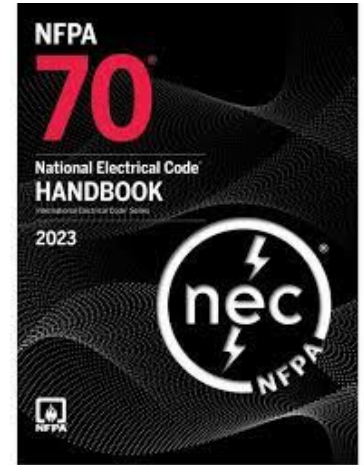
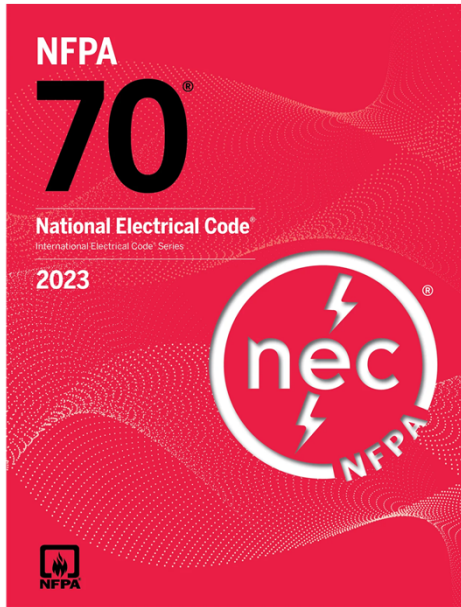




City of Harker  
Heights  
October 10, 2023  
Contractors Meeting



1. Revisit Significant Changes to the 2023 NEC.  
Effective date.
2. What we know so far
  - 2024 International Plumbing Code
  - 2024 International Mechanical Code
  - 2024 International Swim Pool and Spa
3. Remote inspections. Rvcord
4. Bluebonnet training
3. Open discussion-Questions and Answer.
4. Conclusion



## Significant Changes to the 2023 National Electric Code



TDLR adopted the 2023 NEC as the electrical code for the state of Texas and establish it as the "minimum standard" for all electrical work in Texas covered by the Act. The proposed effective date will be September 1, 2023.

The City of Harker Heights retroactively adopted the 2023 NEC on 9/26/2023 to be effective 9/1/2023



- Chapter 1305.201 of the Act provides municipalities the authority to make local amendments to the 2023 NEC; however, any proposal to amend these standards should be done in accordance with NEC 90.4 which stipulates "the authority having jurisdiction may waive specific requirements in this Code or permit alternative methods where it is assured that equivalent objectives can be achieved by establishing and maintaining effective safety."



## Changes traditionally made

(K) The National Electrical Code, 2020 Edition (NFPA 70), as promulgated by the National Fire Protection Association, except for the following, which shall amend and change said code only to the extent referenced:

(1) Article 230.70(A)(1) "Readily Accessible Location." Amend to read: "The disconnecting means shall be installed at a readily accessible location outside of the building or structure served, and at the point of entrance of all conductors to the building. The main service disconnect switch shall not be located more than five (5) feet above finished grade."

(2) Article 334.12(A) "Uses Not Permitted." Amend to read: "(A) Types NM, NMC, and NMS. Types NM and NMS cables shall not be used as follows:

(1) As open runs in dropped or suspended ceilings in other than one and two family and multi-family dwellings.

(2) As service entrance cable.

(3) In any of the following types of occupancies:

- a. Apartment houses of two stories of occupancies or greater.
- b. Any commercial building.
- c. Any industrial building.
- d. Educational buildings.
- e. Churches and church accessory structures.
- f. Public buildings.

(4) Embedded in poured cement, concrete, or aggregate."

