

ELECTRICAL CURRENTS



Question of the Month –

When using the “25-ohm rule” for grounding electrodes, what must be done if a single ground rod measures more than 25 ohms?

Load Management Systems: A Growing Part of Residential Electrical Work

More homeowners are choosing electric heat pumps, induction stoves, EV chargers, and electric water heaters. These appliances pull more power, and many older homes with 100-amp service can’t keep up. A load management system steps in by actively controlling when large appliances turn on so the home doesn’t exceed its electrical limits.

The National Electrical Code (NEC) gives clear guidance on how electricians must install and use these systems. Article 220 (Article 120 in the 2026 NEC) tells electricians how to calculate a home’s total electrical load. It also allows them to include demand factors and controlled loads when deciding if the service is large enough. When a load management system is present, electricians must include it in these calculations.

Article 750 (Article 130 in the 2026 NEC) adds more rules for energy management systems. It explains how automatic controls must operate so they don’t overload the service. Equipment-specific sections—like Article 625 for EV chargers—also describe how load control can work with certain appliances.

These NEC sections work together to ensure load management systems operate safely and reliably. As homes move toward all-electric heating, cooking, and transportation, load management will play a major role in the electrical industry’s future. Installers need to stay current with these changes to keep up with modern demand.

2026 NEC Moves to Outdoor Service Disconnects and Updates Feeder Requirements

The 2026 NEC introduces a major shift in how residential service disconnects must be installed, reshaping a rule that has been in place for years. Previously, dwellings required an emergency disconnect located outside, but the service disconnect itself could still be indoors. The new code streamlines this approach by eliminating the separate emergency disconnect requirement and revising NEC 230.70(A) to mandate that the service disconnect be located outdoors in a readily accessible location on the dwelling or in a spot clearly within sight of it. This creates a single, unmistakable shutoff point that first responders can identify instantly, reducing the confusion that sometimes occurred when multiple disconnecting means were present.

The update also clarifies requirements for one- and two-family dwelling units supplied by feeders. In these cases, NEC 225.41 requires an outdoor feeder emergency disconnect located on the dwelling or within sight of it to serve as the disconnecting means for the dwelling. This avoids unnecessary duplication while still ensuring that responders have a safe, clearly labeled, and easily reachable way to de-energize the home during an emergency.

Safety Tip of the Month

Proper footwear is essential for electricians. Quality, electrical hazard rated footwear provides insulation, protects against falling objects, and offers stability on uneven or slippery surfaces. Choose slip-resistant soles and inspect your footwear regularly. Wearing the right pair reduces injuries, improves balance, and keeps you safer and more confident on the job

The 2029 NEC: A New Era for the Electrical Industry

The National Electrical Code (NEC) is preparing for the largest structural overhaul in nearly a century. Beginning with the 2029 edition, the NEC will shift from its long-standing nine-chapter format to a modern, 20-chapter framework. The redesign, previewed in the 2026 NEC's Informative Annex L, aims to help electrical professionals navigate increasingly complex energy systems with greater clarity and efficiency.

- Expansion from 9 chapters to 20, marking the largest structural update since 1937
- A more intuitive, digital-friendly organization replacing the traditional “one-size-fits-all” layout
- New dedicated chapters for:
 - Voltage-Based Wiring, separating systems above and below 1000VAC/1500VDC
 - Limited-Energy Systems, reflecting rapid growth in low-voltage technologies
 - Energy Sources, covering solar, storage, and bidirectional power flow
- Consolidation of all standard NEC tables into a single, streamlined Chapter 20
- A scalable architecture designed to reduce fragmentation and minimize cross-referencing
- Structural changes only. Technical requirements remain largely unchanged for now

As the electrical industry accelerates toward decentralized grids and smarter technologies, the NEC's new structure is designed to evolve alongside it. Understanding this transition will be essential for accurate design, installation, and inspection practices. For a deeper look at the roadmap, check out Informative Annex L in the back of your 2026 NEC.

Answer to the Question of the Month –

If a single grounding electrode (typically an 8-ft ground rod) tests at more than 25 ohms to earth, the NEC requires the installer to supplement with an additional electrode of a type specified in 250.52(A)(2) through (A)(8). After installing the second rod, no further testing is required. (NEC 250.53(A)(2))

The NEC wants to ensure that a grounding electrode system has **reasonably low impedance** to earth, especially for lightning, surges, and fault stabilization. But the Code also recognizes that soil conditions vary wildly — rock, sand, clay, moisture levels — so it gives two compliance paths:

1. Prove the single rod is 25 ohms or less, *or*
2. Install a second rod and call it good, no testing needed.

Most electricians choose option 2 because testing requires specialized equipment (a fall-of-potential tester or clamp-on ground tester).

Picture of the Month –

There are a lot of “lines” in this month’s picture. This meter base appears to have improperly identified terminals. Where are the “load” terminals? Hint: They are connected to the bottom set of meter jaws.



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