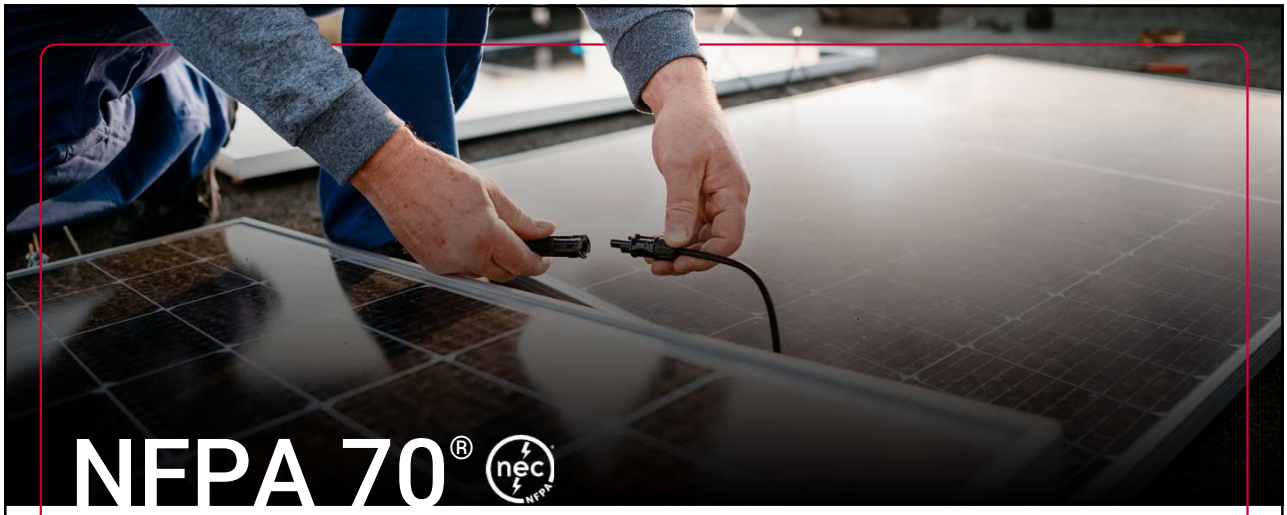

NFPA 70®

Changes to the National Electrical Code®

2023 Edition

IT'S A BIG WORLD.
LET'S PROTECT IT TOGETHER.®

1

Tim McClintock

Regional Electrical Specialist

- Tim has 36 years' experience in the electrical industry and serves as the primary electrical SME for NFPA's regional team.
- He also serves as the Executive Secretary of NFPA's Electrical Inspector Section.
- Prior to joining NFPA, Tim was the Senior Technical Field Rep for the Midwest Region with the National Electrical Manufacturers Association (NEMA).
- He previously served as a member of NEC Code Making Panel 12 and chair of the Technical Committee on Electrical Equipment Evaluation.
- Tim also served as the Chief Building Official and Electrical Inspector for the Wayne County Building Department in Wooster, Ohio for 16 years and prior to that, worked for nine years as an electrician.

2

DEAN AUSTIN

Senior Electrical Content Specialist

- Dean serves NFPA as an electrical subject matter expert (SME) in the development of products and services that support NFPA documents and stakeholders.
- He has 33 years of experience in the electrical industry holding a master electrician license, an electrical inspector and electrical plan reviewer registration in the State of Michigan.
- Prior to NFPA, Dean was an electrical inspector for the State of Michigan, spending 5 years as the Chief of the Electrical Division.
- At the State of Michigan, Dean was charged with enforcing the laws, rules, and codes, governing electrical installations and licensing, within the jurisdictional boundaries of the state.

NFPA.ORG

3

COREY HANNAHS

Senior Electrical Content Specialist

- Corey serves NFPA as an electrical subject matter expert (SME) in the development of products and services that support NFPA documents and stakeholders.
- Prior to joining NFPA, Corey spent over 30 years in the electrical construction industry.
- Corey is a 3rd generation master electrician that also holds licenses as an electrical contractor, inspector, plan reviewer, and instructor.
- From 2011-2016, Corey was twice appointed by former Governor Rick Snyder as member of the State of Michigan Electrical Administrative Board.

