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Iowa State-Approved

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Based on the NEC

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- System components
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1(800)443-5233



support@jadelearning.com

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.



2020 NEC Changes

Important Changes from the 2020 NEC

Instructor: Jerry Durham

Common reasons for not seeing your CE units posted (yet) on the Iowa website:

- The electrician didn't provide the correct electrical license number to JADE Learning.
- The electrician didn't use their correct name during the class. Make sure your displayed name during the training session is your legal name.
- The electrician didn't complete and submit the survey at the end of class. Iowa does not give continuing education credit until the survey is completed at the end of each class.
- We can fix any of these issues—DON'T WORRY- JUST LET US KNOW!

Thank you!

Questions? Concerns?

Call the JADE Learning office at 1-800-443-5233

Iowa



2020 NEC Changes CHAPTER 4 (Part-2)

- 2-Hours Credit

Welcome Iowa



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What is Found in Chapter 4 of the NEC?

EQUIPMENT FOR GENERAL USE

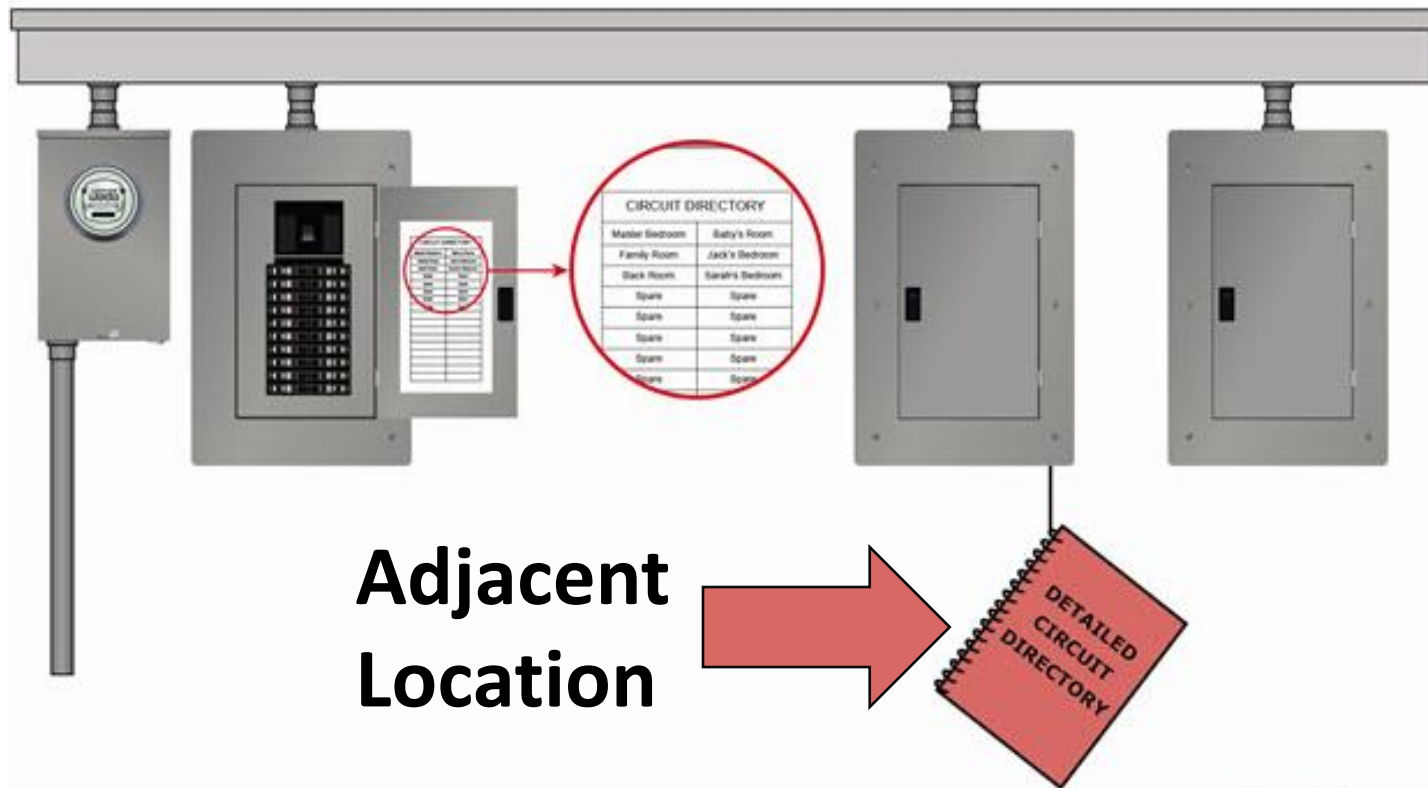
Chapter 4 of the NEC addresses the following:

- Flexible cords and cables, fixture wires, switches, receptacles
- Switchboards and panel boards
- Lamps, lighting, appliances, and space heaters
- Motors, refrigeration equipment, generators, and transformers
- Capacitors and other components



2020 NEC Changes Chapter 4_b.

408.4(A) Field Identification Required. Circuit Directory or Circuit Identification.



What's New in the 2020 NEC?

A circuit directory can be installed:

- On the face of a panel door.
- Inside a panel door.

OR

- In ***an approved location adjacent to*** the panel door. (This is new for the 2020 Code cycle.)

But the AHJ must approve all adjacent location(s).

408.6 Switchboards/Panelboards. Short-Circuit Current Rating (SCCR).

What's New in the 2020 NEC?

- Section 408.6 extends available fault current marking requirements to all switchboards, switchgear, and panelboards installed in other than one- and two-family dwelling units.

DON'T FORGET: The equipment Short Circuit Current Rating (SCCR) must be no less than the available fault current calculated for that equipment site.



410 Luminaires, Lampholders and Lamps. Part XVI. Special Provisions for Horticultural Lighting Equipment.



What's New in the 2020 NEC?

- Horticulture lighting equipment is now regulated by the NEC.

Hor·ti·cul·ture

1. The art or practice of garden cultivation and management.

- Locations include areas such as greenhouses and nurseries.
- New NEC horticulture requirements address the equipment listing, installation, location, fittings, use of flexible cord, and GFCI protection.

410.2 and 410.16 Luminaires, Lampholders, and Lamps. Luminaires in Clothes Closets.

