

**Exhibit A**  
**CITY OF FRISCO DELETIONS/ADDITIONS**  
**2023 NATIONAL ELECTRICAL CODE<sup>1</sup>**

The following deletions and additions to the 2023 National Electrical Code are hereby approved and adopted (*i.e.*, deletions evidenced by ~~strike through~~ and additions evidenced by underline)<sup>2</sup>:

**Chapter 1 General** of the 2023 National Electrical Code is amended as follows:

**Article 100 Definitions** of the 2023 National Electrical Code is amended as follows:

**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 137.59 (a) (b) as acceptable by the AHJ.

**Intersystem Bonding Termination.** A device that provides a means for connecting intersystem bonding conductors for communication systems and other systems such as metallic gas piping systems to the grounding electrode system. Also refer to Section G2411 Electrical Bonding in the 2021 International Residential Code, adopted by Frisco, as it currently exists or may be amended.

**Article 110 General Requirements for Electrical Installations** of the 2023 National Electrical Code is amended 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, a qualified third party inspection agency 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 approved by the AHJ.

**110.12 Mechanical Execution of Work.** Electrical equipment shall be installed in a professional and skillful manner.

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<sup>1</sup> Unless otherwise expressly provided herein, all phrases, words and/or terms used herein shall have the same meaning ascribed to the same in the 2023 National Electrical Code (regardless of whether such phrases, words and/or terms are italicized herein).

<sup>2</sup> Other italicized and bold notations are provided throughout for informational purposes only. By way of example only, “[*Paragraph remains unchanged.*]”.

**(B) Integrity of Electrical Equipment and Connections.** Internal parts of electrical equipment, including busbars, wiring terminals, insulators, and other surfaces, shall not be damaged or contaminated by foreign materials such as paint, plaster, cleaners, abrasives, or corrosive residues or influences, fire, products of combustion, or water. There shall be no damaged parts that may adversely affect safe operation or mechanical strength of the equipment such as parts that are broken; bent; cut; or deteriorated by corrosion, chemical action, or overheating. Except where prohibited elsewhere in this code, equipment shall be specifically evaluated by its manufacturer or a qualified testing laboratory prior to being returned to service.

**110.14 Electrical Connections.** *[Paragraph remains unchanged.]*

**(D) Terminal Connection Torque.** Tightening torque values for terminal connections shall be as indicated on equipment or in installation instructions provided by the manufacturer. An approved means shall be used to achieve the indicated torque value. The AHJ shall be provided with documentation of proper tightening torque of conductors to terminals used prior to energizing of equipment.

**Chapter 2 Wiring and Protection** of the 2023 National Electrical Code is amended as follows:

**Article 210 Branch Circuits** of the 2023 National Electrical Code is amended as follows:

**210.5 Identifications for Branch Circuits.** *[Paragraph Remains unchanged.]*

**(1) Branch Circuits Supplied from More Than One Nominal Voltage System.** *[Paragraph remains unchanged.]*

**(a) Means of Identification.** The means of identification shall be permitted to be by separate color coding, marking tape, tagging, or other approved means. For branch circuits and feeders supplying systems of 277/480V, the means of identification shall be by color of brown, orange, yellow, and gray. For branch circuits and feeders supplying systems of 120/208V, the means of identification shall be by color black, red, blue, and white.

**210.8 Ground-Fault Circuit-Interrupter Protection for Personnel.** *[Paragraph remains unchanged.]*

**(A) Dwelling Units.** *[Paragraph remains unchanged.]*

Exception No. 4:-Factory installed receptacles that are not readily accessible and are mounted to bathroom exhaust fan assemblies

shall not require GFCI protection unless required by the installation instruction or listing.

**210.52 Dwelling Unit Receptacle Outlets. [Paragraph remains unchanged.]**

**(3) Kitchen Receptacle Requirements. [Paragraph remains unchanged.]**

**(C) Countertops and Work Surfaces. [Paragraph remains unchanged.]**

**(2) Island and Peninsular Countertops and Work Surfaces.** Receptacle outlets, if installed to serve an island or peninsular countertop or work surface, shall be installed in accordance with 210.52 (C) (3). If a receptacle outlet is not provided to serve an island or peninsular countertop or work surface, ~~provisions shall be provided at the island or peninsula for a Chapter 3 method shall be installed and supplied from a small appliance circuit to a listed outlet box in the peninsular or island cabinet in an accessible location~~ future addition of a receptacle outlet to serve the island or peninsular countertop or work surface.

