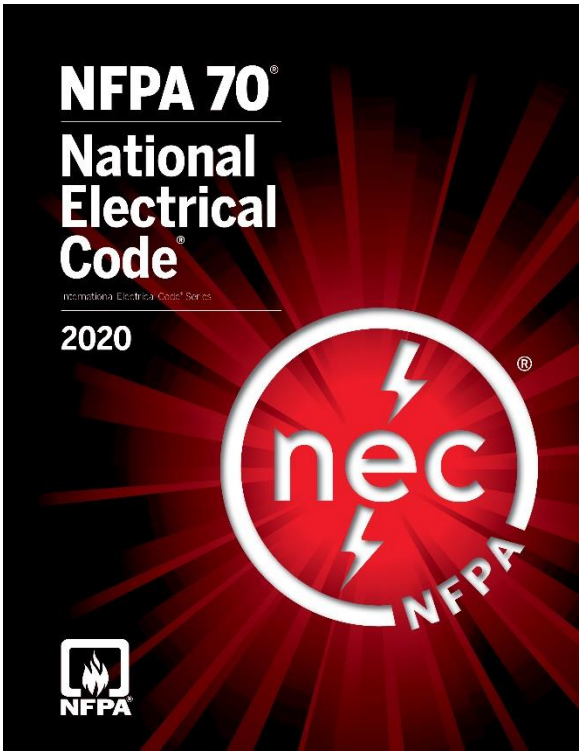
2020 NATIONAL ELECTRIC CODE SIGNIFICANT CHANGES



The State of Texas adopted the 2020 Edition of the National Electric Code (NEC) in 2021, making it mandatory State-wide. The City of McKinney will formally adopt the 2020 NEC into ordinance, with amendments, January 1, 2023. The following are significant changes to the NEC and its proposed amendments. The amendments are available through the North Central Texas Council of Govts (NCTCOG).

- **250.109 – Metal Enclosures**
  - **Revision:** Metal enclosures are permitted to be used to connect bonding jumpers or equipment grounding conductors, or both, together to become a part of an effective ground-fault current path. This includes attached metal covers and metal fittings. The metal race way is allowed as a ground fault path without a ground wire being required.

- **300.4(G) – Protection Against Physical Damage - Fittings**
  - **Revision:** Listed metal fittings with smoothly rounded edges were added as options for protection of ways to protect wires 4 AWG and larger entering boxes, enclosures or raceways.

- **300.15(F) – Boxes, Conduit Bodies, or Fittings – Where Required – Fittings**
  - **Revision:** Revisions occurred to make it clear that listed transition fittings and listed interconnector devices are permitted to be installed in concealed locations behind drywall and similar locations if listed for the application.

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- **310.10(B&C) – Uses Permitted – Dry and Damp Locations, Wet Locations**
  - **Revision:** Type XHHN, XHWN, and XHWN-2 were added to the "Uses Permitted" locations and ampacity tables base on the appropriate temperature ratings.

- **312.8(B) – Power Monitoring or Energy Management Equipment**
  - **Revision:** The Term "Energy Management Equipment" added to equipment permitted within the wiring space of enclosures for switches or overcurrent devices along with power monitoring equipment. New list item 3 was added for conductors used exclusively for control or instrumentation circuits. Total fill of the space cannot exceed 75%

- **334.2 – Nonmetallic Sheathed Cable**
  - **Deletion:** All references to Type NMS cable has been deleted from Article 334 as this cable construction is no longer manufactured

- **344.10(A) - Uses Permitted, Atmospheric Conditions and Occupancies – Galvanized Steel, Stainless Steel, and Red Brass RMC**
  - **Revision:** Revised to clarify that red brass RMLC is not restricted to just underground or swimming pool applications.

- **392.46 – Bushed Conduit and Tubing - Cable Trays**
  - **Addition:** Individual conductors and multi-conductor cables transitioning from a cable tray to raceways or openings associated with flanges entering enclosures is a compliant application. Approved use of bushed nonflexible conduits or tubing or opening connecting the cable tray system directly to the equipment.

