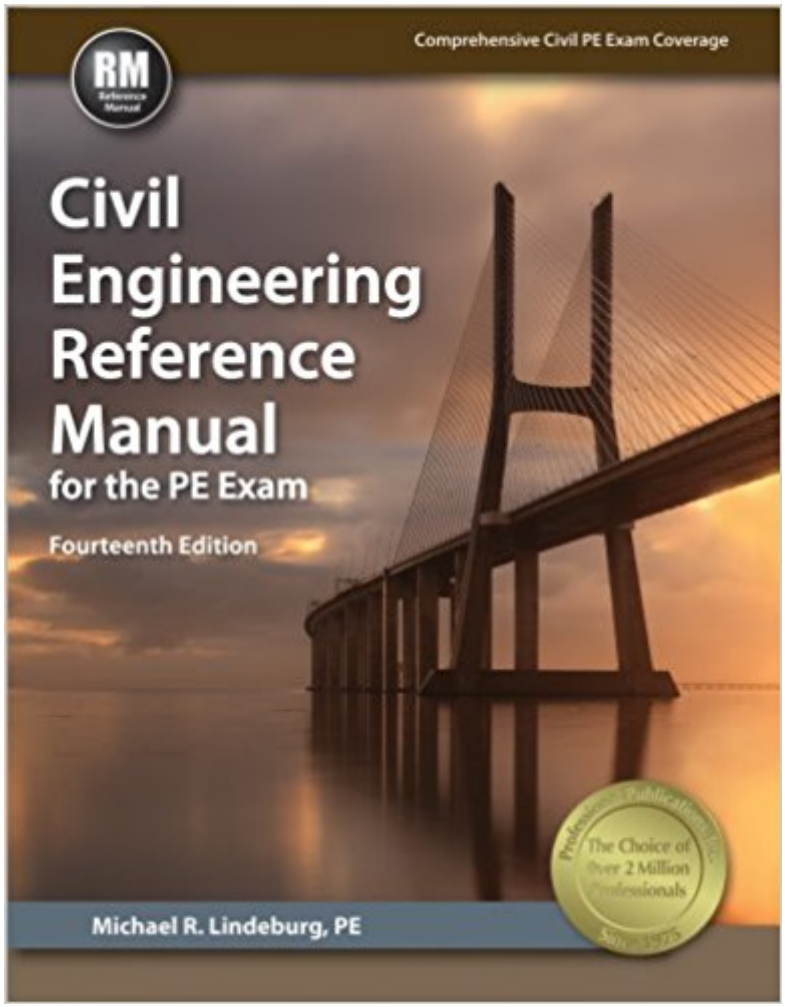
Civil Engineering Reference Manual For The PE Exam, 14th Ed



Synopsis

Comprehensive Civil Engineering Coverage You Can TrustThe Civil Engineering Reference Manual is the most comprehensive textbook for the NCEES Civil PE exam. This bookÃ¢â ¬â„¢s time-tested organization and clear explanations start with the basics to help you quickly get up to speed with common civil engineering concepts. Together, the 90 chapters provide an in-depth review of all of the topics, codes, and standards listed in the NCEES Civil PE exam specifications. The extensive index contains thousands of entries, with multiple entries included for each topic, so youÃ¢â ¬â„¢ll find what youÃ¢â ¬â„¢re looking for no matter how you search.Due to the changes in codes for the 2015 NCEES PE exam, there are some updates to this edition. Though not all of PPI's products reflect the adopted editions of the newÃ Â design standards, in most cases the principles change very little. While specific procedures, equations, or values may change gradually from one edition of a design or reference standard to the next, PPIÃ¢â ¬â„¢s books continue to provide an appropriate overview of the design concepts presented, and will prepare you for the upcoming exams.This book features:over 100 appendices containing essential support materialover 500 clarifying examplesover 550 common civil engineering terms defined in an easy-to-use glossarythousands of equations, figures, and tablesindustry-standard terminology and nomenclatureequal support of U.S. customary and SI unitsAfter you pass your exam, the Civil Engineering Reference Manual will continue to serve as an invaluable reference throughout your civil engineering career.Ã Â Topics CoveredConstruction: Earthwork Construction and Layout; Estimating Quantities and Costs; Construction Operations and Methods; Scheduling; Material Quality Control and Production; Temporary Structures; Worker Health, Safety, and EnvironmentGeotechnical: Subsurface Exploration and Sampling; Engineering Properties of Soils and Materials; Soil Mechanics Analysis; Earth Structures; Shallow Foundations; Earth Retaining Structures; Deep FoundationsStructural: Loadings; Analysis; Mechanics of Materials; Materials; Member Design; Design CriteriaTransportation: Traffic Analysis; Geometric Design; Transportation Planning; Traffic SafetyWater Resources and Environmental: Closed Conduit Hydraulics; Open Channel Hydraulics; Hydrology; Groundwater and Well Fields; Wastewater Treatment; Water Quality; Water Treatment; Engineering Economics

