

EXHIBIT "A"

City of Mansfield
Amendments to the
2023 National Electrical Code (NFPA 70)
North Central Texas Council of Governments Region

The following sections, paragraphs, and sentences of the *2023 National Electrical Code (NEC)* are hereby amended as follows: Standard type is text from the *NEC*. Underlined type is text inserted. ~~Strikeouts~~ indicate existing words and phrases to be deleted from the *NEC*. A double asterisk (**) at the beginning of an article identifies an amendment carried over from the 2017 edition of the code and a triple asterisk (***) identifies a new or revised amendment with the 2023 code.

****Article 100; add the following to definitions:**

Engineering Supervision. Supervision by a Qualified State of Texas Licensed Professional Engineer engaged primarily in the design or maintenance of electrical installations as referenced by TBPELS (a)(b) as acceptable by the AHJ.

(Reason for Change: To better define the qualifications for engineering supervision. This term is used twenty-nine times in the 2023 National Electrical Code.)

****Article 110.2; add the following sentence to Article 110.2 Approval, add exception and informational notes to read as follows:**

110.2 Approval. The conductors and equipment required or permitted by this Code shall be acceptable only if approved. Approval of equipment may be evident by listing and labeling of equipment by a Nationally Recognized Testing Lab (NRTL) with a certification mark of that laboratory or a field evaluation by a Field Evaluation Body accredited by either the International Code Council International Accreditation Service AC354 or ANSI National Accreditation Board programs and approved by the AHJ.

Exception: Unlisted equipment that is relocated to another location within a jurisdiction or is field modified is subject to the approval by the AHJ. This approval may be by a field evaluation by a NRTL or qualified third party inspection agency or a field evaluation by a Field Evaluation Body accredited by either the ICC IAS AC 354 or ANAB programs and approved by the AHJ.

Informational Note No. 1: See 90.7, Examination of Equipment for Safety, and 110.3, Examination, Identification, Installation, and Use of Equipment. See definitions of *Approved*, *Identified*, *Labeled*, and *Listed*.

Informational Note No. 2: Manufacturer's self-certification of equipment may not necessarily comply with U.S. product safety standards as certified by a Nationally Recognized Testing Lab (NRTL).

Informational Note No. 3: National Fire Protection Association (NFPA) 790 and 791 provide an example of an approved method for qualifying a third party inspection agency.

(Reason for Change: To add clarity and provide more positive options for enforcement and approval of unlisted equipment.)

*****Article 210.52 C 2 Island and Peninsular Countertops and Work Surfaces: Change the following to read as follows:**

A receptacle outlet is required to serve an island or peninsular countertop or work surface, and shall be installed in accordance with 210.52(C)(3) **

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***** New Article 220.7 Load Calculation; add the following:**

A load calculation shall be provided upon request when modifications to the electrical installation occur.

(REASON FOR CHANGE: to provide sufficient information as to the adequacy of existing conditions for the modifications proposed and substantiating the capacity of Power Production Systems used for Optional Standby/ Backup Use)

****Article 230.70 (A)(1); change to read as follows:**

230.70 (A)(1) Readily Accessible Location. The service disconnecting means shall be installed at a readily accessible location ~~either outside on the exterior of a new or existing buildings or structures or inside nearest the point of entrance of the service conductors~~ at a readily accessible location approved by the Building Official.

(Reason for Change: Carry over from previous amendments. To provide a means of disconnect for first responders in the event of an emergency.)

*****Article 230.85 C Emergency Disconnects: Change the following to read as follows:**

For one- and two-family dwelling units, an emergency disconnecting means shall be installed.

*****Article 408.4 Descriptions ~~Field Identification~~ Required; change to read as follows:**

408.4 Field Identification Required.

(A) Circuit Directory or Circuit Description Identification. Every circuit and circuit modification shall be provided with a legible and permanent description that complies with all of the following conditions as applicable:

- (1) Located at each switch or circuit breaker in a switchboard or switchgear
- (2) Included in a circuit directory that is located on the face of, inside of, or in an approved location adjacent and permanently affixed to the panel door in the case of a panelboard
- (3) Clear, evident, and specific to the purpose or use of each circuit including spare positions with an unused overcurrent device
- (4) Described with a degree of detail and clarity that is unlikely to result in confusion between circuits
- (5) Not dependent on transient conditions of occupancy
- (6) Clear in explaining abbreviations and symbols when used

Spare positions that contain unused overcurrent devices or switches shall be described accordingly.

