

National Electrical Code – How Much Do You Think You Know?

The National Electrical Code (NEC) was born in 1896 in response to a rapid increase in the number of electrical fires resulting from new installations, like the world's first electrical distribution system in lower Manhattan, NY. Today, the National Fire Protection Association (NFPA) creates a new edition every three years. As published, it has no legal standing, but is offered so that states, municipalities and other entities may enact it into law or give it whatever status they wish.

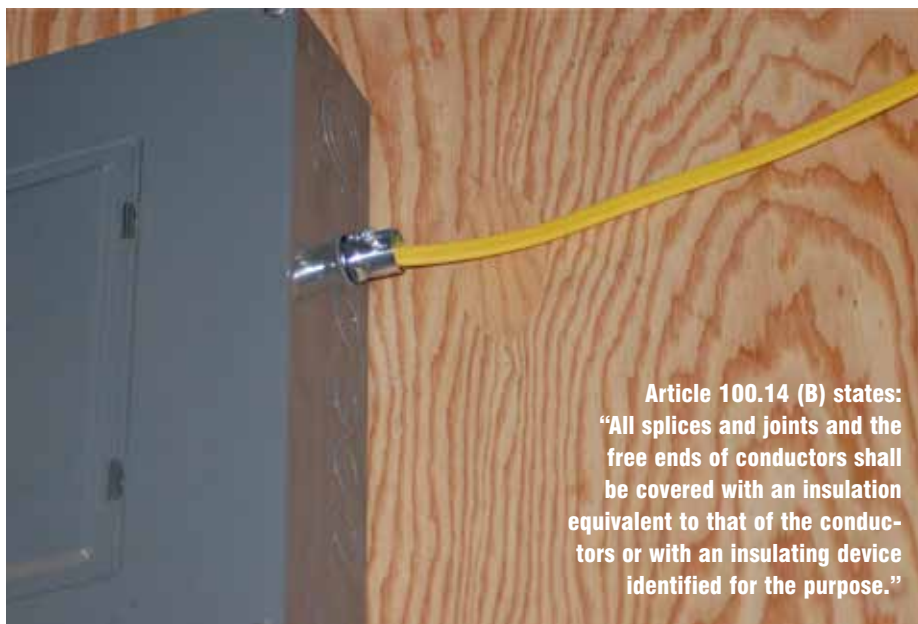
Generally, the Code applies to a new building. It is not mandated that existing installations will be upgraded to meet the provisions of each new edition of the Code, but if any renovation is done, that new work must be in compliance in jurisdictions that have enacted the Code. The Code covers low voltage cabling, as well as power and light wiring. Even wiring that does not involve potentially dangerous voltages or power levels is addressed, since it can contribute to the spread of fire and toxic smoke generation.

In creating low voltage cabling installations, you should be aware of on-site electrical environments, particularly in regard to grounding and over-current protection. A good way to start is by becoming familiar with the current edition of the NEC.

The following Code questions are approximately the same level of difficulty as found on many state electricians' licensing exams. Do you think you can get the following correct? The answers are located at www.cablingbusiness.com/JuneAnswers. No peeking!

1. The purpose of the National Electrical Code is:

- A) To provide design specifications for electrical installations.



Article 100.14 (B) states:
“All splices and joints and the free ends of conductors shall be covered with an insulation equivalent to that of the conductors or with an insulating device identified for the purpose.”

- B) To instruct workers with no previous knowledge in the field.
- C) The practical safeguarding of persons and property from hazards arising from the use of electricity.
- D) All of the above.

2. The NEC covers the installation of electrical conductors, equipment and raceways, signaling and communications conductors, equipment and raceways and optical fiber cables and raceways for the following:

- A) Public and private premises, including buildings, structures, mobile homes, recreational vehicles, floating buildings, yards, lots, parking lots, carnivals and industrial substations.
- B) Installations of conductors and equipment that connect to the supply of electricity.
- C) Installations used by the electric utility, such as office buildings, warehouses,

garages, machine shops and recreational buildings, which are not an integral part of a generating plant, substation, or control center.

- D) All of the above.

