

Welcome Iowa Electricians!

What Does Iowa Require?

18-Hours of Continuing Education Required

- The Iowa electrician must complete no less than 18 Continuing Education Units (CEUs) in each three-year license cycle.
- No less than 6 of those 18 CEUs must focus on the most recent Iowa electrical code.
- JADE Learning's two-hour VILT sessions satisfy ALL of Iowa's requirements for electrical continuing education.
- **9 VILT sessions provides you all 18 hours.**



1

2023 NEC Changes

Important Changes from the 2023 NEC

6:00 PM Eastern Time

← 5 PM in Iowa

5:45 PM – 6:00 PM Eastern	Registration / Check In
6:00 PM – 7:00 PM Eastern	NEC Chapter 4 <i>with poll questions</i>
7:00 PM – 7:10 PM Eastern	Break
7:10 PM – 8:00 PM Eastern	NEC Chapter 4 continued <i>with poll questions</i>
8:00 PM Eastern	Questions for the instructor?

2



3

404.2(C) Switches Controlling. Lighting Loads

The 2020 NEC held 5 conditions where a grounded (white-colored) conductor is not required at a lighting outlet switch box.

The 2023 NEC removed one of the 5 conditions.

The following was removed and is no longer applicable in 2023—
(Condition 2 from the 2020 NEC):

- Where the box enclosing the switch is accessible for the installation of an additional or replacement cable without removing any finish materials.

2023 NEC Changes

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2020

Exception for accessible box where wiring can be added

No Grounded (Neutral) Conductor required

White was typically re-identified as "hot" in 2-wire switch loops

2023

Exception Deleted

Grounded (Neutral) Conductor required at Light Switch box

An extra conductor, usually red, is needed to complete the loop

4

404.14(D) Snap Switch Terminations

The requirements previously found in 404.14(D) *Alternating-Current General Use Snap Switches Rated for 347 Volts*, have moved to 404.14(E) in the 2023 NEC.

MEANWHILE..

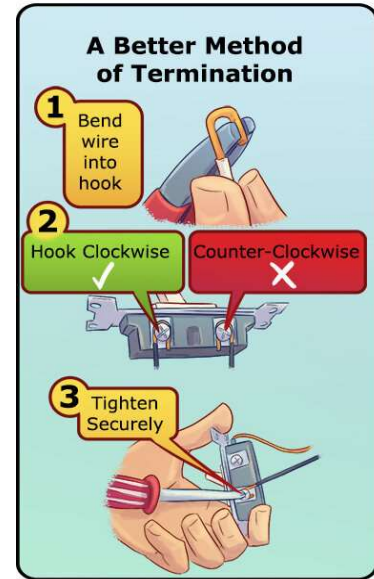
In **2023 NEC**, 404.14(D) is now titled *Snap Switch Terminations*.

In this newly formed code section, is the new requirement stating:

Push terminations on the back of snap switches are now declared to be limited to wires no larger than 14 AWG copper, and circuits no greater than 15 amps.

2023 NEC Changes

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5

404.16 Reconditioned Equipment

Article 404 is all about electrical switches. Section 404.16 covers the requirements for electrical switch reconditioning.

NEC 404.16 *Reconditioned Equipment* is brand-new **in the 2023 NEC**.

It has 4 sections covering switch reconditioning:

- **(A) Lighting, Dimmer, and Electronic Control Switches**
- **(B) Snap Switches**
- **(C) Knife Switches, Switches with Butt Contacts, and Bolted Pressure Contact Switches**
- **(D) Molded-Case Switches**