Book Information

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Customer Reviews

Michael R. Lindeburg, PE, is one of the best-known authors of engineering textbooks and references. His books and courses have influenced millions of engineers around the world. Since 1975, he has authored more than 30 engineering reference and exam preparation books. He has spent thousands of hours teaching engineering to students and practicing engineers. He holds bachelor of science and master of science degrees in industrial engineering from Stanford University.

1. INTRODUCTION Structural members subjected to axial compressive loads are often called by names identifying their functions. Of these, the best-known are columns, the main vertical compression members in a building frame. Other common compression members include chords in trusses and bracing members in frames. The selection of a particular shape for use as a compression member depends on the type of structure, the availability, and the connection methods. Load-carrying capacity varies approximately inversely with the slenderness ratio, so stiff members are generally required. Rods, bars, and plates, commonly used as tension members, are too slender to be used as compression members unless they are very short or lightly loaded. For building columns, W shapes having nominal depths of 14 in or less are commonly used. These sections, being rather square in shape, are more efficient than others for carrying compressive loads. (Deeper sections are more efficient as beams.) Pipe sections are satisfactory for small or medium loads. Pipes are often used as columns in long series of windows, in warehouses, and in basements and garages. In the past, square and rectangular tubing saw limited use, primarily due to the difficulty in making bolted or riveted connections at the ends. Modern welding techniques have

essentially eliminated this problem.Built-up sections are needed in large structures for very heavy loads that cannot be supported by individual rolled shapes. For bracing and compression members in light trusses, single-angle members are suitable. However, equal-leg angles may be more economical than unequal-leg angles because their least radius of gyration values are greater for the same area of steel. For top chord members of bolted roof trusses, a pair of angles (usually unequal legs, with long legs back-to-back to give a better balance between the radius of gyration values about the x-and y-axes) are used with or without gusset plates. In welded roof trusses, where gusset plates are unnecessary, structural tees are used as top chord members.

If you’re reading these reviews undoubtedly you know what this is and why you need this for the Civil PE exam.That said, as far as I can tell this is pretty much the only comprehensive reference available for the exam so rather than talk more about the CERM itself I wanted to break down some things that helped me use the manual to study and pass the PE exam the first time:1) Download and print out a copy of the index for the CERM from the PPI website, bind it separately, and use that to look stuff up while studying and taking the exam to avoid constantly flipping around in the manual between the index and the chapters. Saves lots of time and aggravation working from multiple places in the CERM. I learned this from people in my review class and never would’ve thought of this on my own which is why I wanted to share it here.2) For the most used equations, write the constants and such in the margins next to the equations. Highlight the equations to make them pop from the columns of text in the book. This did a few things for me: familiarize me again with the equations and constants, help me remember how to use the equations, and also save me time looking for constants in the back or whatever. I did this the month before my review class started, helped me find what’s in the manual too before I got into the heavy duty working of problems during my review class for hours on end.3) Tab everything possible. The exam is all about speed (~5 min/question...) so make sure you can find what you need real fast. I used a combination of heavy duty tabs with paper inserts and the sticky flags. I color coded the tabs by topic and tabbed my manual as follows: tabs across the top for tables of data (e.g. water demands per capita per day, wastewater production per capita per day, etc), tabs down the sides for specific topics/equations (e.g. shallow foundations, water hammer, that CM workflow diagram whose name escapes me right now, etc), tabs across the bottom for the reference tables in the back (e.g. head losses for specific fittings, moments of inertia for generic shapes, the Ten State’s regs, etc).Seemed to work real well, I probably had a few too many flags/tabs but I only needed to use the index to find something a few times during the exam so I guess I did okay there. I left all my tabs and flags in the CERM after

