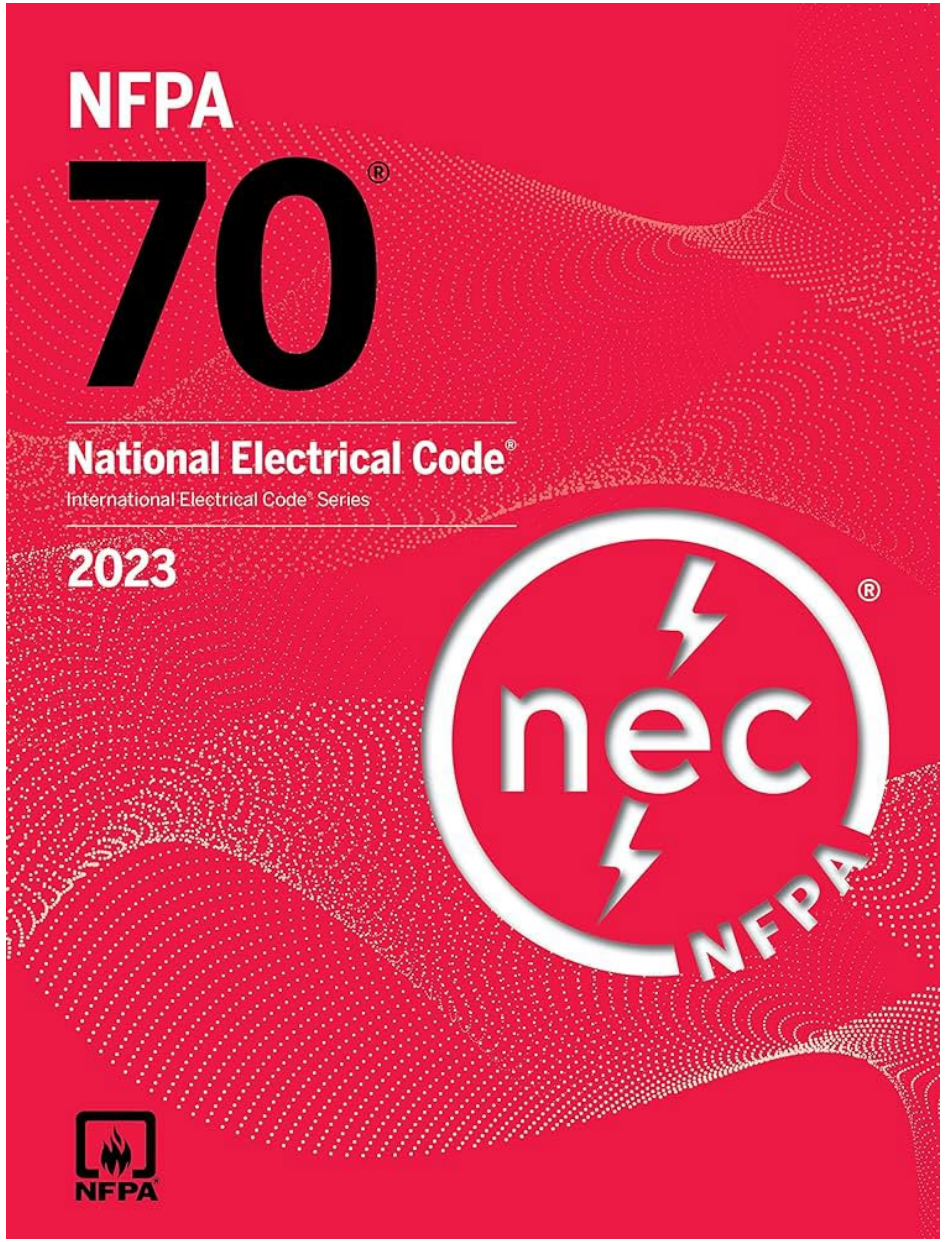
HOUSTON
PUBLIC WORKS

HOUSTON CONSTRUCTION CODE MODERNIZATION

SIGNIFICANT CODE CHANGES TO THE 2023 NATIONAL ELECTRICAL CODE (NEC)

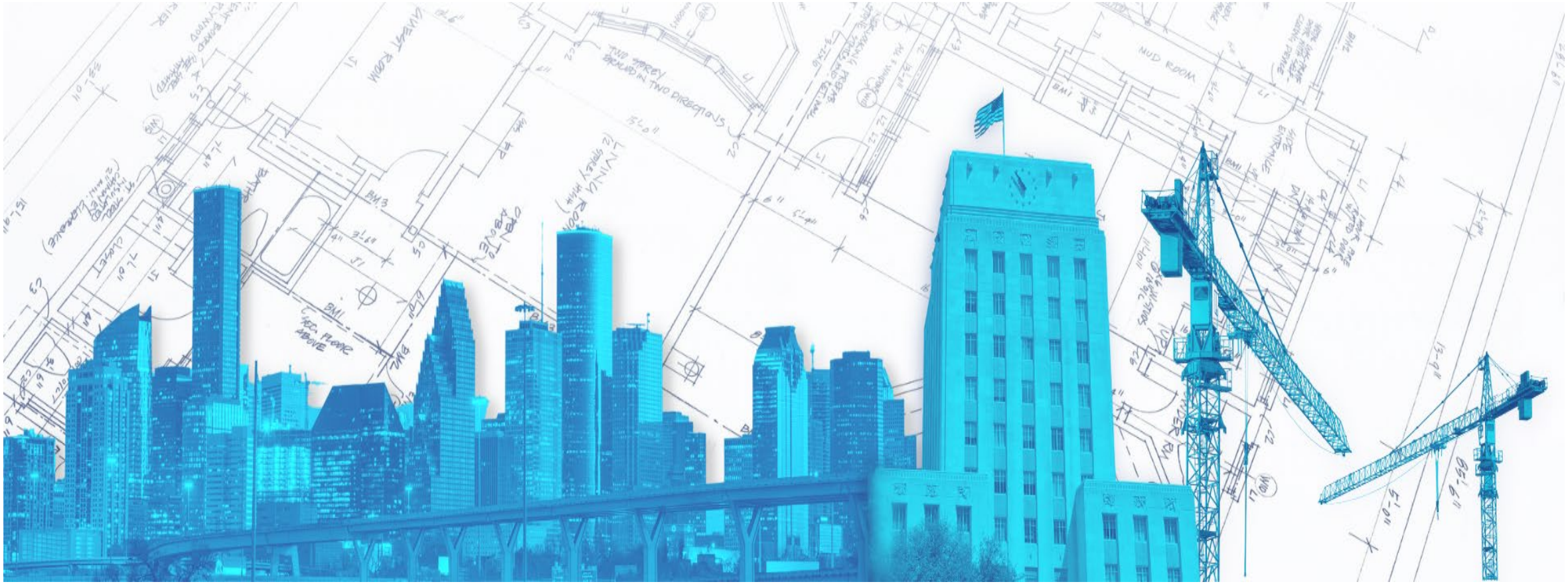


2023 NATIONAL ELECTRICAL CODE

Significant changes and highlights to base code requirements of the 2023 National Electrical Code

HOUSTON PUBLIC WORKS

CONSTRUCTION CODE MODERNIZATION
NEC CHAPTER 1



2023 NEC – SIGNIFICANT CHANGES

Code Section

Article 100

NEC Changes:

Definitions used to be located in each sub section, in XXX.2 for every article.

- **All definitions are now located in Article 100**
- **If a definition pertains to a specific Article, the Article number is in parenthesis next to the definition.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

General Requirements for Electrical Installations

Article 110

NEC Changes:

New Section 110.3

- **Cybersecurity is added to the standards for judging the safety and performance of electrical equipment.**

Section 110.26(A)(4) adds an egress element.

