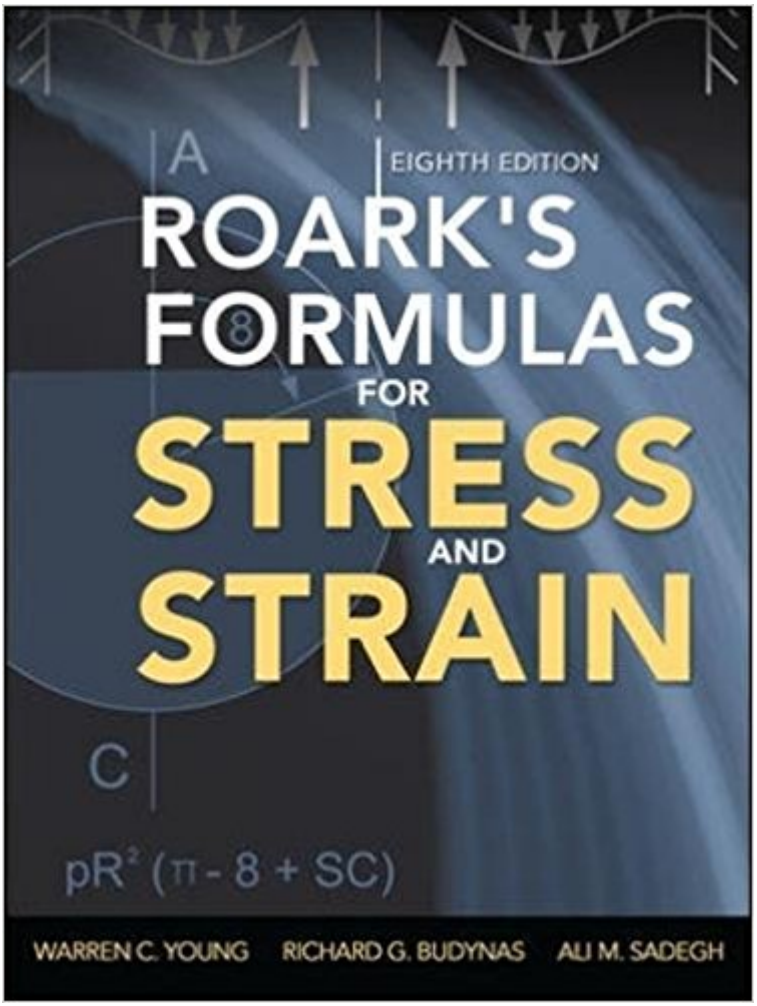
Roark's Formulas For Stress And Strain, 8th Edition (Mechanical Engineering)



Synopsis

THE MOST COMPLETE, UP-TO-DATE GUIDE TO STRESS AND STRAIN FORMULAS Fully revised throughout, Roark's Formulas for Stress and Strain, Eighth Edition, provides accurate and thorough tabulated formulations that can be applied to the stress analysis of a comprehensive range of structural components. All equations and diagrams of structural properties are presented in an easy-to-use, thumb, through format. This extensively updated edition contains new chapters on fatigue and fracture mechanics, stresses in fasteners and joints, composite materials, and biomechanics. Several chapters have been expanded and new topics have been added. Each chapter now concludes with a summary of tables and formulas for ease of reference. This is the definitive resource for designers, engineers, and analysts who need to calculate stress and strain management. ROARK'S FORMULAS FOR STRESS AND STRAIN, EIGHTH EDITION, COVERS: Behavior of bodies under stress Principles and analytical methods Numerical and experimental methods Tension, compression, shear, and combined stress Beams; flexure of straight bars Bending of curved beams Torsion Flat plates Columns and other compression members Shells of revolution; pressure vessels; pipes Bodies in contact undergoing direct bearing and shear stress Elastic stability Dynamic and temperature stresses Stress concentration factors Fatigue and fracture mechanics Stresses in fasteners and joints Composite materials Biomechanics

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Customer Reviews

Warren Young is professor emeritus of mechanical engineering at the University of Wisconsin, Madison, where he was on the faculty for more than 40 years. Richard G. Budynas is professor emeritus of mechanical engineering at Rochester Institute of Technology. He is the author of Advanced Strength and Applied Stress Analysis, Second Edition (McGraw-Hill, 1998), and coauthor of ShigleyÃ¢â ¬â„¢s Mechanical Engineering Design, Ninth Edition (McGraw-Hill, 2010). Ali M. Sadegh is professor of mechanical engineering and the founder and director of the Center for Advanced Engineering Design and Development at the City College of the City University of New York. He is a coauthor of MarksÃ¢â ¬â„¢ Standard Handbook for Mechanical Engineers, 11th Edition (McGraw-Hill, 2007).