finding out I passed since it makes the book look real salty and reminds me of the pain I went through studying and taking the exam.Bottom line here: Know what's in the book and where to find it. The morning exam was pretty much straight out of the CERM and my review class, quite literally 95% of the questions were pure muscle memory from using the CERM to study. The PM exam was the similar but about 25% of the questions couldn't be answered out of the CERM and needed an outside reference (master's level stuff in my opinion and I don't have an MSCE so I just did what I could and guessed the rest).4) Use the CERM as much as possible while studying. I know this sounds obvious but I first attempted studying with stacks of textbooks from engineering school in addition to my CERM and quickly realized it would never work. You need to become as familiar as possible with the CERM if you want a ghost of a chance of passing, and you'll be amazed what's in there if you look. Also, you will not have time to flip around between 20 books during the exam so just get used to using the CERM as much as possible while studying. Heck, sleep with your CERM if you have to and take it with you to lunch. Remember, there are many CERMs but this one is mine, without my CERM I am nothing, without me my CERM is a monitor stand.For the exam, I only brought in my trusty marked up and tabbed CERM, my open channel hydraulics book, and my (undergrad) geotech book along with my notes and sample problems from my review class. I spent probably 80% of my time in the exam using the CERM, my other references were nearly useless save for some rando oddball questions I was able to find during my spare time to get some extra points. The CERM and a few other things were enough to get me through the WR exam and I am neither a water resources engineer by practice nor the kid from Good Will Hunting.5) Take a review class if at all possible. I was fortunate to find one an hour away on Saturdays. It helped me get into the mode of studying a lot (I kept records and including 56 hours of class I spent about 250 hours preparing for the exam over about 3.5 months, did nothing the two weeks before the test due to burnout and a work trip during which I was not going to study in the hotel at night), helped me realize I wasn't the only one fighting my way through the pain and misery, and helped me learn enough to get by in areas that I had little to no college coursework on (e.g. transpo, econ, etc). The review was kinda costly but I figure I got off cheap passing the PE the first time.

This manual served as my primary resource for the April 2016 PE Exam, which I passed on the first try. I highly recommend using this manual as your main source, along with highlighter markers, post-it notes/tabs, and a binder in which to place photocopies of key tables. The test will indeed require additional sources (hydraulic design, hydrology, water and wastewater, soils, and concrete design for me), but the manual is still pretty comprehensive. As I worked through the manual, I

tabbed important pages and highlighted key equations. The test through its fair share of curve balls, but I was prepared. I was even able to answer several questions by using the index. My advice is to buy this book (I am keeping mine as a reference forever), work out a loose study schedule based on the number of weeks you have, work as many problems as you can, write out outlines of concepts that you have studied, and take practice exams if you have access. I also recommend YouTube. Civil Engineering Academy was a great supplement to my studying. Good luck to everyone!

I gave it three stars because I took the Construction Depth exam, and this reference has very little construction information. I highly recommend buying a separate construction study guide. However, this reference was quite useful to me during the morning exam for the non-construction problems.HUGE reference, and it has way more information than you would need for any PE exam. I do not recommend using this as a study guide (except for the example problems), just a pure reference like the design standards. Once you narrow down the sections specific to your exam, the material is very useful. Some of the problems were representative of the exam, and others were so complex, they could never be solved in the average 6 minutes per problem (at least not by me). It is good to work those more complex problems for your depth area, so you have a better understanding of the topic. For the exam though, you might have to do two or three steps of those really complex problems.

Book (Mass Market Paper)) Civil War: American Civil War in 50 Events: From the Very Beginning to the Fall of the Confederate States (War Books, Civil War History, Civil War Books) (History in 50 Events Series Book 13) Quick Reference for the Civil Engineering PE Exam, 9th Ed Quick Reference for the Civil Engineering PE Exam, 8th Ed Quick Reference for the Civil Engineering PE Exam, 7th Ed Strengthening of Reinforced Concrete Structures: Using Externally-Bonded Frp Composites in Structural and Civil Engineering (Woodhead Publishing Series in Civil and Structural Engineering) Water Resources and Environmental Depth Reference Manual for the Civil PE Exam Transportation Depth Reference Manual for the Civil PE Exam, 2nd Ed Mechanical Engineering Reference Manual for the PE Exam, 13th Ed Electrical Engineering Reference Manual for the Electrical and Computer PE Exam, Sixth Edition