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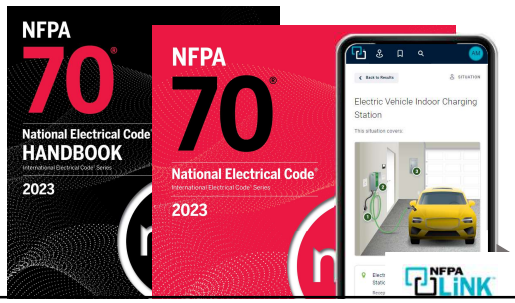
4

OPTIONS FOR ACCESSING THE CODE

- ☑ Free access at **nfpa.org/70**
- ☑ Purchase a handbook or codebook from **catalog.nfpa.org**
- ☑ **Start a free trial to NFPA LiNK®**

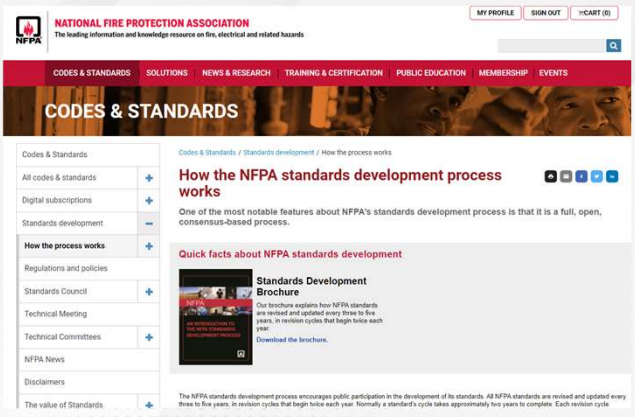
nfpa.org/**link**

SCAN ME

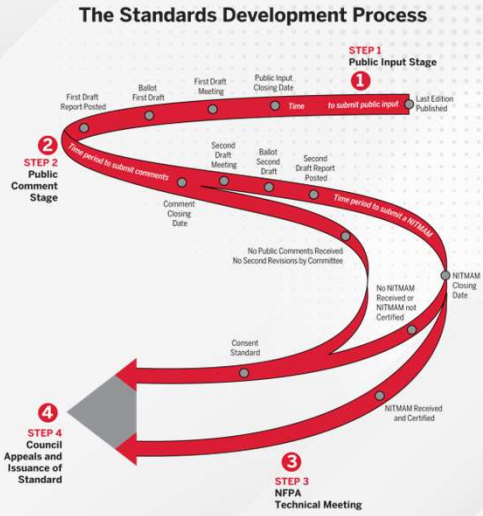


5

THE NFPA STANDARDS DEVELOPMENT PROCESS

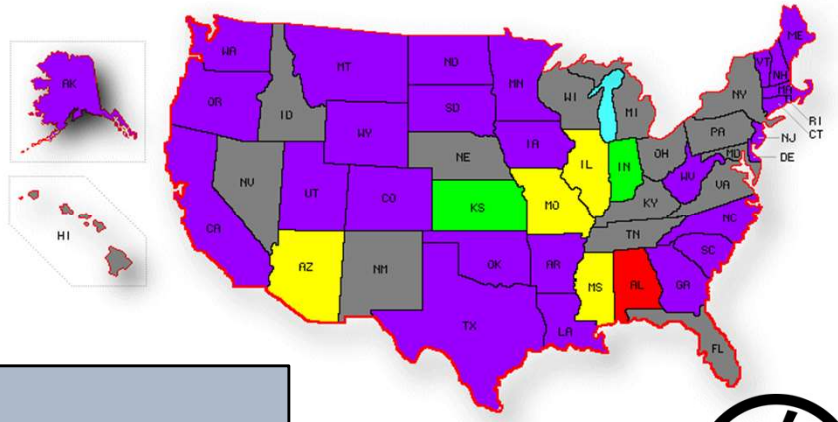


nfpa.org/process



6

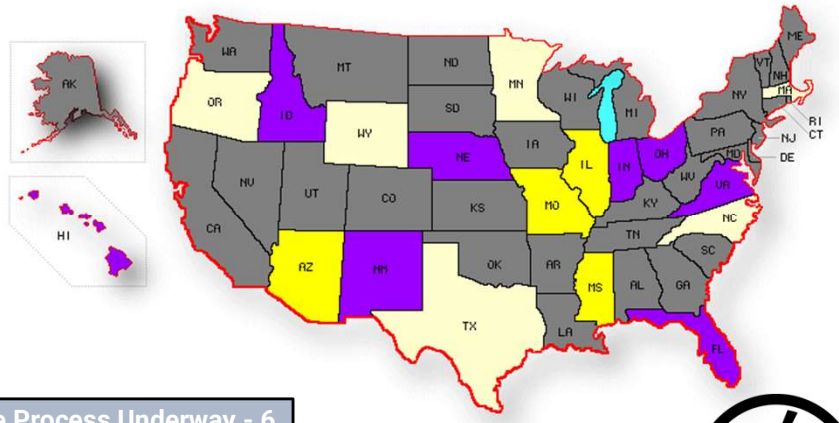
NEC® Currently in Use
As of 2/1/2023



2020 NEC® - 28
2017 NEC® - 15
2014 NEC® - 1
2008 NEC® - 2
County/Municipality level use – 4

7

NEC® Update Process In Progress
As of 2/1/2023



2023 NEC® Update Process Underway - 6
2020 NEC® Update Process Underway - 8
Current Update Process Completed - 32
County/Municipality level use – 4

8

ARRANGEMENT OF THE NEC

90.3

- Chapter 1 — General
- Chapter 2 — Wiring and Protection
- Chapter 3 — Wiring Methods and Materials
- Chapter 4 — Equipment for General Use

} Applies generally to all electrical installations

Supplements or modifies Chapters 1 through 7 {

- Chapter 5 — Special Occupancies
- Chapter 6 — Special Equipment
- Chapter 7 — Special Conditions

Chapter 8 — Communications Systems } Chapter 8 is not subject to the requirements of Chapters 1 through 7 except where the requirements are specifically referenced in Chapter 7.