2023 NEC Changes

Shall Not Use
Reconditioned
Lighting



Dimmer



Electronic Control



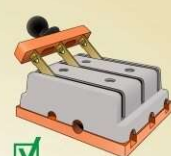
Snap Switches



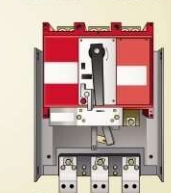
Molded Switches



May Use
Reconditioned
Knife Switch



Bolted Pressure



Butt Contact



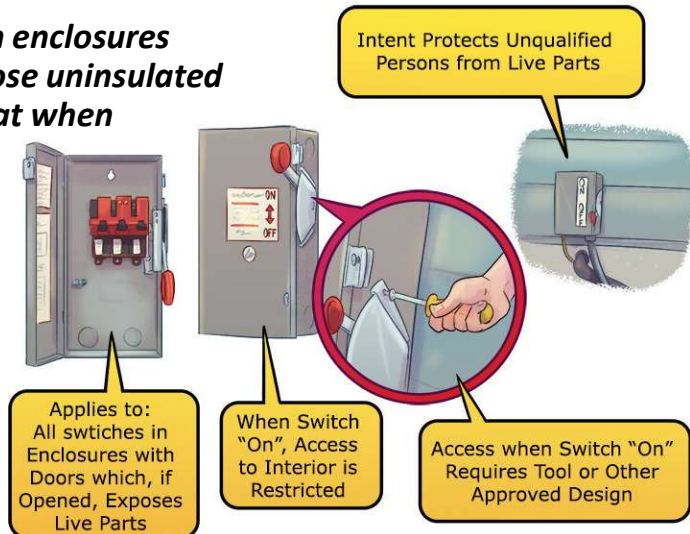
6

404.30 Switch Enclosures with Doors

Section 404.30, *Switch Enclosures with Doors*, is brand-new **in the 2023 NEC**, it states:

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 Changes



7

Article 406

Receptacles, Cord Connectors, and Attachment Plugs (Caps)

8

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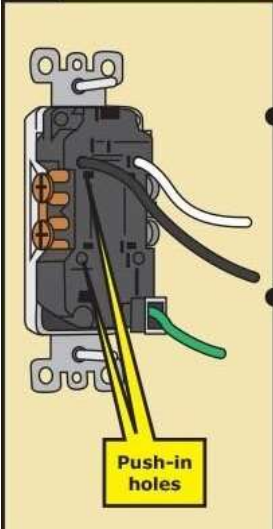
406.3(D) Receptacle Terminations

Article 406 covers all things to do with RECEPTACLES!

The **2023 NEC** adds new Section **406.3(D), Receptacle Terminations.**

- It includes three new rules for terminating conductors on receptacles [see 406.3(D)].
- It adds a new *Informational Note* to see UL 498, *Attachment Plugs and Receptacles*, for information on screwless terminals.

NEW Push-in Termination Rules



14 AWG Copper Conductors Only

Use only with 15-Amp OCPDs or lower

2023 NEC Changes

9

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406.4(G) Protection of Floor Receptacles

The 2020 NEC addressed sandpipes used with floor receptacles in wet or damp areas to allow for floor-cleaning equipment to be used without damage to the receptacle in section 406.9(D).

This information has moved to the new **406.4(G)** which is titled **Protection of Floor Receptacles**

Lastly, there are also new GFCI requirements in place for floor-mounted receptacles in some public spaces where food or drink is allowed.

- Replaces the term "standpipes for floor receptacles" with "**physical protection of floor receptacles**"



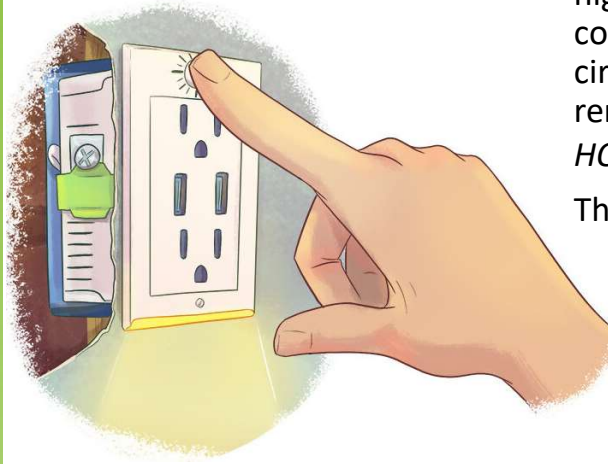
2023 NEC Changes

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10

406.6(D) Receptacle Faceplate (Cover Plates) with Integral Night Light and/or USB Charger

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Section 406.6(D) in 2020 NEC required nightlight faceplates to be listed and constructed so the nightlight and Class 2 circuitry was integral to the faceplate. This remains unchanged in 2023.