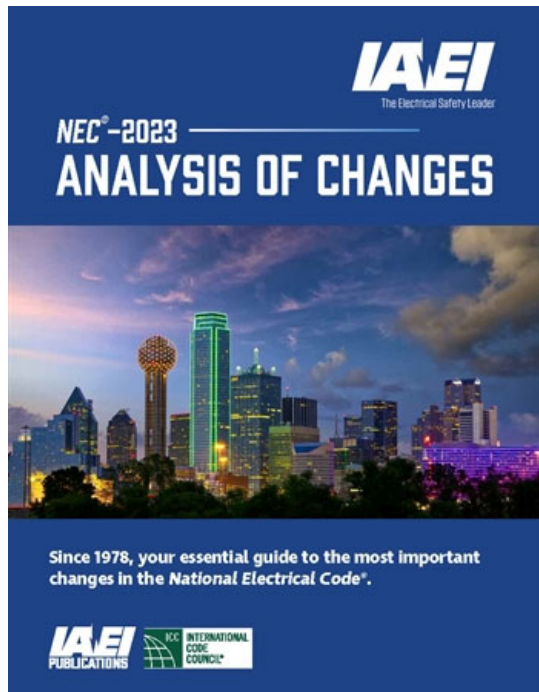
(3) Annexes A, B, C, D, E, F, G, I, and J are adopted.

(4) Annex H is not adopted.



Any non-exempt electrical work started on or after September 1, 2023, must be installed in accordance with the 2023 NEC. To clarify: the “start” of electrical work is the day the electrician begins installing electrical materials or equipment within the residential or commercial building structure. Inside the corporate limits of a municipality, electricians must abide by city permitting requirements and adhere to any local code amendments.

Disclaimer: This is only some of the significant changes.



Harker  
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Heights

A large, red, five-pointed star with a white outline is positioned behind the word "Heights" in the logo. The star has a textured, slightly grainy appearance.





## Article 100-Definitions

- New Definition: Countertop
- The counter (countertop) definition has been introduced to help Code users apply it correctly in the built environment. The key distinction between these two types of surfaces is the quantity of spillage that the surfaces may be subjected to. The user of the Code will be directed to the industry standards that aid in the proper application of receptacles in these locations and found in this new definition and instructive note.
- Features:
  - listed for application
  - flange raised above surface to prevent liquid from entering
  - sealed when in the closed position to prevent liquid from entering
  - only energized in the upright position
  - GFCI protected

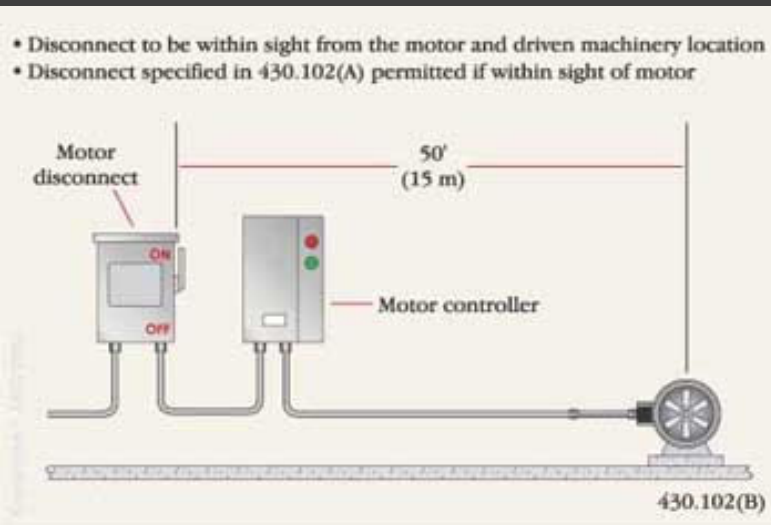




## Article 100-Definitions

- New Definition: Within site, within site from
- Definition revised for clarity.