Applicable as referenced { Chapter 9 — Tables

Informative Annexes } Informational only; not mandatory

9

IDENTIFYING CHANGES

•: One or more sections were deleted.

N: New material.

Δ: Text deletions and figure/table revisions.

Shaded text: Revisions to the text.

T (NFPA LiNK feature): Indicates changed content from a Tentative Interim Amendment (TIA).

706.15 Disconnecting Means.

Δ **(A) ESS Disconnecting Means.**

Means shall be provided to disconnect the ESS from all wiring systems, including other power systems, utilization equipment, and its associated premises wiring.

•

N **(B) Location and Control.**

The disconnecting means shall be readily accessible and shall comply with one or more of the following:

(1) Located within the ESS

(2) Located within sight and within 3 m (10 ft) from the ESS

(3) Where not located within sight of the ESS, the disconnecting means, or the enclosure providing access to the disconnecting means, shall be capable of being locked in accordance with 110.25

Where controls to activate the disconnecting means of an ESS are used and are not located within sight of the ESS, the disconnecting means shall be lockable in accordance with 110.25, and the location of the controls shall be marked on the disconnecting means.

For one- and two-family dwellings, an ESS shall include an emergency shutdown function to cease the export of power from the ESS to premises wiring of other systems. An initiation device(s) shall be located at a readily accessible location outside the building and shall plainly indicate whether in the "off" or "on" position. The "off" position of the device(s) shall perform the ESS emergency shutdown function.

Δ **(C) Notification and Marking.**

Each ESS disconnecting means shall plainly indicate whether it is in the open (off) or closed (on) position and be permanently marked as follows:

"ENERGY STORAGE SYSTEM DISCONNECT"

The disconnecting means shall be legibly marked in the field to indicate the following:

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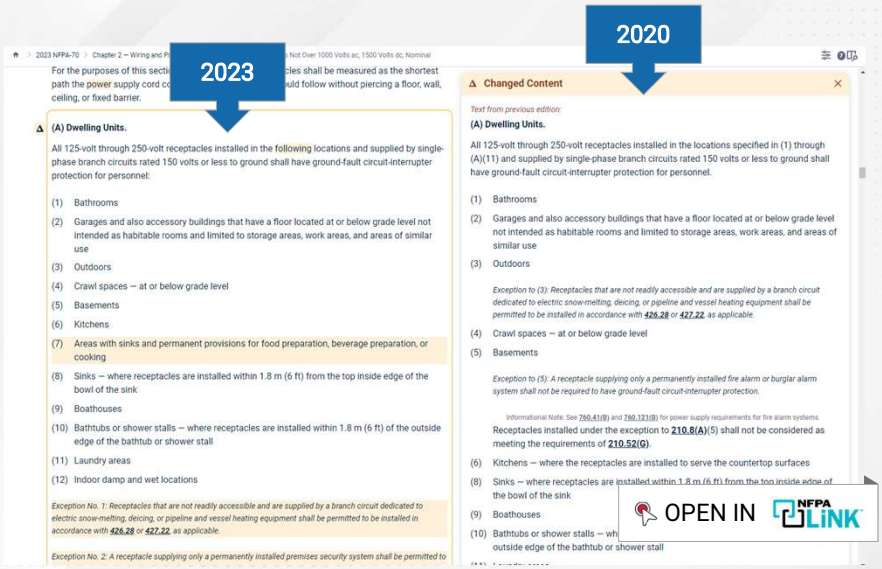
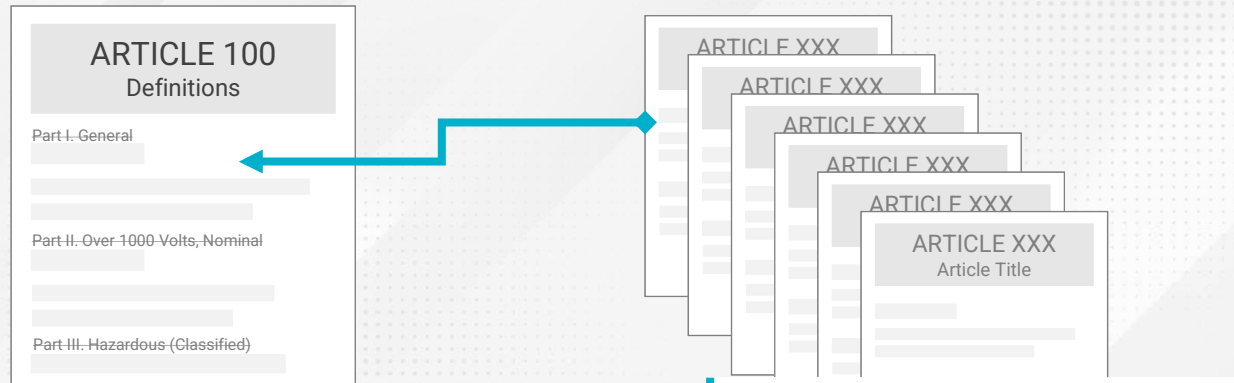
IDENTIFYING CHANGES
USING NFPA LiNK™



