

Tennessee Electrical Rule Changes Beginning October 1, 2018

All areas under authority of state deputy electrical inspectors shall be inspected per the 2017 National Electrical Code with these additional new amendments:

- Field marking of available fault current shall be optional
- Arc Fault Circuit Interrupters (AFCI) shall be optional for bathrooms, laundry areas, garages, branch circuits dedicated to supplying refrigeration equipment, and unfinished basements which are portions or areas of the basement not intended as habitable rooms and limited to storage, work or similar type area.
- Permits and inspections will now be required for all electric signs.
- Light fixtures in dwelling unit crawlspaces shall have guarded covers.
- For residential and commercial buildings, electrical power shall be supplied to the building in order for the inspector to perform final inspection.
- The allowable phase-to-phase voltage in boat yard and pier distribution systems of one thousand (1000) volts or less may be exceeded if written documentation approving the increase is submitted by a state licensed engineer.

The following state amendments have been repealed and will no longer be enforced. Future installations shall comply with the adopted electrical code:

- Fixture location in clothes closets twenty eight inches or less in depth.
- Maximum number of outlets allowed on dwelling unit branch circuits.
- Optional use of listed weather-resistant 15 or 20 amp receptacles installed outdoors.

City of Knoxville Electrical Code Proposed Changes

- Replace all references to 2011 National Electrical Code with 2017.
- Remove reference to electric fences in 10.52(1). Electric fence requirements and restrictions are more fully covered by city ordinance Article 4, Section 19-100.
- Add "1000 volts or greater" in section 10.52(4) to the list of systems requiring sealed plans. To require a design professional for PV systems that are now allowed up to 1500 volts output.
- Revise 10.52(13)(A) "In Any Occupancy" to read "In Any Unsprinklered Occupancy". This will permit the use of NM and NMC cable in newer buildings with an approved automatic sprinkler system while still providing equivalent protection for buildings constructed before 2002 that have not yet been retrofitted with sprinklers.
- Revise 10.52(13)(B)(1) to read "Dwellings which are located within the same building with a designated commercial use where NM cable is prohibited by the National Electrical Code." To clarify that NM cable is not permitted in mixed-use buildings unless all occupancies within the building are allowed by code to be wired in that manner.
- Remove 10.52(15)-*Fire alarms and smoke detectors*. Smoke alarms and fire alarm systems will be regulated by the appropriate building code.

Significant 2014 and 2017 National Electrical Code Changes

General

110.26(E)(2)(a)&(b) – Dedicated and working clearance space requirements extended to outdoor equipment.

110.14 - A properly calibrated tool must be used when torquing terminal connections.

210.4 - The conductor grouping requirements for multi-wire branch circuits now mirror similar rules for grounded (neutral) conductors contained in 200.4(B).

230.10 – Trees are no longer allowed to support service equipment.

250.80, 250.86 - Metallic items that aren't required to be bonded for underground service, feeder, or branch circuit raceways has been expanded.

250.118 – The allowance for using flexible metal conduit as an equipment ground path is now restricted to 1-1/4" or smaller.

Chapter 3 – Type AC, MC NM, NMC, TC, SE, USE, and UF cables and fittings must now be listed. Also, cable ties used for securing and supporting must be listed.

314.25 – Clarification - Drywall screws not permitted for installing devices or covers.

406.3(F) – Receptacles with integral USB chargers shall be listed.

406.6(D) – Receptacle faceplates with built-in nightlights or usb chargers shall be listed.

406.5(E) – Prohibition of face-up receptacles expanded to all occupancies.

406.9(B)(1), 590.4(D)(2) – In-use covers on all receptacles in wet locations will now need "extra-duty" type covers.

422.5 – GFCI devices for all appliances must now be readily accessible.

Article 555 - Marinas, Boatyards, and Commercial and Noncommercial Docking Facilities. Title and scope has been changed to include residential boat docks.

555.3 – Ground fault protection of supply to marinas, boatyards, and docking facilities has been reduced to 30 mA.

555.24 – New warning sign requirement for boatdocks and marinas.

590.4(J) – Temporary branch circuits and feeders cannot be laid on the floor or ground.

625.40 – Each outlet installed for recharging electric vehicles shall be supplied by an individual branch circuit.

Residential

210.8(A)(7) – GFCI protection expanded to include all receptacles within 6 ft of dwelling kitchen sinks.

210.8(A)(9) – GFCI protection now required for receptacles within 6 ft of dwelling tubs and showers.

210.8(A)(10) – GFCI protection now required for dwelling laundry area receptacles.

210.8(D) – GFCI protection now required for dishwashers in dwellings.

210.8(E) – GFCI protection now required for lighting in crawl spaces.

210.12 – AFCI devices must now be readily accessible.

210.12(A),(B),(C) – AFCI protection expanded to include outlets and devices in kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, and hallways of dwelling units, dormitory units, and guest rooms or guest suites in hotels and motels.

210.11(C)(4),210.52(G)(1) – Dwelling garages must have a separate 20 amp branch circuit with at least one receptacle for each car space.

Table 310.15(B)(7) has been removed. New rules apply for sizing single-phase dwelling service and feeder conductors.

406.4(D) – AFCI and GFCI replacement receptacles must be in readily accessible locations.

406.12 – All 15 and 20 amp, 125 and 250 volt nonlocking-type receptacles in dwelling units and mobile or manufactured homes shall be listed tamper-resistant.

