



City of Harker  
Heights  
February 24, 2023  
Contractors Meeting



1. Significant Changes to the 2023 NEC.  
Effective date.

Important changes- Mike

2. Updates for current standards.

Solar batteries (ESS) -Eric

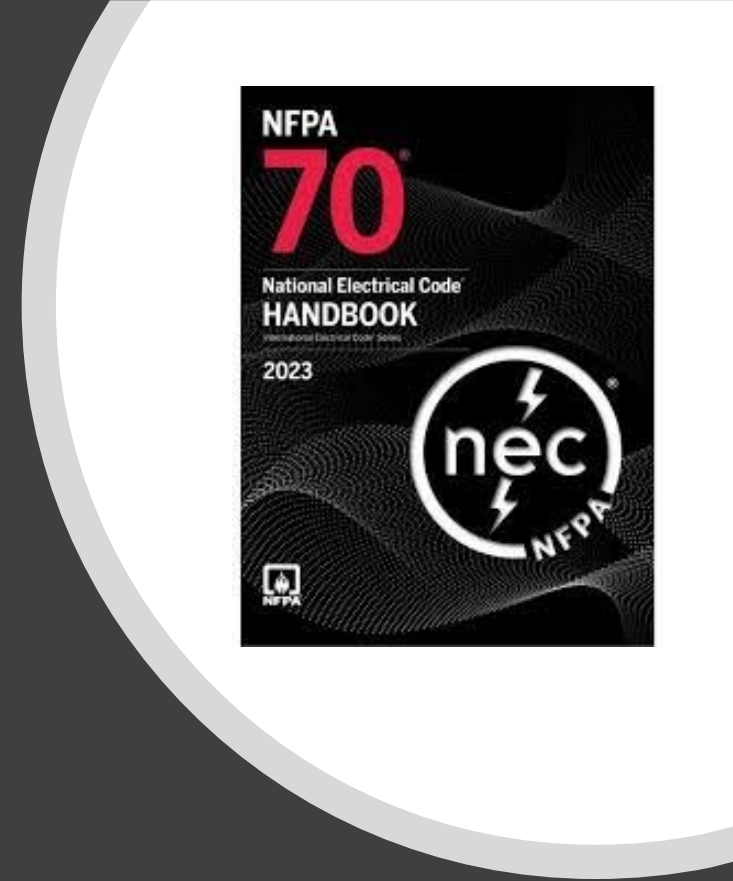
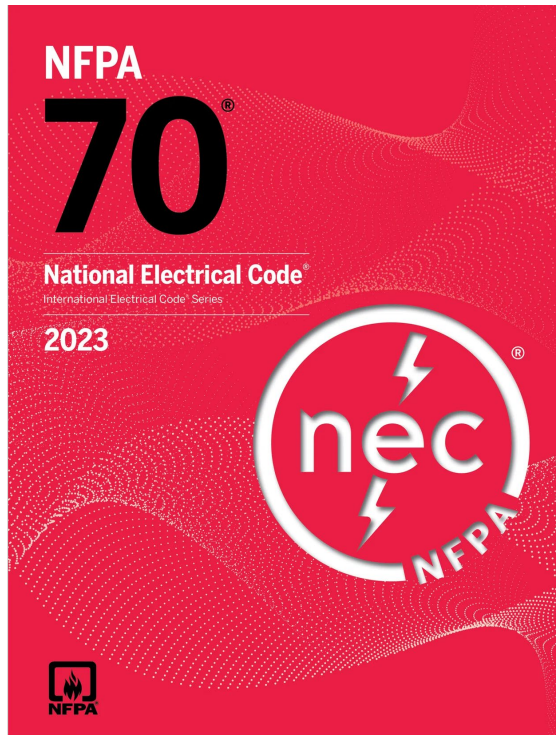
My Permit Now inspection requests. -Courtney

Fences -Mike

Foundation repairs -Mike

3. Open discussion-Questions and Answer.

4. Conclusion



Significant Changes to the  
2023 National Electric Code



TDLR will adopt 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.



- 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."

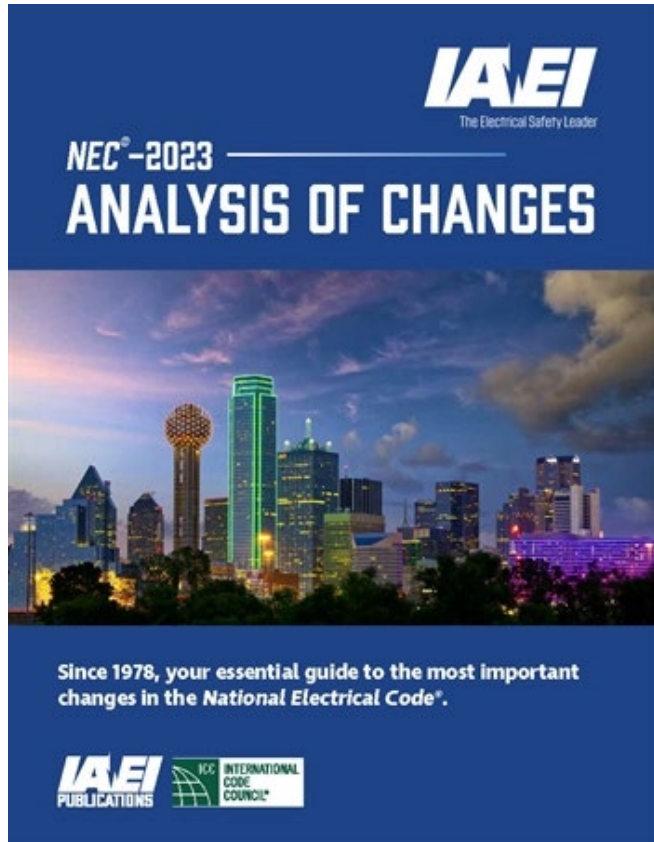
(3) Annexes A, B, C, D, E, F, G, I, and J are adopted.