- **An egress path cannot be blocked.**
- **Where electrical equipment has open doors that blocks or reduces an egress path less to less than 24 inches wide or 78 inches high, the opening must be large enough to prevent the doors from blocking the path.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

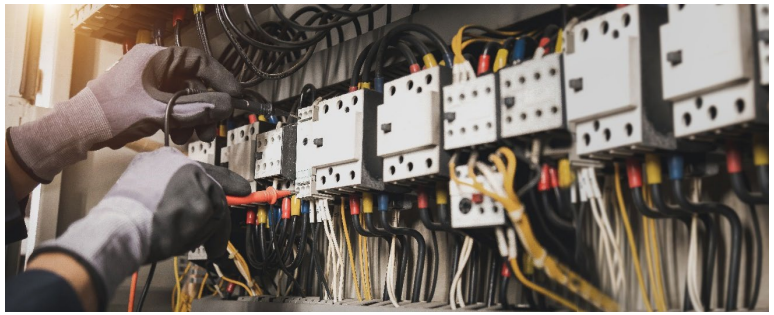
Servicing and Maintenance Equipment

Article 110.17

NEC Changes:

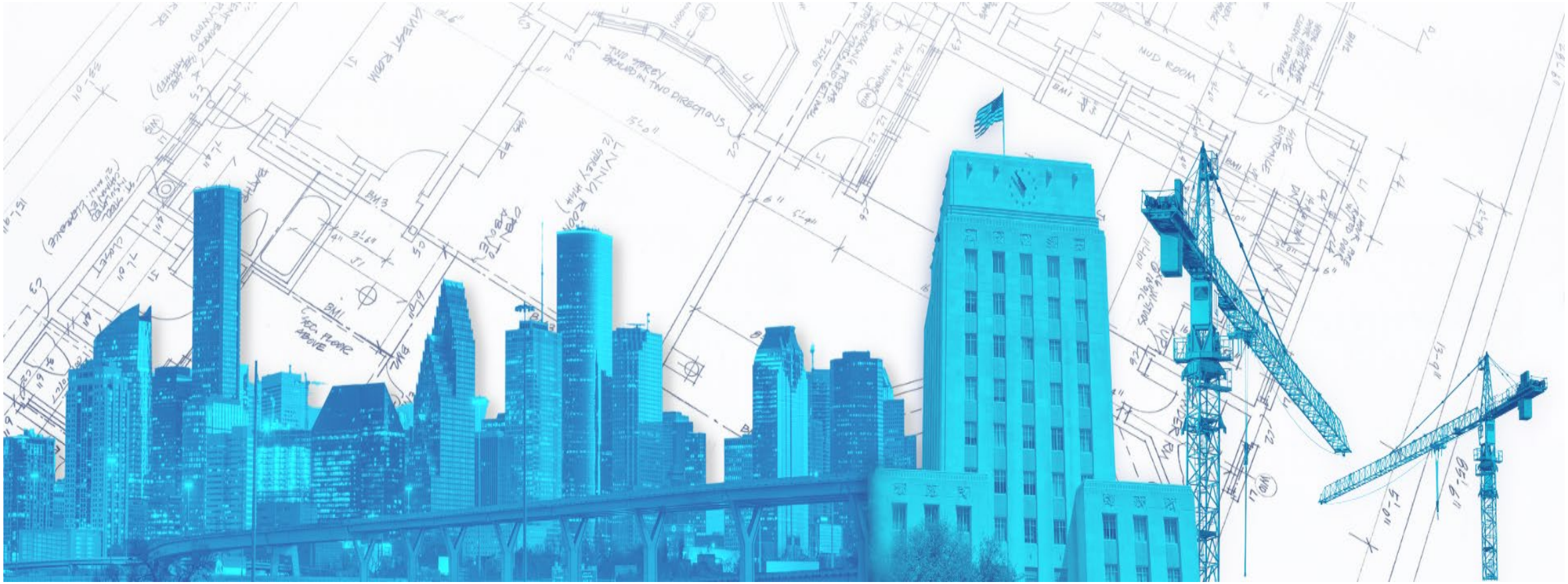
New Section to Article 110 in the 2023 NEC.

- **General requirement so it applies to all people who perform service and or maintenance.**
- **Maintenance work is required to be performed by qualified and trained individuals.**
- **All work must follow equipment listing requirements, manufacturer's requirements, applicable industry standards, or as required by an authority having jurisdiction (AHJ).**



HOUSTON PUBLIC WORKS

CONSTRUCTION CODE MODERNIZATION
NEC CHAPTER 2



2023 NEC – SIGNIFICANT CHANGES

Code Section

Branch Circuits not over 1000 Volts ac, 1500 Volts dc, Nominal

Article 210

NEC Changes:

Change to where GFCI protection is required.

- **Section 210.8(A)(7) requires all 125-250 volt receptacles located inside a kitchen (permanent food preparation) be installed with GFCI.**
- **The section in the 2020 edition required those outlets serving countertops be installed with GFCI.**
- **There is no longer any distance limits between the sink and the receptacles.**
- **Exception 4 states that if an internal receptacle is used for a bathroom fan, GFCI protection is not required unless specified by the manufacturer.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Branch Circuits not over 1000 Volts ac, 1500 Volts dc, Nominal

Article 210

NEC Changes:

Change to where GFCI protection is required (Continued).

- **Section 210.8(B) requires GFCI-protected receptacles in areas with sinks and permanent provisions for cooking or food and beverage preparation. Office break rooms, washrooms, etc., are required to have GFCI receptacles.**
- **Section 210.8(D) expands required GFCI protection to branch circuits or outlets of electric stoves or ranges including counter type unites, wall mounted ovens, and microwave oven appliances.**
- **Section 210.8(F) requires GFCI protection for outdoor outlets. The outlets are rated 50 amp or less and are required in in garages, boathouses, and accessory buildings.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Branch Circuits not over 1000 Volts ac, 1500 Volts dc, Nominal

Article 210

NEC Changes:

- **Section 210.12 contains modifications that state all AFCI shall be installed in accordance with 210.12(B) through (E) by any of the means described in 201.12(A)(1) through (A)(6). The AFCI shall be listed and installed in a readily accessible location.**
- **Section 210.12 C and D contains modifications to locations that require AFCI, including Dormitory Units, Hotel Guest Rooms, patient sleeping rooms in nursing homes and limited care facilities, and sleeping quarters in fire stations, police stations, ambulance stations, rescue stations, ranger stations, and similar locations.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Branch Circuits not over 1000 Volts ac, 1500 Volts dc, Nominal

Article 210

NEC Changes:

- **Section 210.17 has been edited to include: that branch circuits installed to meet the rules for dwelling units must be installed in hotels, motels, and assisted living facilities with permanent provisions for cooking.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Branch Circuits not over 1000 Volts ac, 1500 Volts dc, Nominal

Article 210

NEC Changes:

- **Change to Recognize 10 amp Branch Circuits.**
- **Section 210.23 provides guidance on where 10 amp circuits are permitted:**
  - Lighting outlets
  - Exhaust fans for dwelling units (bathrooms) and laundry lighting circuitry
  - Gas fireplaces on a dedicated circuit
- **The section in the 2020 edition required those outlets serving countertops be installed with GFCI.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Branch Circuits not over 1000 Volts ac, 1500 Volts dc, Nominal

Article 210

NEC Changes:

Change to not require outlets on kitchen islands or peninsulas.

- **Section 210.52(C)(2) has been changed.**
- **Receptacles are required to comply with Section 210.52(C)(2).**
- **If receptacles are not installed, provisions shall be provided for future addition.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Branch Circuits not over 1000 Volts ac, 1500 Volts dc, Nominal

Article 210

NEC Changes:

210.70 was modified to specify that the switch or wall mounted control device required in 210.70A, B, and C for lighting outlets shall not rely exclusively on battery unless a means is provided for automatically energizing the lighting outlets upon battery failure.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Feeders

Article 215

NEC Changes:

New Section 215.15

The placement of protective barriers are required so that no energized, uninsulated, underground busbar or terminal is exposed to inadvertent contact by persons or equipment supplied by feeder taps (Section 240.21) or transformer secondary conductors (Section 240.21(C)) when disconnecting . This can reduce hazards for maintenance workers during servicing or maintenance.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Feeders

Article 215

NEC Changes:

New Section 215.18

The installation of a surge protection device in is required for any feeders serving dwelling units, dormitory units, guest rooms and guest suites of hotels and motels, as well as patient sleeping rooms in nursing homes and limited care facilities.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Branch-Circuit, Feeder, and Service Load Calculations

Article 220

NEC Changes:

New Sections 220.61(B)(1) & (B)(2)

- **Unbalanced loads for electric ranges, wall-mounted ovens, counter-mounted cooking units, and dryers. Review unbalanced loads in accordance with Table 220.55 for ranges and Table 220.54 for dryers.**
- **See informative Annex D for unbalanced loads more than 200 amperes.**