Distance is to be visible and not more than 15 m (50 ft) from the other equipment Note: see 110.29 for requirements for In Sight From (Within Sight From, Within Sight)



# Article 100-Definitions

# Harker Heights

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- New Definition: Likely to become energized
- There was no definition of this phrase that appears multiple times and locations within the NEC. It is used 25 times in the NEC, only seven of which are in Article 250. Likely to become energized was up to interpretation with opinions that differed from jurisdiction to jurisdiction. This caused frustration between electrical professionals when applying requirements from the NEC.





## Article 100-Definitions

- New Definition: Work Surface

The work surface definition has been included to help Code users understand the distinction between a countertop and a work surface when these two terms are used interchangeably. The key distinction between these two types of surfaces is the quantity of spillage that the location may be subjected to. The Code user will be directed to the industry standards that aid in the proper application of receptacles found in these locations and discussed in this new definition and instructive note

# Article 100-Definitions



- Definition Revision: Terminals
- This change will clarify what kind of connection is being discussed as it applies to terminations found with various types of electrical equipment. The listing of the product will also determine the acceptability of the connection. An example would be a faceplate cover for lighting or USB use that employs a friction-type connection to the termination screws of the receptacle.

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## Article 100-Definitions

- Definition Revision.
- The revision will clarify how to apply labels on electrical equipment for the safety of the equipment. There is a need to apply or affix labels onto the equipment instead of using the term "placed on the equipment." NEC 2020 simply mentioned placing the label on the equipment. The new requirement of applying or affixing labels onto all equipment will make sure the label stays there permanently and does not fall off with the passage of time.





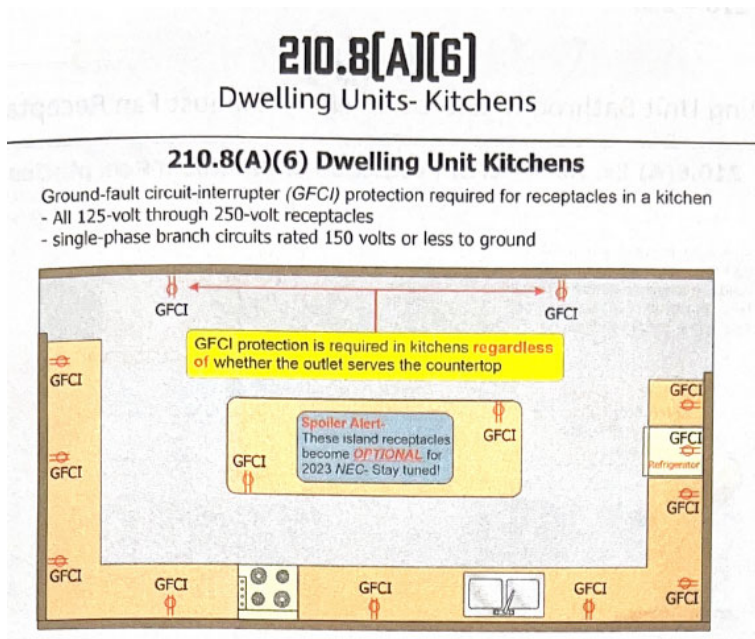
## Article 210.2-Reconditioned Equipment

- Reconditioned equipment text has been reviewed and modified to remove redundant language in accordance with NEC Style Manual, Section NEC Correlating Committee recommended to move recondition information to a standardized placeholder found within the various articles this topic to improve the useability of the Code Definition revised for clarity.
- The following shall not be reconditioned:
  - (1) Equipment that provides ground-fault circuit-interrupter (GFCI) protection for personnel
  - (2) Equipment that provides arc-fault circuit-interrupter (AFCI) protection
  - (3) Equipment that provides ground-fault protection (GFP) of equipment



# Article 210.8(A)(6) Dwelling Unit Kitchens

- Ground-fault circuit-interrupter (GFCI) protection required for receptacles in a kitchen
  - All 125-volt through 250-volt receptacles
  - single-phase branch circuits rated 150 volts or less to ground



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Article 210.8 (A)  
Ex. No 4  
GFCI protection  
of Bathroom  
Receptacles.