Click the Δ to view changes side-by-side

11

DEFINITIONS MOVED
TO ARTICLE 100



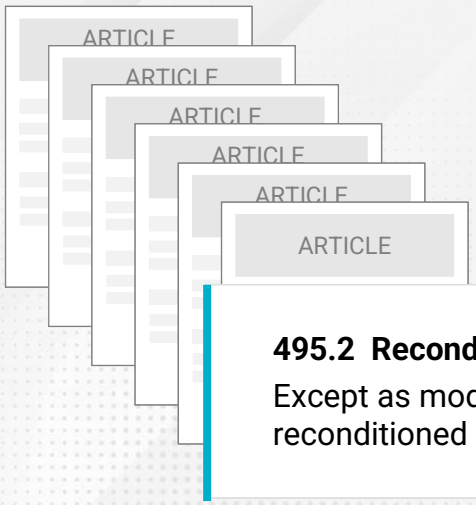
Document definitions relocated to Article 100

2.2.2 **Definitions.** Definitions of terms used in the requirements of the document shall only be located in Article 100. Article 100 shall not be subdivided.

12

RECONDITIONED **EQUIPMENT**

123.2



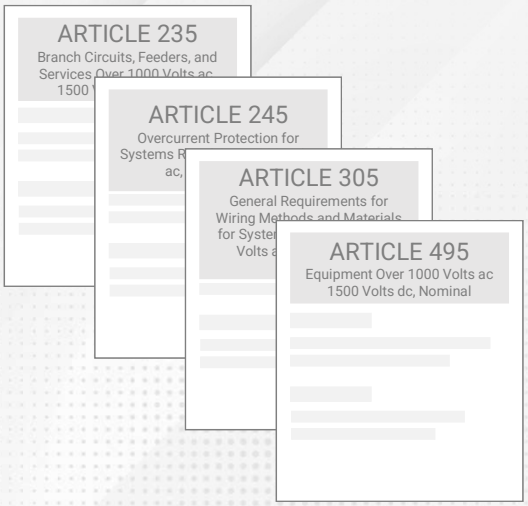
Many articles reserve the 123**.2** section for information on **reconditioned equipment**

495.2 Reconditioned Equipment.
Except as modified within this article, reconditioned equipment shall not be permitted.

13

NEW MEDIUM **VOLTAGE ARTICLES**

Articles 235, 245, 305, 495

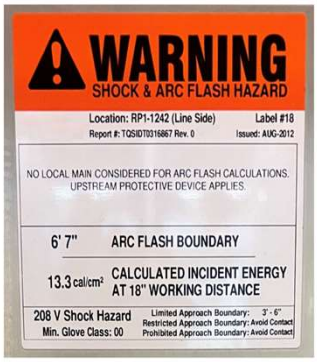


- ☑ **Article 235** on branch circuits
- ☑ **Article 245** on overcurrent protection
- ☑ **Article 305** on wiring methods and materials
- ☑ **Article 495** on equipment

14

ARC-FLASH
HAZARD WARNING

110.16(B)



- ☑ Arc-flash labels applied for service **and feeder supplied equipment**
- ☑ Rated **1000** amperes or more
- ☑ Label in accordance with acceptable industry practice

Arc-flash labels may now need to be provided in additional installations

www.believeinsafety.com

15

IDENTIFICATION OF
DISCONNECTING MEANS

110.22(A)

Disconnecting means must be marked with the identification **and location** of the circuit supply source, unless evident

16

WORK SPACE AND GUARDING

110.26(A)(6), 110.34(A)

