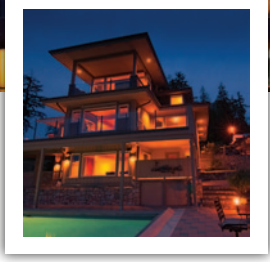
Mike Holt's

2011 NEC® INDEX



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Mike Holt's 2011 *NEC* Index

Introduction

This index is a free resource from Mike Holt Enterprises, Inc. It was designed to help you find what you're looking for in the *Code* book in seconds! This index lists all those difficult key words and gives you the section where these words appear in the *Code*. It's a great tool to get you familiar with those hard to find references in the *NEC*! Use this index along with your *Code* book and tabs (below) and you'll be in great shape!

About the Author

Mike Holt worked his way up through the electrical trade from an apprentice electrician to become one of the most recognized experts in the world as it relates to electrical power installation. He was a Journeyman Electrician, Master Electrician, and Electrical Contractor. Mike came from the real world, and his dedication to electrical training is the result of his own struggles as an electrician looking for a program that would help him succeed in this challenging industry.

It is for reasons like this that Mike continues to help the industry by providing free resources such as this index. It is the goal of Mike Holt and everyone on the Mike Holt Team to do everything in our power to aid you in your pursuit of excellence.

For more great FREE resources from Mike Holt visit www.MikeHolt.com.

Code Book

Need to order a *Code* book? The spiral edition makes the *Code* book much easier to use. The spiral coil allows you to conveniently study by placing the book folded on your desk. It lays flat and you can even put it on a hook in your truck. The most widely adopted element of a building code in the United States and the world, the *NEC* is the benchmark for safe and efficient electrical installations. Whether your jurisdiction adopts the 2011 *Code* immediately or down the road, you need to extend your knowledge and take advantage of the benefits right away, not months or years behind your peers in the electrical industry.

Tabs

Peel-and-stick Tabs are a great way to customize your *Code* book. These 84 self adhesive tabs allow you to mark and reference important articles and tables quickly. They are compatible with the 2011 *Code* Book and Handbook. Included in the set is a 16 in. x 20 in. Commercial and Industrial Wiring and Raceway Chart and an Ohms Wheel Sticker.

For more on this and other products, visit www.MikeHolt.com/NEC.

How to Use the *National Electrical Code*

The *National Electrical Code* is written for persons who understand electrical terms, theory, safety procedures, and electrical trade practices. These individuals include electricians, electrical contractors, electrical inspectors, electrical engineers, designers, and other qualified persons. The *Code* isn't written to serve as an instructive or teaching manual for untrained individuals [90.1(C)].

Learning to use the *NEC* is like learning to play the game of chess; it's a great game if you enjoy mental warfare. When learning to play chess, you must first learn the names of the game pieces, how the pieces are placed on the board, and how each piece moves.

Once you understand the fundamentals, you're ready to start playing the game. Unfortunately, at this point all you can do is make crude moves, because you really don't understand how all the information works together. To play chess well, you'll need to learn how to use your knowledge by working on subtle strategies before you can work your way up to the more intriguing and complicated moves.

Not a Game

Electrical work isn't a game, and it must be taken very seriously. Learning the basics of electricity, important terms and concepts, as well as the basic layout of the *NEC* gives you just enough knowledge to be dangerous. There are thousands of specific and unique applications of electrical installations, and the *Code* doesn't cover every one of them. To safely apply the *NEC*, you must understand the purpose of a rule and how it affects the safety aspects of the installation.

NEC Terms and Concepts

The *NEC* contains many technical terms, so it's crucial for *Code* users to understand their meanings and their applications. If you don't understand a term used in a *Code* rule, it will be impossible to properly apply the *NEC* requirement. Be sure you understand that Article 100 defines the terms that apply to two or more *Code* articles. For example, the term "Dwelling Unit" is found in many articles; if you don't know what a dwelling unit is, how can you apply the requirements for it?

In addition, many articles have terms unique for that specific article and definitions of those terms are only applicable for that given article. For example, Section 250.2 contains the definitions of terms that only apply to Article 250—Grounding and Bonding.

Small Words, Grammar, and Punctuation

It's not only the technical words that require close attention, because even the simplest of words can make a big difference to the application of a rule. The word "or" can imply alternate choices for equipment wiring methods, while "and" can mean an additional requirement. Let's not forget about grammar and punctuation. The location of a comma can dramatically change the requirement of a rule.