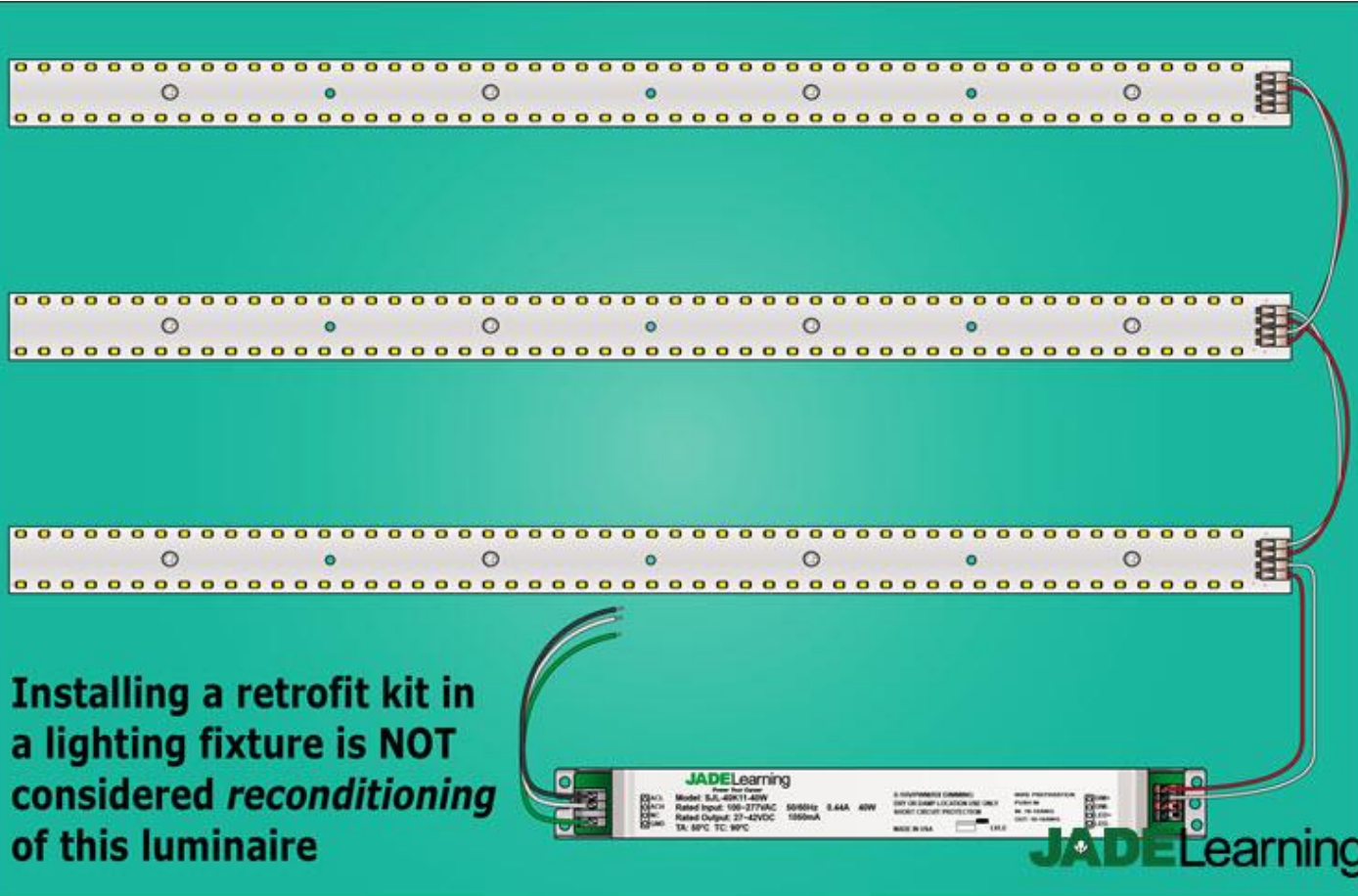
What's New in the 2020 NEC?

- The phrase:
Closet Storage Space has been replaced with:
Clothes Closet Storage Space.

DON'T FORGET: To view the locations within a clothes closet storage space where lighting fixtures are permitted, refer to Section 410.16.



410.7 Luminaires, Lampholders and Lamps. Reconditioned Equipment.



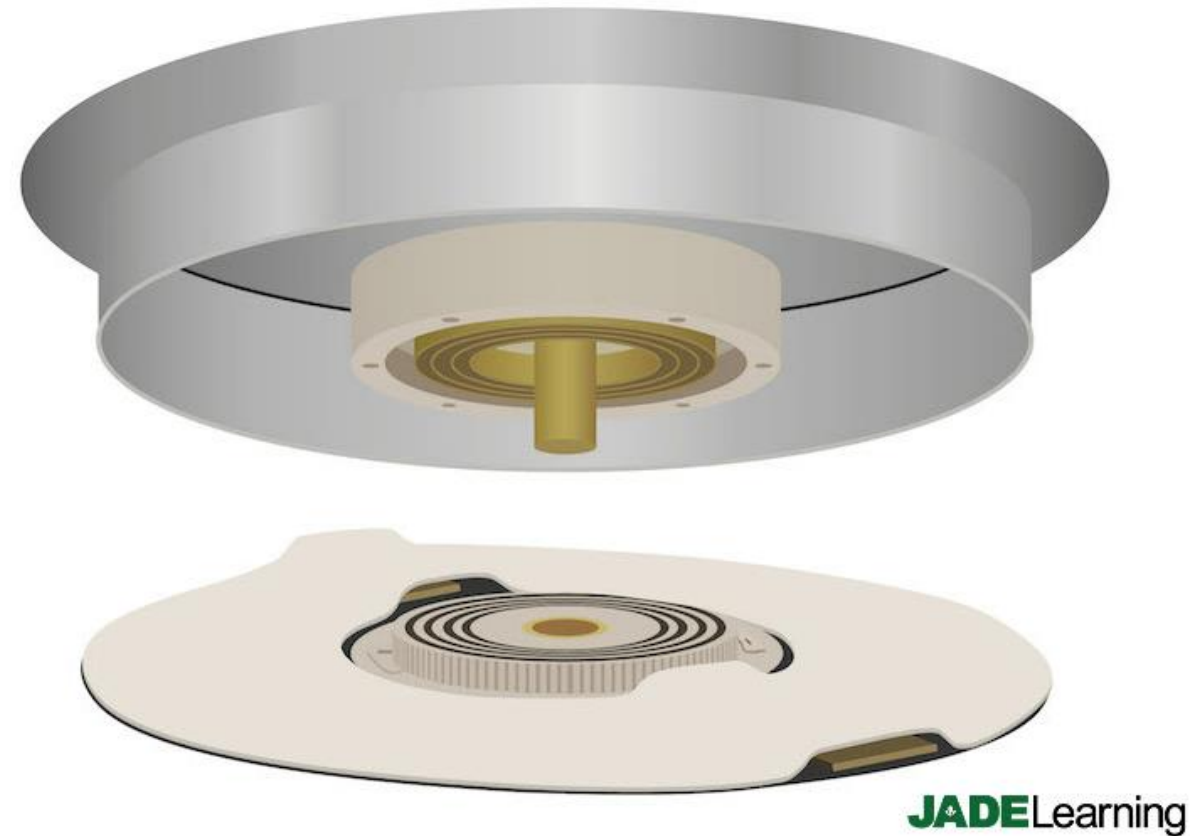
What's New in the 2020 NEC?

