



Solar PV System Inspector Prep

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Practice Questions

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1. When reviewing a PV system permit package, which document is most essential for verifying electrical compliance?

- A. Homeowner contact information
- B. Equipment warranty information
- C. Manufacturer marketing materials
- D. Single-line electrical diagram

2. During inspection, you notice the installed microinverters differ from those specified in the approved plans. What should be documented first?

- A. The cost difference between the components
- B. The installer's explanation for the change
- C. The actual model and specifications of the installed microinverters
- D. The homeowner's awareness of the substitution

3. What critical information must be included on a PV system site plan for proper documentation review?

- A. Brand names of all components
- B. Array location and orientation on the structure
- C. Installation company logo
- D. Installer certification numbers

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4. Which discrepancy between permit documents and the actual installation would most likely require immediate correction?

- A. Incorrect conductor sizing
- B. Different module frame color
- C. Alternate brand of mounting hardware
- D. Minor relocation of monitoring equipment



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5. When reviewing structural documentation for a roof-mounted PV system, what information is most important to verify?

- A. Solar production estimates
- B. Aesthetic approval from homeowners association
- C. Historical energy consumption data
- D. Roof load calculations showing adequate capacity

6. What should an inspector do when the as-built PV system includes additional modules not shown in the approved plans?

- A. Physically remove the extra modules
- B. Approve the system without comment
- C. Document the discrepancy and require revised electrical calculations
- D. Issue a warning without further action

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7. What is the primary purpose of verifying system labeling during a PV inspection?

- A. To confirm the installer's brand identity
- B. To ensure safety information is available to emergency responders and future maintenance personnel
- C. To track warranty information
- D. To maintain aesthetic consistency

8. When reviewing electrical schematics for a PV system, which component must be clearly identified for code compliance?

- A. Point of interconnection with the utility grid
- B. Color coding of decorative conduit
- C. Brand names of optional accessories
- D. Installation date scheduling

9. What documentation is required to verify that rapid shutdown functionality meets NEC requirements?

- A. Promotional literature
- B. Verbal confirmation from the installer
- C. Neighborhood survey results
- D. Manufacturer's installation instructions showing proper implementation



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10. When an inspection reveals that the installed inverter differs from the one in the plans but has the same electrical specifications, what should the inspector require?

- A. Removal of the inverter
- B. Complete system redesign
- C. Updated as-built documentation reflecting the actual equipment installed
- D. Financial penalty to the installer

11. Which detail must be included in the documentation for a battery energy storage system coupled with PV?

- A. Battery color options
- B. Battery capacity and chemistry information
- C. Manufacturing plant location
- D. Marketing materials about battery benefits

12. What is the main purpose of checking string sizing calculations during document review?

- A. To verify compatibility with inverter voltage operating ranges
- B. To maximize aesthetic appearance
- C. To reduce installation time
- D. To minimize module shipping costs

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13. What key information should be included in an inspection report when code violations are found?

- A. Comparisons to neighboring installations
- B. Personal opinions about the installer
- C. Suggestions for alternative system designs
- D. Specific code references for each violation



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14. When reviewing PV system documentation, what information is necessary to verify proper grounding?

- A. Inverter wireless network settings
- B. Module cleaning schedule
- C. Grounding electrode system details
- D. Panel color preferences

15. What should an inspector document when examining labeling for a PV system disconnect?

- A. The brand name of the disconnect
- B. Clear identification of the disconnect's purpose and location
- C. The manufacturing date code
- D. The installer's logo placement

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16. When reviewing plans for a ground-mounted PV array, which documentation element requires verification?

- A. Setback distances from property lines
- B. Grass type surrounding the array
- C. Decorative fencing options
- D. Array visibility from scenic roads

17. What must an inspector verify when reviewing documentation for a PV system on a historic building?

- A. Neighborhood development timeline
- B. Building age verification
- C. Original architect's biography
- D. Approval from historic preservation authorities

18. What information in the PV system documentation helps verify proper conductor ampacity?

- A. Cable manufacturer's company history
- B. Wire color preferences
- C. Conductor specifications and temperature correction factors
- D. Shipping method for materials



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19. When documenting deviations from approved plans, what should an inspector require from the installer?