(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.



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A large red star with a white outline, positioned behind the word "Heights" in the logo.



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## 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



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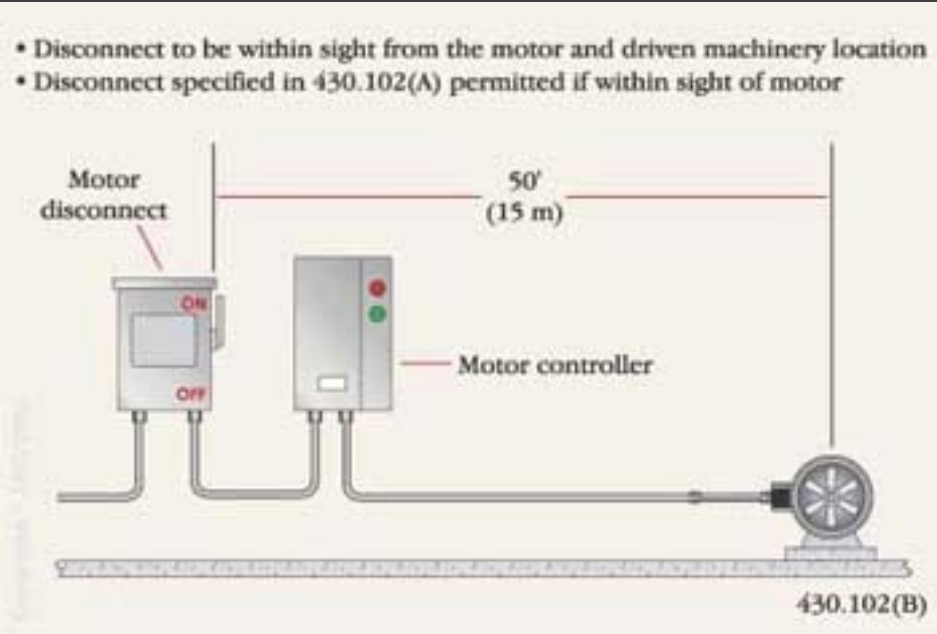
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## Article 100-Definitions

- 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

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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.





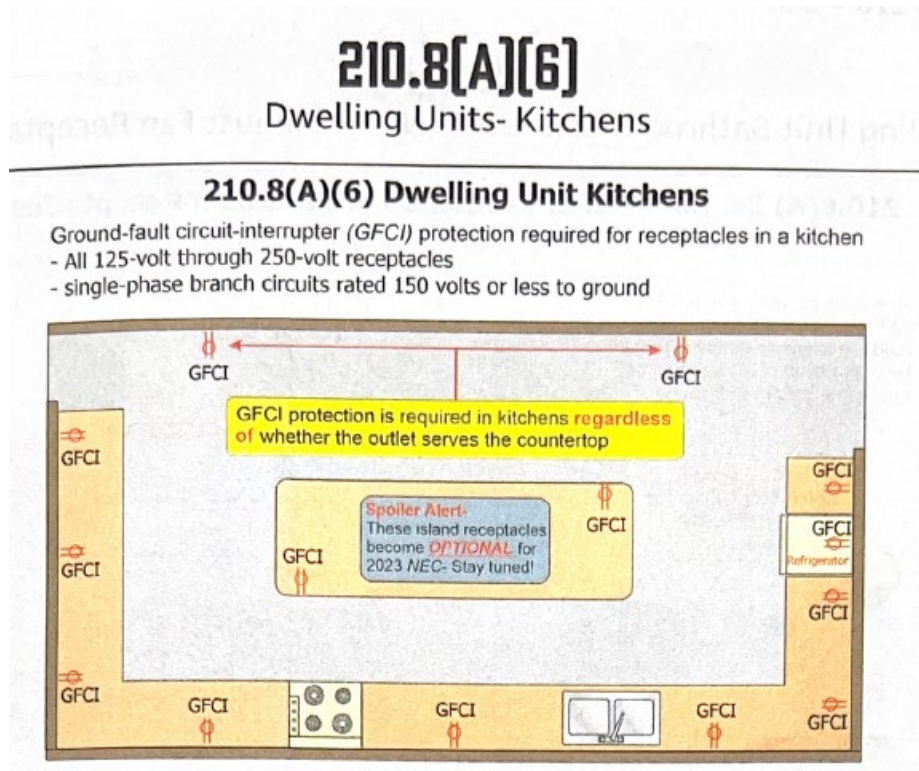
## Article 210.2-Reconditioned Equipment

- 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



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## 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:

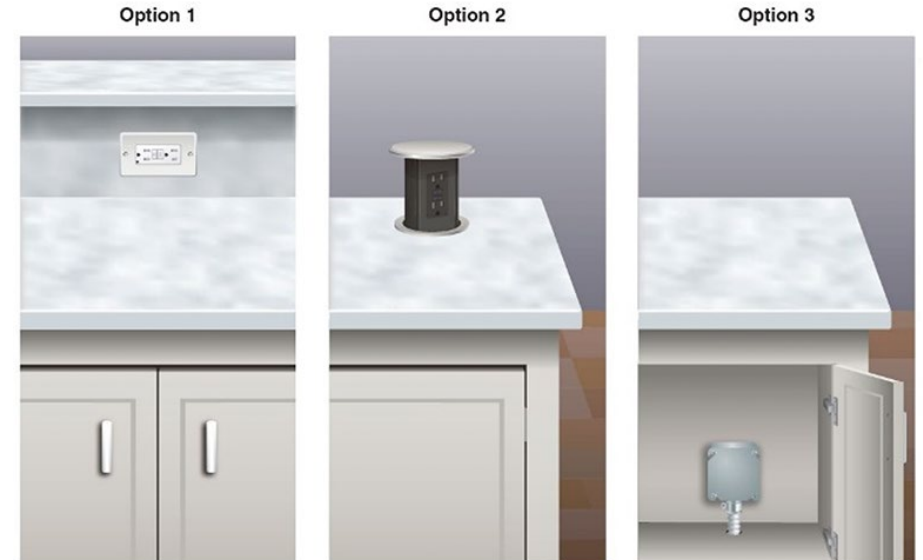
permits installation of receptacle outlets within the countertop or work surface, provided a receptacle outlet assembly listed for the application is utilized.