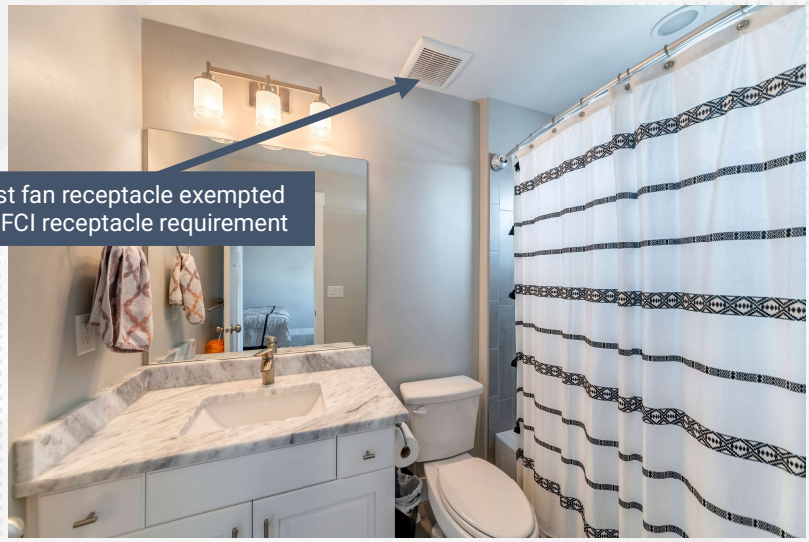
Working space **kept clear** and floor, grade, or platform:

- ☑ **level and flat** as practicable
- ☑ for the entire **depth** and **width** of the working space

17

GFCI PROTECTION – RESIDENTIAL BATHROOMS

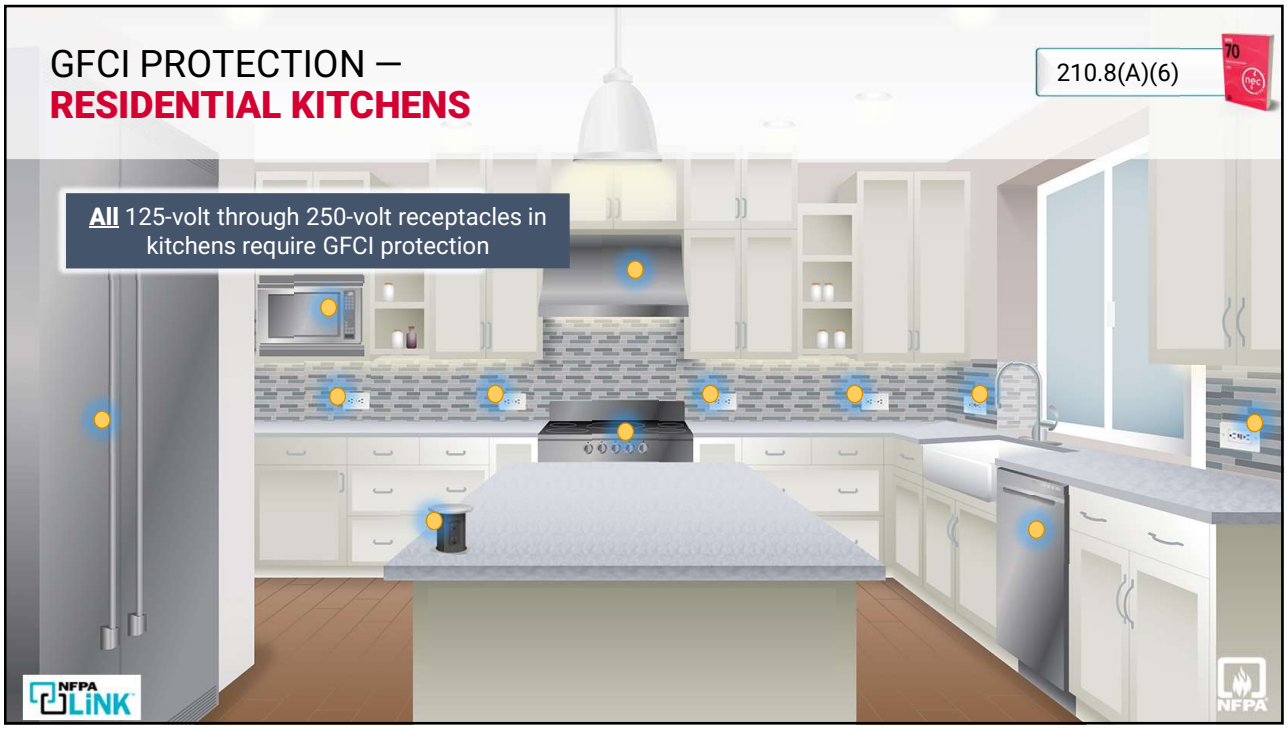
210.8(A) Ex. 4



18

GFCI PROTECTION — RESIDENTIAL KITCHENS

210.8(A)(6)



19

NEW GFCI PROTECTION LOCATIONS

210.8(B)

New GFCI protection requirements in non-dwelling locations:

BEVERAGE PREP

BUFFET SERVING

Image courtesy of Jim Epler

AQUARIUMS, BAIT WELLS, ETC.