- Luminaires, lampholders, and retrofit kits are **not** allowed to be reconditioned.
- However, installing a retrofit kit to a luminaire in accordance with the kit instructions is **not** considered “reconditioning.”

410.36(A) Luminaires Supported by Outlet Boxes.

What's New in the 2020 NEC?

Section 410.36 in the 2020 NEC states that a new quick-connect **locking support & mounting receptacle**, installed at an outlet box for the quick connection of a luminaire, is recognized as an approved lighting outlet and satisfies the lighting outlet requirements from NEC Section 210.70(A), (B), and (C).



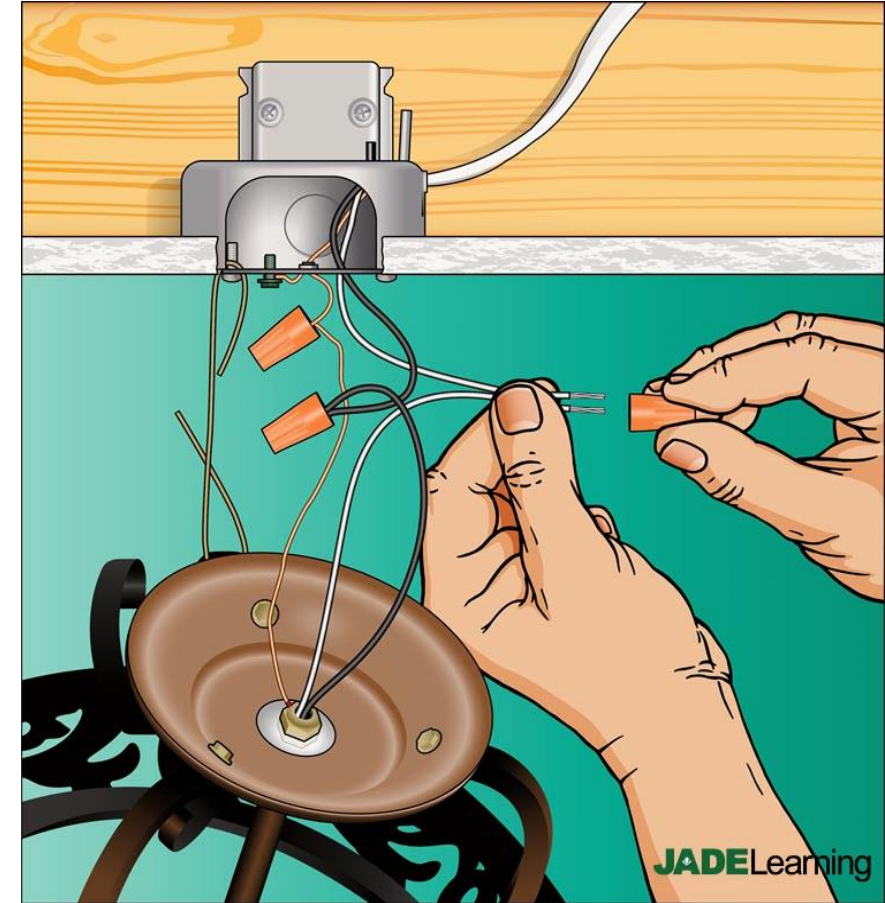
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410.44 Methods of Grounding. (Luminaires, Lampholders, and Lamps)

What's New in the 2020 NEC?

Section 410.44 already required luminaires and lampholders to be mechanically connected to an equipment grounding conductor (EGC) in compliance with 250.118, while being sized according to 250.122.

But there were exceptions to this existing requirement and those exceptions have been revised for this new 2020 Code cycle.



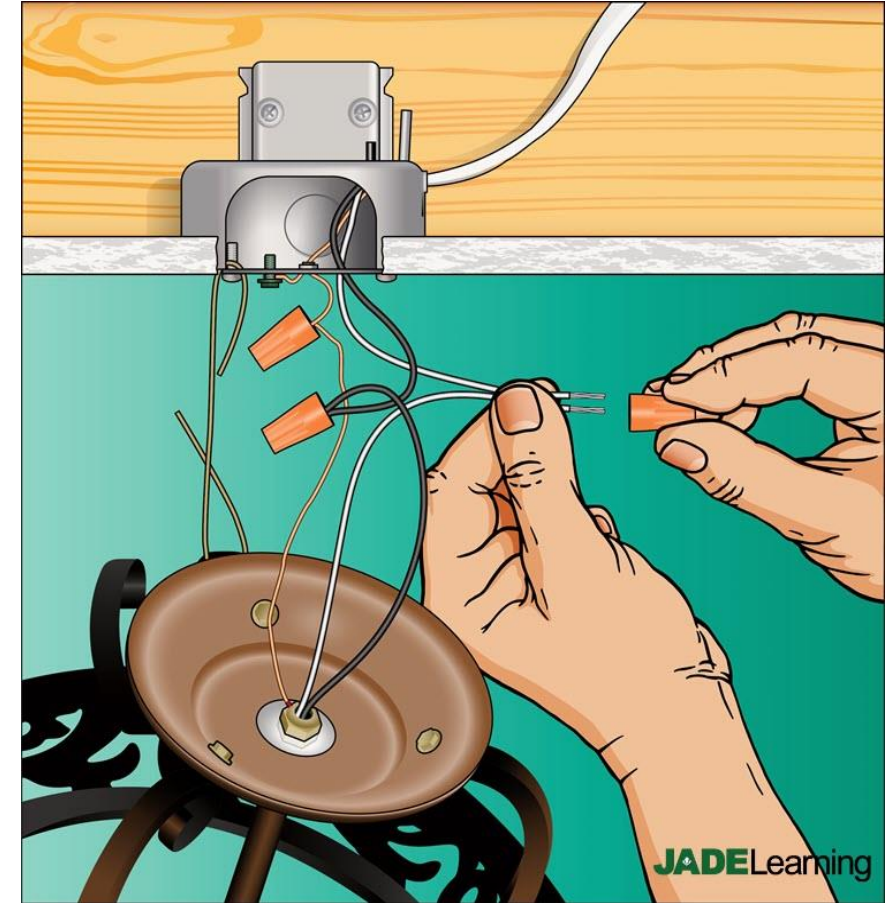
410.44 Methods of Grounding. (Luminaires, Lampholders, and Lamps)