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)



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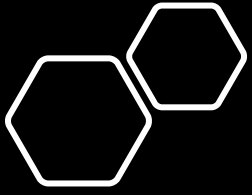
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## Article 242.9 SPD indicating

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



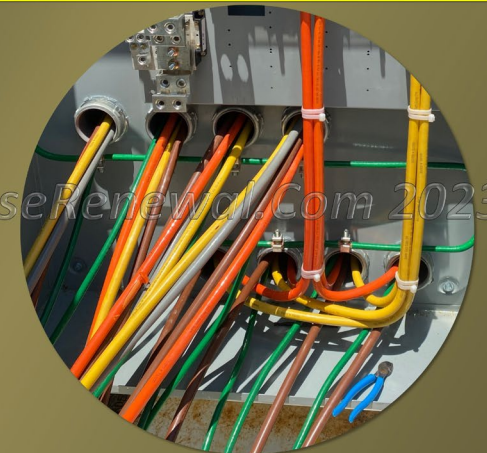


# Article 300.4 (G)

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



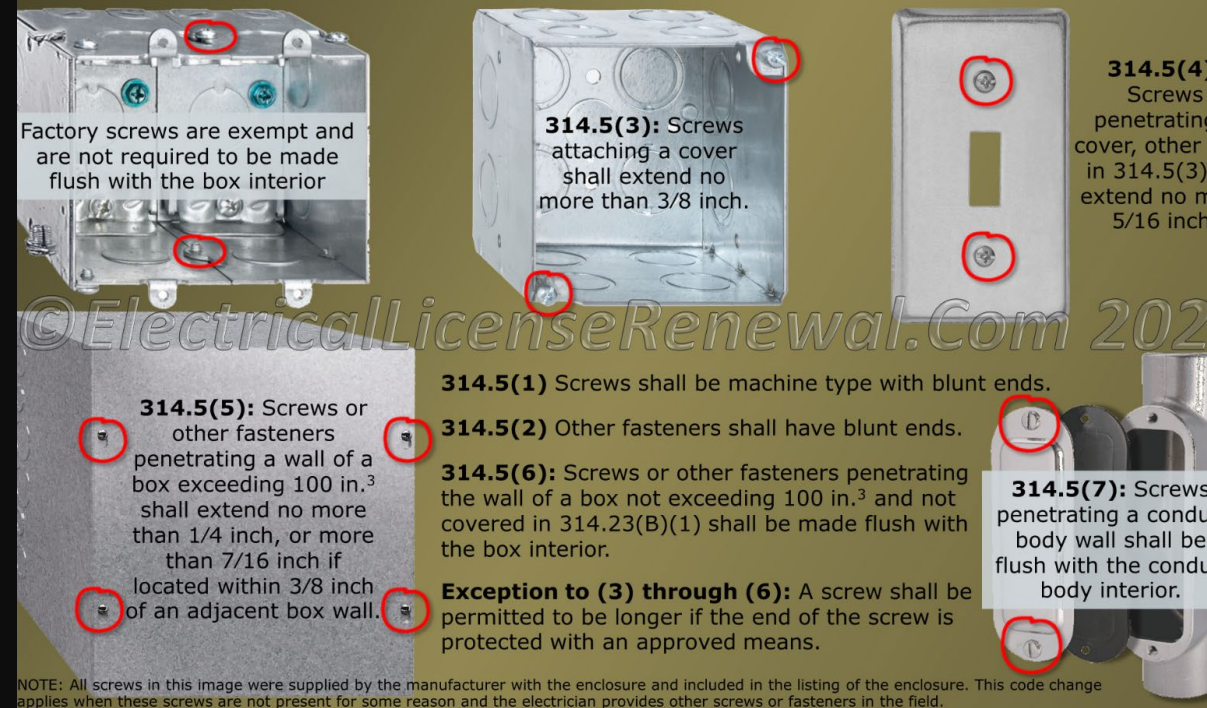
2023 NEC change in 300.4(G) ..... Be sure to install the bushing **BEFORE** the conductors are installed.



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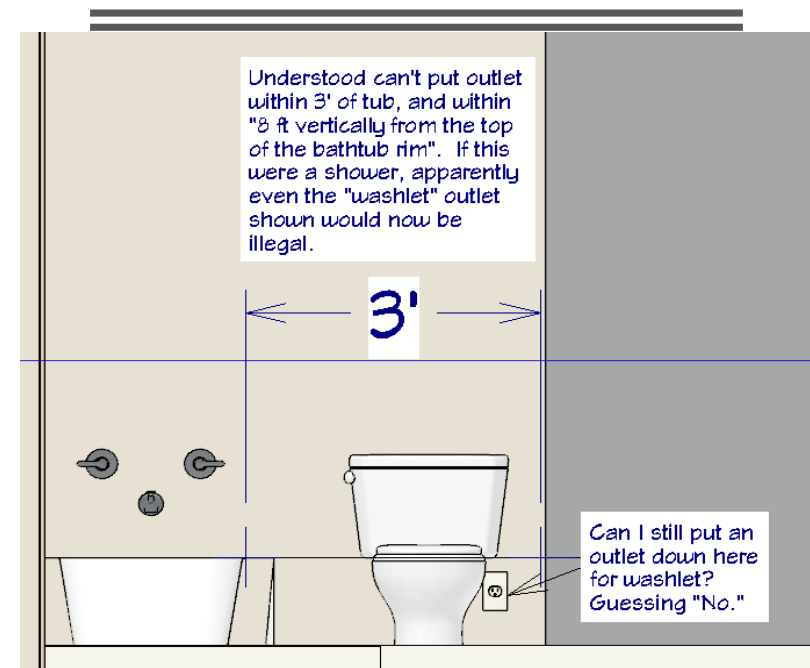
# Article 314.5 Screws or Other Fasteners.