- A. Verbal promise to fix issues later
- B. Professional engineering approval for significant changes
- C. Extra payment for expedited review
- D. Waiver of future warranty claims

20. What is the primary purpose of reviewing PV system commissioning documentation?

- A. To verify proper system testing and functionality
- B. To establish installation timeline
- C. To document worker credentials
- D. To calculate tax incentives

21. When inspecting a PV system, what is the primary purpose of verifying the rapid shutdown labeling?

- A. To identify the manufacturer of the inverter
- B. To determine the system's maximum power output
- C. To verify the installation date of the equipment
- D. To ensure emergency responders can safely de-energize the system

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22. Which of the following conductor properties must an inspector verify to ensure proper ampacity ratings in a PV system?

- A. Price, date of installation, flexibility, and texture
- B. Color, weight, manufacturer, and country of origin
- C. Size, insulation type, ambient temperature, and conduit fill
- D. Length, brand name, warranty period, and installation date

23. An inspector notices that the PV system's AC disconnect is installed in a utility closet behind stored equipment. What code violation is present?

- A. The disconnect must be installed outdoors only
- B. The disconnect is not readily accessible as required by code
- C. AC disconnects are not required for PV systems
- D. The disconnect exceeds maximum height requirements



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24. What is the minimum bending radius requirement when inspecting conduit installation for PV system DC conductors?

- A. At least 8 times the conduit diameter
- B. 2 times the conduit diameter
- C. 20 times the conduit diameter
- D. No minimum radius is required

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25. During inspection of a grid-tied PV system, what is the maximum allowed voltage that should be measured on exposed metal parts of the array during normal operation?

- A. 50V
- B. 15V
- C. 30V
- D. 0V

26. When inspecting the grounding of a PV array, which of the following would be a code violation?

- A. Installing a grounding electrode at the array location
- B. Using copper equipment grounding conductors
- C. Using aluminum grounding conductors in direct contact with soil
- D. Connecting module frames to a continuous grounding conductor

27. What is the correct labeling requirement for a PV system disconnect according to NEC?

- A. Temporary paper label indicating voltage only
- B. Permanently marked as 'PV SYSTEM DISCONNECT' with reflective, weather-resistant markings
- C. Manufacturer's standard label with serial number
- D. Color-coded tape without text identification

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28. When inspecting conductors in PV source circuits, what is the minimum voltage rating required for these conductors?

- A. 1.25 times the maximum system voltage
- B. Equal to the nominal system voltage
- C. 600V regardless of system size
- D. 2 times the inverter output voltage

29. During inspection, you find that a PV array's wiring is subject to physical damage from rodents. What is the correct solution to address this issue?

- A. Replace with wireless power transmission
- B. Apply pesticide to the wire insulation
- C. Wrap the wires in electrical tape
- D. Install the wiring in conduit or raceway rated for physical protection

30. What must an inspector verify regarding overcurrent protection devices in a PV system?

- A. Brand name, country of origin, and installation cost
- B. Color coding, manufacturing date, and warranty period
- C. Proper voltage/current ratings, sizing for conductor protection, and accessibility
- D. Weight, dimensions, and decorative features



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Answer Key & Explanations

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1. D — Single-line electrical diagram

The single-line electrical diagram is the most essential document for verifying electrical compliance as it shows the complete electrical path from the PV modules through inverters to the point of interconnection, including all overcurrent protection devices, disconnects, and grounding details.

2. C — The actual model and specifications of the installed microinverters

When a system component differs from approved plans, the inspector should first document the specific model and specifications of the installed equipment to determine if it complies with code requirements, even though it differs from the original documentation.

3. B — Array location and orientation on the structure

Array location and orientation are critical on a site plan as they determine compliance with setback requirements, fire access pathways, and impact system performance calculations that are necessary for code compliance verification.

4. A — Incorrect conductor sizing

Incorrect conductor sizing is the most serious discrepancy requiring immediate correction as undersized conductors can lead to overheating, fire hazards, and code violations that impact system safety.

5. D — Roof load calculations showing adequate capacity

Roof load calculations are most important in structural documentation as they demonstrate that the building can safely support the additional weight of the PV system, preventing structural failure.

6. C — Document the discrepancy and require revised electrical calculations

When additional modules are installed beyond what was approved, the inspector should document the discrepancy and require revised calculations to ensure the system remains code-compliant with the increased capacity.

7. B — To ensure safety information is available to emergency responders and future maintenance personnel

Verifying system labeling ensures that emergency responders and maintenance personnel can quickly identify system components, hazards, and disconnect locations, which is critical for safety during emergencies.

8. A — Point of interconnection with the utility grid

Point of interconnection must be clearly identified in electrical schematics as it shows where the PV system connects to the utility grid, which is critical for verifying proper integration and disconnection capabilities.