Exceptions to Section 410.44

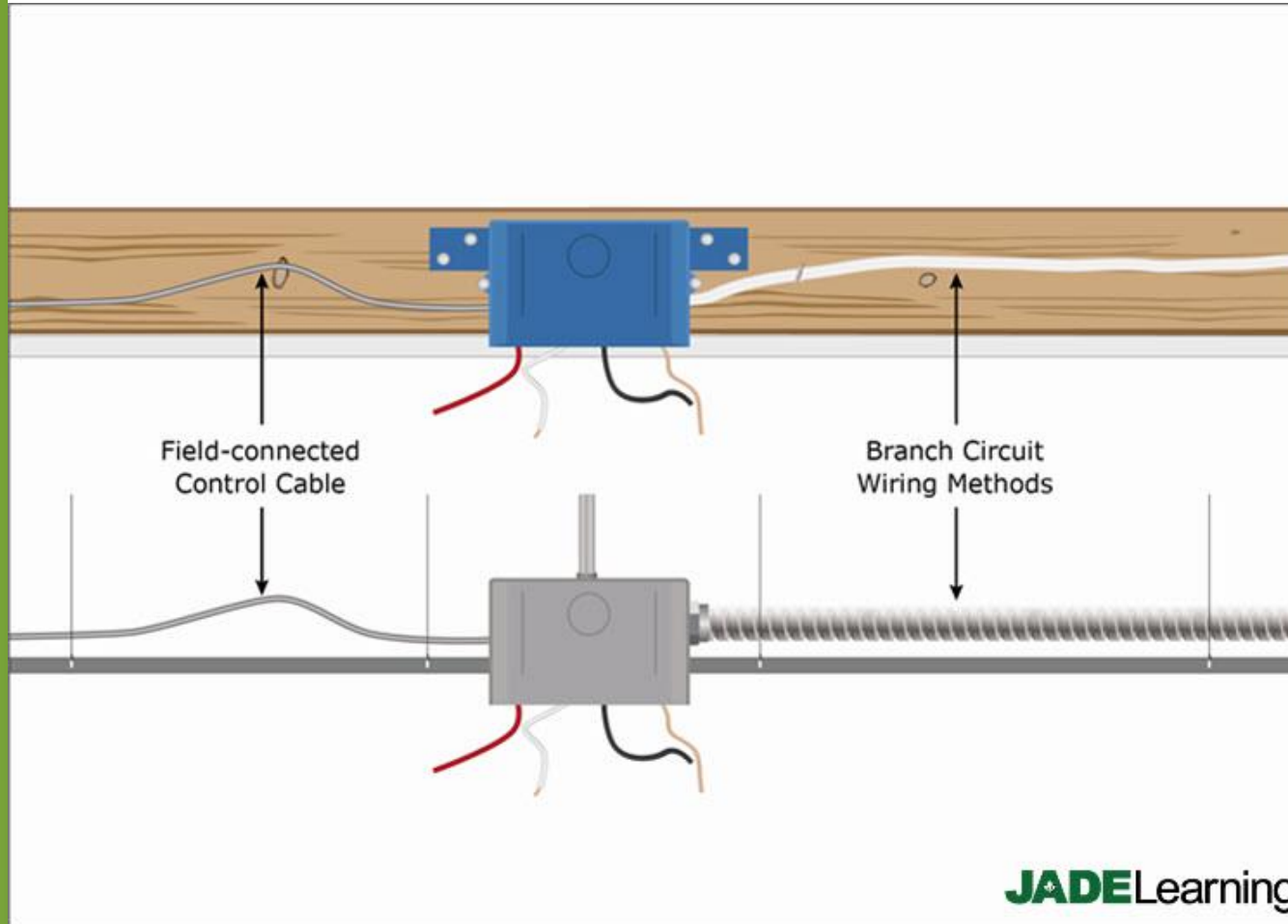
Exc.(1) Deleted Entirely

Exc.(2) Replacement luminaires can now connect to a required EGC in the same manner that a replacement receptacle is permitted to connect to a required EGC, as per NEC 250.130(C) and 410.42.

Exc.(3) If no EGC exists, luminaires that are GFCI protected, (and luminaires that contain no exposed conductive parts *[new for 2020]*) will not require an EGC.