New Section 220.70

- **The use of a digital energy management systems to limit the maximum current to a feeder or service in accordance with Section 750.30 is permitted to be used by the electrical system.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Outside Branch Circuits and Feeders

Article 225

NEC Changes:

New Section 225.41 Emergency Disconnects

- **For one and two-family dwelling units, an emergency disconnecting means shall be installed.**
- **See entire section for information related to the disconnects.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Services

Article 230

NEC Changes:

230.71 requires that each services shall have only one disconnecting means unless the requirements of 230.71B are met. Changes for 230.71B include adding exception number 5 and 6 which are:

5) Metering centers with a main service disconnecting means in each metering center

6) Motor control center(s) where there is only one service disconnect in a motor control center unit and a maximum of two service disconnects provided in a single motor control center with barriers provided between each motor control center unit or compartment containing a service disconnect to maintain the inadvertent contact protection required in 230.62

2023 NEC – SIGNIFICANT CHANGES

Code Section

Overcurrent Protection

Article 240

NEC Changes:

Article 240 prescribes overcurrent protection,

A new option for small conductors, 240.4D3 has been added to allow for 14 AWG Copper Clad Aluminum for 10 ampere provided that continuous loads do not exceed 8 amperes and overcurrent protection is provided by one of the following:

a. branch circuit rated circuit breakers are listed and marked for use with 14 AWG copper clad aluminum conductor

b. branch circuit rated fuses are listed and marked for use with 14 AWG copper clad aluminum conductor.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Overcurrent Protection

Article 240

NEC Changes:

Table 240.6(A) is new

240.6 Standard Ampere Ratings.

Δ **(A) Fuses and Fixed-Trip Circuit Breakers.** The standard ampere ratings for fuses and inverse time circuit breakers shall be considered as shown in Table 240.6(A). Additional standard ampere ratings for fuses shall be 1, 3, 6, and 601. The use of fuses and inverse time circuit breakers with nonstandard ampere ratings shall be permitted.

N **Table 240.6(A) Standard Ampere Ratings for Fuses and Inverse Time Circuit Breakers**

Standard Ampere Ratings				
10	15	20	25	30
35	40	45	50	60
70	80	90	100	110
125	150	175	200	225
250	300	350	400	450
500	600	700	800	1000
1200	1600	2000	2500	3000
4000	5000	6000	—	—

2023 NEC – SIGNIFICANT CHANGES

Code Section

Overcurrent Protection

Article 240

NEC Changes:

240.24 identifies locations where overcurrent protection shall be located. 240.24E has been amended to identify that overcurrent protection shall not be located in bathrooms, showering facilities, or locker rooms with showering facilities.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Overvoltage Protection

Article 242

NEC Changes:

242.9 is new, it requires that a surge protection device shall provide indication that it is functioning properly.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Grounding and Bonding

Article 250

NEC Changes:

250.64 provides options for installation of grounding electrode conductors. Option G is new.

250.64G Enclosures with Ventilation Openings. Grounding electrode conductors shall not be installed through a ventilation opening of an enclosure.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Grounding and Bonding

Article 250

NEC Changes:

250.140 is amended to allow for new and existing requirements for grounding the frame of ranges and clothes dryers. The circuit supplying the appliance shall include an equipment grounding conductor. The frame of the appliance shall be connected to the equipment grounding connector in accordance with 250.134 or 250.138.

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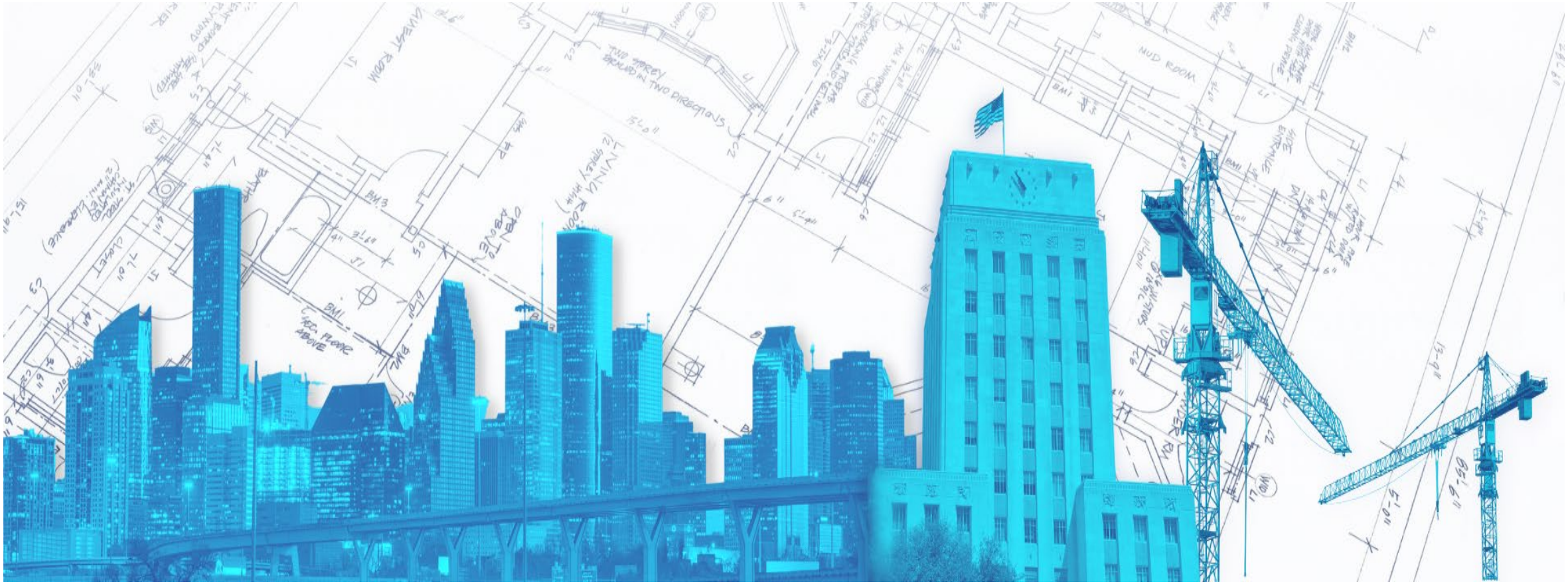
NEC CHAPTER 3



2023 NEC – SIGNIFICANT CHANGES

Code Section

General Requirements for Wiring Methods and Materials

Article 300

NEC Changes:

300.11C

Raceways used as a means of support has been edited to allow for raceways to support other raceways that contain power supply conductors for electrically controlled equipment for class 2 and class 3 circuit conductors that are soles for the purpose of connection to the equipment control circuits.

2023 NEC – SIGNIFICANT CHANGES

Code Section

General Requirements for Wiring Methods and Materials

Article 300

NEC Changes:

300.14 has been amended to allow for the 150mm free conductor to be permitted to be spliced or unspliced.

300.25 Exit Enclosures has been amended to allow for exception for egress lighting serving exterior doorways from the exit enclosures shall be permitted to be supplied from inside the exit enclosure.

2023 NEC – SIGNIFICANT CHANGES

Code Section

General Requirements for Wiring Methods and Materials for Systems Rated Over 1000 VAC and 1500 VDC Nominal

Article 305

NEC Changes:

A new Article 305 is written for 1000 VAC and 1500 VDC system design.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Cabinets, Cutout Boxes, and Meter Socket Enclosures

Article 312

NEC Changes:

312.10 is a new section.

***N* 312.10 Screws or Other Fasteners.** Screws or other fasteners installed in the field that enter wiring spaces shall be as provided by or specified by the manufacturer or shall comply with the following as applicable:

(1) Screws shall be machine type with blunt ends.
(2) Other fasteners shall have blunt ends.
(3) Screws or other fasteners shall extend into the enclosure no more than 6 mm (¼ in.) unless the end is protected with an approved means.

Exception to (3): Screws or other fasteners shall be permitted to extend into the enclosure not more than 11 mm (7/16 in.) if located within 10 mm (3/8 in.) of an enclosure wall.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Outlet, Device, Pull and Junction Boxes; Conduit Bodies; Fittings; and Handhole Enclosures

Article 314

NEC Changes:

314.5 is a new section.