When I graduated with my first degree in engineering, I was pathetically broke. Married, children, etc. As a result, I sold every textbook I owned back to the University Bookstore. A mistake I knew I would eventually have to correct. After a few paychecks, I spied the Fourth Edition of this book and bought it. That was approximately 1967. It was my career saver. If I could not remember a formula, as was often the case, I could find it in this book. The Fourth Edition went missing in 2005 and I proceeded to look for it until it became an obsession. I still do not know what happened to it. Last month suggested, based on other engineering books I have purchased from the website, that I might be interested in this, the Eighth Edition. Two days later it was on my desk. The whole idea behind this book is simple enough; to have one resource that contains the facts, principles, and formulae pertaining to the strength of materials. The Eighth Edition does that in spades. The choice is yours. Either pack around 30 pounds, or more, in various textbooks and references, or have what you need in one.

I am a mechanical engineer with 40+ years on the job. I had the fifth edition of this book for perhaps 35 years or more and used it a lot in my design work. I decided to buy this eighth edition after seeing an ad for it. I believe it was worthwhile. I very much like the first six chapters as they are a wonderful explanation of the methods used in determining stress and strain. Some was review for me, and some new. The rest of the book is extremely useful in checking your FEA work to see if your answers are reasonable, especially when first learning and applying FEA. I use SolidWorks on the job, but I believe that reading,using, and understanding this book is critical for a Mech Eng who is designing mechanical products.

Almost any simple geometry for a mechanical part, in almost any load condition imaginable, is given

a parametric analytical model here. If you can’t find it in here, you probably can’t find it anywhere in the whole world. Just copy the formulas, plug in your numbers, and BAM! A quick, reasonably accurate analysis you can use at least for initial sizing purposes.Whatever you do, though, do not put too much confidence in its answers being all that precise. I’d more or less trust it will in most cases be accurate to within Ãƒâ Ã Â 25% or so? It should be used for rough initial sizing only, and should really be verified with a more thorough analysis (like FEA), and/or by testing. But nothing can beat it for very rapidly coming up with a design that is in the right ballpark for an application.Still, an absolute classic in machine design, and absolutely invaluable to a mechanical engineer.

I bought this book to help determine membrane and bending stresses in a pressure vessel I am designing. The book has a staggering number of load cases with applicable equations and tons of tabulated data for quick calculations. The problem is, despite how thorough the book is, you will always run into at least one loading or geometry that is not listed in the book. I have used the index several times to look for different load cases and have it be very good. Information is easy to find despite how dense the pages are with numbers and figures. Minus one star because I have found some of the layouts a little confusing. Some of the instructions on how to apply certain cases are ambiguous as well. Despite these minor shortcomings I think this book is essential to anyone doing stress or deformation analysis by hand.

The book is instrumental in my work as a civil engineer.Perform structural calculations for underground precastconcrete vaults subject to truck or aircraft live loadsand surcharge soil loads. Some vaults have 15 feet of soil load on top of them. This engineer uses chapter11 in the book flat plates subject to above loads to determine stress in top, sidewalls and bottom slab.With the stress in the concrete plates known using Roarkthen the reinforcing can be designed for diameter andspacing. I am able to perform this design work is my masters degree was in soil mechanics with a minor instructural mechanics. This book is a must for engineersdesigning any type of structure.

This is different from the 5th, 6th, and 7th edition I’ve had experience with. This is clearly more textbook like then it is reference book. They have several new sections that are worth looking into, but the formatting is so different that it will take time to get used to. However, after taking time to get used to it, it isn’t bad - but it is certainly weird.

This is a great reference for mechanics of materials. The material covered in the book consolidates

crucial formulas and theories of 6 of my upper level university mechanical engineering courses, into one easy to use reference. I would not recommend the book as a text for learning the materials for the 1st time, as it does not comprehensively develop the formulas and methods. But I find it an excellent resource for my day to day professional use. This is my go-to reference on mechanics of materials.

An excellent reference manual to quickly review several topics. Also a great table of moments, including fixed-end moments. Used on my PE exam, glad I had it.