There was confusion as to if a receptacle found within an exhaust fan installed in the bathroom required GFCI protection. It was determined that these receptacles **do not require GFCI** protection unless required by the **installation instructions** or the listing.



# Article 210.8 (D) Specific Appliances

- GFCI protection applies to receptacles supplied by a branch circuit of 150 volts or less to ground and 60 amperes or less in a single-phase system
- New list items includes:
  - - electric ranges
  - - wall-mounted ovens
  - - counter-mounted cooking units
  - - clothes dryers
  - - microwave ovens





## Article 210.52 (C)

Island and Peninsular countertop and worksurface.

Receptacle outlets are no longer allowed to be installed below the countertop.

210.52(C)(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 future addition of a receptacle outlet to serve the island or peninsular countertop or work surface.

Option 1:

Permits the installation of receptacle outlets above the countertop or work surface, but not more than 20 inches above. Islands and peninsulas with elevated backsplashes present an opportunity for using this option.

Option 2:

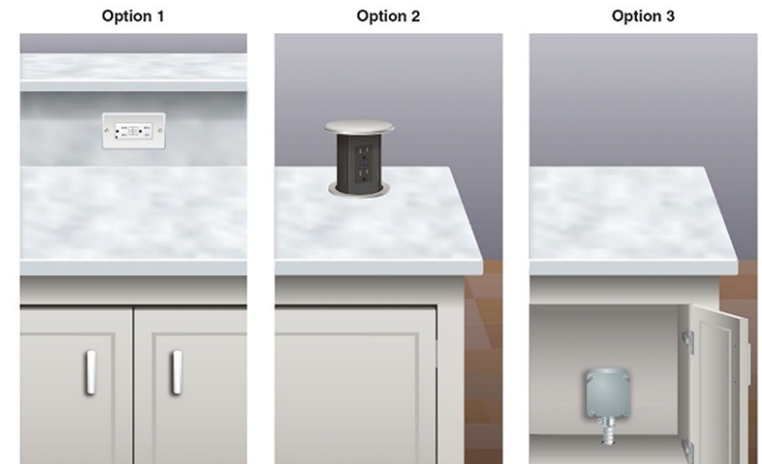
permits installation of receptacle outlets within the countertop or work surface, provided a receptacle outlet assembly listed for the application is utilized.

Option 3:

is utilized when no receptacle outlet is installed within the island or peninsula. In that case, the 2023 NEC requires a future provision to be made where a receptacle outlet could be installed at a later date. The junction box with protective flexible conduit for the NM-B cable is just one example of how this could possibly be done, but it is not required to be done this way per the 2023 NEC.

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# Article 210.52(C)(2)&(3)



# Harker Heights

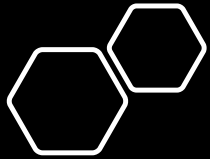
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## Article 242.9 SPD indicating

Requires that the Surge Protection Device (SPD) have an indication that it is functioning properly.





# Article 300.4 (G)

Protective fittings shall be installed prior to the installation of conductors. This change prohibits the use of certain fittings.



