

NFPA members vote on final amendments to 2014 NEC.

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Whether moving a production line or replacing a broken 120-V receptacle, the **National Electrical Code** applies. Compliance with building codes, such as the **NEC**, is not an option. Plant managers, engineers, and maintenance staff must be aware that, for 2014, the electrical code will change. During the week of June 10, 2013, NFPA committee members met in Chicago to vote on the final **amendments** to the 2014 NEC. It will be published in October of this year and become effective January 1, 2014.

There will be many changes in the new code and a good percentage will affect how **electrical work** is performed in manufacturing plants. These include the addition of new topics to the code, enhancement of personnel **safety**, and the revision, deletion, and addition of various **general requirements**.

Four new articles have been incorporated for 2014 to address the needs of industry:

- Article 750 will address **energy management systems**. As saving energy dollars becomes more important in plants, the electrical code will now give guidance on the installation of smart grid management systems. Requirements will go right down to the marking symbol on controlled receptacles.
- Article 393 will cover **low-voltage suspended-ceiling power-distribution systems**. These are 30-V lighting systems attached to the suspended-ceiling grid. Such systems will be found in office and other administrative areas where suspended ceilings are common.
- Article 646 on **modular data centers** will be incorporated into the code to keep up with modern technology. Though available in many sizes and configurations, the individual “building block” units typically consist of data servers, associated power supplies, and cooling units that can be easily expanded in capacity over time by adding more prefabricated modules.
- Article 728 will address **fire-resistant cable systems**. Should a plant fire occur it is vital that certain cables continue to function. Such cables will be required to meet specific criteria and installation requirements.

The newly revised NEC will enhance **personnel safety** through centralizing and clarifying requirements for the use of **lockable disconnects**. Locking out and properly verifying a circuit de-energized is vital for plant personnel safety. **Arc-flash** warning label requirements will undergo some changes. Also, methods used to mitigate the arc-flash hazard in distribution systems will be revised. Interestingly enough, one particular proposal that would have

increased the requirements for equipment grounding conductors to reduce the chance of **shock** or **electrocution** to persons working on rooftop **HVAC** units will probably not be approved for final inclusion into the code. Though based on a recent tragic accident that was the result of a faulty conduit system, the committee members note that, had the conduit system been properly maintained after initial installation, the accident would not have occurred. The NEC does point out in one of its very first sections that **electrical systems** and **equipment** must be maintained to remain safe after installation.

Other topics that will change and affect plants in various ways include:

- personnel door requirements for electrical rooms
- new identification methods for DC positive and negative conductors
- GFCI requirements in non-dwelling unit garages
- grounding and bonding requirements including a new table in Article 250
- marking requirements on cable trays
- receptacles supplying vending machines
- labeling on generators and new generator receptacle requirements
- expansion of requirements for office furnishings, especially pre-wired workstations.

Plant **maintenance** and **engineering** departments should determine when the 2014 NEC becomes effective at the facility as jurisdictional requirements vary. Once published, affected personnel should update themselves on these recent changes and verify all maintenance and plant retrofit work conforms to the **2014 National Electrical Code**.

