *Section 105.1* to read as follows:

1. Section 105.1. Application for electrical permit. Each application for an electrical permit shall be filed with the code official on a form furnished for that purpose and shall contain a general description of the proposed work and its location, the proposed occupancy of the building(s) and other information required by the code official.

(e) Revise *Section 105.2* to read as follows:

1. Section 105.2 Work commencing before permit issuance. When a permit is required by this code, and work is started or proceeded fees shall be in accordance with the Fee Schedule of Boone County Code of Ordinances.

Sec. 18-58. Local amendments to the 2020 National Electrical Code (NFPA 70).

(a) Revise *Section 210.8 (A)* to read as follows:

1. Section 210.8 Ground-Fault Circuit-Interrupter Protection for Personnel.

(A) Dwelling Units. All 125- volt receptacles installed in the locations specified in 210.8(A)(1) through (A)(11) and supplied by single-phase branch circuits rated 150 volts or less to ground shall have ground-fault circuit-interrupter protection for personnel.

(1) Bathrooms

(2) Garages and also accessory buildings that have a floor located at or below grade level not intended as habitable rooms and limited to storage areas, work areas, and areas of similar use

(3) Outdoors

Exception to (3): Receptacles that are not readily accessible and are supplied by a branch circuit dedicated to electric snow-melting, deicing, or pipeline and vessel heating equipment shall be permitted to be installed in accordance with 426.28 or 427.22, as applicable.

(4) Crawl spaces — at or below grade level

(5) Basements

Single outlets for sum pump and sewer ejector may be installed and are not required to have GFCI protection.

Exception to (5): A receptacle supplying only a permanently installed fire alarm or burglar alarm system shall not be required to have ground-fault circuit- interrupter protection.

Informational Note: See 760.41(B) and 760.121(B) for power supply requirements for fire alarm systems.

Receptacles installed under the exception to 210.8(A)(5) shall not be considered as meeting the requirements of 210.52(G).

(6) Kitchens — where the receptacles are installed to serve the countertop surfaces

(7) Sinks — where receptacles are installed within 1.8 m (6 ft) from the top inside edge of the bowl of the sink

(8) Boathouses

(9) Bathtubs or shower stalls — where receptacles are installed within 1.8 m (6 ft.) of the outside edge of the bathtub or shower stall

(10) Laundry areas

Exception to (1) through (3), (5) through (8), and (10): Listed locking support and mounting receptacles utilized in combination with compatible attachment fittings installed for the purpose of serving a ceiling luminaire or ceiling fan shall not be required to be ground-fault circuit-interrupter protected. If a general-purpose convenience receptacle is integral to the ceiling luminaire or ceiling fan, GFCI protection shall be provided.

(11) Indoor damp and wet locations

(b) Revise *Section 210.8 (B)* to read as follows:

1. Section 210.8 Ground-Fault Circuit-Interrupter Protection for Personnel.

(B) Other Than Dwelling Units. All 125-volt receptacles supplied by single-phase branch circuits rated 150 volts or less to ground, 50 amperes or less, and all receptacles supplied by three-phase branch circuits rated 150 volts or less to ground, 100 amperes or less, installed in the locations specified in 210.8(B)(1) through (B)(12) shall have ground-fault circuit-interrupter protection for personnel. (Remainder of article unchanged)

(c) Revise *Section 210.12* to read as follows:

1. Section 210.12 Arc-Fault Circuit-Interrupter Protection. (A) Dwelling Units. All 120-volt, single-phase, 15- and 20-ampere branch circuits supplying outlets or devices installed in dwelling unit or similar rooms or areas shall be protected by any of the means described in 210.12(A)(1) through (6): (Remainder of article unchanged)

(d) Revise *Section 210.19* to read as follows:

1. Section 210.19 Conductors—Minimum Ampacity and Size. (A) Branch Circuits Not More Than 600 Volts. (5) Microwave Circuits. The wiring used to supply power to a permanently

installed microwave oven shall consist of a dedicated circuit installed with 12 AWG or larger conductors.

(e) Revise *Section 210.52* to read as follows:

1. Section 210.52 Dwelling Unit Receptacle Outlets. (C) Countertops and Work Surfaces. (2) Island and Peninsular Countertops and Work Surfaces.

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.

(f) Revise *Section 210.70* to read as follows:

1. Section 210.70 Lighting Outlets Required. (A) Dwelling Units. (1) Habitable rooms. At least one lighting outlet controlled by a listed wall-mounted control device shall be installed in every habitable room, kitchen, and bathroom. The wall-mounted control device shall be located near an entrance to the room on a wall. The main lighting outlet in each room shall not be fed from the load side of a GFCI device. Unless 210.70(A)(1) Exception No. 1 is applied, provision shall be made in the wiring of each ceiling box of all habitable rooms (excluding dining rooms) for a luminaire to operate independently from a fan.