(Reason for Change: To add clarity and provide more positive options for enforcement and approval.)

*****Article 410.118; add exception to read as follows:**

410.118 Access to Other Boxes. Luminaires recessed in ceilings, floors, or walls shall not be used to access outlet, pull or junction boxes or conduit bodies, unless the box or conduit body is an integral part of the listed luminaire.

Exception: Removable luminaires with a minimum measurement of 22 in. x 22 in. shall be permitted to be used as access to outlet, pull, junction boxes or conduit bodies.

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(Reason for Change: To add clarity and provide more positive options for enforcement and approval. This will allow access to boxes not integral with the luminaire. This measurement aligns with the limited access above a lay-in ceiling measurement in 110.26(A)(4).)

*****Article 422.31 (B); change to read as follows:**

422.31 (B) Appliances Rated over 300 Volt-Amperes. For permanently connected appliances rated over 300 volt-amperes, the branch-circuit switch or circuit breaker shall be permitted to serve as the disconnecting means where the switch or circuit breaker is within sight from and is readily accessible to the appliance it serves or is capable of being locked in the open position in compliance with 110.25 and is readily accessible to the appliance it serves.

Informational Note No. 1: For appliances employing unit switches, see 422.34.

Informational Note No. 2: The following means of access are considered to constitute readily accessible for this code change when conforming to the additional access requirements of the I-codes:

- (1) A permanent stair.
- (2) A pull down stair with a minimum 300 lb. (136 kg) capacity.
- (3) An access door from an upper floor level.

(Reason for Change: To add clarity and provide more positive options for enforcement and approval.)

****Article 500.8(A)(3); change to read as follows:**

500.8 Equipment. Articles 500 through 504 require equipment construction and installation standards that ensure safe performance under conditions of proper use and maintenance.

Informational Note No. 1: It is important that inspection authorities and users exercise more than ordinary care with regard to installation and maintenance.

Informational Note No. 2: Since there is no consistent relationship between explosion properties and ignition temperature, the two are independent requirements.

Informational Note No. 3: Low ambient conditions require special consideration. Explosion proof or dust-ignition proof equipment may not be suitable for use at temperatures lower than -25°C (-13°F) unless they are identified for low-temperature service. However, at low ambient temperatures, flammable concentrations of vapors may not exist in a location classified as Class I, Division 1 at normal ambient temperature.

(A) Suitability. Suitability of identified equipment shall be determined by one of the following:

- (1) Equipment listing or labeling;
- (2) Evidence of equipment evaluation from a qualified testing laboratory or inspection agency concerned with product evaluation; or,
- (3) Evidence acceptable to the authority having jurisdiction such as a manufacturer's self-evaluation or an ~~owner's~~ engineering judgment signed and sealed by a qualified licensed Professional Engineer in the State of Texas.

Informational Note: Additional documentation for equipment may include certificates demonstrating compliance with applicable equipment standards, indicating special conditions of use, and other pertinent information.

(Reason for Change: Carry over from previous amendment with change to better define the qualifications for an engineering judgment and rearrangement of the section.)

****Article 505.7 (A); change to read as follows:**

505.7 Special Precaution. ~~Article 505~~ This article requires equipment construction and installation that ensures safe performance under conditions of proper use and maintenance.

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Informational Note No. 1: It is important that inspection authorities and users exercise more than ordinary care with regard to the installation and maintenance of electrical equipment in hazardous (classified) locations.

Informational Note No. 2: ~~Low ambient conditions require special consideration.~~ Electrical equipment depending that is dependent on the protection techniques described by 505.8(A) may not be suitable for use at temperatures lower than -20°C (-4°F) unless they are identified for use at lower temperatures. ~~However, at~~ Low ambient conditions may require special consideration. At low ambient temperatures, flammable concentrations of vapors ~~may~~ might not exist in a location classified Class I, Zones 0, 1, or 2 at normal ambient temperature.