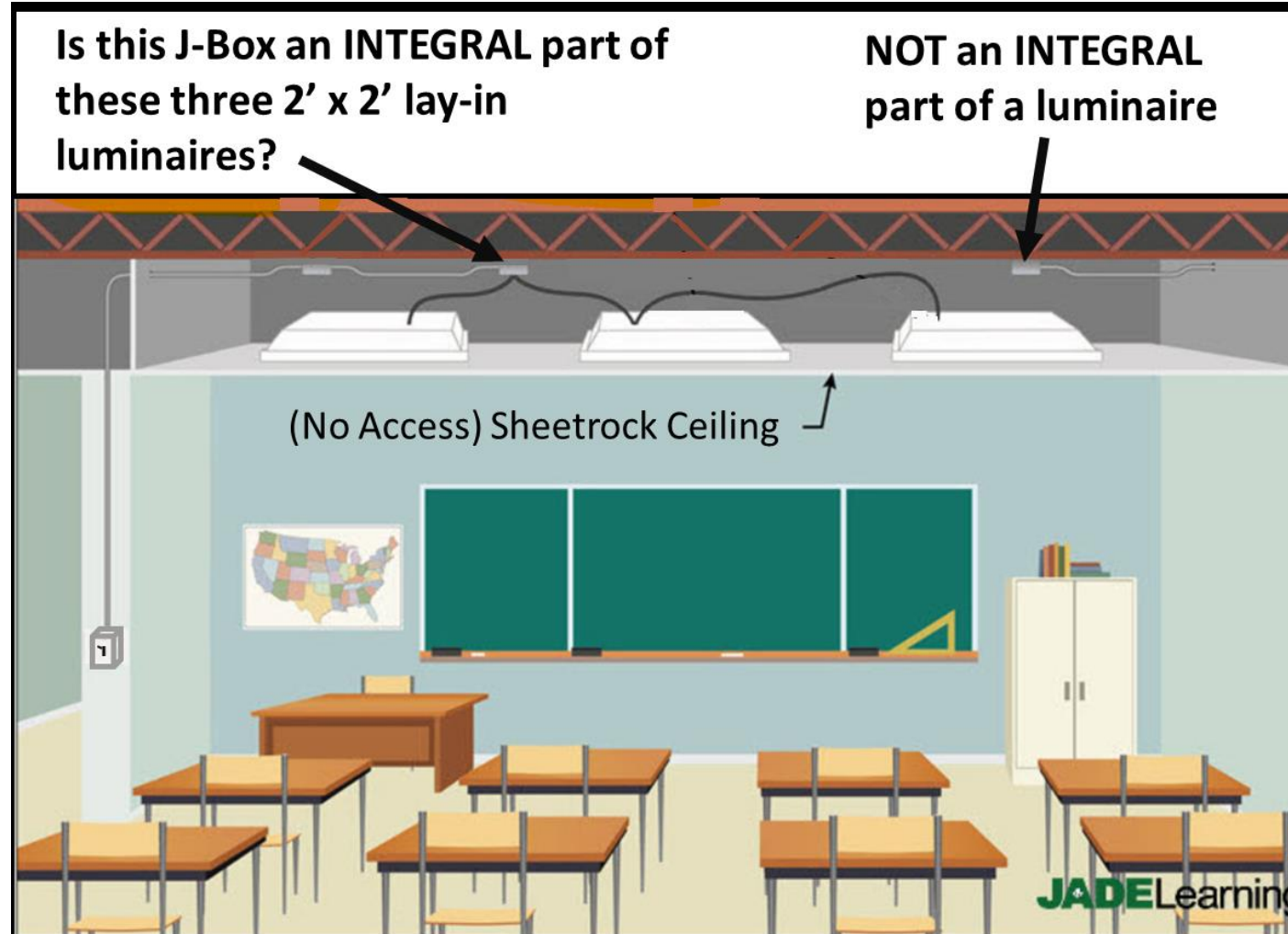
410.69 Luminaires and Lamps. Identification of Control Conductor Insulation.



What's New in the 2020 NEC?

Beginning January 1, 2022, field-installed control wiring inside the same enclosure as branch-circuit conductors must have an insulation color other than the colors reserved for neutral conductors and equipment grounding conductors (EGC).

410.118 Luminaire Access to Other Boxes.



What's New in the 2020 NEC?

Recessed luminaires are prohibited from being used as access points for outlet boxes, pull boxes, junction boxes or conduit bodies unless they are an **integral** part of the luminaire.

in·te·gral

/'in(t)əgrəl, in'tegrəl/

adjective

1. Necessary to make a whole complete; essential or fundamental.

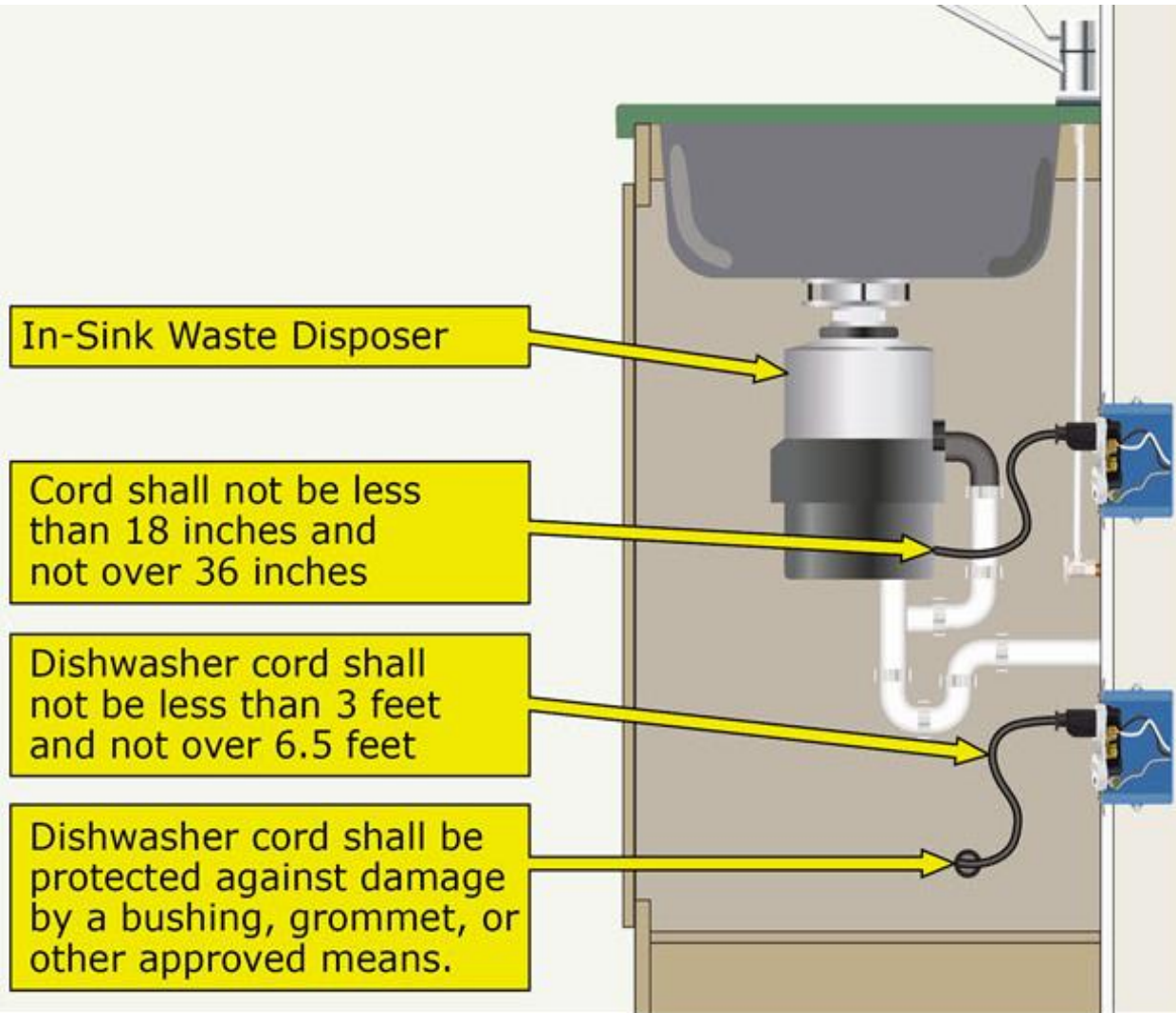
422.5(A) GFCI Protection for Personnel.