***N* 314.5 Screws or Other Fasteners.** Screws or other fasteners installed in the field that enter wiring spaces shall be as provided by or specified by the manufacturer or shall comply with the following as applicable:

(1) Screws shall be machine type with blunt ends.
(2) Other fasteners shall have blunt ends.
(3) Screws attaching a cover shall extend no more than 10 mm (⅜ in.).
(4) Screws or other fasteners, other than in (3), penetrating a cover shall extend no more than 8 mm (5/16 in.).
(5) Screws or other fasteners penetrating a wall of a box exceeding 1650 cm^3 (100 $in.^3$) shall extend no more than 6 mm (¼ in.), or more than 11 mm (7/16 in.) if located within 10 mm (⅜ in.) of an adjacent box wall.
(6) Screws or other fasteners penetrating the wall of a box not exceeding 1650 cm^3 (100 $in.^3$) and not covered in 314.23(B)(1) shall be made flush with the box interior.
(7) Screws or other fasteners penetrating the wall of a conduit body shall be made flush with the conduit body interior.

Exception to (3) through (6): A screw shall be permitted to be longer if the end of the screw is protected with an approved means.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Outlet, Device, Pull and Junction Boxes; Conduit Bodies; Fittings; and Handhole Enclosures

Article 314

NEC Changes:

314.16 requires that volume of boxes shall be calculated so that the volume is greater than the fill calculation.

314.16B6 is new and it describes where a terminal block is present that a single volume allowance in accordance with Table 314.16(B)(1) shall be made for each terminal block assembly based on the largest conductor(s) terminated to the assembly.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Armored Cable: Type AC

Article 320

NEC Changes:

320.23 is amended to read:

320.23 In Accessible Attics. Type AC cables in accessible attics or roof spaces shall be installed as specified in 320.23(A) and (B).

(A) Cables Run Across the Top of Framing Members. Where run across the top of framing members, or across the face of rafters or studding within 2.1 m (7 ft) of the floor or horizontal surface, the cable shall be protected by guard strips that are at least as high as the cable. Where this space is not accessible by permanently installed stairs or ladders, protection shall only be required within 1.8 m (6 ft) of the nearest edge of the scuttle hole or attic entrance.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Flat Cable Assemblies: Type FC

Article 322

NEC Changes:

322.56 is amended to read that taps shall be marked rather than color coded.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Intermediate Metal Conduit (IMC)

Article 342

NEC Changes:

342.20 (B) is amended to read:

342.20 Size.

(A) Minimum. IMC smaller than metric designator 16 (trade size ½) shall not be used.

(B) Maximum. IMC larger than metric designator 155 (trade size 6) shall not be used.

Informational Note: See 300.1(C) for the metric designators and trade sizes. These are for identification purposes only and do not relate to actual dimensions.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Electrical Metallic Tubing (EMT)

Article 358

NEC Changes:

358.20 (B) is amended to read:

358.20 Size.

(A) Minimum. EMT smaller than metric designator 16 (trade size ½) shall not be used.

Exception: Metric designator 12 (trade size ⅜) shall be permitted for enclosing the leads of motors as permitted in 430.245(B).

(B) Maximum. The maximum size of EMT shall be metric designator 155 (trade size 6).

Informational Note: See 300.1(C) for the metric designators and trade sizes. These are for identification purposes only and do not relate to actual dimensions.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Flexible Bus Systems

Article 371

NEC Changes:

Article 371 is new. The scope of the article covers the use and installation requirements of flexible bus systems and associated fittings.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Open Wiring on Insulators

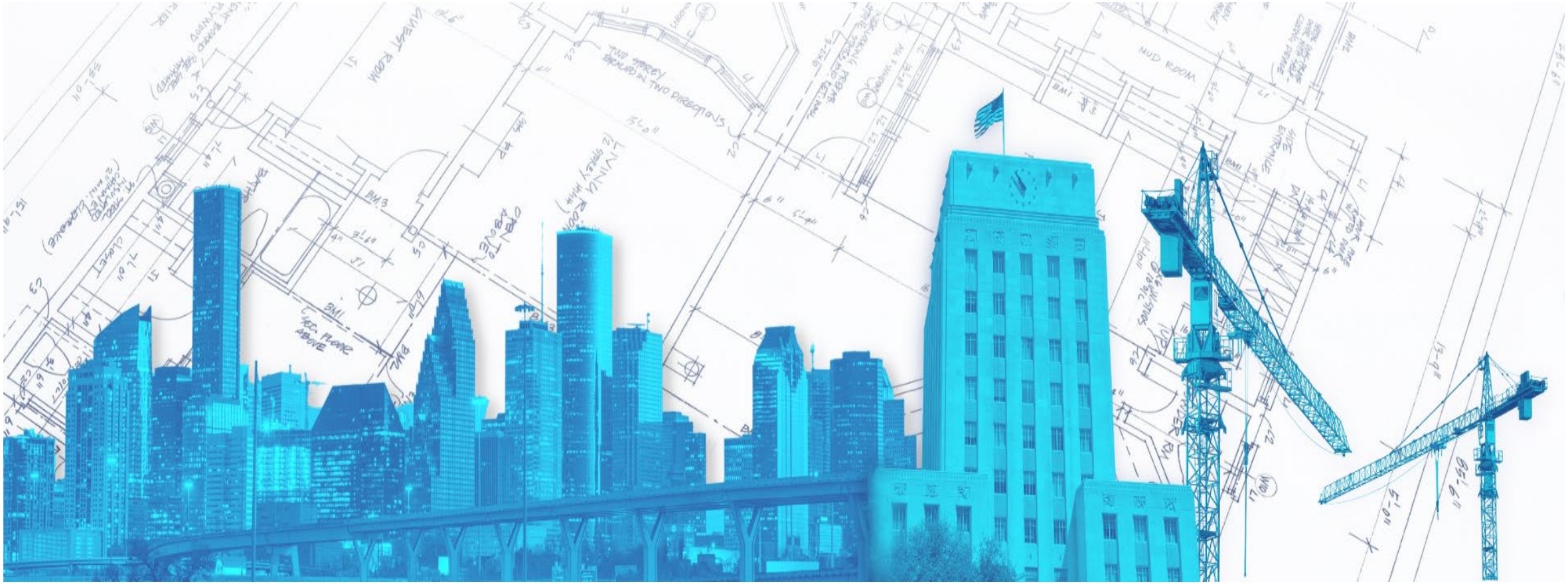
Article 398

NEC Changes:

Exposure to physical damage in 398.15 now includes protection with rigid polyvinyl chloride conduit (PVC) and reinforced thermosetting resin conduit (RTRC)

HOUSTON PUBLIC WORKS

CONSTRUCTION CODE MODERNIZATION
NEC CHAPTER 4



2023 NEC – SIGNIFICANT CHANGES

Code Section

Switches

Article 404

NEC Changes:

404.14D now includes Snap Switch Terminations.

***N* (D) Snap Switch Terminations.** Snap switch terminations shall be in accordance with the following:

(1) Terminals of 15-ampere and 20-ampere snap switches not marked CO/ALR shall be used with copper and copper-clad aluminum conductors only.

(2) Terminals marked CO/ALR shall be permitted to be used with copper, aluminum, and copper-clad aluminum conductors.

(3) Snap switches connected using screwless terminals of the conductor push-in type construction (also known as conductor push-in terminals) shall be installed on not greater than 15-ampere branch circuits and shall be connected with 14 AWG solid copper wire only unless listed and marked for other types of conductors.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Switches

Article 404

NEC Changes:

404.30 is a new section for switch enclosures with doors.

N **404.30 Switch Enclosures with Doors.** Switch mechanisms mounted within enclosures with doors that, when opened, expose uninsulated live parts shall be constructed so that when the switch is in the closed position access to the switch interior is restricted. Access to the interior with the switch in the closed position shall require the use of a tool or an approved design that provides equivalent protection from access by unqualified persons.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Receptacles, Cord Connectors, and Attachment Plugs (Caps)

Article 406

NEC Changes:

406.3D is new and provides a method for receptacle terminations.

N **(D) Receptacle Terminations.** Receptacle terminations shall be in accordance with the following:

(1) Terminals of 15-ampere and 20-ampere receptacles not marked CO/ALR shall be used with copper and copper-clad aluminum conductors only.

(2) Terminals marked CO/ALR shall be permitted to be used with aluminum, copper, and copper-clad aluminum conductors.