NFPA

20

REQUIRED GFCI PROTECTION
ON SPECIFIED APPLIANCES

210.8(D)

Appliances requiring GFCI branch circuit are now **specifically listed** and correlate with 422.5(A)

- NEW APPLIANCES
  - Electric ranges
  - Wall-mounted ovens
  - Counter-mounted cooking units
  - Clothes dryers
  - Microwave ovens

21

AFCI PROTECTION FOR
10-AMPERE BRANCH CIRCUITS

210.12(A), (B), (C), (D)

AFCI protection now required on 20-, 15-, and **10-ampere branch circuits** in:

- ☑ Dwelling units
- ☑ Dormitory units
- ☑ Guest rooms and guest suites
- ☑ Patient sleeping rooms
- ☑ **Sleeping quarters**
  within fire stations and similar occupancies

22

ISLAND AND PENINSULAR
COUNTERTOPS AND WORK SURFACES

210.52(C)(2) and (3)

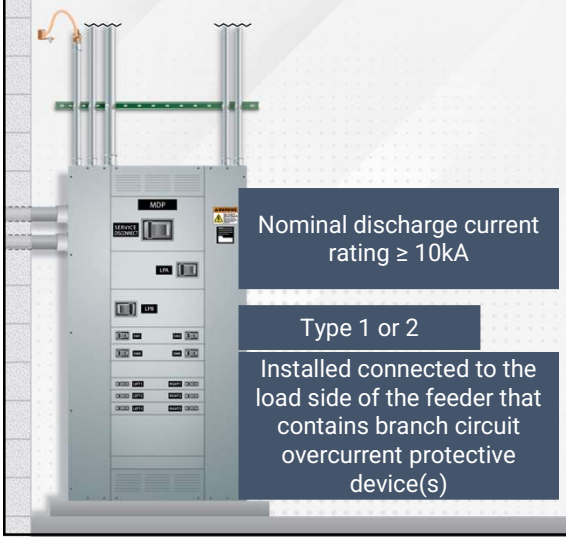
- ☑ Receptacles not required on islands or peninsulas, but **provisions for future additions must be made**
- ☑ **Cannot** be installed below countertop or work surfaces

23

FEEDER
SURGE PROTECTION

New Section!

215.18



Nominal discharge current rating ≥ 10kA

Type 1 or 2

Installed connected to the load side of the feeder that contains branch circuit overcurrent protective device(s)

Required locations:

- ☑ Dwelling units
- ☑ Dormitory units
- ☑ Guest rooms and guest suites (hotels and motels)
- ☑ Patient sleeping rooms (nursing homes and limited-care facilities)

24

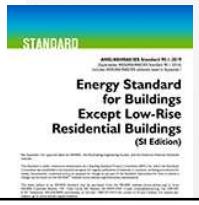
LIGHTING LOAD FOR **NON-DWELLING OCCUPANCIES**

220.42(A)

Table ~~220.12~~ 220.42(A)
General Lighting Loads by Non-Dwelling Occupancy

Type of Occupancy	Unit Load: Volt-amperes/ m^2	Unit Load: Volt-amperes/ ft^2
...		
School/university	~~33~~ 16	~~3~~ 1.5
Sports arena	~~33~~ 16	~~3~~ 1.5
...		

Unit load values for **schools/universities** and **sports arenas** were updated to align with energy code limits



25

ELECTRIC VEHICLE SUPPLY EQUIPMENT **LOAD**

New Section!

220.57

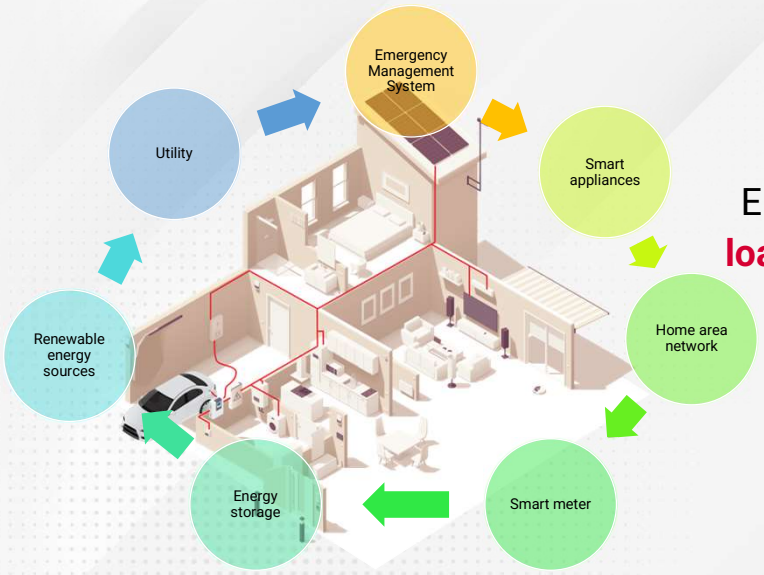
EVSE required to be sized at the larger of:

- 7,200 watts
- OR
- Nameplate rating of the equipment

26

ENERGY MANAGEMENT SYSTEM (EMS)
SYSTEM LOAD

New Section! 220.70



EMSs **permitted to reduce loads** on services or feeders

27

EMERGENCY
DISCONNECTS

New Section! 225.41

Emergency disconnect rule in 230.85 now applies to **feeder-supplied dwelling units or other structures**

28

SERVICES
SURGE PROTECTION

230.67

Dormitory units

Guest rooms and guest suites (hotels and motels)

Patient sleeping rooms (nursing homes and limited-care facilities)

Areas of nursing homes and limited-care facilities used exclusively as patient sleeping rooms

Surge protection on services now required for **dwelling-like occupancies**

29

MAXIMUM NUMBER
OF DISCONNECTS

230.71(B)

Does this meet code?