What's New in the 2020 NEC?

- In the 2017 NEC, Section 422.5(A) required GFCI protection of certain equipment for the protection of personnel, when the equipment was rated 250-volts or less.
- However, in the 2020 NEC, this GFCI requirement applies to equipment rated *150-volts or less to ground*.
- Dishwashers and sump pumps are now included in this Code section; they too will require GFCI protection when rated 150-volts or less to ground and 60 amps or less.



422.16(B) Specific Appliances.



What's New in the 2020 NEC?

- The 2017 NEC said flexible cords shall terminate with a grounding-type plug end.
- The 2020 NEC says flexible cords shall have an EGC **AND** be terminated with a grounding-type plug end.
- For dishwashers and trash compactors, cords that pass through a hole must be protected by a bushing, grommet, or other approved means.

430.2 Definitions. Electronically Protected.



What's New in the 2020 NEC?

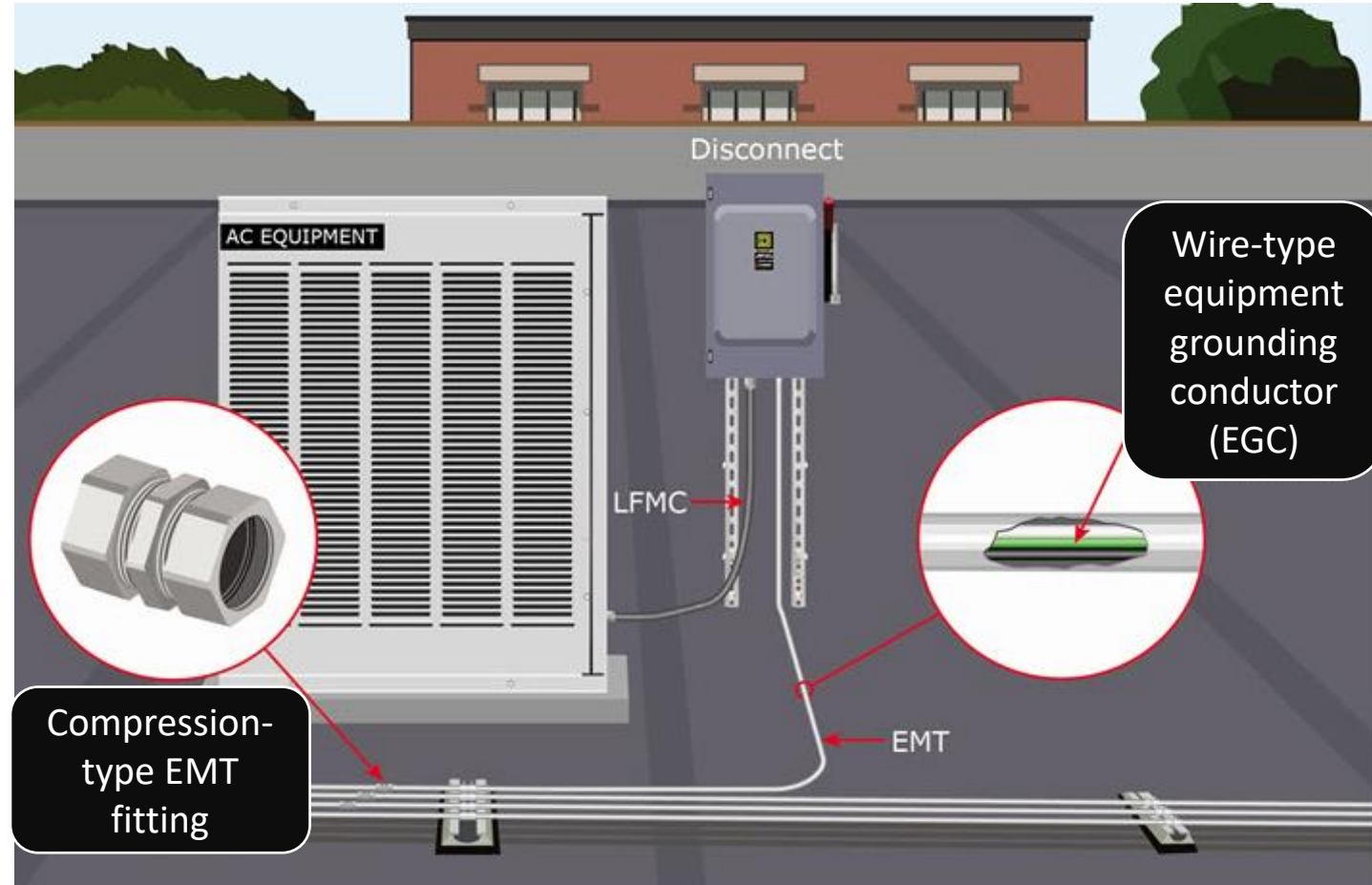
The 2020 NEC now includes a definition for electronically protected as it applies to motors:

A motor that is provided with electronic control that is an integral part of the motor and protects the motor against dangerous overheating due to failure of the electronic control, overload, and failure to start.

440.9 Air Conditioning and Refrigeration Equipment. Grounding and Bonding.

What's New in the 2020 NEC?

- New wording for this Section replaces the phrase “non-threaded fittings” to now say “compression-type fittings.”
- Also, an equipment grounding conductor (EGC) of the **wire-type** must now be installed in outdoor metal raceway serving rooftop HACR equipment, when that raceway uses **compression-type fittings**.



NOTE: Unlike threaded fittings, compression-type fittings can be “kicked” loose over time by personnel on the rooftop, so metal rooftop conduits serving HACR equipment must now use a wire-type EGC.

445.18(D) Generators. Disconnecting Means and Emergency Shutdown.

What's New in the 2020 NEC?

Section 445.18(D) is new in the 2020 NEC and it states:

For other than cord-and-plug connected portable generators, an emergency shutdown device shall be located outside the dwelling unit at a readily accessible location.