(3) Receptacles installed using screwless terminals of the conductor push-in type construction (also known as *push-in-terminals*) shall be installed on not greater than 15-ampere branch circuits and shall be connected with 14 AWG solid copper wire only unless listed and marked for other types of conductors.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Receptacles, Cord Connectors, and Attachment Plugs (Caps)

Article 406

NEC Changes:

Updated Section 406.4.D3 now reads:

(3) **Ground-Fault Circuit-Interrupter Protection.** Ground-fault circuit-interrupter protection for receptacles shall be provided where replacements are made at receptacle outlets that are required to be so protected elsewhere in this *Code*. Ground-fault circuit interrupters shall be listed.

2023 NEC – SIGNIFICANT CHANGES

Code Section

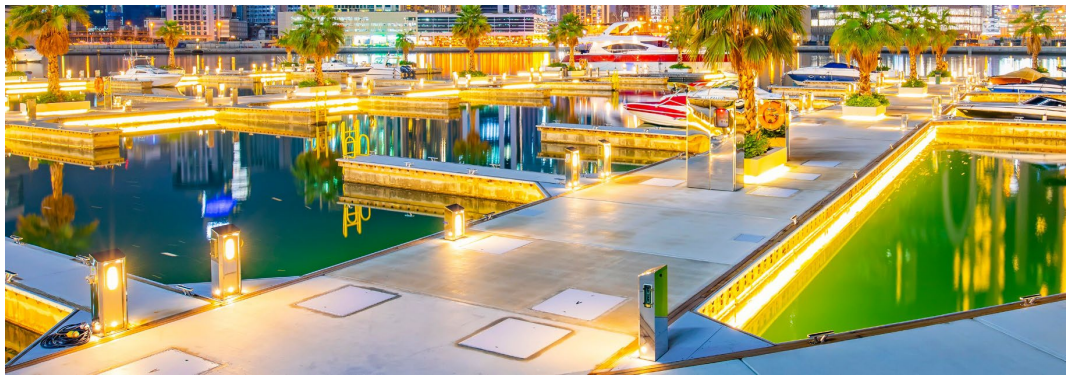
Receptacles, Cord Connectors, and Attachment Plugs (Caps)

Article 406

NEC Changes:

Section 406.4.D.8 is new for Ground Fault Protection of Equipment.

N (8) **Ground-Fault Protection of Equipment (GFPE).** Receptacles shall be provided with GFPE where replacements are made at receptacle outlets that are required to be so protected elsewhere in this *Code*.



2023 NEC – SIGNIFICANT CHANGES

Code Section

Receptacles, Cord Connectors, and Attachment Plugs (Caps)

Article 406

NEC Changes:

Section 409.C Receptacles in Wet Locations was updated to read:

Δ **(C) Bathtub and Shower Space.** Receptacles shall not be installed inside of the tub or shower or within a zone measured 900 mm (3 ft) horizontally from any outside edge of the bathtub or shower stall, including the space outside the bathtub or shower stall space below the zone.

The zone also includes the space measured vertically from the floor to 2.5 m (8 ft) above the top of the bathtub rim or shower stall threshold. The identified zone is all-encompassing and shall include the space directly over the bathtub or shower stall and the space below this zone, but not the space separated by a floor, wall, ceiling, room door, window, or fixed barrier.

Exception No. 1: Receptacles installed in accordance with 680.73 shall be permitted.

Exception No. 2: In bathrooms with less than the required zone, the receptacle(s) required by 210.52(D) shall be permitted to be installed opposite the bathtub rim or shower stall threshold on the farthest wall within the room.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Receptacles, Cord Connectors, and Attachment Plugs (Caps)

Article 406

NEC Changes:

Changed Section 406.12 Tamper-Resistant Receptacles

- **Tamper-resistant receptacles in childcare facilities, dormitories, boathouses, mobile homes and motel rooms, certain medical, agricultural, and places of assembly. It makes an exemption for single receptacles for single appliances or duplex receptacles for two appliances that are not readily accessible.**
- **There are several edits to this section related to where tamper-resistant receptacles are required.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Switchboards, Switchgear, and Panelboards

Article 408

NEC Changes:

408.4 has been modified to required legible and permanent labeling for circuits to include:

(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 of, inside of, or in an approved location adjacent 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

2023 NEC – SIGNIFICANT CHANGES

Code Section

Switchboards, Switchgear, and Panelboards

Article 408

NEC Changes:

408.4 has been modified to required legible and permanent labeling for circuits to include:

(B) Source of Supply. All switchboards, switchgear, and panelboards supplied by a feeder(s) in other than one- or two-family dwellings shall be permanently marked in accordance with the following:

(1) With the identification and physical location of where the power originates
(2) With a label that is permanently affixed and of sufficient durability to withstand the environment involved
(3) Using a method that is not handwritten

2023 NEC – SIGNIFICANT CHANGES

Code Section

Switchboards, Switchgear, and Panelboards

Article 408

NEC Changes:

408.9 is new language for panelboard replacements

***N* 408.9 Replacement Panelboards.** Replacement panelboards shall be permitted to be installed in existing enclosures in accordance with 408.9(A) or (B).

***N* (A) Panelboards Listed for the Specific Enclosure.** If the replacement panelboard is listed for the specific enclosure identified by either catalog number or dimensional information, the panelboard shall be permitted to maintain its short-circuit current rating.

***N* (B) Panelboards Not Listed for the Specific Enclosure.** If the available fault current is greater than 10,000 amperes, the completed work shall be field labeled. If the available fault current is 10,000 amperes or less, the replacement panelboard shall be identified for the application. Any previously applied listing marks on the cabinet that pertain to the panelboard shall be removed.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Switchboards, Switchgear, and Panelboards

Article 408

NEC Changes:

408.38 has been amended as follows:

408.38 Enclosure. Panelboards shall be mounted in cabinets, cutout boxes, or identified enclosures and shall be dead-front. Where the available fault current is greater than 10,000 amperes, the panelboard and enclosure combination shall be evaluated for the application.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Switchboards, Switchgear, and Panelboards

Article 408

NEC Changes:

408.43 has been amended as follows:

408.43 Panelboard Orientation. Panelboards shall not be installed in the face-up or face-down position.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Luminaires, Lamp Holders, and Lamps

Article 410

NEC Changes:

Section 410.2 has been modified to read:

Δ **410.2 Reconditioned Equipment.** Reconditioned luminaires, lampholders, ballasts, LED drivers, lamps, and retrofit kits shall not be permitted. If a retrofit kit is installed in a luminaire in accordance with the installation instructions, the retrofitted luminaire shall not be considered reconditioned.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Luminaires, Lamp Holders, and Lamps

Article 410

NEC Changes:

Section 410.10F has been modified to read:

(F) Luminaires Installed in or Under Roof Decking. Luminaires installed in exposed or concealed locations under roof decking where subject to physical damage shall be installed and supported so there is not less than 38 mm (1½ in.) measured from the lowest surface of the roof decking to the top of the luminaire.

Exception: The 38 mm (1 ½ in.) spacing is not required where metal-corrugated sheet roof decking is covered with a minimum thickness 50 mm (2 in.) concrete slab, measured from the top of the corrugated roofing.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Luminaires, Lamp Holders, and Lamps

Article 410

NEC Changes:

Section 410.71 is new and provided requirements for disconnecting means for fluorescent or LED luminaries that utilize Double Ended Lamps.

N (1) **General.** In indoor locations other than dwellings and associated accessory structures, fluorescent or LED luminaires that utilize double-ended lamps and contain ballast(s) or LED driver(s) that can be serviced in place shall have a disconnecting means either internal or external to each luminaire. For existing installed luminaires without disconnecting means, at the time a ballast or LED driver is added or replaced a disconnecting means shall be installed. The line side terminals of the disconnecting means shall be guarded.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Luminaires, Lamp Holders, and Lamps

Article 410

NEC Changes:

Section 410.71 exceptions include:

Exception No. 1: A disconnecting means shall not be required for luminaires installed in hazardous (classified) location(s).

Exception No. 2: A disconnecting means shall not be required for luminaires that provide emergency illumination required in 700.16.

Exception No. 3: For cord-and-plug-connected luminaires, an accessible separable connector or an accessible plug and receptacle shall be permitted to serve as the disconnecting means.

