ARTICLE

90

INTRODUCTION TO THE *NATIONAL ELECTRICAL CODE*

Introduction to Article 90—Introduction to the *National Electrical Code*

Article 90 opens by saying the *National Electrical Code* (*NEC*/*Code*) is not intended as a design specification or instruction manual. It has one purpose only, and that is the "practical safeguarding of persons and property from hazards arising from the use of electricity." That does not necessarily mean the installation will be efficient, convenient, or able to accommodate future expansion; just safe. The necessity of carefully studying the *Code* rules cannot be overemphasized, and the step-by-step explanatory design of a textbook such as this is to help in that undertaking. Understanding where to find the requirements in the *NEC* that apply to the installation is invaluable. Rules in several different articles often apply to even a simple installation. You are not going to remember every section of every article of the *Code* but, hopefully, you will come away with knowing where to look after studying this textbook.

Article 90 then goes on to describe the scope and arrangement of the *NEC*. The balance of it provides the reader with information essential to understanding the *Code* rules.

Most electrical installations require you to understand the first four chapters of the *NEC* (which apply generally) and have a working knowledge of the Chapter 9 tables. That understanding begins with this article. Chapters 5, 6, and 7 make up a large portion of the *Code* book, but they apply to special occupancies, special equipment, or special conditions. They build on, modify, or amend the rules in the first four chapters. Chapter 8 contains the requirements for communications systems, such as radio and television equipment, satellite receivers, antenna systems, twisted pair conductors, and coaxial cable wiring. Communications systems are not subject to the general requirements of Chapters 1 through 4, or the special requirements of Chapters 5 through 7, unless there is a specific reference to a rule in the previous chapters.

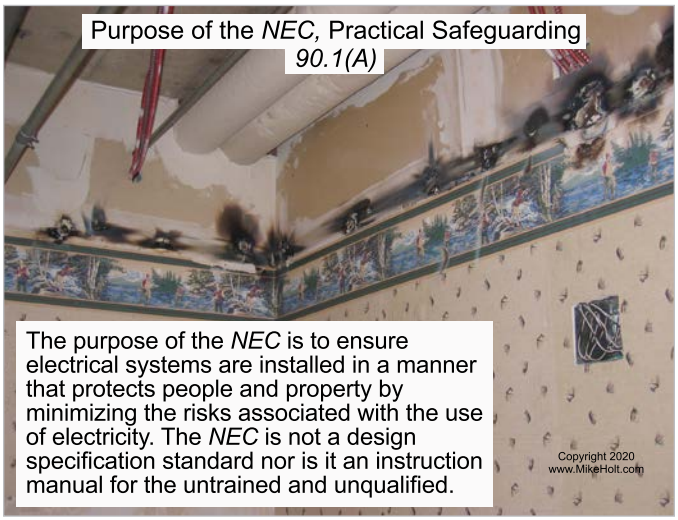
90.1 Purpose of the *NEC*

Scan this QR code for a video of Mike explaining this topic; it's a sample from the videos that accompany this textbook.
www.MikeHolt.com/20UN1videos

(A) Practical Safeguarding. The purpose of the *National Electrical Code* is to ensure electrical systems are installed in a manner that protects people and property by minimizing the risks associated with the use of electricity. The *NEC* is not a design specification standard nor is it an instruction manual for the untrained and unqualified. ▸Figure 90–1

Author's Comment:

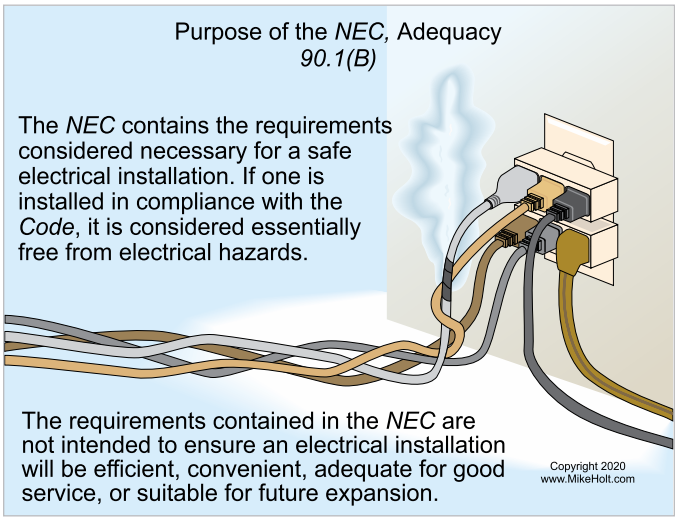
- The *Code* is intended to be used by those who are skilled and knowledgeable in electrical theory, electrical systems, building and electrical construction, and the installation and operation of electrical equipment.



▸Figure 90–1

(B) Adequacy. The *NEC* contains the requirements considered necessary for a safe electrical installation. If one is installed in compliance with the *Code*, it is considered essentially free from electrical hazards.

The requirements contained in the *NEC* are not intended to ensure an electrical installation will be efficient, convenient, adequate for good service, or suitable for future expansion. ▶Figure 90–2

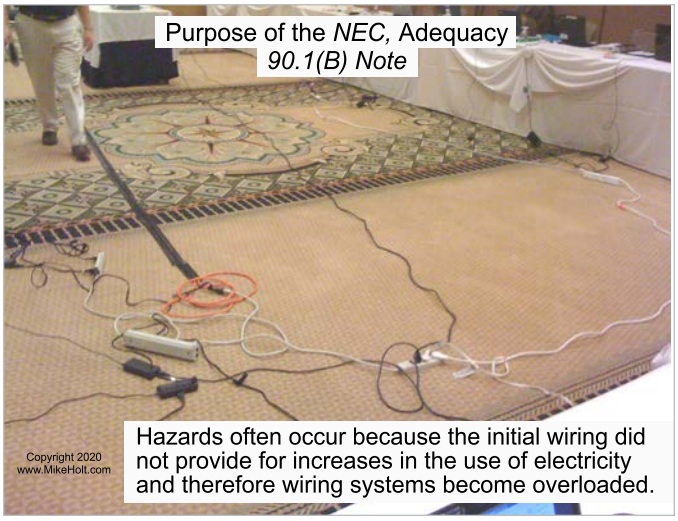


▶Figure 90–2

Author's Comment:

- Electrical energy management, equipment maintenance, power quality, or suitability for future loads are not issues within the scope of the *Code*.

Note: Hazards often occur because the initial wiring did not provide for increases in the use of electricity and therefore wiring systems become overloaded. ▶Figure 90–3



▶Figure 90–3

Author's Comment:

- The *NEC* does not require electrical systems to be designed or installed to accommodate future loads. However, the electrical designer (typically an electrical engineer) is concerned with not only ensuring electrical safety (*Code* compliance), but also that the electrical system meets the customers' needs, both for today and in the coming years. To satisfy their needs, electrical systems are often designed and installed above the minimum requirements contained in the *NEC*.

(C) Relation to International Standards. The requirements of the *Code* address the fundamental safety principles contained in the International Electrotechnical Commission (IEC) Standard.

Note: IEC 60364-1, Section 131, contains fundamental principles of protection for safety that encompass protection against electric shock, protection against thermal effects, protection against overcurrent, protection against fault currents, and protection against overvoltage. All of these potential hazards are addressed by the requirements in this *Code*. ▶Figure 90–4

▶Figure 90–4