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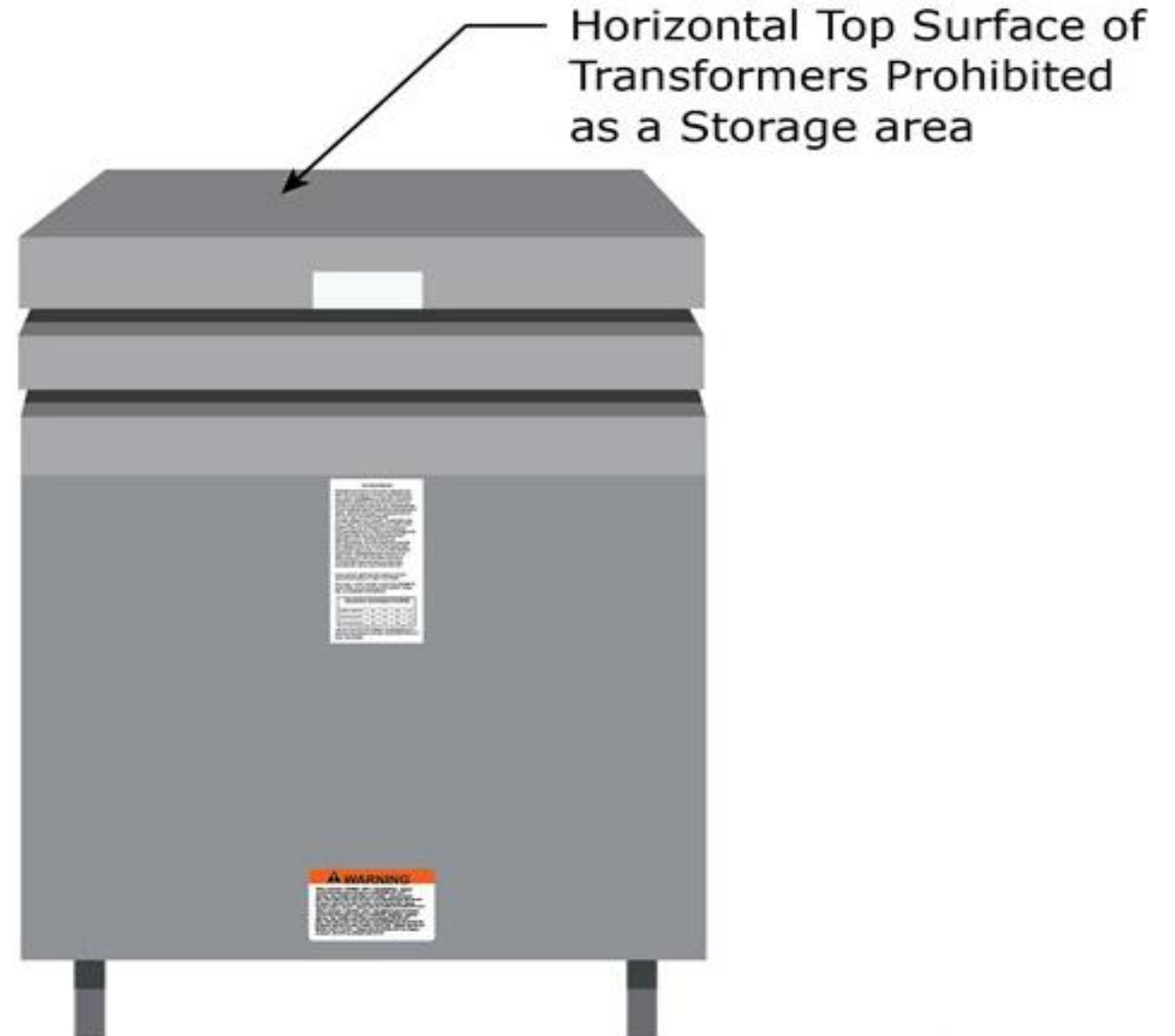
450.9 Transformers. Ventilation.

What's New in the 2020 NEC?

Section 450.9 States:

Transformer top surfaces that are horizontal and readily accessible shall be marked to prohibit storage.

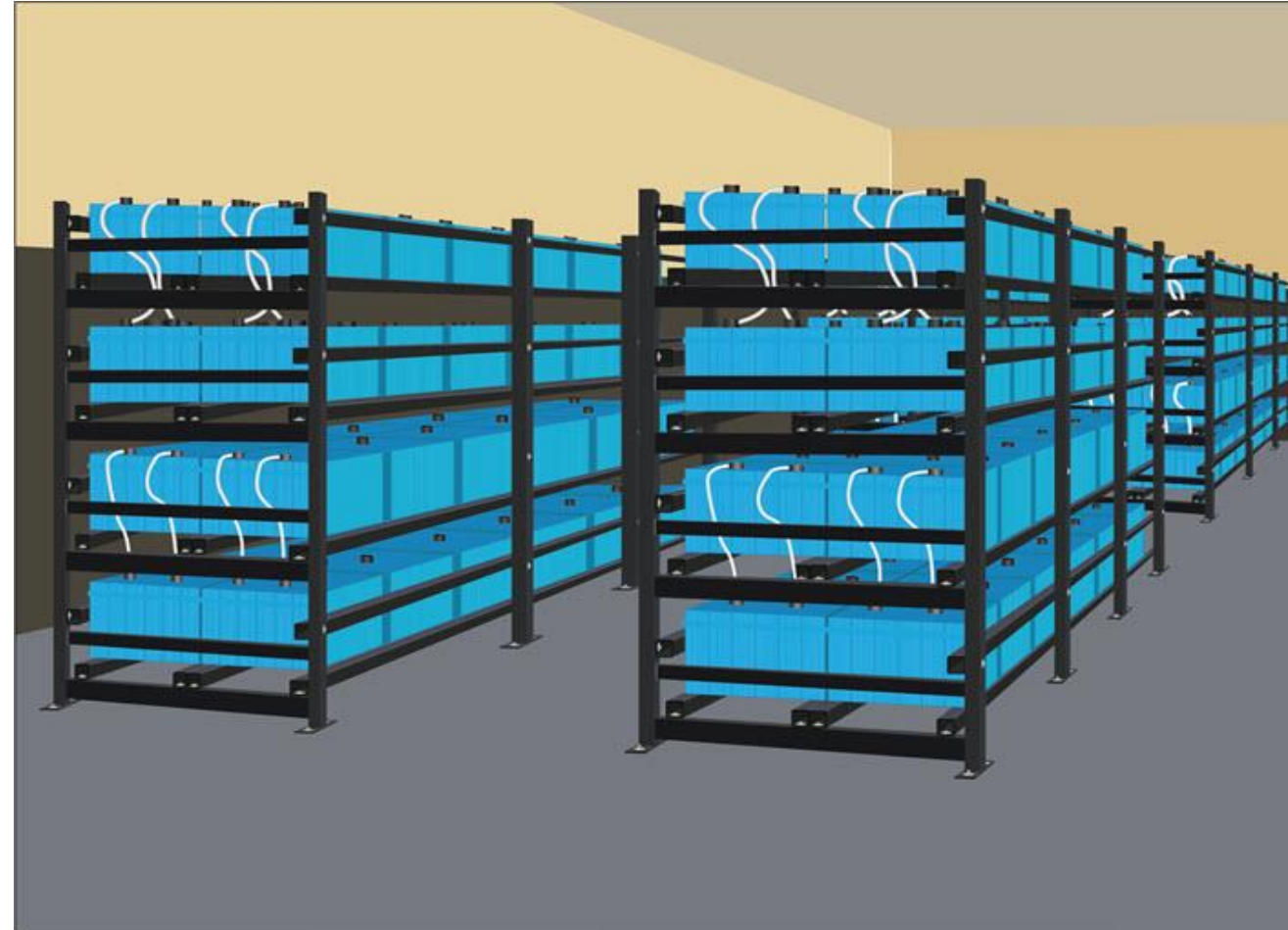
These new markings are meant to prevent storage on top of flat-topped transformers. Transformers get hot and often require ventilation near the top of the unit.