Exception No. 4: Disconnecting means shall not be required for every luminaire in a building area if all of the following conditions apply:

(1) More than one luminaire is installed in the building area
(2) The luminaires are not connected to a multiwire branch circuit
(3) The design of the installation includes disconnecting means
(4) The building area will not be left in total darkness should only one disconnect be opened

2023 NEC – SIGNIFICANT CHANGES

Code Section

Luminaires, Lamp Holders, and Lamps

Article 410

NEC Changes:

Additionally, Section 410.71 includes:

N (2) **Multiwire Branch Circuits.** When connected to multiwire branch circuits, the disconnecting means shall simultaneously break all the supply conductors to the ballast, including the grounded conductor.

N (3) **Location.** The disconnecting means shall be located so as to be accessible to qualified persons before servicing or maintaining the ballast. Where the disconnecting means is external to the luminaire, it shall be a single device, and it shall be attached to the luminaire or the luminaire shall be located within sight of the disconnecting means.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Luminaires, Lamp Holders, and Lamps

Article 410

NEC Changes:

Change for horticultural lighting.

- **Section 410.184 requires GFCI protection is required when horticultural lighting is connected to a receptacle with flexible cords that use separable connectors or attachment plugs.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Appliances

Article 422

NEC Changes:

Section 422.16.B.2 on flexible cords for built in dishwashers and trash compactors has been amended to read:

(1) For a trash compactor, the length of the cord is not less than 0.9 m (3 ft) and not exceeding 1.2 m (4 ft) measured from the face of the attachment plug to the plane of the rear of the appliance.

(2) For a built-in dishwasher, the length of the cord is not less than 0.9 m (3 ft) and not exceeding 2.0 m (6.5 ft) measured from the face of the attachment plug to the plane of the rear of the appliance.

(3) Receptacles are located to protect against physical damage to the flexible cord.

(4) The receptacle for a trash compactor is located in the space occupied by the appliance or adjacent thereto. If a flexible cord passes through an opening, it shall be protected against damage by a bushing, grommet, smoothed edge, or other approved means.

(5) The receptacle for a built-in dishwasher is located in the space adjacent to the space occupied by the dishwasher. If a flexible cord passes through an opening, it shall be protected against damage by a bushing, grommet, smoothed edge, or other approved means.

(6) The receptacle is accessible.

(7) The flexible cord has an equipment grounding conductor that is terminated with a grounding-type attachment plug.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Appliances

Article 422

NEC Changes:

Section 422.18 on Ceiling Suspended (Paddle) Fans has been amended to read:

Δ 422.18 Ceiling-Suspended (Paddle) Fans.

N **(A) Support.** Ceiling-suspended (paddle) fans shall be supported independently of an outlet box or by one of the following:

(1) A listed outlet box or listed outlet box system identified for fan support installed in accordance with 314.27(C)

(2) A listed outlet box system, a listed weight-supporting ceiling receptacle, and a compatible factory-installed weight-supporting attachment fitting that is installed in accordance with 314.27(E)

2023 NEC – SIGNIFICANT CHANGES

Code Section

Appliances

Article 422

NEC Changes:

Section 422.18 on Ceiling Suspended (Paddle) Fans has been amended to read:

N **(B) Location.** No metal parts of ceiling-suspended (paddle) fans in bathrooms and shower spaces shall be located within a zone measured 900 mm (3 ft) horizontally and 2.5 m (8 ft) vertically from the top of the bathtub rim or shower stall threshold. This zone is all-encompassing and shall include the space directly over the tub or shower stall.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Air Conditioning and Refrigerating Equipment

Article 440

NEC Changes:

Section 440.8 was amended to include a zone measured 3 feet horizontally and 8 feet vertically from the top of a bathtub rim or shower stall threshold where air conditioning or refrigerating systems shall not be installed.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Air Conditioning and Refrigerating Equipment

Article 440

NEC Changes:

Section 440.11 was amended to read:

440.11 General. Disconnecting means shall be capable of disconnecting air-conditioning and refrigerating equipment, including motor-compressors and controllers, from the circuit conductors. If the disconnecting means is readily accessible to unqualified persons, any enclosure door or hinged cover of a disconnecting means enclosure that exposes energized parts when open shall require a tool to open or be capable of being locked.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Air Conditioning and Refrigerating Equipment

Article 440

NEC Changes:

Section 440.14 was amended to read:

Δ **440.14 Location.** Disconnecting means shall be located within sight from, and readily accessible from, the air-conditioning or refrigerating equipment. The disconnecting means shall be permitted to be installed on or within the air-conditioning or refrigerating equipment. Disconnecting means shall meet the working space requirements of 110.26(A).

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2023 NEC – SIGNIFICANT CHANGES

Code Section

Generators

Article 445

NEC Changes:

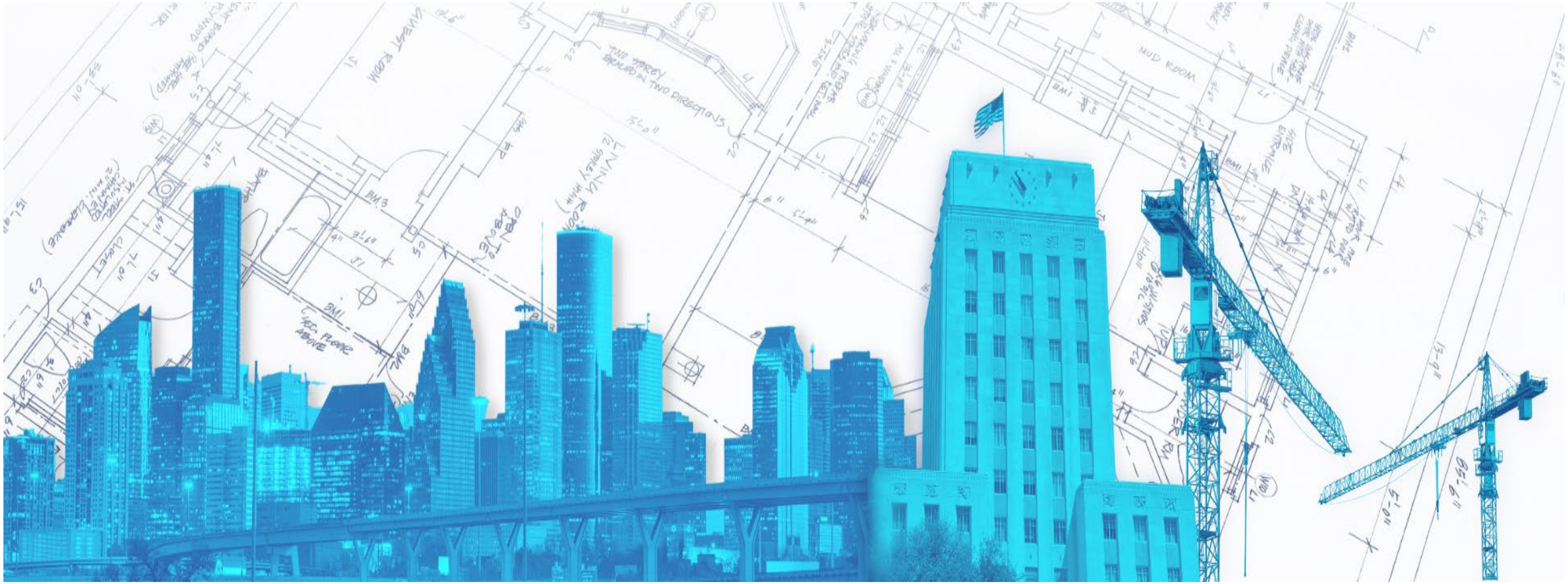
Section 445.18A on disconnecting means was amended to read:

(A) Disconnecting Means. Generators other than cord-and-plug-connected portable generators shall have one or more disconnecting means. Each disconnecting means shall simultaneously open all associated ungrounded conductors. Each disconnecting means shall be lockable open in accordance with 110.25.

The disconnecting means shall be permitted to be located within the generator behind a hinged cover, door, or enclosure panel. Where the generator disconnecting means is located within the generator, a field applied label meeting the requirements of 110.21(B) shall be provided indicating the location of the generator disconnecting means.