HOWEVER...

This 406.6(D) text is new in 2023 NEC:

Listed receptacle faceplates with integral night light, USB charger, or both, that rely solely on spring-tensioned contacts shall be connected to only brass or copper alloy receptacle terminal screws and shall be rated 1 watt or less.

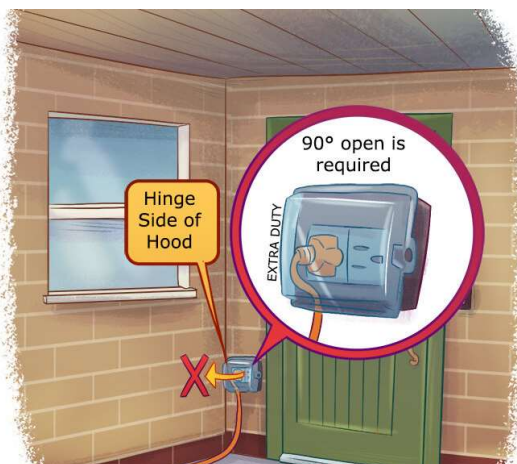
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11

406.9(A),(B) Damp Locations, Wet Locations

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The 2023 NEC retains the same requirements as the previous Code cycle for 406.9(A) *Damp Locations* and 406.9(B) *Wet Locations*.

HOWEVER...

It adds the following requirement to both 406.9(A) and 406.9(B):

Hinged covers of outlet box hoods shall be able to open at least 90 degrees, or fully open if the cover is not designed to open 90 degrees from the closed to open position, after installation.

2023 NEC Changes

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12

406.9(C) Bathtub and Shower Space

In **2020 NEC**, 406.9(C) said: *Receptacles shall not be installed within a zone (3 ft) horizontally and (8 ft) vertically from the top of the bathtub rim or shower stall.*

In **2023 NEC**, 406.9(C) says: *Receptacles shall not be installed **inside of the tub or shower** or within a zone (3 ft) horizontally from any outside edge of the bathtub or shower stall. The zone also includes the space measured vertically from the floor to (8 ft) above the top of the bathtub rim or shower stall threshold.*

A new 406.9(C) Exception allows a receptacle within the prohibited bathtub zone if it is for an electronic toilet seat, but it can NOT be between the tub and toilet!

2023 NEC Changes

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THIS IS OK WITHIN 3 FEET OF THE TUB BECAUSE IT IS NOT INSTALLED BETWEEN THE TUB AND TOILET

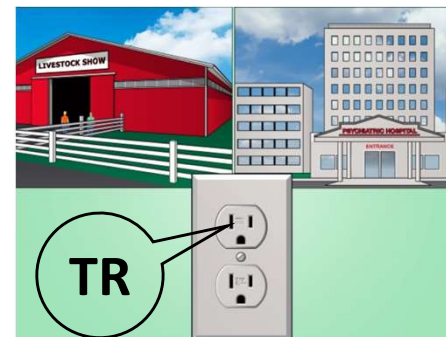


13

406.12 Tamper-Resistant Receptacles.

In the **2023 NEC**, these NEW locations now require Tamper-Resistant (TR) receptacles!

- **Boathouses (at dwellings)**
- **Mobile homes**
- **Manufactured homes**
- **Business offices accessible to the general public**
- **Nursing homes**
- **Fitness centers**
- **Social and substance abuse rehabilitation facilities**
- **Group homes**
- **Foster care facilities**
- **Psychiatric hospitals**
- **Areas of agricultural buildings accessible to the general public**



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14



15

408.4(B) Descriptions Required, Source of Supply.