**210.63 Equipment Requiring Servicing. [Paragraph remains unchanged.]**

**(B) Other Electrical Equipment.** In other than one- and two-family dwellings, a receptacle outlet shall be located as specified in 210.63 (B) (1) and (B) (2).

**(2) Indoor Equipment Requiring Dedicated Equipment Spaces.**

Where equipment, other than service equipment, requires dedicated equipment space as specified in 110.26 (E), the required receptacle outlet shall be located within the same room or area as the electrical equipment, ~~and shall not be connected to the load side of the equipment's disconnecting means.~~

**Article 220 Branch-Circuit, Feeder, and Service Load Calculations** of the 2023 National Electrical Code is amended as follows:

**220.6 Load Calculations.** A load calculation shall be provided upon request when modifications to the electrical installation occurs.

**Article 230 Services** of the 2023 National Electrical Code is amended as follows:

**230.71 Maximum Number of Disconnects.**

**(A) General.** *[Paragraph remains unchanged.]*

Exception: In Multi-occupant buildings, individual service disconnecting means is limited to six for each occupant. The number of individual disconnects at one location may exceed six.

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

**(C) Replacement.** Where service equipment is replaced, all of the requirements of this section shall apply.

Exception: Where a pre-existing installation is code compliant with 230.70 A, only meter sockets, service entrance conductors, or related raceways and fittings are replaced, the requirements of this section shall not apply.

**Article 250 Grounding and Bonding** of the 2023 National Electrical Code is amended as follows:

**250.62 Grounding Electrode Conductor Material.** The grounding electrode conductor shall be of copper, ~~aluminum, copper clad aluminum, or items as permitted in 250.68(C).~~ The material selected shall be resistant to any corrosive condition existing at the installation or shall be protected against corrosion. Conductors of the wire type shall be solid or stranded, insulated, covered, or bare.

**250.118 Types of Equipment Grounding Conductors.** *[Paragraph remains unchanged.]*

(1) A copper, ~~aluminum, or copper clad aluminum~~ conductor. This conductor shall be solid or stranded; insulated, covered, or bare; and in the form of a wire or a bus bar of any shape. Use of aluminum cable assemblies of 1/0 and larger or aluminum buss bars are permitted.

~~(8) Armor of Type AC cable as provided in 320.108.~~

(15) All raceways and cable assemblies shall contain an insulated equipment grounding conductor per Table 250.66 and 250.122.

**Chapter 3 Wiring Methods and Materials** of the 2023 National Electrical Code is amended as follows:

**Article 300 General Requirements for Wiring Methods and Materials** of the 2023 National Electrical Code is amended as follows:

**300.1 Scope.**

**(A) All Wiring Installations.** This Article covers general requirements for wiring methods and materials for wiring installations unless modified by other articles in Chapter 3. All electrical conductors for occupancy classifications listed in the 2021 International Building Code of A, B, E, F, H, I, M, R-1, S, and U shall be installed in approved metallic conduits, or raceways, or other material approved by the Building Official regardless of type of construction.

### 300.11 Securing and Supporting.

**(B) Wiring Systems Installed Above Suspended Ceilings. [Paragraph remains unchanged.]**

Exception: Ceiling grid support wires may be used for structural supports when the associated wiring is located in that area. Not more than two raceways or cables supported per wire with a maximum nominal metric designation 16 (trade size ½”).

**Article 310 Conductors for General Wiring** of the 2023 National Electrical Code is amended as follows:

### 310.3 Conductors.

**(A) Minimum Size of Conductors.** The minimum size of conductors for voltage ratings up to and including 2000 volts shall be ~~14~~ 12 AWG copper ~~or 12 AWG aluminum or copper-clad aluminum~~, except for low voltage control circuits as permitted elsewhere in this code.

**(B) Conductor Material.** Conductors in this article shall be of copper, ~~aluminum, or copper-clad aluminum~~, or unless otherwise specified. Use of aluminum 1/0 and larger is allowed for multifamily and commercial use only. All grounding and bonding conductors shall be of copper and be sized per 250.66, 250.102 (C)(1) and 250.122. Refer to amendments in Article 250 for cable assemblies.