HOUSTON PUBLIC WORKS

CONSTRUCTION CODE MODERNIZATION
NEC CHAPTER 5



2023 NEC – SIGNIFICANT CHANGES

Code Section

Hazardous (Classified) Locations, Classes I, II, and III, Divisions 1 and 2

Article 500

NEC Changes:

New Sections 500.1 (A) & (B).

- **These sections define the scope of the section. The section clarified to what Class, Division, and Zones the Article applies and does not apply.**

Changes to Section 500.4.

- **Areas that have been determined to be unclassified shall be documented.**
- **The section also clarifies a series of NFPA Codes and Standards that can be referenced for additional information about electrical classification.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Commercial Garages, Repair and Storage

Article 511

NEC Changes:

Changes to Section 511.7

- **Several changes listing where certain types of conduit can be used.**
- **Requirements included for wiring and equipment installed above hazardous locations that allows rigid metal conduit, intermediate metal conduit and electrical metallic tubing (EMT).**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Heath Care Facilities

Article 517

NEC Changes:

Section 517.13 has been amended to read:

517.13 Equipment Grounding Conductor for Receptacles and Fixed Electrical Equipment in Patient Care Spaces. Wiring serving patient care spaces shall comply with the requirements of 517.13(A) and (B).

Exception: Luminaires more than 2.3 m (7½ ft) above the floor and switches located outside of the patient care vicinity shall be permitted to be connected to an equipment grounding return path complying with the requirements of 517.13(A) or (B).

2023 NEC – SIGNIFICANT CHANGES

Code Section

Agricultural Buildings

Article 547

NEC Changes:

Section 547.26 has been amended to read:

547.26 Physical Protection. All electrical wiring and equipment subject to physical damage shall be protected.

Nonmetallic cables shall not be permitted to be concealed within walls and above ceilings of buildings (i.e., offices, lunchrooms, ancillary areas, etc.) or portions thereof, which are contiguous with or physically adjoined to livestock confinement areas.

Informational Note: Rodents and other pests are common around such installations and will damage nonmetallic cable by chewing the cable jacket and conductor insulation concealed within walls and ceilings of livestock containment areas of agricultural buildings.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Marinas, Boatyards, Floating Buildings, and Commercial and Noncommercial Docking Facilities

Article 555

NEC Changes:

Changes to Section 555.4

- **Service equipment for a marina or floating dock must be on land no closer than 5 feet horizontally from the water and no less than 12 inches above the electrical datum plane (EDP).**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Marinas, Boatyards, Floating Buildings, and Commercial and Noncommercial Docking Facilities

Article 555

NEC Changes:

New Section 555.15

- **Modification or replacement of electrical enclosures, devices or wiring on a docking facility must comply with provisions of the electrical code. The installation requires an inspection of the circuit.**
- **Existing equipment that has been or found to be damaged must be identified, documented and repaired by a qualified person to the minimum requirements of the code to which it was originally installed.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Marinas, Boatyards, Floating Buildings, and Commercial and Noncommercial Docking Facilities

Article 555

NEC Changes:

New Section 555.36(C)

- **Marina power outlets or enclosures that provide power to boats must have a Listed emergency shutoff device or disconnect marked “Emergency Shutoff”.**

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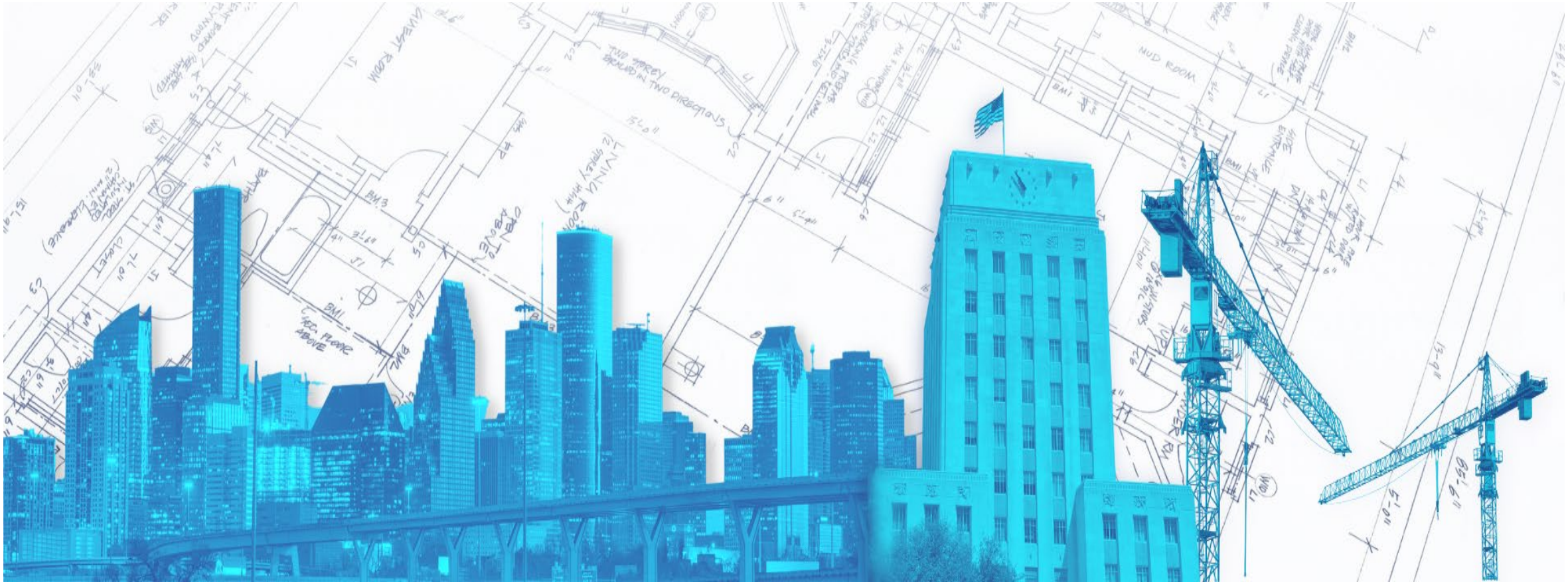
CONSTRUCTION CODE MODERNIZATION
NEC CHAPTER 6



2023 NEC – SIGNIFICANT CHANGES

Code Section

Electrical Vehicle Power Transfer System

Article 625

NEC Changes:

Changes to Section 625.40

- **Single branch circuits are permitted to supply more than one electric vehicle supply equipment when the loads are managed by an energy management system. The electrical equipment supplying the vehicle rated greater than 16 amps or 120 Volts is required to have a dedicated branch circuit.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Electrical Vehicle Power Transfer System

Article 625

NEC Changes:

New Section 625.49

- **An interconnected power system that can operate in island mode is permitted for electric vehicle power export equipment (EVPE) and bidirectional electric vehicle supply equipment (EVSE) that incorporate a power export functions.**
- **Island mode can be referred to as off-the-grid or "back-up mode.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Electric Welders

Article 630

NEC Changes:

New Section 630.8 requires ground fault circuit interrupter protection for personnel on all 125V, 15 & 20 amp receptacles for electrical hand tools or portable lighting equipment, supplied by single phase branch circuits rated 150V or less to ground, installed in work areas where welders are operated.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Swimming Pools, Fountains, and Similar Installations

Article 680

NEC Changes:

Change to Section 680.5:

- **Requires that SPGFCI devices must be used where ground-fault protection is required for branch circuits rated over 150 Volts to ground.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Swimming Pools, Fountains, and Similar Installations

Article 680

NEC Changes:

Additions to Section 680.22 (A)(4) & (B)(4)Lighting, Receptacle, Location.

- **(A)(4) states: All receptacles rated 125 volts through 250 volts, 60 amperes or less, located within 6.0m of the inside walls of a poll shall have GFCI protection complying with 680.5(B) or SPGFCI protection complying with 680.5(C).**
- **(B)(4) states: Luminaires, lighting outlets, and ceiling suspended (paddle) fans installed in an area extending between 1.5m and 3m horizontally from the inside walls of a pool shall have GFCI protection complying with 680.5(B) or SPGFCI protection complying with 680.5(C)**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Swimming Pools, Fountains, and Similar Installations

Article 680

NEC Changes:

Addition to Section 680.32 concerning storable pools and spas.