- 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



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.



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## Article 690.12

## Rapid Shut down equipment

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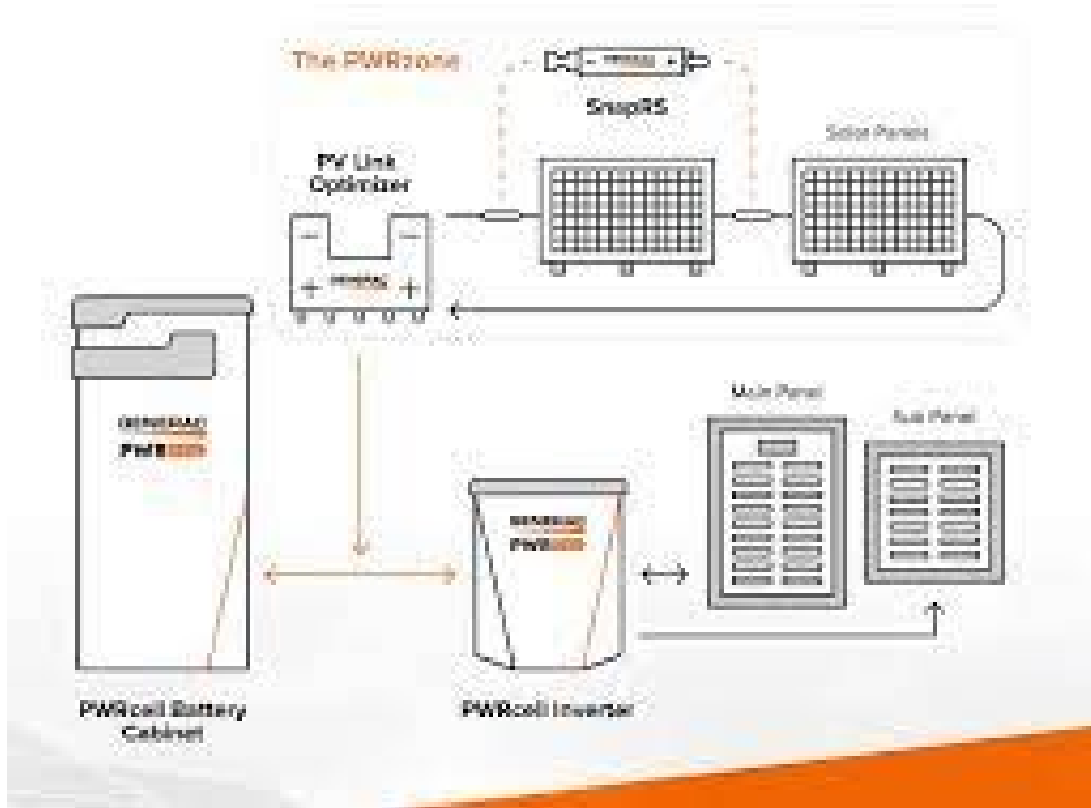
Eliminated rapid shutdown requirements for structures where firefighters will not need to access the roof.

Eric Moree  
Building Inspector

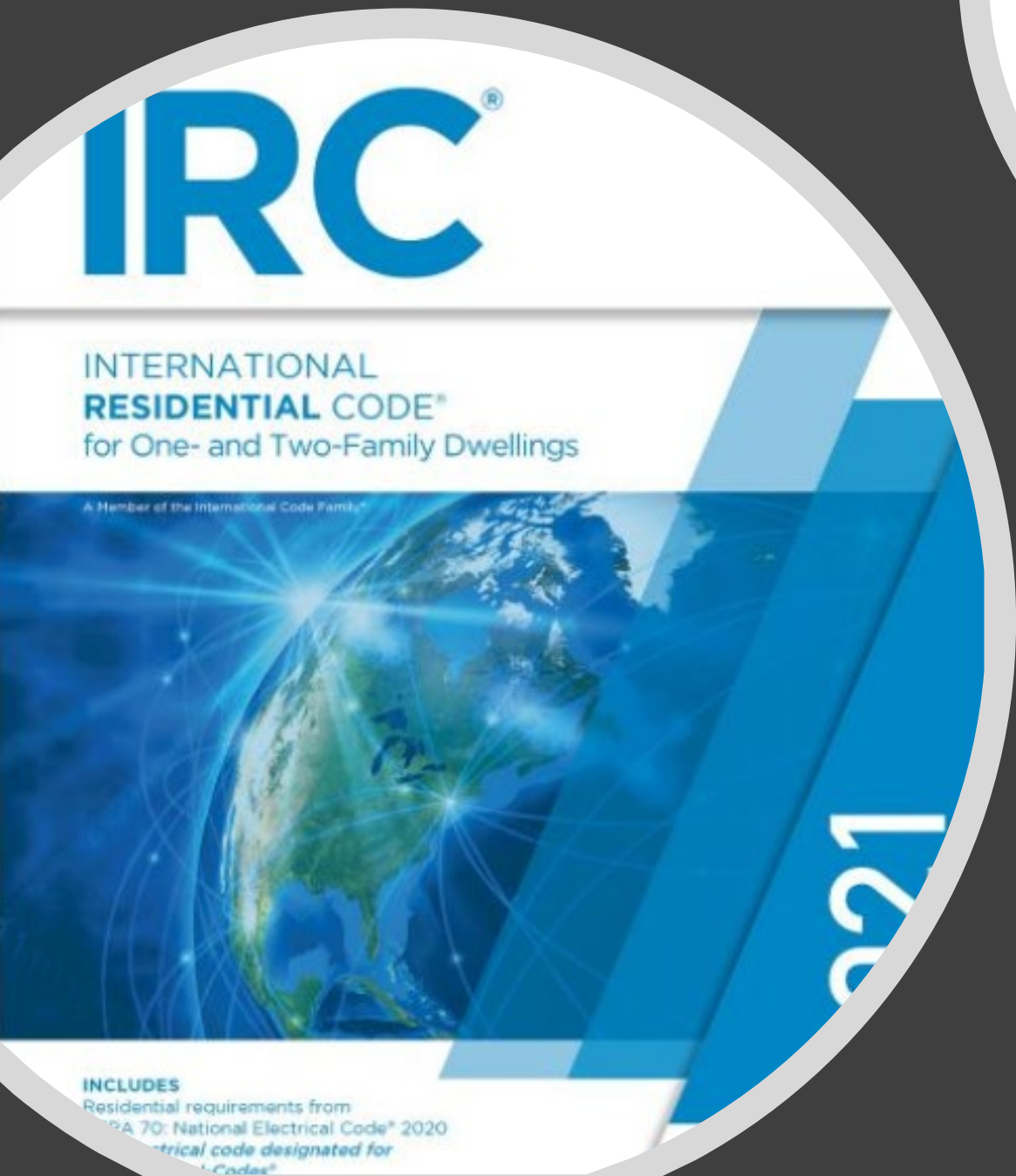
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Updates to current standards.  
Eric Moree, Building Inspector