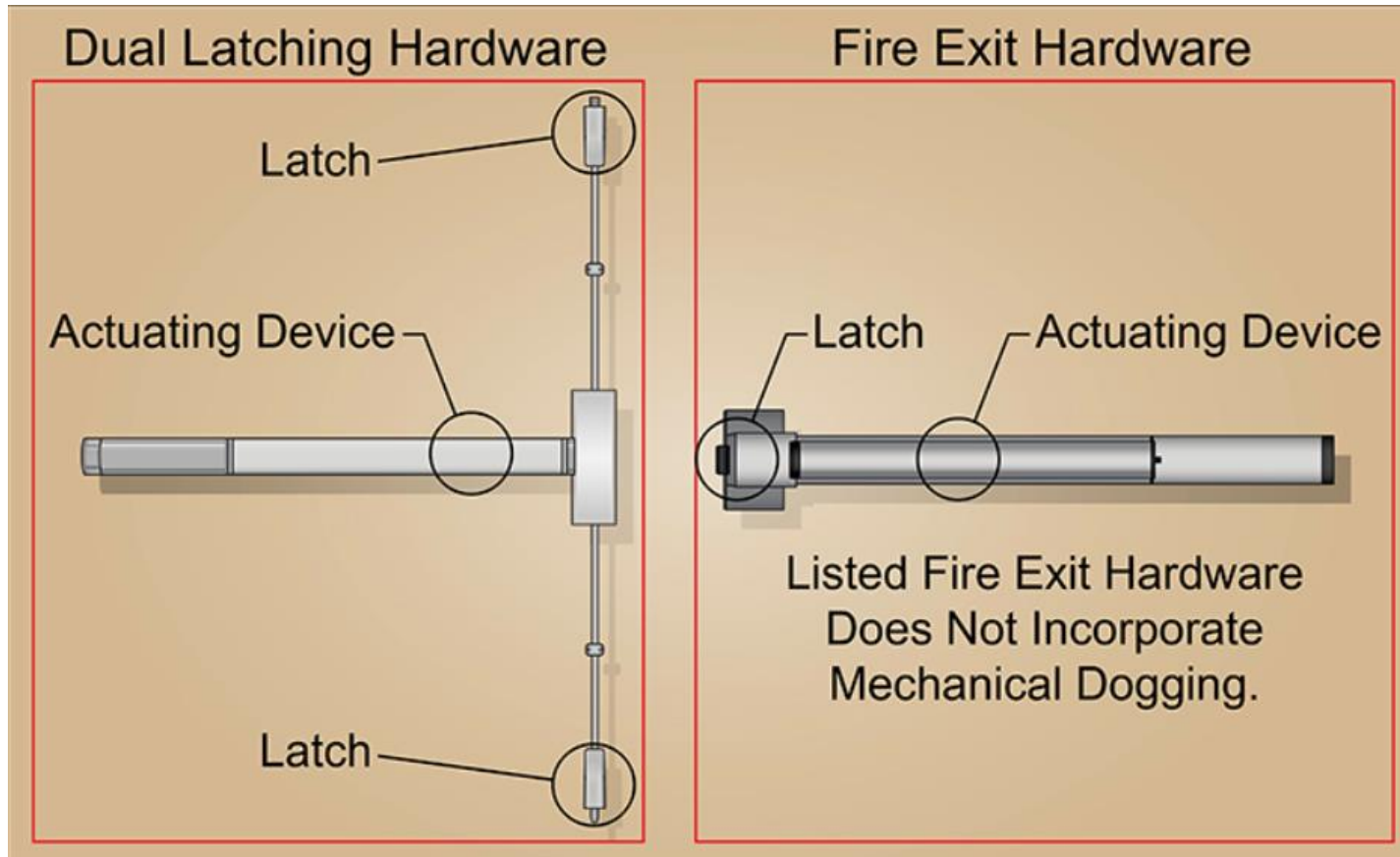
480.10(C) Storage Batteries. Battery Locations. Spaces About Battery Systems.

What's New in the 2020 NEC?

- Battery systems rated 1000 volts or less must adhere to the working space requirements outlined in Section 110.26.
- Battery systems over 1000 volts must now follow the more stringent working space requirements from Section 110.34. (New for the 2020 NEC)



480.10(E) Storage Batteries. Battery Locations. Egress.



What's New in the 2020 NEC?

Section 410.10(E) now lists two types of hardware allowed to be installed on the exit doors of storage battery rooms:

1. Listed panic hardware
2. Listed fire exit hardware (New for the 2020 NEC)

THANK YOU FOR ATTENDING!

Questions?

For additional instructor support, please contact
instructor@jadelearning.com

For questions about your continuing education, please
contact registrar@jadelearning.com