CONTENT STANDARD 1.0: GENERAL NEC REQUIREMENTS

Performance Standard 1.1: Electrical Installation Requirements: Articles 90, 100, and 110

1.1.1. Identify scope of the NEC.
1.1.2. Define terms as they apply to the NEC.
1.1.3. Determine the proper termination of conductors.
1.1.4. Determine the kinds of warnings, markings, and identification a given installation requires.
1.1.5. Determine the proper working clearance for any installation.
1.1.6. Determine proper voltage rating.

CONTENT STANDARD 2.0: WIRING AND PROTECTION

Performance Standard 2.1: Use and Identification of Grounded Conductors, Branch Circuits, and Feeders: Articles 200, 2010 and 215

2.1.1. Properly identify a grounded conductor.
2.1.2. Properly apply the general provisions of Article 210.
2.1.3. Properly apply the branch circuits ratings of Article 210.
2.1.4. Properly install the required outlets of Article 210.
2.1.5. Calculate the minimum size and ampacity of any feeder.

Performance Standard 2.2: Branch Circuit, Feeder, and Service Calculations: Article 220

2.2.1. Calculate the loads for a single family dwelling.
2.2.2. Calculate the loads for a multifamily dwelling.
2.2.3. Calculate the loads for a commercial or industrial installation.

Performance Standard 2.3: Outside Branch Circuits and Feeders, Services: Articles 225 and 230

2.3.1. Determine the proper installation for conductors and lighting installed outdoors.
2.3.2. Determine vertical and horizontal clearance of overhead conductors.
2.3.3. Determine proper disconnecting means and installation.
2.3.4. Determine the proper installation and protection of conductors.

Performance Standard 2.4: Overcurrent Protection: Article 240

2.4.1. Properly size a standard overcurrent device to any conductor.
2.4.2. Properly apply the small conductor rules.
2.4.3. Calculate transformer secondary conductor protection.
2.4.4. Reference requirements for appliance protection.
2.4.5. Calculate tap conductor protection.
2.4.6. Reference protection for motors and air conditioners.
Performance Standard 2.5: Grounding and Bonding: Article 250

2.5.1. Define the difference between grounding and bonding.
2.5.2. Determine the proper grounding and bonding requirements of any system.
2.5.3. Properly size the main bonding jumper.
2.5.4. Properly size the grounding electrode conductor.
2.5.5. Properly size equipment grounding conductors.
2.5.6. Determine the various types of grounding conductors.
2.5.7. Design a proper grounding electrode system.

Performance Standard 2.6: Surge Protective Devices: Article 285

2.6.1. Determine the installation requirements of SPDs.
2.6.2. Discuss the difference between Type 1, Type 2, Type 3, and Type 4 SPDs and their use.

CONTENT STANDARD 3.0: WIRING METHODS AND MATERIALS

Performance Standard 3.1: Wiring Methods and Conductors for General Wiring: Articles 300 and 310

3.1.1. Determine how to route, splice, protect, and secure conductors and raceways.
3.1.2. Determine the general requirements for conductors such as insulation markings, ampacity ratings, and conductors to use in specific installations.
3.1.3. Properly use the Article 310 tables.
3.1.4. Apply Chapter 9 tables.
3.1.5. Apply adjustment factors to any conductor based on wire fill, temperature, and continuous load.
3.1.6. Define the meaning of conductor insulation lettering.
3.1.7. Determine when a neutral conductor is to be counted as a current-carrying conductor.

Performance Standard 3.2: Enclosures: Articles 312 and 314

3.2.1. Determine the use of any enclosure based on the conditions of use.
3.2.2. Determine the installation requirements for any enclosure.
3.2.3. Properly use boxes and fittings based on internal volume.
3.2.4. Determine the requirements for fill of boxes and fittings.
3.2.5. Properly size pull and junction boxes for No. 4 AWG conductors and larger.