2023 NEC change in 300.4(G) ..... Be sure to install the bushing **BEFORE** the conductors are installed.

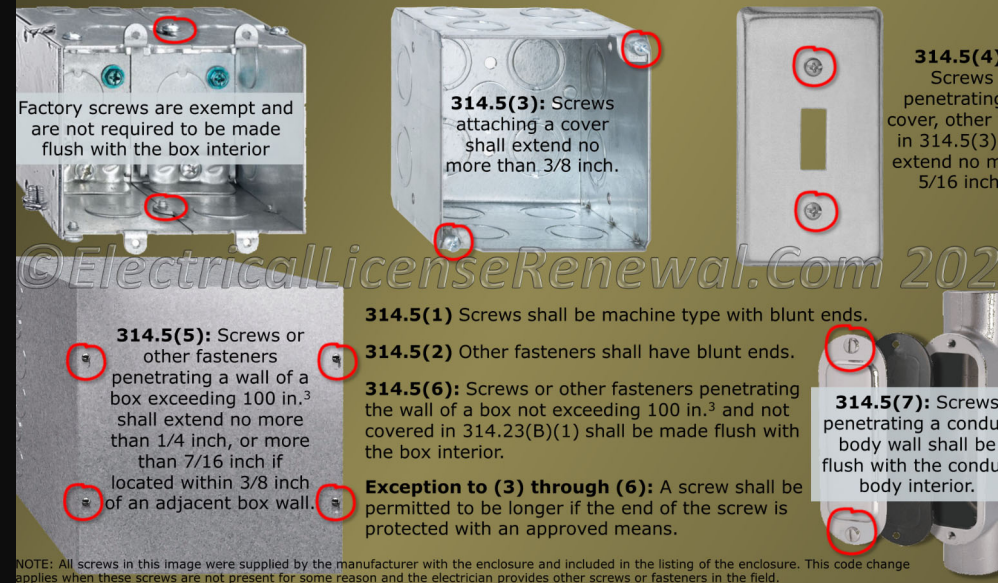


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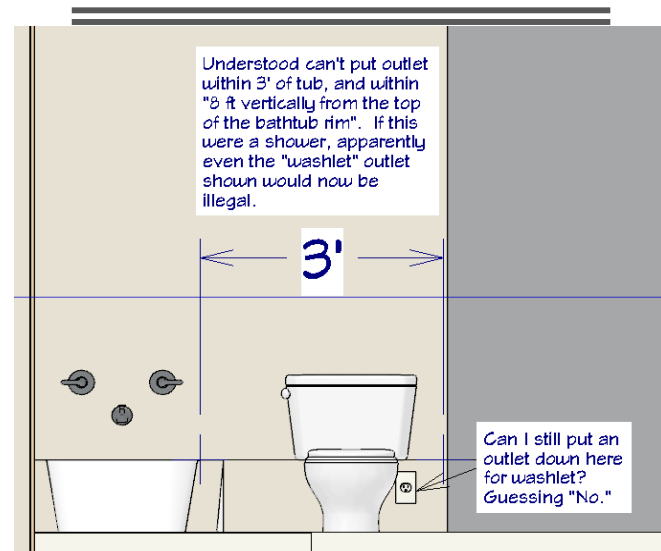
# Article 314.5 Screws or Other Fasteners.

- 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 3/8 inch.
  - (4) Screws or other fasteners, other than in (3), penetrating a cover shall extend no more than 5/16 inch.
  - (5) Screws or other fasteners penetrating a wall of a box exceeding 100 in.<sup>3</sup> shall extend no more than 1/4 inch, or more than 7/16 inch if located within 3/8 inch of an adjacent box wall.
  - (6) Screws or other fasteners penetrating the wall of a box not exceeding 100 in.<sup>3</sup> 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.



# Article 406.9 (C) Bathtub and shower spaces.

New Exception #4 was added to accommodate the toilets with electronic seats, bidets, and other functions, which require 120-volt receptacles to be installed within the 36" zone or personal hygiene devices for people with physical limitations. This receptacle shall require a single receptacle and cannot be located in the space between the bathtub or shower and the toilet or bidet