Solar Battery install.



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2021 International Residential Code (IRC) R328

# Energy Storage Systems (ESS)

# Energy Storage Systems (ESS)

Definition: **ENERGY STORAGE SYSTEMS (ESS)**. One device or multiple devices, assembled together, capable of storing electrical energy to be supplied at a future time.



Tesla Powerwall



LG 16H Prime



# Energy Storage Systems (ESS)

Shall comply with the provisions of section R328.

Exceptions:

1. *ESS listed and labeled in accordance with UL 9540 and marked "For use in residential dwelling units"* where installed in accordance with the manufacturer's instructions and NFPA 70. (exempts UL 9540 listed ESS that will not go into thermal runaway or produce flammable gas when subject to the UL 9540A Cell Level test)
2. ESS less than 1 kWh (3.6 megajoules) (exempts common household standby power systems for tools, alarm systems, and other appliances from having to comply with this section)

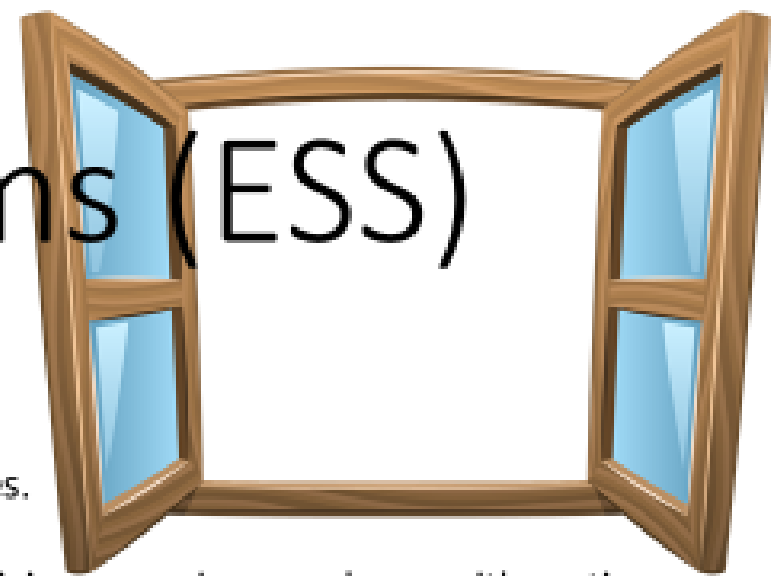


# Energy Storage Systems (ESS)

ESS shall be installed only in the following locations:

1. Detached garages and detached accessory structures.
2. Attached garages separated from the *dwelling unit* living space in accordance with section R302.6.
3. Outdoors or on the exterior side of exterior walls located not less than 3 feet (914 mm) from doors and windows directly entering the *dwelling unit*.
4. Enclosed utility closets, basements, storage or utility spaces within *dwelling units* with finished or noncombustible walls and ceilings. Walls and ceilings of unfinished wood-framed construction shall be provided with not less than  $\frac{5}{8}$ -inch (15.9 mm) Type X gypsum wallboard.

ESS shall not be installed in sleeping rooms, or closets or spaces opening directly into sleeping rooms.



# Energy Storage Systems (ESS)

ESS Units that are not listed and labeled IAW UL 9540, labeled "For use in residential dwelling units", and greater than 1kWh shall meet the following conditions:

Individual units shall be separated from each other by not less than 3 feet (914 mm) except where smaller separation distances are documented to be adequate based on large-scale fire testing complying with Section 1207.1.5 of the International Fire Code (IFC)



# Energy Storage Systems (ESS)



**IGNITION SOURCE.** A flame, spark or hot surface capable of igniting flammable vapors or fumes.

Such sources include *appliance* burners, burner ignitors and electrical switching devices.

*Equipment and appliances* having an *ignition source* and located in hazardous locations and public garages, private garages, repair garages, automotive motor fuel-dispensing facilities and parking garages shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the floor surface on which the *equipment or appliance* rests.

\*Ref 2021 International Mechanical Code (IMC) Section 304.3

18" Minimum  
Garage floor

# Energy Storage Systems (ESS)

ESS Units that are not listed and labeled IAW UL 9540, labeled "For use in residential dwelling units", and greater than 1kWh shall meet the following conditions:

Individual ESS units shall have a maximum rating of 20 kWh. The aggregate rating of the ESS shall not exceed:

40 kWh within utility closets, basements and storage or utility spaces.