3.3.1. Determine the installation requirements of Armored Cable.
3.3.2. Determine the installation requirements of Metal-Clad Cable.
3.3.3. Determine the installation requirements of Nonmetallic-Sheathed Cable.
3.3.4. Determine the installation requirements of Service-Entrance Cable.
3.3.5. Determine the installation requirements of Underground Feeder and Branch-Circuit Cable (Type UF).
3.3.6. Relate temperature concerns, derating, etc. to other appropriate articles in the NEC.
Performance Standard 3.4: Metal Raceways: Articles 342, 344, 348, 350, 352, 356, 358, and 362

3.4.1. Determine the installation requirements of Intermediate Metal conduit.
3.4.2. Determine the installation requirements of Ridged Metal Conduit.
3.4.3. Determine the installation requirements of Flexible Metal Conduit.
3.4.4. Determine the installation requirements of Liquidtight Flexible Metal Conduit.
3.4.5. Determine the installation requirements of Rigid Polyvinyl Chloride Conduit.
3.4.6. Determine the installation requirements of Liquidtight Flexible Nonmetallic Conduit.
3.4.7. Determine the installation requirements of Electrical Metallic Tubing.
3.4.8. Determine the installation requirements of Electrical Nonmetallic Tubing.
3.4.9. Relate conductor fill, derating, etc. to other appropriate articles in the NEC.

Performance Standard 3.5: Metal Wireways, Multioutlet Assemblies, Surface Metal Raceways, Cable Trays: Articles 376, 380, 3886, 392

3.5.1. Determine the proper installation of a metal wireway.
3.5.2. Calculate the proper conductor fill of a metal wireway.
3.5.3. Calculate the proper size of a metal wireway based on conductor size and conduit entries.
3.5.4. Determine provisions for properly splicing conductors in a metal wireway.
3.5.5. Determine the proper installation of multioutlet assemblies.
3.5.6. Determine the proper installation of surface metal raceways.
3.5.7. Determine the proper installation and use of cable trays.

CONTENT STANDARD 4.0: EQUIPMENT FOR GENERAL USE

Performance Standard 4.1: Flexible Cords, Flexible Cables, and Fixture Wires: Articles 400 and 402

4.1.1. Identify requirements, applications, and construction specifications of cords and cables.
4.1.2. Select cords, cables, and fittings listed for specific applications.
4.1.3. Identify requirements and specifications of fixture wires.

Performance Standard 4.2: Switches, Receptacles, Cord Connectors, and Attachment Plugs: Articles 404 and 406

4.2.1. Determine types and uses of switches.
4.2.2. Determine types and uses of receptacles.

Performance Standard 4.3: Switchboards, Switchgear, and Panelboards: Article 408

4.3.1. Determine the specific requirements for switchboards, switchgear, and panelboards that control power and lighting circuits.
4.3.2. Properly identify the labeling requirements of each circuit in a panelboard or switchboard.
4.3.3. Determine proper termination of conductors in panelboards and switchboards.
<table>
<thead>
<tr>
<th>Performance Standard 4.4: Luminaires, Lampholders, and Lamps: Article 410</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4.1. Determine the general requirements of Article 410.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Standard 4.5: Lighting Systems Operating at 30 Volts or Less: Article 411</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5.1 Determine proper installation of low voltage lighting.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Standard 4.6: Appliances, Fixed Electric Space Heating Equipment: Articles 422 and 424</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.6.1 Calculate and determine proper branch circuit ratings for any appliance.</td>
</tr>
<tr>
<td>4.6.2. Calculate and determine proper overcurrent protection for any appliance.</td>
</tr>
<tr>
<td>4.6.3. Determine the requirements for nonmotor appliances.</td>
</tr>
<tr>
<td>4.6.4. Determine proper disconnecting means.</td>
</tr>
<tr>
<td>4.6.5. Determine requirements for heating installations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Standard 4.7: Motors, Motor Circuits, and Controllers; Air-conditioning and Refrigeration Equipment: Articles 430 and 440</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.7.1. Determine the proper conductor size for any motor.</td>
</tr>
<tr>
<td>4.7.2. Determine the proper overcurrent protection for any motor.</td>
</tr>
<tr>
<td>4.7.3. Determine the proper disconnect for any motor.</td>
</tr>
<tr>
<td>4.7.4. Determine the proper overload protection for any motor and condition (easy start, hard start, etc.).</td>
</tr>
<tr>
<td>4.7.5. Determine the minimum size feeder for a group of motors.</td>
</tr>
<tr>
<td>4.7.6. Determine the feeder overcurrent protection.</td>
</tr>
<tr>
<td>4.7.7. Determine proper size of circuits and overcurrent devices for air conditioning and refrigeration equipment.</td>
</tr>
<tr>
<td>4.7.8. Determine the requirements for the disconnecting means of refrigeration equipment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTENT STANDARD 5.0: SPECIAL OCCUPANCIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Standard 5.1: Hazardous Locations: Articles 500 through 504</td>
</tr>
<tr>
<td>5.1.1. Determine proper wiring of a hazardous location.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Standard 5.2: Commercial Garages, Motor Fuel Dispensing Facilities: Articles 511 and 514</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2.1 Define a major repair garage.</td>
</tr>
<tr>
<td>5.2.2 Define a minor repair garage.</td>
</tr>
<tr>
<td>5.2.3 Classify hazardous areas.</td>
</tr>
<tr>
<td>5.2.4. Determine proper wiring methods for a commercial garage of any type.</td>
</tr>
<tr>
<td>5.2.5 Define a Motor Fuel Dispensing Facility.</td>
</tr>
<tr>
<td>5.2.6 Determine proper wiring methods for Motor Fuel Dispensing Facilities.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Standard 5.3: Health Care Facilities: Article 517</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.3.1. Define health care facility types.</td>
</tr>
</tbody>
</table>
5.3.2. Define General Care Areas and Critical Care Areas.
5.3.3. Discuss Essential Electrical Systems.
5.3.4. Determine proper wiring and grounding for a health care facility.