- **All electrical equipment including power-supply cords, used with storable pools. All receptable rated 125 volts through 250 Volts, 60 amperes or less located within 6.0m of inside walls of a storable pool shall have GFCI protection complying with 680.5(B) or SPGFCI protection complying with 680.5(C)**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Swimming Pools, Fountains, and Similar Installations

Article 680

NEC Changes:

Addition to Section 680.41:

A) For other than single family homes, a clearly labeled emergency shutoff or control switch for the motor shall be installed at a point readily accessible to the users and not less than 5 feet away and within sight of the spa or hot tub.

B) Except for self contained spas and hot tubs, equipment with ratings exceeding the low voltage contact limit shall be located 5 feet away from the spa or hot tub unless a permanent barrier is installed.

2023 NEC – SIGNIFICANT CHANGES

Code Section

Swimming Pools, Fountains, and Similar Installations

Article 680

NEC Changes:

New Section C for 680.54 Grounding and Bonding reads:

N **(C) Equipotential Bonding of Splash Pads.** For the purpose of equipotential bonding, the shell of a splash pad shall comprise the area traversed by pedestrians bounded by the extent of the footing of the splash pad and rising to its exposed surface(s) and its collection basin area. The boundary of this area shall be considered to be the inside wall for the purpose of perimeter bonding.

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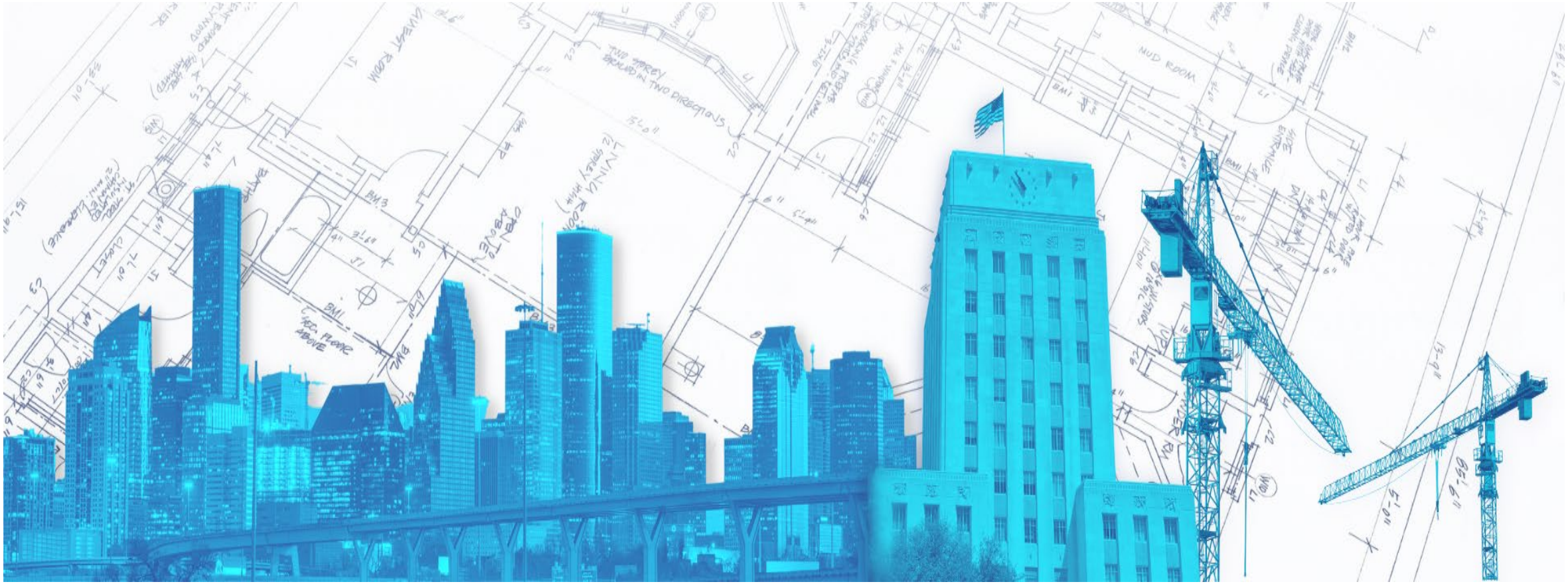
CONSTRUCTION CODE MODERNIZATION
NEC CHAPTER 7



2023 NEC – SIGNIFICANT CHANGES

Code Section

Emergency Systems

Article 700

NEC Changes:

New Section 700.11

- **The new section details the voltage requirements for emergency lighting systems.**
- **Class 2 power-limited emergency circuits must be permanently marked as components of an emergency circuit or system.**
- **Class 2 emergency and non-emergency separation requirements.**
- **Wiring protection shall be in accordance with Section 300.4**

2023 NEC – SIGNIFICANT CHANGES

Code Section

New Articles

Article 235 / 245 / 305

NEC Changes:

- **Article 235 addresses branch circuits, feeders and services over 1,000 VAC, 1,500 VDC, nominal.**
- **Article 245 addresses the installation of overcurrent protection for systems rated over 1,000 VAC, 1,500 VDC.**
- **Article 305 (replacing Article 399) addresses general requirements for wiring methods and materials for systems rated over 1,000 VAC, 1,500 VDC, nominal.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

New Articles

Article 315 / 495

NEC Changes:

- **Article 315 (replacing Article 311) adds installation requirements for medium voltage conductors, cable, cable joints and cable terminations.**
- **Article 495 addresses equipment over 1,000 VAC, 1,500 VDC, nominal.**

2023 NEC – SIGNIFICANT CHANGES

Code Section

Removed Articles

Article 510 / 712 / 720

NEC Changes:

- **Article 510 on Hazardous (Classified) Locations-Specific.**
- **Article 712 on direct current microgrids.**
- **Article 720 on circuits and equipment operating at less than 50 volts.**

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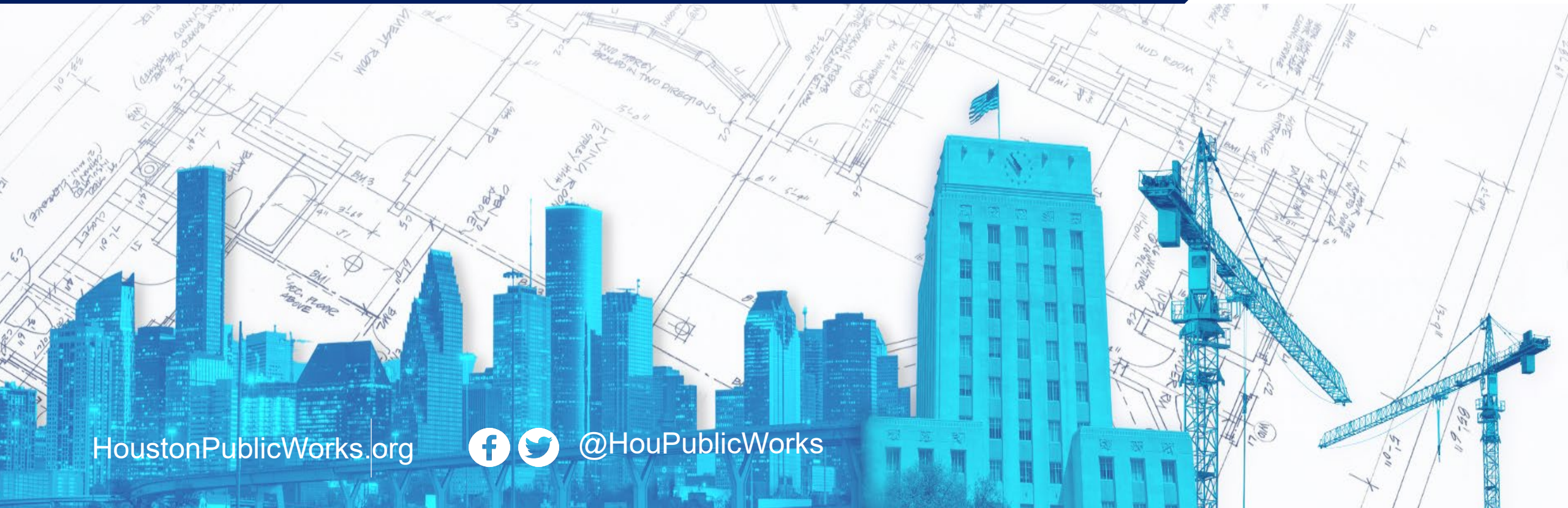
THANK YOU!



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