80 kWh in attached or detached garages and detached accessory structures.

80 kWh on exterior walls.

80 kWh outdoors on the ground.

ESS installations exceeding the permitted individual or aggregate ratings shall be installed in accordance with Section 1207 of the IFC



13.5 kWh per unit



16 kWh per unit

# Energy Storage Systems (ESS)

ESS Units that are not listed and labeled IAW UL 9540, labeled "For use in residential dwelling units", and greater than 1kWh shall meet the following conditions:

Rooms and areas within *dwelling units*, basements and attached garages in which ESS are installed shall be protected by smoke alarms in accordance with section R314. A heat detector, *listed* and interconnected to the smoke alarms, shall be installed in locations within *dwelling units* and attached garages where smoke alarms cannot be installed based on their listing.



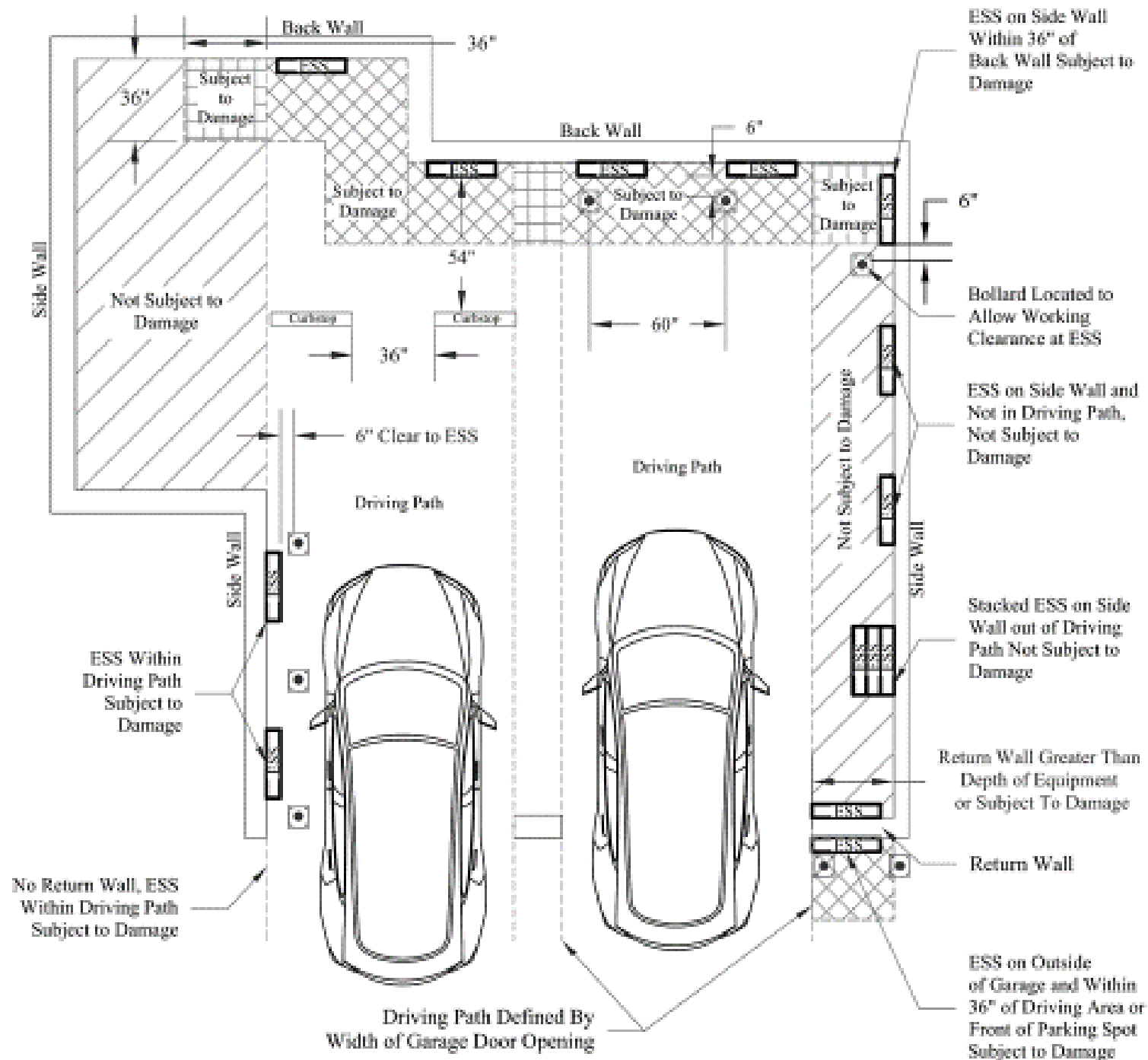
# Energy Storage Systems (ESS)



ESS installed in a location subject to vehicle damage shall be protected by *approved* barriers to reduce the risk of a failure of an ESS unit due to impact, protection is required. Impact could create a situation where thermal runaway could occur. This section is based on Section M1307.3.1 for impact protection of mechanical appliances.

\*Ref 2021 International Mechanical Code (IMC) Section 1307.3.1







# Pass or Fail?



# Red Tag



# Red Tag



# Red Tag



# Red Tag



# Red Tag



Interconnected smoke alarm within 12" of the ceiling.

5/8" Type-X gypsum  
(1/2" is typical)

3" Separation between units.

3' Separation from door and window openings to the dwelling.

18" Separation from ignition source



# Red Tag



Interconnected smoke alarm within 12" of the ceiling.

5/8" Type-X gypsum  
(1/2" is typical)

3' Separation between units.

Vehicle impact protection.

3' Separation from door and window openings to the dwelling.

18" Separation from ignition source



Courtney Fye  
Building Officials Secretary

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# IVR Phone Inspections

# MyGovernmentOnline Account

- In order to schedule an inspection using the new IVR phone inspection line you will need an account with MyGovernmentOnline.org or if you already have an account, you will need your account number.