In 2023 NEC, Section 408.4(B), *Descriptions Required, Source of Supply*, includes the following NEW highlighted requirement:

All switchboards, switchgear, & 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 & physical location of where the power originates.**
2. *With a label that is permanently affixed & of a sufficient durability to withstand the environment involved.*
3. *Using a method that is not handwritten.*

2023 NEC Changes

Panel HC2B
277/480 Volt, 3Phase
Fed From MDP
MDP Located In RM 115

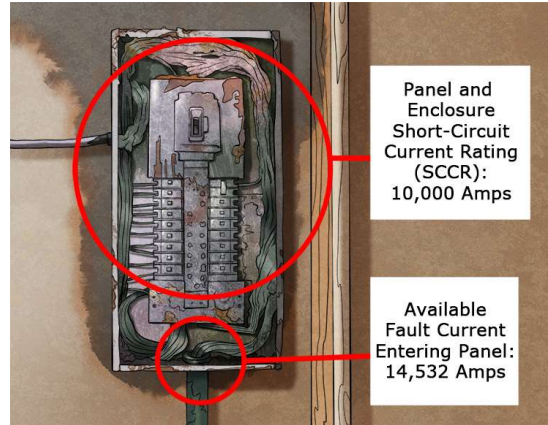
16

408.38 Enclosure

The 2023 NEC adds the following statement to section 408.38:

- ***Where the available fault current is greater than 10,000 amperes, the panelboard and enclosure combination shall be evaluated for the application.***

The other information and the exception in this section remain the same.



2023 NEC Changes

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17

408.43 Panelboard Orientation.

The 2020 NEC required: *Panelboards shall not be installed in the face-up position.*

The 2023 NEC requires: *Panelboards shall not be installed in the face-up or face-down position.*



2023 NEC Ch

18



19

410.10(D) Bathtub and Shower Areas.

In the 2020 NEC, Section 410.10(D)(1) prohibited the following in bathtub or shower areas:
No parts of cord-connected luminaires, chain-, cable-, or cord-suspended luminaires, lighting track, pendants, or ceiling-suspended (paddle) fans.

In the 2023 NEC, Section 410.10(D)(1) requires the same, except the section now only prohibits ceiling-suspended (paddle) fans in tub and shower areas when they are equipped with a luminaire (a light kit)!

THIS FAN COULD MOVE INTO THE RED-SHADED AREA IF IT HAD NO LIGHT KIT!



2023 NEC Changes

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20

410 Part XVII

Special Provisions for Germicidal Irradiation Luminaires

Article 410 Part XVII is all new in the 2023 NEC.

It is broken down and contains information on the following 5 sections:

- **410.190 General**
- **410.191 Listing**
- **410.193 Installation**
- **410.195 Locations Not Permitted**
- **410.197 Germicidal Irradiation Systems**



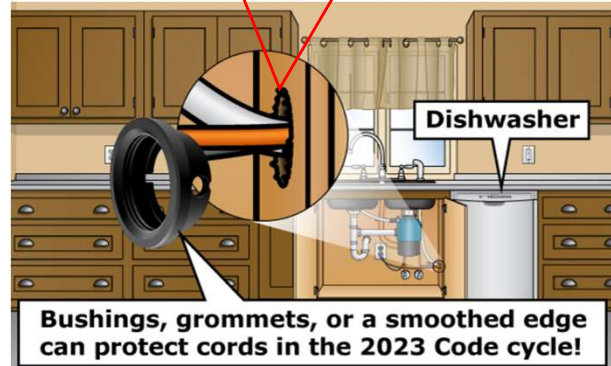
Article 422 Appliances

422.16(B) Specific Appliances

In the 2020 NEC, Section 422.16(B)(2)(5) said: *Where the [appliance's] flexible cord passes through an opening, it shall be protected against damage by a bushing, grommet, or other approved means.*

In the 2023 NEC, the code now says: *If a [appliance's] flexible cord passes through an opening, it shall be protected against damage by a bushing, grommet, **smoothed edge**, or other approved means.*

A "SMOOTHED EDGE" IS OFTEN A SANDED EDGE OF THE HOLE MADE IN THE SIDE OF A WOODEN CABINET!