**Performance Standard 5.4: Assembly Occupancies, Carnivals, Fairs and Similar Events: Articles 518 through 525**

5.4.1. Discuss the proper wiring methods for places of assembly.
5.4.2. Discuss the proper wiring of carnivals, fairs, and similar events.

**Performance Standard 5.5: Agricultural Buildings: Article 547**

5.5.1. Determine the proper wiring method for any agricultural building.
5.5.2. Determine proper grounding for any agricultural building.

**Performance Standard 5.6: Marinas and Boatyards: Article 555**

5.6.1. Determine marina requirements using the NEC.

**Performance Standard 5.7: Temporary Installations: Article 590**

5.7.1. Determine the requirements for temporary installations.

**CONTENT STANDARD 6.0: SPECIAL EQUIPMENT**

**Performance Standard 6.1: Electric Signs and Outline Lighting, Manufactured Wiring Systems: Articles 600 and 604**

6.1.1. Determine proper installation and requirements of electric signs and associated lighting.
6.1.2. Determine proper installation of manufactured wiring systems.

**Performance Standard 6.2: Cranes and Hoists: Article 610**

6.2.1. Determine proper wiring of cranes and hoists.

**Performance Standard 6.3: Elevators, Escalators, and Moving Walks: Article 620**

6.3.1. Determine proper installation requirements of elevators, escalators, and moving walks.

**Performance Standard 6.4: Audio Signal Processing, Amplification, Reproduction Equipment: Article 640**

6.4.1. Determine proper wiring methods for audio equipment.

**Performance Standard 6.5: Information Technology Equipment: Article 645**

6.5.1. Define an IT room.
6.5.2. Determine proper installation of wiring in IT rooms.

**Performance Standard 6.6: Swimming Pools, Spas, Hot Tubs, Fountains, and Similar Locations: Article 680**

6.6.1. Determine proper electrical installations for swimming pools.
6.6.2. Determine proper electrical installations for spas and hot tubs.
6.6.3. Determine proper electrical installations for fountains.

**CONTENT STANDARD 7.0: SPECIAL CONDITIONS**


7.1.1. Determine the proper installation of standby power systems.
7.1.2. Determine the difference between emergency standby, legally required standby, and optional standby power systems.

Performance Standard 7.2: Remote-Control, Signaling, and Power-Limited Circuits: Article 725

7.2.1. Define circuit classes.
7.2.2. Determine proper installation and requirements of different circuit classes.


7.3.1. Define nonpower-limited fire alarm circuits.
7.3.2. Define power-limited fire alarm circuits.
7.3.3. Determine the proper installation of fire alarm wiring using the NEC.
7.3.4. Determine where the use of GFCI and AFCI are restricted.
7.3.5. Determine proper cable types.

CONTENT STANDARD 8.0: COMMUNICATION SYSTEMS

Performance Standard 8.1: Optical Fiber Cables and Raceways; Communications Systems: Articles 770 and 800 through 820

8.1.1. Determine proper installation of optical fiber cables.
8.1.2. Determine proper grounding of communications wiring and equipment.
8.1.3. Determine proper installations of communication wiring.