422.16 – Receptacles for built-in dishwashers shall be located in the space adjacent to the space where the dishwasher is located. The receptacle shall be accessible.

Commercial

110.26(C)(3) – Requirement for panic hardware on personnel doors lowered from 1200A to 800A.

210.8(B) – GFCI protection has been expanded to include all single-phase receptacles rated 150 volts to ground, 50 amps or less and three-phase receptacles rated 150 volts to ground, 100 amps or less in areas listed in Other Than Dwelling Units.

210.13 – New GFPE requirement for branch circuits 1000A or more and over 150V to ground.

210.64 – Receptacle now required within 50 ft of all service equipment. 1 and 2 family excluded.

210.71 – New requirements for receptacle locations in meeting rooms in other than dwelling units.


220.12 – New exception for calculating lighting loads when design complies with energy code.

230.82(3) – Meter disconnect switches must be labeled “METER DISCONNECT – NOT SERVICE EQUIPMENT”.

250.30(A)(4) – The requirement to use structural metal or water piping as the grounding electrode for separately-derived systems was removed. They are now required to be bonded to the building grounding electrode system.

300.22(C)(1) – Nonmetallic cable ties in Other Spaces Used For Environmental Air (Plenums) must be listed as having low smoke and heat release properties. ANSI/UL 2043-2008

Article 393 – New article for low-voltage suspended ceiling power distribution systems.

406.3(E) – New marking requirement for receptacles controlled for energy management or building automation.  Controlled

406.12 – All 15 and 20 amp, 125 and 250 volt nonlocking-type receptacles installed in guest rooms and guest suites of hotels and motels, child care facilities, preschool and elementary education facilities, business offices, corridors, waiting rooms and the like in clinics, medical and dental offices and outpatient facilities, gymnasiums, skating rinks, auditoriums, and dormitories shall be listed tamper-resistant.

410.6 – Luminaire retrofit kits must now be listed.

410.10(F) – Luminaires must also be no less than 1 ½ in. below metal roof decking.

422.5 – Public tire inflation and auto vacuum machines now need GFCI protection.

422.5 – GFCI protection for cord-and-plug connected high-pressure spray washers expanded to 250V and 60A or less.

424.66 – New working space requirements for duct heaters. See 110.26.

Article 424 -New part X for low-voltage fixed electric space heating equipment.

Article 425 – New article for fixed resistance and electrode industrial process heating equipment.

440.9 – Wire type grounding conductors required for rooftop AC units unless wired with rigid conduit.

450.10 – Grounding or bonding terminals cannot be installed on or over the transformer vent screen.

450.11 – Transformers can only be reverse wired if permitted in the manufacturer’s instructions.

511.3(C)&(D) – Two new tables added for area classification of commercial garage spaces.

511.18 – Underground wiring for commercial garages shall be installed in rigid steel or intermediate metal conduit. Other methods permitted if not less than 2’ deep below floor.

517.18(A) – New color and circuit marking requirements for receptacles supplied from the critical branch.

517.18(B) – Number of general care bed location receptacles increased from 4 to 8.

517.19(B) – Number of critical care bed location receptacles increased from 6 to 14.

517.19(C) – Operating rooms now need 36 receptacles with at least 12 on the normal branch or a critical branch from a different transfer switch, and connected to the reference grounding point.

600.6(A)(1) – There must be a disconnect at the point where the circuit enters the sign.

600.33 – New tables with permitted wire types for LED and other power-limited signs.

620.23 - The circuiting requirements for lighting and receptacles in the elevator equipment machine room/machinery space have been expanded.

Article 625, New Part IV - Wireless power transfer equipment for electric vehicles.

645.27 – All OCP devices in critical operations data systems must be selectively coordinated.

680.13 – Fountains must now also have a maintenance disconnecting means.

680.21(C) – All 120 through 240 volt, single-phase pool pump motors need GFCI protection regardless of amperage.

680.42(B) – Clarified equipotential bonding rules for Spas and Hot Tubs.

680.80 – A new Part VIII, covering electric pool lifts, has been added.

690.12 – New requirement for rapid shutdown of PV systems on buildings.

Article 691 – New article for large-scale photovoltaic electric power production facilities.

695.14 – EMT is now permitted for fire pump control wiring.

695.15 – Fire pump controllers must have a listed surge protector.

700.8 – New requirement for listed surge protective devices on all emergency system switchboards and panelboards.

700.10 – Raceways, enclosures, cables and receptacles supplied from an emergency system shall be distinctively marked to allow ready identification.

700.12(F), Exception & 700.19 – Emergency lighting cannot be part of a multi-wire branch circuit.

700.24 – Emergency luminaires and controls must be individually listed for emergency use.

700.32 – Selective coordination for emergency systems must be designed by an engineer.

Article 705 – New part IV for microgrid systems.

Article 706 – New article for energy storage systems.

Article 710 – New article for electric power production sources operating in stand-alone mode.

Article 712 – New article for direct current microgrids.

Article 728 – New article on fire-resistive cable systems.

Article 750 – New article on energy management systems.

760.24 – New support requirements for CI fire alarm cables.

820.47(A) – New separation requirements for underground coaxial cables from other systems.

830.24 – Nonmetallic cable ties must be listed as having low smoke and heat release properties.