- ☑ Permit two to six disconnects in:
  - metering centers with individual main disconnecting means
  - motor control center(s) per 230.71(B)(6)
- ☑ New exception allows existing service equipment to have a maximum of six disconnects if installed per previous editions of the NEC

30

FRAMES OF RANGES
AND CLOTHES DRYERS

250.140

- Organized into two titled subdivisions
- Exception converted into positive text under (B)
- New list items added to provide relief to installers for existing branch-circuits

31

SWITCHES CONTROLLING
LIGHTING LOADS

404.2(C)

- **Grounded conductors required** for installations where additional or replacement cable is possible without removing finish materials
- Allowance was removed

32

GERMICIDAL IRRADIATION **LUMINAIRES**

New Part! Article 410, Part XVII

ARTICLE 410
Luminaires, Lampholders, and Lamps

NEW

Part XVII. Special Provisions for Germicidal Irradiation Luminaires

410.190 General.

410.191 Listing.

410.193 Installation.

410.195 Locations Not Permitted.

410.197 Germicidal Irradiation Systems.

33

DISCONNECTING MEANS AND **EMERGENCY SHUTDOWN FOR GENERATORS**

445.18, 445.19

ARTICLE 445
Generators

445.18 Disconnecting Means ~~and Emergency Shutdown~~

NEW

445.19 Emergency Shutdown of Prime Mover

Disconnecting means

- ☑ Located within the generator, behind covers, doors, or enclosure panels, if properly labeled

Emergency shutdown

- ☑ Requirements relocated from 445.18 to new 445.19
- ☑ Switch can be on generator if labeled properly

34

NEW ARTICLE 512 ON CANNABIS OIL EQUIPMENT

Article 512

New Article 512 covers the following items within commercial and industrial facilities:

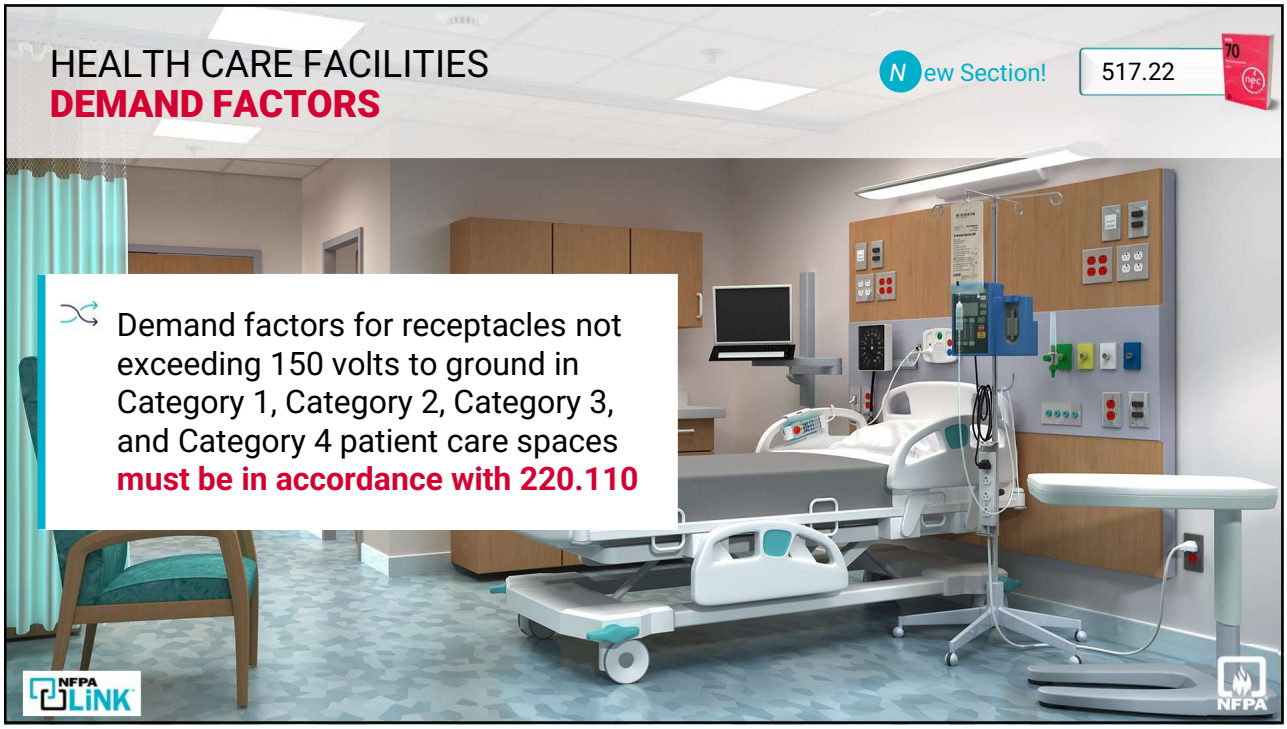
- ☑ Cannabis oil preparatory equipment
- ☑ Extraction equipment
- ☑ Booths
- ☑ Post-processing equipment
- ☑ Systems using flammable materials

