

Electrical Code Drill Sample

DRILL 1

Boxes that enclose devices or utilization equipment supplied by 8, 6, or 4 AWG conductors shall have an internal depth that is not less than what?

52.4 mm (21/16 in.)

70-182

PAGE REF

314.24 (B) (3)

CODE REF

4:12

ANSWER

TIME

ANALYSIS

Code Topic: Outlet/Device Boxes: Depth
Outlet, Device, Pull, and Junction Boxes;
Conduit Bodies; Fittings; and Handhold
Article: Enclosures
Section: II. Installation

Box depth makes sense to be discussed in the Installation Section. Interesting distinction between (A) & (B): With or W/O Enclosed Device.

NOTA BENE

Instructions

DRILL 1: This upper section contains the drill number and the question. You start here and try to figure out where to find your answer in the code.

ANSWER: Obviously, you put your answer here. Try write your answer in a way that doesn't just copy verbatim the code. If you can put it in your own words, that means you are much more likely to have the drill make a meaningful impact on your work - it forces you to pay attention and not just regurgitate info.

PAGE REF: Put the page of the code where your answer is located.

CODE REF: Put the alphanumerical code reference for where your answer is located. Sometimes this will be a reference to a table.

TIME: Once you've finished the above sections you've really completed the mechanical side of the drill. You should only clock the time it takes to finish this section. I used "4:12" to indicate that it took 4 minutes and 12 seconds to compete this DRILL section. Remember your goal is to keep this as far under 6 minutes as possible.

ANALYSIS: This is NOT a timed section. Working on this section means you are going beyond just the mechanical drill, and finding elements of the code which help you UNDERSTAND why and where the answer you found answers the question. For every answer given in this section there should be some sense of "this is why what I found was where I found it."

CODE TOPIC: If you couldn't use the section numbers or page numbers to communicate where to find your answer to someone else, and you could ONLY use words to describe where it's located: that's what you put here. BE CONCISE. Ask yourself: "with the topic description I've given here, would I be able to find the section I mean with no other info?"

ARTICLE: Put the title of the Article for the section containing your drill answer. Recognize, that the highest level of code organization is the article. Having a feel for how code is divided at this level is important.

SECTION: Generally, the articles are divided up into Roman Numeral sections. These are pretty standard, article-to-article. Once you get a good feel for these, you'll be able to read questions and think things like: "what is being asked here is obviously a Section I item, because I need to provide a definition."

NOTA BENE: Meaning "note well", this section is perhaps the most important. Put something here you've thought about regarding your answer. Something about the *why* of the code in question. Something interesting. Something in the code that is around (near-by) your answer. This section will probably be the most painful and frustrating of all the elements of your drilling exercises. It should force you to think actively about what you are doing, and it should help make mental connections to the area of code you are researching as well as connections to the whole of the code. Remember: you can't predict what you'll be asked about code by the PE, and knowing it at this level will be the best way to be prepared for anything.

DRILL 25

What is an underfloor raceway exactly?

PAGE REF _____

CODE REF _____

ANSWER _____

TIME _____

ANALYSIS

Code Topic: _____

Article: _____

Section: _____

NOTA BENE

DRILL 26

What is the ambient temperature correction factor (based on 104°F) for a conductor rated 20,000 volts whose temperature rating is 105°C and is operating in 65°F ambient temperatures?

PAGE REF _____

CODE REF _____

ANSWER _____

TIME _____

ANALYSIS

Code Topic: _____

Article: _____

Section: _____

NOTA BENE

DRILL 27

What is the approved ampacity of single insulated, 2 AWG, Type MV-105, aluminum conductors, rated 105°C, at 12,000 volts ampacity, buried directly in earth, arranged in accordance with Figure 310.60 (Detail 9), and based on ambient earth temperature of 20°C, 1.0 load factor, and a thermal resistance (RHO) of 90, on one circuit (three conductors)?

PAGE REF _____

CODE REF _____

ANSWER _____

TIME _____

ANALYSIS

Code Topic: _____

Article: _____

Section: _____

NOTA BENE

Answer and Reference Section

Answers, page references, and code references here represent *at least one instance* of an appropriate solution to the given drill. ***These answers may not necessarily contain every single reference in the code to an appropriate answer, and they may not necessarily be the one-and-only appropriate answer.*** They represent a minimum reference. Alternative references and expanded lists of references may frequently be possible for any given drill. Providing a completely comprehensive list of any and all references pertaining to a given drill is impractical for the physical size of this book and the intent of its drills.

Drill Answer Key (cont.)

Drill #	Question	Answer	Page Ref	Code Ref
25	What is an underfloor raceway exactly?	"A raceway and associated components designed and intended for installation beneath or flush with the surface of a floor for the installation of cables and electrical conductors."	70-238	390.2
26	What is the ambient temperature correction factor (based on 104°F) for a conductor rated 20,000 volts whose temperature rating is 105°C and is operating in 65°F ambient temperatures?	1.14	70-160	Table 310.60 (C)(4)
27	What is the approved ampacity of single insulated, 2 AWG, Type MV-105, aluminum conductors, rated 105°C, at 12,000 volts ampacity, buried directly in earth, arranged in accordance with Figure 310.60 (Detail 9), and based on ambient earth temperature of 20°C, 1.0 load factor, and a thermal resistance (RHO) of 90, on one circuit (three conductors)?	175 A	70-165	Table 310.60(C)(82)