## Article 440.8

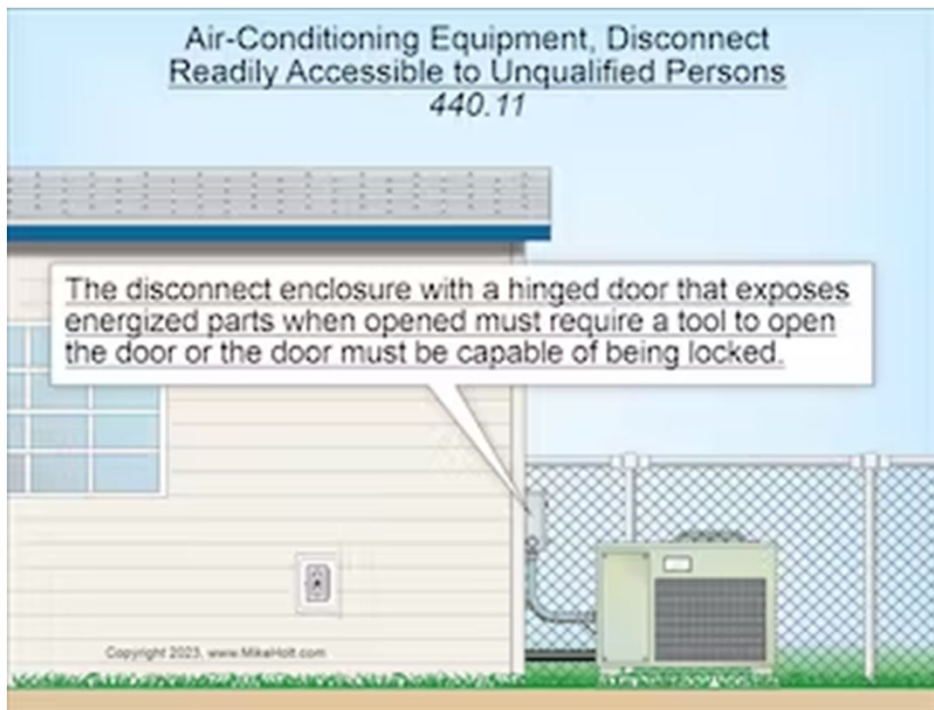
Single machine and location.

Mini-split systems are not to be installed in the tub or shower zone.



## Article 440.11 Disconnects with Covers.

The NEC Code Panel determined that a zip-tie would be appropriate but is left up to AHJ. CoHH will allow zip-tie



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# Article 445.18 (A) & 445.19

## Disconnecting Means & Emergency Shutdown of Prime mover.

When the generator disconnecting means is located in the generator enclosure, a field applied label to be provided indicating the location of the disconnecting means.



# Harker Heights

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## Article 690.12 Rapid Shut down equipment

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Eliminated rapid shutdown requirements for structures where firefighters will not need to access the roof.

# 2024 I-Codes

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What we know so far:

- 2024 International Plumbing Code
- 2024 International Mechanical Code
- 2024 International Swim. Pool and Spa Code

January 2025						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	



Effective Date:  
January 1, 2025

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Future meeting Dates:

January 10, 2024

March – TBD

May- TBD

July-TBD

September –TBD



2024 International Plumbing Code







## 2024 International Plumbing Code

### 108.3 Permit valuations.

The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at time of application. Such estimated valuations shall include the total value of work, including materials and labor, for which the permit is being issued, such as electrical, gas, mechanical, plumbing equipment and permanent systems. Where, in the opinion of the building official, the valuation is underestimated, the permit shall be denied, unless the applicant can show detailed estimates acceptable to the building official. The building official shall have the authority to adjust the final valuation for permit fees.

House Bill 852- “except as required by the Federal Emergency Management Agency for participation in the National Flood Insurance Program.”



## 2024 International Plumbing Code Chapter 2-Definitions

AMBULATORY CARE FACILITY

FAMILY OR ASSISTED-USE BATHING ROOM.

FAMILY OR ASSISTED-USE TOILET FACILITY

PEER REVIEW

SERVICE SINK

TOILET FACILITY

Multiple-user toilet facility

Single-user toilet facility



2024 International Plumbing Code  
Chapter 3- General

305.6.1 Shield plates.  
Shield plates shall be of steel material having a thickness of not less than 0.0575 inch (1.463 mm) (No. 16 gage).



2024 International Plumbing Code  
Chapter 3-General

305.8 Expansive soil.

Where expansive soil is identified under buildings in accordance with Section 1803.5.3 of the International Building Code, but not removed in accordance with Section 1808.6.3 of the International Building Code, plumbing shall be protected in accordance with Section 305.8.1 or 305.8.2.