When permitted, ~~A~~aluminum and copper-clad aluminum shall comply with the following:

- ~~1. Solid aluminum conductors 8, 10, and 12 AWG shall be made of an AA-8000 series electrical grade aluminum alloy conductor material.~~
2. For Multifamily and commercial use only, ~~S~~stranded aluminum conductors ~~8 AWG~~ 1/0 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.

- 3. ~~For copper-clad aluminum conductors. The copper shall form a minimum of 10 percent of the cross-sectional area of a solid conductor for each strand of stranded conductor.~~
- 4. ~~Copper-clad aluminum conductor material shall be listed.~~

**Article 315 Medium Voltage Conductors, Cable, Cable Joints, and Cable Terminations** of the 2023 National Electrical Code is amended as follows:

**Table 315.12(A) Minimum Size of Conductors**

Conductor Voltage Rating (Volts)	Minimum Conductors Size (AWG)	
	<u>Copper</u>	<del>Copper</del> , Aluminum or Copper-Clad Aluminum ( <u>only feeders allowed</u> )
2001- 5000	<u>8</u>	<del>8</del> 1/0
5001 – 8000	<u>6</u>	<del>6</del> 1/0
8001 - 15000	<u>2</u>	<del>2</del> 1/0
15,001 - 28,000	<u>1</u>	<del>1</del> 1/0
28,001 - 35,000	<u>1/0</u>	1/0

**Chapter 4 Equipment for General Use** of the 2023 National Electrical Code is amended as follows:

**Article 408 Switchboards, Switchgears, and Panelboards** of the 2023 National Electrical code is amended as follows:

**408.4 Descriptions Required.**

**(A) Circuit Directory or Circuit Description.** 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. Inside of, or in an approved location adjacent and permanently affixed to the panel door in the case of a panelboard. [*Remainder Unchanged*]

**Article 410 Luminaires, Lampholders, and Lamps** of the 2023 National Electrical code is amended 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.

**Article 422 Appliances** of the 2023 National Electrical code is amended as follows:

**422.31 Disconnection of Permanently Connected Appliances.** For appliances that do not have a disconnecting means in accordance with 422.33 or 422.34, a disconnecting means shall be provided in accordance with 422.31(A), (B), or (C).

**(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 the appliance or be capable of being locked in the open position in compliance with 110.25 and is readily accessible to the appliance it serves.

The following means of access are considered to constitute as readily accessible for the purpose of this Article.

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.

**Chapter 5 Special Occupancies** of the 2023 National Electrical Code is amended as follows:

**Article 500 Hazardous (Classified) Locations, Classes I, II, and III, Divisions 1 and 2** of the 2023 National Electrical Code is amended as follows:

**500.8 Equipment.** *[Paragraph remains unchanged.]*

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

- (3) By special Performance only, ~~E~~ evidence acceptable to the authority having jurisdiction such as a manufacturer's self-evaluation or ~~an owner's engineering judgment.~~ an engineering judgment signed and sealed by a qualified licensed Professional Engineer in the State of Texas.

**Article 505 Zone 0, 1, and 2 Locations** of the 2023 National Electrical Code is amended as follows:

**505.7 Special Precaution. *[Paragraph remains unchanged.]***

**(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.

**Chapter 7 Special Conditions** of the 2023 National Electrical Code is amended as follows:

**Article 700 Emergency Systems** of the 2023 National Electrical Code is amended as follows:

**700.10 Wiring Systems.**

**(D) Fire Protection.**

**(1) Occupancies.** Emergency systems shall meet the additional requirements in 700.10 (D) (2) through (D) (4) in the following occupancies.

(2) Buildings above 23 m (~~75~~ 55 ft.) in height.

**Annex H Administration and Enforcement** of the 2023 National Electrical Code is amended as follows:

~~**80.15 Electrical Board.** *[Entire subsection deleted.]*~~

**80.19 Permits and Approvals.** *[Paragraph remains unchanged.]*

**(E) Fees.** *[Paragraph remains unchanged.]* The fees for electrical work shall be as established in Frisco's Comprehensive Master Fees Ordinance, as amended.

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