# Creating an Online Account

- Go to [mygovernmentonline.org](http://mygovernmentonline.org)
- Click on Customer Portal
- Click Create Account
- Complete the information requested
- Click Create Account on the bottom of the page
- A box will pop up saying your account was created

**Create Account on Customer Portal**

**Important:**

1. Before an account becomes fully functional it will require phone verification. You can still login without a verified account.
2. Upon clicking the "Create Account" button below, a phone verification call will be made to the listed phone number.
3. If you miss the call you can retry the call by logging in under your account and pressing the "Retry Phone Verify" button.

**Your Login Information**

E-mail \*  Confirm E-mail \*

Password \*  Confirm Password \*

**Your Account Information**

First Name \*  Last Name \*  Business Name

Enter a phone number that will be used to verify your account:

Phone Number \*

# Finding your account number

- Once logged into MyGovernmentOnline.org, click the My Account button at the top right side of the screen
- You will need the Account number to call in inspections using the IVR system

## My Account Dashboard

My Account (Account Number: 423833)

First Name Text	Last Name User	Business Name City of Harbor Heights		
E-mail * cye@harborheights.gov		<a href="#">Click here to change your password</a>		
Mailing Address Address		City	State Select State	Zipcode
Search Defaults Country - Select Default Country -		State - Select Default State -	Jurisdiction - Select Default Jurisdiction -	
<b>Account Preferences</b>				
<input type="checkbox"/> Send me an e-mail confirmation when I successfully submit an online application.				
<input type="checkbox"/> Send me an e-mail confirmation when I have successfully uploaded files to a project				
Type your Password to Confirm				
<input type="password"/>				
<input type="button" value="Save"/>				

## My Numbers

This phone number will be used to verify your identity. The system will call this number to confirm you are the creator.  
Please be available to answer the phone at this number. You can add as many numbers as you want, as long as you have access to answer calls made to these numbers.

	Phone 1	Phone 2	Phone 3	Type	
Add Phone Number	<input type="text" value="000"/>	<input type="text" value="000"/>	<input type="text" value="0000"/>	Home	<input type="button" value="Save"/>

## CALLING THE IVR

- Phone number: 866-957-3764 option 5
  - Input Account number
  - Press 1 to continue
  - Input first few letters of the jurisdiction
  - Listen to jurisdiction options and press corresponding number
  - Input permit number (22#25436)
  - Press 1 to schedule inspection at that address
  - Press number with corresponding inspection requested
  - Input date (MM/DD/YYYY)
  - Automated system will tell you the inspection has been scheduled and to press 1 to end the call
- \*\* Please note all inspections scheduled before 4:00 pm will be completed the following working day \*\*



# Online Inspections

# SCHEDULING INSPECTIONS ONLINE

- Log into MyGovernmentOnline.org
- Click on Permits & Licensing
- Click Search Permits
- Input information into form to search for the permit
- Find permit you are needing to schedule the inspection for and click "Request Inspection" on the right-hand side of the screen
- Select inspection you are requesting from the drop-down menu and select the date you are requesting the inspection for. Input any notes in the notes back
- Click Add button
- Click Submit Request(s) to Jurisdiction button once all inspections have been scheduled
- Box will pop up saying the inspection was scheduled

**Search Permit Applications**

**Required**

Select Jurisdiction: You can select default values for country, state, and jurisdiction.

Country:  State:

Jurisdiction:

Project Type:

[Click here for advanced reporting or bulk downloads. Otherwise, continue below.](#)

**Suggested**

Please fill out only one of the suggested categories for best results. At least one.

Project #:

**OR**

Street Number:  Street name:

**OR**

Parcel Number:

Ex: Less information will return more results. If the Optional Only used to narrow down a large list of.

**Request Inspection**

Inspection Type:

Address:

Requested Date:

Scheduled date is a request only. The Jurisdiction may modify the date based on their internal policies that account for the time the work. Please contact the Jurisdiction directly for more information.

Notes

GATE IS UNLOCKED INSPECTOR HAS PERMISSION TO ACCESS PROPERTY

# Any questions:

Courtney Fye

[cfye@harkerheights.gov](mailto:cfye@harkerheights.gov)

254-953-5647

Questions for MyGovernmentOnline.org website call 866-957-3764



Fences

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## Fences: In easements

Any fence built in or across utility easements shall remain the responsibility of the property owner. In the event that the fence is constructed on an easement and the fence is subsequently damaged or destroyed through the exercise of the rights of the owner of the easement, the repair or replacement of the fence shall be the sole responsibility of the property owner.



Fences: Drainage Easements.

Fences may not be placed within a drainage easement or impede the natural or designed flow.

Based on topography, flow and other conditions a fence that would not change or restrict the flow of run-off may be allowed. (chain link, wrought iron) within a drainage easement. Drainage calculations may or may not be required based on conditions.

In addition, alternate options may be available, depending on the conditions.



Fences:

Alternative material over 6' in height.

(B) Except as provided in division (A), fences may be constructed only of masonry, cedar, redwood, treated lumber, chain link, or decorative iron, and no other materials are permitted unless approved in writing by the Building Official. Wooden fence material placed in contact with the earth shall be treated to protect the material from rot, decay, and termites.



Fences:

Alternative material over 6' in height.