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23

422.18 Ceiling-Suspended (Paddle) Fans

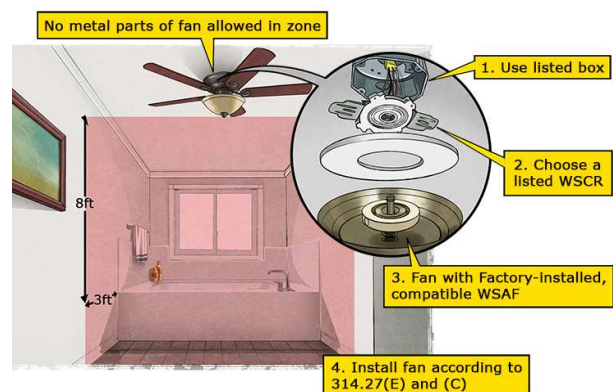
Section 422.18 is separated into two subsections, (A) and (B) in the 2023 NEC.

Section (A) is titled Support and contains the information that was included in the 2020 NEC

- It also is adjusted to utilize the new terms **Weight Supported Ceiling Receptacle (WSCR)** and **Weight Supported Attachment Fitting (WSAF)**

Section (B) is titled Location and is all new to the 2023 NEC. In general, it states:

- No metal parts of ceiling-suspended (paddle) fans shall be located within a zone 3ft horizontally and 8ft vertically from the tub or shower



2023 NEC Changes

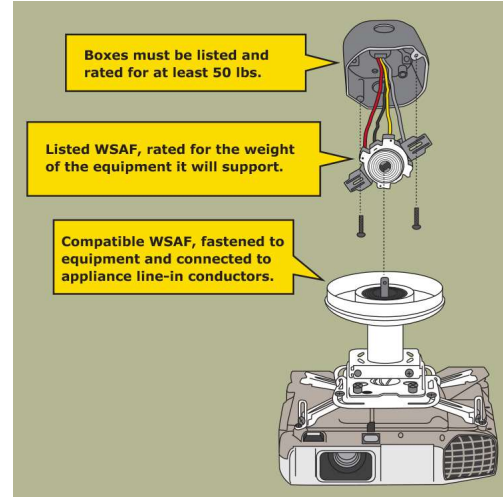
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24

422.22 Utilizing Separable Attachment Fittings

In the 2023 NEC, section 422.22 has been revised to utilize the new terms, which are defined in Article 100 Definitions:

- **Weight-Supporting Ceiling Receptacles (WSCR)**
- **Weight-Supporting Attachment Fittings (WSAF)**



Article 424 Fixed Electric Space-Heating Equipment

424.93 Installation

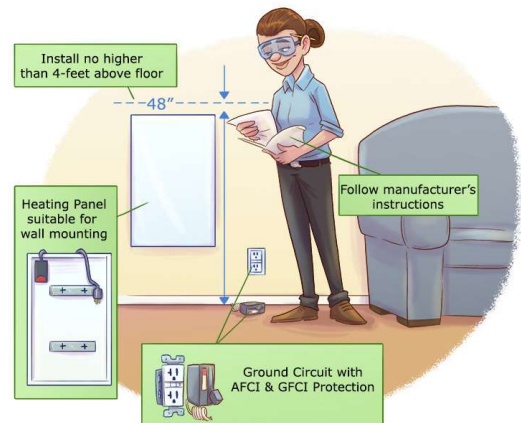
In the 2023 NEC, section 424.93 has been revised as compared to the 2020 NEC.