Slang Terms or Technical Jargon

Electricians, engineers, and other trade-related professionals use slang terms or technical jargon that isn't shared by all. This makes it very difficult to communicate because not everybody understands the intent or application of those slang terms. So where possible, be sure you use the proper word, and don't use a word if you don't understand its definition and application. For example, lots of electricians use the term "pigtail" when describing the short conductor for the connection of a receptacle, switch, luminaire, or equipment. Although they may understand it, not everyone does.

NEC Style and Layout

Before we get into the details of the *NEC*, we need to take a few moments to understand its style and layout. Understanding the structure and writing style of the *Code* is very important before it can be used and applied effectively. The *National Electrical Code* is organized into ten major components.

1. Table of Contents
2. Article 90 (Introduction to the *Code*)
3. Chapters 1 through 9 (major categories)
4. Articles 90 through 840 (individual subjects)
5. Parts (divisions of an article)
6. Sections and Tables (*Code* requirements)
7. Exceptions (*Code* permissions)
8. Informational Notes (explanatory material)
9. Annexes (information)
10. Index

1. Table of Contents. The Table of Contents displays the layout of the chapters, articles, and parts as well as the page numbers. It's an excellent resource and should be referred to periodically to observe the interrelationship of the various *NEC* components. When attempting to locate the rules for a particular situation, knowledgeable *Code* users often go first to the Table of Contents to quickly find the specific *NEC* Part that applies.

2. Introduction. The *NEC* begins with Article 90, the introduction to the *Code*. It contains the purpose of the *NEC*, what's covered and what isn't covered along with how the *Code* is arranged. It also gives information on enforcement and how mandatory and permissive rules are written as well as how explanatory material is included. Article 90 also includes information on formal interpretations, examination of equipment for safety, wiring planning, and information about formatting units of measurement.

3. Chapters. There are nine chapters, each of which is divided into articles. The articles fall into one of four groupings: General Requirements (Chapters 1 through 4), Specific Requirements (Chapters 5 through 7), Communications Systems (Chapter 8), and Tables (Chapter 9).

Chapter 1 General
Chapter 2 Wiring and Protection
Chapter 3 Wiring Methods and Materials
Chapter 4 Equipment for General Use
Chapter 5 Special Occupancies
Chapter 6 Special Equipment
Chapter 7 Special Conditions
Chapter 8 Communications Systems (Telephone, Data, Satellite, Cable TV and Broadband)
Chapter 9 Tables–Conductor and Raceway Specifications

4. Articles. The *NEC* contains approximately 140 articles, each of which covers a specific subject. For example:

Article 110 Requirements for Electrical Installations
Article 250 Grounding and Bonding
Article 300 Wiring Methods
Article 430 Motors, Motor Circuits, and Controllers
Article 500 Hazardous (Classified) Locations, Classes I, II, and III, Divisions 1 and 2
Article 680 Swimming Pools, Fountains, and Similar Installations
Article 725 Class 1, Class 2, and Class 3 Remote-Control, Signaling, and Power-Limited Circuits
Article 800 Communications Circuits

5. Parts. Larger articles are subdivided into parts.

Because the parts of a *Code* article aren't included in the section numbers, we have a tendency to forget what "part" the *NEC* rule is relating to. For example, Table 110.34(A) contains working space clearances for electrical equipment. If we aren't careful, we might think this table applies to all electrical installations, but Table 110.34(A) is located in Part III, which only contains requirements for "Over 600 Volts, Nominal installations." The rules for working clearances for electrical equipment for systems 600V, nominal, or less are contained in Table 110.26(A)(1), which is located in Part II—600 Volts, Nominal, or Less.

6. Sections and Tables.

Sections. Each *NEC* rule is called a "*Code* Section." A *Code* section may be broken down into subsections by letters in parentheses (A), (B), and so on. Numbers in parentheses (1), (2), and so forth, may further break down a subsection, and lowercase letters (a), (b), and so on, further break the rule down to the third level. For example, the rule requiring all receptacles in a dwelling unit bathroom to be GFCI protected is contained in Section 210.8(A)(1). Section 210.8(A)(1) is located in Chapter 2, Article 210, Section 8, Subsection (A), Sub-subsection (1).

Many in the industry incorrectly use the term "Article" when referring to a *Code* section. For example, they say "Article 210.8," when they should say "Section 210.8." Section numbers in this book are shown without the word "Section," unless they begin a sentence. For example, Section 210.8(A) is shown as simply 210.8(A).