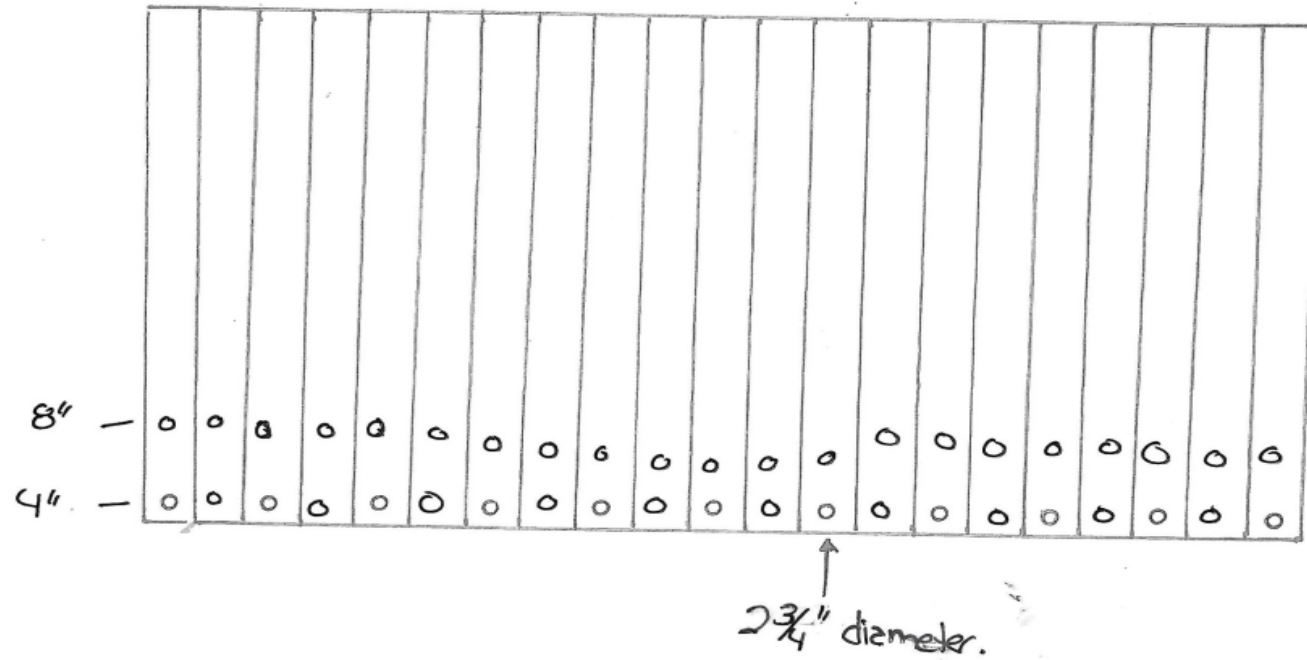
(C) (1) The use of any alternative fence materials must be approved by the Building Official. Such authorization shall be based on specific proposals that demonstrate superior craftsmanship, aesthetic harmony with and enhancement of the streetscape and the neighborhood, structural integrity, durability, safety, and overall design exceeding the standards under § 150.36.

(2) Alternative fence materials exceeding six feet in height must be approved in writing by the Director of Planning and Development and the Building Official.

(D) All fences must be maintained in good order and repair.

# Example

Every sheet on backline must have hole drilled in it  
 $2\frac{3}{4}$  diameter and on left side in low spots  
put some holes for drawing.





## Fences

General rule is no fences shall be located in a drainage easement.

However, some conditions that will be considered are:

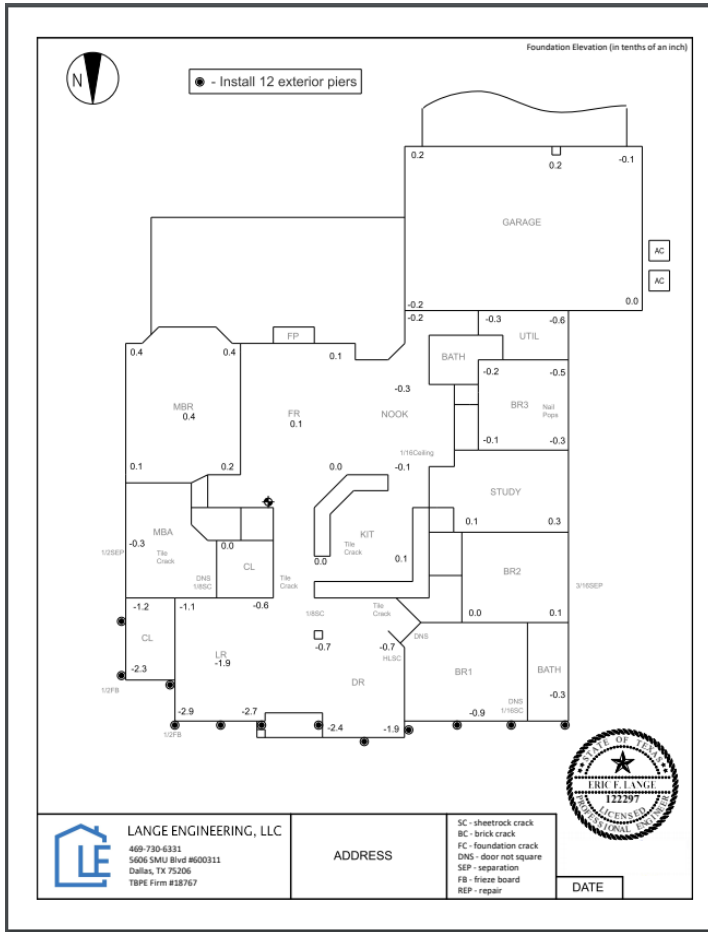
- Material type
- Amount of flow
- Construction and installation
- Etc.



## Foundation repair.

All foundation repair shall be designed by a Texas Design Professional and the plans shall bear the stamp and signature.





Foundation Repair plans.

Open discussion-Questions and Answer





Thank you for attending.

Michael Beard, CBO, CFM  
Building Official  
City of Harker Heights  
(254)953-5647  
[mbeard@harkerheights.gov](mailto:mbeard@harkerheights.gov)

Courtney Eye  
Building Official Secretary  
(254)953-5647  
[cfye@harkerheights.gov](mailto:cfye@harkerheights.gov)

Eric Moree  
Building Inspector  
(254) 953-5642  
[emoree@harkerheights.gov](mailto:emoree@harkerheights.gov)