(g) Revise *Section 210.70* to read as follows:

1. Section 210.70 Lighting Outlets Required. (C) All Occupancies. For attics and underfloor spaces, utility rooms, and basements, at least one lighting outlet containing a switch or controlled by a wall switch or listed wall-mounted control device shall be installed where these spaces are used for storage or contain equipment requiring servicing. A point of control shall be at each entry that permits access to the attic and underfloor space, utility room, or basement. Where a lighting outlet is installed for equipment requiring service, the lighting outlet shall be installed at or near the equipment. The switches shall not be fed from the load side of a GFCI device.

(h) Revise *Section 230.11* to read as follows:

1. Section 230.11 Service Modifications. When any part of the service entrance equipment, branch circuit panel, or service conductor is replaced, modified, or required to be repaired, the service in its entirety must be installed to comply with the current codes. The main branch circuit panel shall be at least 16 spaces.

Exception: Replacement or addition of a branch-circuit overcurrent protective device.

(i) Revise *Section 230.43* to read as follows:

1. Section 230.43 Wiring Methods for 1000 Volts, Nominal, or Less. Service-entrance conductors and service laterals overhead shall be installed in accordance with the applicable requirements of this *Code* covering the type of wiring method used and shall be limited to rigid

metal conduit (RMC) or intermediate metal conduit (IMC). Electrical metallic tubing (EMT) may be used inside a building or structure.

(j) Revise *Section 230.67* to read as follows:

Article 230.67 Surge Protection shall be deleted.

(k) Revise *Section 230.70(A)(1)* to read as follows:

1. Section 230.70 General. (A) Location. (1) Readily Accessible Location. The service disconnecting means shall be installed at a readily accessible location, either outside of a building or structure, or inside at or within 5 feet of the meter enclosure.

(l) Revise *Section 250.52* to read as follows:

1. Section 250.52 Grounding electrodes. A concrete-encased electrode that complies with 250.52(A) (3) will be required in all new construction and shall be clearly marked for inspection. (Remainder of article unchanged)

(m) Revise *Section 250.53(A)(2)* to read as follows:

1. Section 250.53 Grounding Electrode System Installation. (A) Rod, Pipe, and Plate Electrodes. (2) Supplemental Electrode Required. A single rod, pipe, or plate electrode shall be supplemented by an additional electrode of a type specified in 250.52(A)(2) through (A)(8). The supplemental electrode shall be permitted to be bonded to one of the following:

- (1) Rod, pipe, or plate electrode
- (2) Grounding electrode conductor
- (3) Grounded service-entrance conductor
- (4) Nonflexible grounded service raceway
- (5) Any grounded service enclosure

(n) Revise *Section 300.1 (D)* to read as follows:

1. Section 300.1 Scope. (D) Mixed Use and Occupancy Buildings. The entire mixed use and occupancy building shall be wired by the most restrictive code.

(o) Revise *Section 300.5(D)(3)* to read as follows:

1. Section 300.5 Underground Installations. (D) Protection from Damage (3) Service Conductors. Underground service conductors shall be installed in galvanized or stainless steel rigid metal conduit (RMC) or intermediate metal conduit (IMC). Underground service conductors that are not subject to physical damage may be installed in Schedule 80 rigid electrical nonmetallic conduit (PVC), protected by galvanized or stainless steel rigid conduit (RMC) or intermediate metal conduit (IMC) to a minimum of 450 mm (18 inches) below grade. No exposed nonmetallic conduit shall be allowed. Underground service conductors that are not encased in concrete and that are buried 450 mm (18 inches) or more below grade shall have their location identified by a warning ribbon that is placed in the trench at least 300 mm (12 inches) above the underground installation.

(p) Revise *Section 300.11(A)(1)* to read as follows:

1. Section 300.11 Securing and Supporting. (A) Secured in Place. (1) Tie Wire. Tie wire shall not be allowed as a sole means of supporting or securing conduit or cable in above ground applications.

(q) Revise *Section 300.13(C)* to read as follows:

1. Section 300.13 Mechanical and Electrical Continuity--Conductors. (C) Multiple Conductors. A device designed to be used for switching or as a receptacle may not be used to provide electrical continuity to any circuit conductor.

(r) Revise *Section 300.13(D)* to read as follows:

1. Section 300.13 Mechanical and Electrical Continuity-Conductors. (D) Push-Type Clamping Devices. No push-type or clamp-type connections for splices or for terminating to devices will be allowed unless the wire connection is secured with a screw or crimping tool.

Exception 1: Disconnecting means for ballasts.

Exception 2: Factory installed terminations in luminaires.

(s) Revise *Section 310.3(B)* to read as follows:

1. Section 310.3 Conductors. (B) Conductor Material. Conductors in this article shall be aluminum, copper-clad aluminum, or copper unless otherwise specified. Aluminum and copper-clad aluminum conductors shall be prohibited to be installed in sizes smaller than 4 AWG. Stranded aluminum conductors 4 AWG through 1000 kcmil marked as Type RHH, RHW, XHHW, THW, THHW, THWN, THHN, service-entrance Type SE Style U and SE Style R shall be made of an AA- 8000 series electrical grade aluminum alloy conductor material.