Tables. Many *Code* requirements are contained within tables, which are lists of *NEC* requirements placed in a systematic arrangement. The titles of the tables are extremely important; you must read them carefully in order to understand the contents, applications, limitations, and so forth, of each table in the *Code*. Many times notes are provided in or below a table; be sure to read them as well since they're also part of the requirement. For example, Note 1 for Table 300.5 explains how to measure the cover when burying cables and raceways, and Note 5 explains what to do if solid rock is encountered.

7. Exceptions. Exceptions are *Code* requirements or permissions that provide an alternative method to a specific requirement. There are two types of exceptions—mandatory and permissive. When a rule has several exceptions, those exceptions with mandatory requirements are listed before the permissive exceptions.

Mandatory Exceptions. A mandatory exception uses the words "shall" or "shall not." The word "shall" in an exception means that if you're using the exception, you're required to do it in a particular way. The phrase "shall not" means it isn't permitted.

Permissive Exceptions. A permissive exception uses words such as "shall be permitted," which means it's acceptable (but not mandatory) to do it in this way.

8. Informational Notes. An Informational Note contains explanatory material intended to clarify a rule or give assistance, but it isn't a *Code* requirement.

9. Annexes. Annexes aren't a part of the *NEC* requirements, and are included in the *Code* for informational purposes only.

Annex A. Product Safety Standards
Annex B. Application Information for Ampacity Calculation
Annex C. Conduit and Tubing Fill Tables for Conductors and Fixture Wires of the Same Size
Annex D. Examples
Annex E. Types of Construction
Annex F. Availability and Reliability for Critical Operations Power Systems (COPS)
Annex G. Supervisory Control and Data Acquisition (SCADA)
Annex H. Administration and Enforcement
Annex I. Recommended Tightening Torques

10. Index. The Index at the back of the *NEC* is helpful in locating a specific rule.

Changes to the *NEC* since the previous edition(s), are identified by shading, but rules that have been relocated aren't identified as a change. A bullet symbol "•" is located on the margin to indicate the location of a rule that was deleted from a previous edition. New articles contain a vertical line in the margin of the page.

How to Locate a Specific Requirement

How to go about finding what you're looking for in the *Code* depends, to some degree, on your experience with the *NEC*. *Code* experts typically know the requirements so well they just go to the correct rule without any outside assistance. The Table of Contents might be the only thing very experienced *NEC* users need to locate the requirement they're looking for. On the other hand, average *Code* users should use all of the tools at their disposal, including the Table of Contents and the Index.

Table of Contents. Let's work out a simple example: What *NEC* rule specifies the maximum number of disconnects permitted for a service? If you're an experienced *Code* user, you'll know Article 230 applies to "Services," and because this article is so large, it's divided up into multiple parts (actually eight parts). With this knowledge, you can quickly go to the Table of Contents and see that it lists the Service Equipment Disconnecting Means requirements in Part VI.

> **Author's Comment:** The number 70 precedes all page numbers because the ***NEC*** is NFPA Standard Number 70.

Index. If you use the Index, which lists subjects in alphabetical order, to look up the term "service disconnect," you'll see there's no listing. If you try "disconnecting means," then "services," you'll find that the Index specifies that the rule is located in Article 230, Part VI. Because the *NEC* doesn't give a page number in the Index, you'll need to use the Table of Contents to find the page number, or flip through the *Code* to Article 230, then continue to flip through pages until you find Part VI.

Many people complain that the *NEC* only confuses them by taking them in circles. As you gain experience in using the *Code* and deepen your understanding of words, terms, principles, and practices, you'll find the *NEC* much easier to understand and use than you originally thought.

Customizing Your *Code* Book

One way to increase your comfort level with the *Code* is to customize it to meet your needs. You can do this by highlighting and underlining important *NEC* requirements, and by attaching tabs to important pages. Be aware that if you're using your *Code* book to take an exam, some exam centers don't allow markings of any type.

Highlighting. As you read through this textbook, be sure you highlight those requirements in the *Code* that are the most important or relevant to you. Use yellow for general interest and orange for important requirements you want to find quickly. Be sure to highlight terms in the Index and the Table of Contents as you use them.

Underlining. Underline or circle key words and phrases in the *NEC* with a red pen (not a lead pencil) and use a 6-in. ruler to keep lines straight and neat. This is a very handy way to make important requirements stand out. A small 6-in. ruler also comes in handy for locating specific information in the many *Code* tables.

Tabbing the *NEC*. By placing tabs on *Code* articles, sections, and tables, it will make it easier for you to use the *NEC*. However, too many tabs will defeat the purpose. You can order a set of *Code* tabs designed by Mike Holt online at www.MikeHolt.com, or by calling 1.888.NEC.CODE (632.2633).

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