2024 International Plumbing Code  
Chapter 3-General

306.2.4 Tracer wire.

For plastic sewer piping, an insulated copper tracer wire or other approved conductor shall be installed adjacent to and over the full length of the piping. Access shall be provided to the tracer wire or the tracer wire shall terminate at the cleanout between the building drain and building sewer. The tracer wire size shall be not less than 14 American Wire Gauge (2.5 mm<sup>2</sup>) and the insulation type shall be listed for direct burial.



## 2024 International Plumbing Code Chapter 3-General

### 312.4 Drainage and vent vacuum test

The portion of the drainage and vent system under test shall be evacuated of air by a vacuum-type pump to achieve a uniform gauge pressure of negative 5 pounds per square inch or a negative 10 inches of mercury column (-34 kPa). This pressure shall be held without the removal of additional air for a period of 15 minutes. Any adjustments to the test pressure required because of changes in ambient temperatures or the seating of gaskets shall be made prior to the beginning of the test period.



## 2024 International Plumbing Code

### Chapter 4- FIXTURES, FAUCETS AND FIXTURE FITTINGS

Table 403.1 changed to accommodate new definitions

Changes to institutional (Group-I) requirements in table 403.1

Changes to Residential to add “care recipients receiving custodial care”



2024 International Plumbing Code  
Chapter 5- water heater-Added

501.9 Lead content.

Water heaters that are part of the potable water distribution system shall comply with NSF 372 and shall have a weighted average lead content of 0.25 percent or less.





2024 International Plumbing Code  
Chapter 5- water heater-Added

504.7 Required pan

...A plastic pan installed beneath a gas-fired water heater shall be constructed of material having a flame spread index of 25 or less and a smoked-developed index of 450 or less when tested in accordance with ASTM E84 or UL723.

Water heaters installed in pans shall comply with Section 314.2.3.2.



2024 International Plumbing Code  
Chapter 7-Sanitary Drainage

Added TABLE 702.6 CHEMICAL WASTE DRAINAGE  
SYSTEM PIPE AND FITTINGS



2024 International Plumbing Code  
Chapter 7-Sanitary Drainage-Added

705.2.4 Mechanical joints above ground.  
Mechanical joint couplings used above ground to connect ABS pipe to ABS pipe shall be of the shielded type and shall be marked by the manufacturer as being recommended for the application.



2024 International Plumbing Code  
Chapter 7-Sanitary Drainage-Added

705.10.5 Mechanical joints above ground.  
Mechanical joint couplings used above ground to connect PVC pipe to PVC pipe shall be of the shielded type and shall be marked by the manufacturer as being recommended for the application.



2024 International Plumbing Code  
Chapter 9-Vents-Added

902.1.1 Chemical waste drainage system vents.  
The pipe and fitting materials for a chemical waste drainage vent system shall be in accordance with Section 702.6. The methods utilized for construction and installation of such venting system shall be in accordance with the pipe and fitting manufacturers' instructions.



2024 International Mechanical Code





2024 International Mechanical Code  
Chapter 1

Changes similar to that  
in the 2024 IPC.  
Records, approvals,  
inspections, peer  
review, valuation, etc.

2024 International Mechanical Code



Provisions prohibiting the use of domestic ductless range hoods in Groups I-1 and I-2 were removed.





## 2024 International Mechanical Code

### 505.7 Group I-1 occupancies.

In Group I-1 occupancies, hood installations over domestic cooking equipment installed in accordance with Section 420.9 of the International Building Code shall comply with the following:

Exception: A listed and labeled ductless range hood shall be permitted where a charcoal filter is provided in the hood to reduce smoke and odors.



2024 International Mechanical Code

Ventilation requirements for outpatient healthcare facilities to match the requirements in ASHRAE 62.1-2019.