There are two changes:

- 424.93(A)(2)(4) is new and states: ***in walls, except as permitted by 424.93(C)***

(C) is an all-new sub-section, titled ***Installation of Heating Panels in Walls*** and contains 6 requirements in which heating panels shall be permitted to be installed when they are all met

- ***This section becomes effective January 1, 2026***



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27

Article 430 Motors, Motor Circuits, and Controllers

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28

28

430.113 Energy from More than One Source

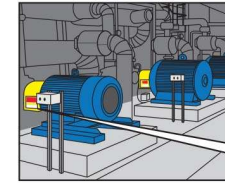
Section 430.113 is expanded in the 2023 NEC as compared to the 2020 NEC.

The following statement has been expanded:

- *Where multiple disconnecting means are provided, a permanent warning sign shall be provided on or adjacent to each disconnecting means **indicating that multiple sources must be shut off to remove all power to the equipment.***

In addition, the following statement is new:

- *The sign at each disconnect shall **identify the other specific circuits***



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2023 NEC Changes

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29

Article 440 Air-Conditioning and Refrigerating Equipment

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30

30

440.8 Single Machine and Location.

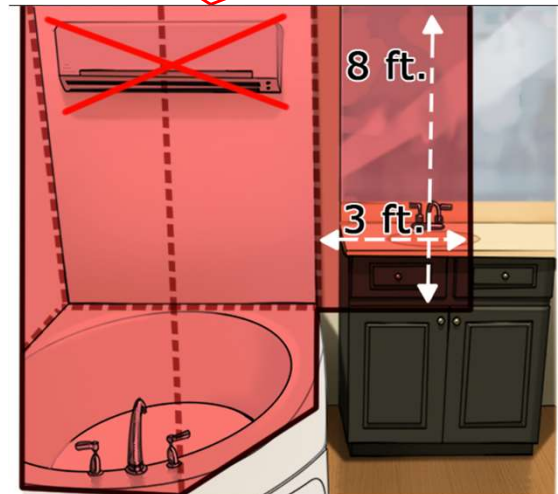
Article 440 covers air-conditioning and refrigerating equipment!

In the 2023 NEC, 440.8 includes a NEW requirement that states:

Air conditioning and refrigeration equipment shall not be installed within a zone measured (3ft.) horizontally and (8 ft.) vertically from the top of a bathtub rim or shower stall threshold. The zone shall be all-encompassing and include the space directly over the tub or shower stall.

2023 NEC Changes

**NO HEATER IN THE
RED-SHADED AREA!**



31

Article 445 Generators

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32

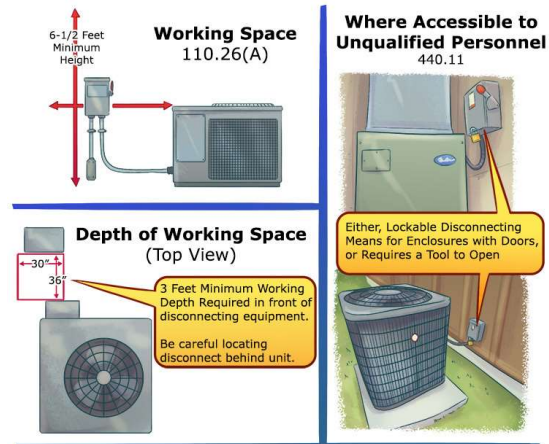
32

445.19 Emergency Shutdown of Prime Mover

Section 445.19 is another all-new addition to the 2023 NEC.

This section addresses **Emergency Shutdown of Prime Mover** and has 3 sections:

- **(A) General**
- **(B) Remote Emergency Shutdown**
- **(C) Emergency Shutdown in One- and Two-Family Dwelling Units**



2023 NEC Changes

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33

THANK YOU FOR ATTENDING!

Questions?

For additional instructor support, please contact
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34