- **Table 402.3 – Fixture wires**
  - **Revision:** A new type of heat-resistant rubber-covered fixture wire (FFHH-2) was added to the Table 402.3. Table now contains (33) different types of insulated fixture wires.

- **408.4(A) - Circuit Directory or Circuit Identification (amended by NCTCOG)**
  - **Revision:** Allows the circuit directory for a panelboard to be located in an "approved location adjacent" to the panelboard door. The section is amended to specify that the circuit directory must be permanently affixed.

- **408.8 - Reconditioning of Equipment - Switchboards, Switchgear, and Panelboards**
  - **Addition:** A new 408.8 was added to Article 408 to address reconditioning of switchboards, switchgear, and panelboards. Panelboards cannot be reconditioned while permission was granted to allow switchboard and switchgear to be reconditioned.

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- **410.2 & 410.16 - Definitions: Clothes Closet Storage Space and Luminaires in Clothes Closets**
  - **Revision:** The definition at 410.2 is now referred to as "Clothes Closet Storage Space." The word "clothes" was added in five different locations throughout 410.16 to specify the storage space described as a clothes storage space.

- **410.118 - Access to Other Boxes (amended by NCTCOG)**
  - **Amendment:** By code, recessed luminaires should not be used to access outlet, pull, or junction boxes. This amendment adds an exception for removable luminaires measuring at least 22 in. x 22 in.

- **422.31(B) – Appliances Rated over 300 Volt-Amperes (amended by NCTCOG)**
  - **Amendment:** Adds language that a branch circuit switch or circuit breaker used as a disconnecting means for a permanently installed appliance must be readily accessible to the appliance it serves and capable of being locked out. As an informational note, for this purpose “readily accessible” could include a permanent or pull-down stair (300 lb+ rated) or an access door.

- **425.22(B) - Fixed Resistance and Electrode Industrial Process Heating Equipment, Resistance Elements**
  - **Revision:** Resistance-type heating elements in fixed industrial process heating equipment are not permitted to be subdivided into circuits not exceeding 120 amps and protected a not more than 150 amps under certain conditions. Increase from 60 amps of protection to 150 amps and load max to 120amp.

- **501.10(A)(1) – Wiring Methods Class 1 Division 1**
  - **Revision:** Type TC-ER-HL cable and type P cable were added as two new wiring methods for Class 1 Division 1 locations. Wiring methods in Class 1 Division 1 locations are now open to 7 types of wiring methods.

- **511.12 – GFCI Protection at Commercial Garages and Storage Garages**
  - **Revision:** Points and aligns GFCI requirements of 210.8(B).

- **517.30(B)(3) - Source of Power (Health Care Facilities)**
  - **Revision:** Battery systems are now permitted to serve as the alternate source for all or part of an essential electrical system.

- **520.25(B) - Dimmers - Theaters ,TV Studios, etc.**
  - **Deletion:** Resistance and reactor-type dimmers for theatrical use have been deleted as a recognized dimmer option - will now cover only 2 types of dimmers.

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- **547.5(G) - Agricultural Building Receptacles**
  - **Revision:** Eliminates protection for receptacles rated 125 volt single phase 20 amps. protection only required for 125 volt 15 and 20 amp receptacles.

- **550.32(E) – Mobile Homes and Manufactured Homes - Additional Receptacles**
  - **Revision:** Clarifies that a receptacle providing power to a mobile or a manufactured home in accordance with 550.10 need not be provided with GFCI protection. Receptacles located outside a mobile or a manufactured home are required to be protected by 210.8(A).

- **551.71 - 551.71(F) Supply Receptacles for RVs and RV Parks**
  - **Revision:** Revision eliminates GFCI protection for receptacles rated above 125 volt single phase 20 amp. All receptacles rated 125 volt 15 and 20 amp are required to be protected. All 30 and 50 amp receptacles are not required to be protected.

- **590.4 - 590.4(G) Splices for Temporary Installations.**
  - **Addition:** Branch circuits that are permanently installed in framed walls and ceilings to be used in for temporary power or lighting (with GFCI protection). This will allow permanent wiring to be energized through the construction of a building for temp power and lights where needed.

- **600.5 – Required Branch Circuits (Sign)**
  - **Revision:** Expanded & clarified where sign circuits are NOT required. Provides better clarification and consistent enforcement.