TABLE 403.3.1.1  
MINIMUM VENTILATION  
RATES

2024 International Mechanical Code



Addition of a new minimum landing at the roof hatch for personnel to safely use the hatch when accessing the roof for repair and maintenance.



## 2024 International Mechanical Code

306.5 Equipment or appliances on roofs or elevated structures.

Top landing required. The ladder shall be provided with a clear and unobstructed landing on the exit side of the roof hatch, having a minimum space of 30 inches (762 mm) deep and being the same width as the hatch.

2024 International Mechanical Code



Addition of a new testing option for grease ductwork.



## 2024 International Mechanical Code

### 506.3.2.5.1 Light test.

A duct test shall be performed by passing a lamp, having not less than 1600 lumens, through the entire section of ductwork to be tested. The lamp shall be open so as to emit light equally in all directions perpendicular to the duct walls. A successful test shall be where the light from the lamp is not visible at any point on the exterior of the duct.



506.3.2.5.2 Water spray test.

A duct test shall be performed by simulating a cleaning operation of the interior of the duct. A water pump capable of a flowing outlet pressure of not less than 1,200 psi (8274 kPa) shall be used



## 2024 International Mechanical Code

Requirements for steam baths were added.

### 931.1 General.

Steam bath equipment shall be listed and labeled in accordance with UL 499 and shall be installed in accordance with their listing and the manufacturer's instructions.





2024 International Swimming Pool and Spa Code. (2024 ISPSC)





## 2024 International Swimming Pool and Spa Code. (2024 ISPSC)

305.2.4 Screen enclosure as a barrier. A swimming pool screen enclosure shall be permitted to be utilized as part, or all, of a required barrier provided that the enclosure complies with the requirements of Section 305.2. Such screen enclosures shall be designed by a registered design professional. Walls of such screen enclosures shall not be considered to be dwelling walls.



2024 International Swimming Pool and Spa Code. (2024 ISPSC)

305.2.4.1 Mesh for screen enclosures.  
The mesh utilized in the barrier portion of the screen enclosure shall have a tensile strength of not less than 100 pounds per square foot (20.5 kg/m<sup>2</sup>) when tested in accordance with ASTM D5034 and a ball burst strength of not less than 150 pounds per square foot (30.7 kg/m<sup>2</sup>) when tested in accordance with ASTM D3787.



2024 International Swimming Pool and Spa Code. (2024 ISPSC)



Revcord –Virtual/Remote inspection





# BLUEBONNET CHAPTER TRAINING

OCTOBER 16-18, 2023



**Russell Thornburg**

**2021 IRC Structural Review**

**October 16, 2023  
9:00am - 3:00pm**



**Michael Watson,  
MA, LPC, NCC**

**Mental Health**

**October 17, 2023  
9:00am - 12:00pm**



**Rick Garza**

**Legal Update**

**October 17, 2023  
1:00pm - 2:00pm**



**Jose Roig**

**Aspects of IPMC**

**October 17, 2023  
2:00pm - 4:00pm**



**"2021 IRC"**

**Joe Ritchie  
Simpson Strong-Tie**

**October 18, 2023  
Notching & Boring  
9:00am - 12:00pm  
Roofing Assemblies  
1:00pm - 4:00pm**



**Harker Heights  
Activity Center**

400 Indian Trail  
Harker Heights, TX 76548

\$100.00 PER DAY OR  
\$250.00 FULL CONFERENCE

RSVP TO MICHEAL BEARD:  
MBEARD@HARKERHEIGHTS.GOV



**PAYMENT WEBSITE: [https://www.paypal.com/donate/?cmd=\\_s-xclick&hosted\\_button\\_id=7UR8MHS5TMCUJ&ssrt=1682686801210](https://www.paypal.com/donate/?cmd=_s-xclick&hosted_button_id=7UR8MHS5TMCUJ&ssrt=1682686801210)**

Open discussion-Questions and Answer







Thank you for attending!!!

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Building Officials Secretary  
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