(A) Implementation of Zone Classification System. Classification of areas, engineering and design, selection of equipment and wiring methods, installation, and inspection shall be performed by a qualified persons licensed Professional Engineer in the State of Texas engaged primarily in the design or maintenance of electrical installations as referenced by TBPELS 137.59 (a)(b) as acceptable by the AHJ.

(B) Definition. GO TO TBPE LAW FOR THE DEFINITION OF AN ENGINEER

<https://pels.texas.gov/> <https://pels.texas.gov/downloads/lawrules.pdf>

(Reason for Change: Carry over from previous amendment with change to better define the qualifications for an engineering judgment. Code revision language included)

*****Article Article 695.3 (B) (2): Change to read as follows:**

695.3 Power Sources for Electric Motor-Driven Fire Pumps.

Electric motor-driven fire pumps shall have a reliable source of power.

- (2) **Individual Source and On-Site Standby Generator.** An approved combination of one or more of the sources in 695.3 (A) and an on-site standby generator complying with 695.3 (D).
- (a) **On-Site Standby Generator.** If an on-site standby generator is installed for facility operation, then the fire pump must have backup power as well.

(Reason for Change: To add safety considerations when building remains occupied after loss of primary power)

*****Article 695.6 (A)(1); change to read as follows:**

(A) Supply Conductors.

- (1) **Services and On-Site Power Production Facilities.** Service conductors and conductors supplied by on-site power production facilities shall be physically routed outside a building(s) and shall be installed as service-entrance conductors in accordance with 230.6, 230.9 and Parts III and IV of Article 230. Where supply conductors cannot be physically routed outside of buildings, the conductors shall be permitted to be routed through the building(s) where installed in accordance with 230.6(1) or (2).

Exception: ~~The supply conductors within the fire pump room shall not be required to meet 230.6 (1) or (2).~~

Informational Note: See 250.24 (C) for routing the grounded conductor to the service equipment.

(Reason for Change: To add clarity and provide more positive options for enforcement and approval. All fire pump rooms are not fire rated as on all 4 sides. There are fault currents that could exceed 150,000-190,000 amps and protection of these service conductors is essential and conflict with other codes specifically 230.70 (A)(1).)

*****Article 690.9 D: Change the following to read as follows:**

690.9(D) Transformers. Overcurrent protection for power transformers shall be installed in accordance with 705.30(F).

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~~Exception: A power transformer with a current rating on the side connected toward the interactive inverter output, not less than the rated continuous output current of the inverter, shall be permitted without overcurrent protection from the inverter.~~

(REASON FOR CHANGE: is that this removes the requirements for 240.21(C) for transformer secondaries when the inverter's 125% output is smaller than the transformer's rating.)

*****Article 705.8 System Installation: Change the following to read as follows:**

705.8 System Installation. Installation of one or more electrical power production sources operating in parallel with a primary source(s) of electricity shall be performed only by qualified persons. During the installation there shall be on site one of the following:

- (1) A person holding a Master Electrician License issued by the Texas Department of Licensing and Regulation.
- (2) A person holding a Journeyman Electrician License issued by the Texas Department of Licensing and Regulation.

~~(3) A person holding a Residential Wireman License issued by the Texas Department of Licensing and Regulation. Additionally this person must have formal training in interconnected electric power production sources. This training must be approved by the AHJ.~~

(REASON FOR CHANGE: These are specialized systems as evidenced by the Code, which contain installation requirements from chapter 6, Special Equipment and chapter 7 Special Conditions)

705.80 Power Source Capacity.

For interconnected power production sources that operate in island mode, capacity shall be calculated using the sum of all power source output maximum currents for the connected power production source. Solar photovoltaic (PV) and wind systems shall not be included in the sum capacity.

(REASON FOR CHANGE: to keep unreliable production sources out of the calculation as 705 creates conflicts with all standby systems.)

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