9. D — Manufacturer's installation instructions showing proper implementation

Manufacturer's installation instructions are required to verify rapid shutdown functionality as they contain specific guidance on proper installation and operation of these critical safety systems that must be followed for code compliance.



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10. C — Updated as-built documentation reflecting the actual equipment installed

When an equivalent inverter is substituted, updated documentation is necessary to ensure that the as-built drawings accurately reflect the actual installation for future reference and maintenance.

11. B — Battery capacity and chemistry information

Battery capacity and chemistry information is essential for safety evaluation, as different battery technologies have specific hazards, ventilation requirements, and fire suppression needs that must be documented for code compliance.

12. A — To verify compatibility with inverter voltage operating ranges

Checking string sizing calculations ensures that the number of modules in series is compatible with the inverter's voltage operating range, preventing potential damage or safety issues from voltage extremes.

13. D — Specific code references for each violation

Specific code references are essential in violation reports as they clearly identify which requirements aren't being met, providing clear guidance for corrections and legal justification for required changes.

14. C — Grounding electrode system details

Grounding electrode system details are necessary to verify proper grounding as they show how the PV system is connected to earth, which is critical for safety and lightning protection.

15. B — Clear identification of the disconnect's purpose and location

Clear identification of the disconnect's purpose and location is critical documentation as it ensures emergency responders can quickly locate and operate disconnects when needed.

16. A — Setback distances from property lines

Setback distances from property lines are critical for ground-mounted arrays as they ensure compliance with local zoning requirements and fire access needs.

17. D — Approval from historic preservation authorities

Approval from historic preservation authorities is essential for PV installations on historic buildings as these structures often have special requirements and restrictions that must be documented and followed.

18. C — Conductor specifications and temperature correction factors

Conductor specifications and temperature correction factors are essential for verifying proper ampacity as they show whether the wiring can safely handle the maximum current under the expected environmental conditions.

19. B — Professional engineering approval for significant changes

Professional engineering approval is necessary for significant deviations as it ensures that the changes maintain system safety and performance in accordance with applicable codes and standards.

20. A — To verify proper system testing and functionality

The primary purpose of reviewing commissioning documentation is to verify that the system has been properly tested and functions as designed, ensuring all safety features and performance parameters are operational before final approval.

21. D — To ensure emergency responders can safely de-energize the system

Rapid shutdown labeling is critical for emergency responder safety, as it identifies how to quickly de-energize the PV system during emergencies, reducing shock hazards for firefighters and other first responders.



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22. C — Size, insulation type, ambient temperature, and conduit fill

Conductor size, insulation type, ambient temperature, and conduit fill all directly affect the ampacity of conductors in a PV system and must be verified during inspection to ensure they meet code requirements for current-carrying capacity.

23. B — The disconnect is not readily accessible as required by code

The National Electrical Code requires disconnects to be readily accessible, meaning they must be capable of being reached quickly without requiring climbing over or removing obstacles, to ensure safe emergency operation.

24. A — At least 8 times the conduit diameter

The minimum bending radius for conduits containing DC conductors in PV systems is typically at least 8 times the conduit diameter to prevent damage to the conductors and maintain cable integrity, though specific requirements may vary by conductor type.

25. D — 0V

Properly grounded equipment should have no significant voltage on exposed metal parts. Any voltage above 0V indicates a potential grounding issue that needs to be addressed to prevent shock hazards.

26. C — Using aluminum grounding conductors in direct contact with soil

Using aluminum grounding conductors in contact with soil is a code violation because aluminum corrodes rapidly when in direct contact with earth, compromising the integrity of the grounding system over time.

27. B — Permanently marked as 'PV SYSTEM DISCONNECT' with reflective, weather-resistant markings

The NEC requires PV system disconnects to be permanently labeled as 'PV SYSTEM DISCONNECT' with reflective, weather-resistant markings that clearly identify their function for both routine maintenance and emergency situations.

28. A — 1.25 times the maximum system voltage

PV source circuit conductors must have a minimum voltage rating of at least 1.25 times the PV system's maximum voltage to account for voltage increases due to temperature and irradiance changes.

29. D — Install the wiring in conduit or raceway rated for physical protection

Using conduit or raceway specifically rated for physical protection is the correct solution for protecting PV system wiring from rodent damage, as it provides a durable barrier against gnawing and other physical hazards.

30. C — Proper voltage/current ratings, sizing for conductor protection, and accessibility

An inspector must verify that overcurrent protection devices are properly rated for both voltage and current requirements of the circuit, correctly sized for conductor protection, and installed in accessible locations to ensure safe operation and maintenance.



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