(t) Revise *Section 314.27(A)(2)* to read as follows:

1. Section 314.27 Outlet Boxes. (A) Boxes at Luminaire or Lampholder Outlets. (2) Ceiling Outlets. At every outlet used exclusively for lighting, the box shall be designed or installed so that a luminaire or lampholder may be attached. Boxes shall be required to support a luminaire weighing a minimum of 23 kg (50lb). A luminaire that weighs more than 23 kg (50lb) shall be supported independently of the outlet box, unless the outlet box is listed and marked on the interior of the box to indicate the maximum weight the box shall be permitted to support. In all habitable rooms with a ceiling fixture (other than recessed fixtures) in a location acceptable for a ceiling-suspended (paddle) fan in single-family, two-family or multi-family dwellings, a box rated for ceiling fan support shall be installed.

(u) Revise *Section 334.15(D)* to read as follows:

1. Section 334.15 Exposed Work. (D) All Unfinished Areas. Any exposed cable 7 feet (213.36cm) or closer to the floor must be protected with a durable building material or sleeved in an approved manner.

(v) Revise *Section 334.40(B)* to read as follows:

1. Section 334.40 Boxes and Fittings. (B) Devices of Insulating Material. Delete “and for repair wiring in existing buildings where the cable is concealed.”

(w) Revise *Section 406.9(2)(C)* to read as follows:

1. Section 406.9 Receptacles in Damp and Wet Locations. (2) Other Receptacles. (C) Bathtub and Shower Space. Receptacles shall not be installed within or directly over a bathtub or shower stall.

(x) Revise *Section 408.8* to read as follows:

1. Section 408.8 Reconditioning of Equipment. Reconditioning of equipment

(y) Revise *Section 408.54* to read as follows:

1. Section 408.54 Maximum Number of Overcurrent Devices. A panelboard shall be provided with physical means to prevent the installation of more overcurrent devices than that number for which the panelboard was designed, rated, and listed. Newly installed panelboards shall not have tandem breakers or similar breakers.

For the purposes of this section, a 2-pole circuit breaker or fusible switch shall be considered two overcurrent devices; a 3-pole circuit breaker or fusible switch shall be considered three overcurrent devices.

(z) Revise *Section 410.36(B)* to read as follows:

1. Section 410.36 Means of Support. (B) Suspended Ceilings. Framing members of suspended ceiling systems used to support luminaires shall be securely fastened to each other and shall be securely attached to the building structure at appropriate intervals. Luminaires smaller than 610 mm by 610 mm (24 inches by 24 inches) shall be securely fastened to the ceiling framing member by mechanical means such as bolts, screws, or rivets. Listed clips identified for the use with the type of ceiling framing member(s) and luminaire(s) shall also be permitted. Fixtures 610 mm by 610 mm (24 inches by 24 inches) or larger shall be supported independently of the ceiling grid by at least two wires on opposite corners of the fixture. The same size (or larger) wire used to support the ceiling system shall be used to support the fixture, but in no case shall the wire size be smaller than size No. 12 AWG steel.

(aa) Revise *Section 690.13* to read as follows:

1. Section 690.13. Photovoltaic System Disconnecting Means. (E) Type of Disconnect. The PV system disconnecting means shall simultaneously disconnect the PV system conductors that are not solidly grounded from all conductors of other wiring systems. The PV system disconnecting means or its remote operating device or the enclosure providing access to the disconnecting means shall be capable of being locked in accordance with 110.25. The PV system disconnecting means shall be one of the following:

- (1) A manually operable switch or circuit breaker
- (2) A pull-out switch with the required interrupting rating
- (3) A remote-controlled switch or circuit breaker that is operable locally and opens automatically when control power is interrupted

(bb) Revise *Section 705.11 (D)* to read as follows:

1. Section 705.11 Supply-Side Source Connections. (D) Connections. The connection of power source output circuit conductors to the service conductors shall be made using listed connectors as described in 110.14 and comply with all enclosure fill requirements. Any modifications to existing equipment shall be made in accordance with the manufacturer's instructions or the modification must be evaluated for the application and have a field label applied. For meter socket enclosures or other equipment under the exclusive control of the electric utility, only connections approved by the electric utility shall be permitted. No more than one tap per conductor.

(cc) Revise *Section 705.20* to read as follows:

1. Section 705.20 Disconnecting Means, Source. Means shall be provided to disconnect power source output circuit conductors of electric power production equipment from conductors of other systems.

The disconnecting means shall comply with the following:

- (1) Be one of the following types:
 - (a) A manually operable switch or circuit breaker
 - (b) A load-break-rated pull-out switch
 - (c) A power-operated or remote-controlled switch or circuit breaker that is manually operable locally and opens automatically when control power is interrupted
- (2) Simultaneously disconnect all ungrounded conductors of the circuit

- (3) Located where readily accessible
- (4) Externally operable without exposed live parts
- (5) Enclosures with doors or hinged covers with exposed live parts when open that require a tool to open or are lockable where readily accessible to unqualified persons
- (6) Plainly indicate whether in the open (off) or closed (on) position
- (7) Have ratings sufficient for the maximum circuit current, available fault current, and voltage that is available at the terminals
- (8) Be marked in accordance with the warning in 690.13(B), where the line and load terminals are capable of being energized in the open position

Secs. 18-59—18-80. Reserved.