- **600.35 – Retrofit Kits**
  - **Addition:** New requirements for listed & labeled retrofit kits for upgrades and repairs for signs and outline lighting. Listed & labeled parts are now required for sign upgrades, such as converting to LED lights.

- **605.1(B) – Not Covered (office furnishings)**
  - **Addition:** Clarified that items not connected to furnishing systems, such as chairs, free-standing desks, etc. Provides better clarification and consistent enforcement.

- **625 - Electric Vehicle Power Transfer System (various sections changed)**
  - **Revision:** Removed some of the equipment and construction requirements. New national standards were developed to address charging equipment and electric vehicles. Some of the NEC requirements no longer necessary. NEC references national standards.

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- **625.17(B)(2) - Output Cable to Electric Vehicle**
  - **Revision:** Allows and integral power cable in the charging station in lieu of one of the required cable types. New national standards for charging stations with integral power cables are now applicable.

- **625.44 – Equipment Connections**
  - **Revision:** Added additional types of 250 volt receptacles allowed to electric vehicle charging systems. New types of vehicles and charging equipment require different types of receptacles.

- **645.5(E)(2) – Under Raised Floors**
  - **Revision:** Added additional cable types allowed for use in raised floor systems where fire sprinklers are installed. Coordinates with other NFPA standards for cabling under raised floors.

- **680.11 - Underground Wiring**
  - **Revision:** Add additional wiring methods installed underground within 5 ft. of swimming pools. Liquid tight flexible conduit (metal and nonmetal) is now allowed underground within 5 ft. of pool wall.

- **680.23(B)(6) - Underwater Luminaires**
  - **Revision:** Wet niche fixtures in spas can now be serviced from inside the spa. Allows a shorter cord for the fixture as long as the spa is drainable, and the fixture can be serviced from the spa bench.

- **680.26(B)(2)(c) - Equipotential Bonding**
  - **Revision:** Now allows a copper bonding grid around pool perimeter ln lieu of bonding rebar or a copper 'ring'. If nor rebar is in pool decking, code now allows both a #8 CU bonding ring or bonding grid. The grid is #8 Cu @ 12" on center each way.

- **680.26(B)(5) – Metal fittings**
  - **Revision:** Exempts anchors for pool covers from the bonding requirement. Anchors that are not more than 1" diameter X 2" long can be embedded in pool deck without being bonded.

- **690.9(A) - Overcurrent Protection (PV Systems)**
  - **Revision:** Expanded the types of circuits where OCP can be eliminated. The 2017 NEC exception was expanded to include 3 subsections allowing OCP to be omitted. (1) No OCP required; (2) OCP can be omitted at 1 end of the circuit; and (3) Other circuit type OCP can be omitted from 1 or both ends.

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- **690.13(E) - Type of Disconnect**
  - **Revision:** Expanded the types of disconnects allowed for PV systems. Disconnects can be (1) manual switch or breaker; (2) a listed connector; (3) a pull out switch; (4) a remote controlled switch or breaker; or (5) other listed devices.

- **695.6 – Terminations**
  - **Revision:** Expanded the wiring methods that can terminate at a fire pump controller. Both raceways and cables are now permitted to terminate the pump controller, as long as they are listed for the use and follow the pump controller manufacturer's instructions.

- **695.6(A)(1) – Supply Conductors – Services and On-Site Power Production Facilities (amended by NCTCOG)**
  - **Amendment:** The amendment removes the exception that allowed conductors in the fire pump room to not comply with 230.6(1&2).

- **710.15(A) – Supply Outlet (amended by NCTCOG)**
  - **Amendment:** Clarified the language to simply read that power supply to premises wiring systems fed by stand-alone or isolated microgrid power sources shall have adequate capacity to meet the calculated load according to Article 220.

- **805.179(D) - Communication Wires and Cables (Communications Circuits)**
  - **Addition:** Provisions were added at 805.179 (D) to permit limited power (LP) cables to act as a substitute for Class 2 and Class 3 cables. The code did not specifically address limited power (LP) cables as a substitute for Class 2 and Class 3 cables.

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