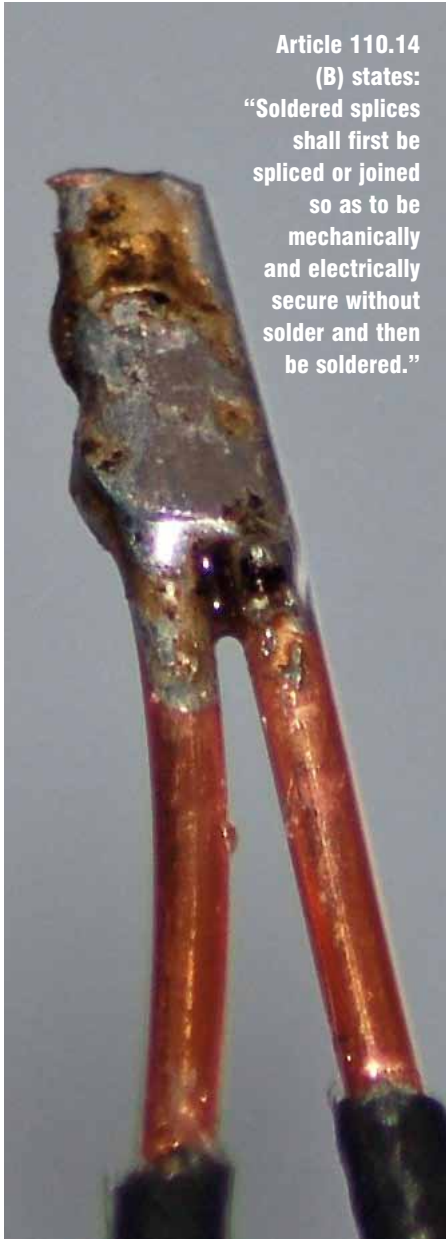
3. The Code does not cover:

- A) Low voltage lighting.
- B) Control wiring incapable of giving humans a dangerous shock.
- C) Telephone jacks and line cords.
- D) Installations underground in mines.

4. Also not covered in the NEC are installations under the exclusive control of an electric utility, where such installations:

- A) Consist of service drops or service laterals and associated metering.
- B) Are located in legally established easements or rights-of-way designated by or recognized by public service commissions, utility commissions or

Article 110.14 (B) states: “Soldered splices shall first be spliced or joined so as to be mechanically and electrically secure without solder and then be soldered.”



other regulatory agencies having jurisdiction for such installations.

- C) Are on property owned or leased by the electric utility for the purpose of communications, metering, generation, control, transformation or distribution of electric energy.
- D) All of the above.

5. Article 110, Requirements for Electrical Installations, covers:

- A) Ampacity of various size and type conductors.
- B) General requirements for the examination and approval, installation and use,

access to and spaces about electrical conductors and equipment; enclosures intended for personnel entry; and tunnel installations.

- C) Clearance for overhead conductors and cables.
- D) Grounding of motor-operated pumps.

6. In judging equipment, the following considerations are to be evaluated:

- A) Cost of the equipment.
- B) Electrical insulation.
- C) Whether it is copper or aluminum.
- D) Place of manufacture.

7. Conductor sizes are expressed in:

- A) American Wire Gauge (AWG) or circular mils.
- B) Decimal fractions of an inch.
- C) Ounces per foot.
- D) Any of these.

8. Completed wiring installations must be free of:

- A) Short circuits.
- B) Ground faults.
- C) Any connections to ground other than required or permitted.
- D) All of the above.

9. Equipment intended to interrupt current at fault levels must have an interrupting rating sufficient for the nominal circuit voltage and current that is available at the line terminals of the equipment.

- A) True.
- B) False.

10. Unless identified for use in the operating environment, no conductors or equipment are to be located in:

- A) Damp or wet locations.

- B) Where exposed to gases, fumes, vapors, liquids or other agents that have a deteriorating effect on the conductors or equipment.
- C) Where exposed to excessive temperatures.
- D) All of the above.

Be sure to check back next month when David will have a fresh set of questions to test your NEC knowledge!

David Herres is a technical writer specializing in electrical topics. He is a licensed master electrician in New Hampshire where he has been doing electrical work for many years. David has published in numerous industry magazines and can be reached at electriciansparadise@hughes.net or go to www.electriciansparadise.com.



This type NM cable is run through a connector intended for EMT. Such an installation would not provide strain relief. Also, type NM cable is to be secured within 12 inches of any box or enclosure.