35

HEALTH CARE FACILITIES DEMAND FACTORS

New Section!

517.22



Demand factors for receptacles not exceeding 150 volts to ground in Category 1, Category 2, Category 3, and Category 4 patient care spaces **must be in accordance with 220.110**

36

MARINAS AND DOCKING FACILITIES
REPLACEMENT OF EQUIPMENT

New Section! 555.15

NFPA 303
Fire Protection Standard for Marinas and Boatyards
2021

Equipment replacement requires **inspection of entire circuit**

www.electricshockdrowning.org

37

MARINAS AND DOCKING FACILITIES
SHORE POWER EMERGENCY DISCONNECT

555.36(C)

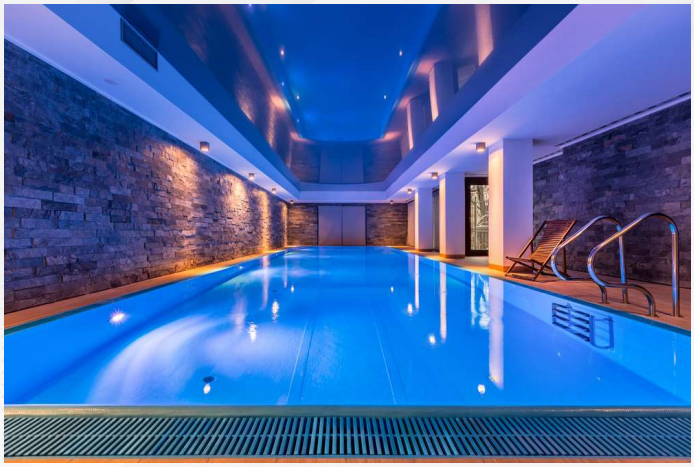
Power outlets or enclosures (pedestals) providing shore power to boats require listed emergency disconnect that:

- ☑ Is clearly marked "Emergency Shutoff" and include identification and location of the circuit source
- ☑ Is readily accessible
- ☑ Is externally operable
- ☑ Is manually resettable
- ☑ Is listed for use in wet locations
- ☑ Deenergizes power to all circuits within the outlet or enclosure that supplies shore power to boats

38

SWIMMING POOLS AND FOUNTAINS
GFCI AND SPGFCI PROTECTION

680.5, Article 100



- Title includes new term **Special Purpose GFCI (SPGFCI)**
- Added GFCI requirements for 150 volts or less to ground
- Added SPGFCI requirements for above 150 volts to ground

39

ADDITIONAL RESOURCES AND SUPPORT

Document Info

- nfpa.org/**70**

Technical Questions

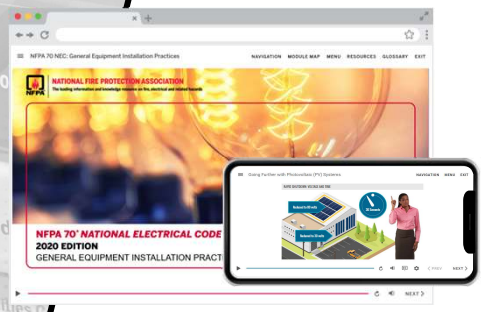
- +1 800 344 3555 (member benefit)
- nfpa.org/**aboutthecodes**

Participate

- nfpa.org/**70next**

40

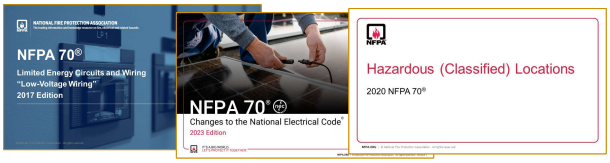
ADDITIONAL TRAINING



ONLINE

IN-PERSON AND VIRTUALLY-LED

CERTIFICATIONS AND PREP



TOPIC-SPECIFIC TRAINING

NFPA

41

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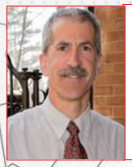

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42


A0
Questions?

43


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44

Slide 43

A0 Leave for 1-hour(?) but remove for 1-Day recorded session
Author, 2023-02-20T20:33:39.496