

## Rules Of Thumb For Mechanical Engineers A Manual Of Quick Accurate Solutions To Everyday Mechanical Engineering Problems

An immense treasure trove containing hundreds of equipment symptoms, arranged so as to allow swift identification and elimination of the causes. These rules of thumb are the result of preserving and structuring the immense knowledge of experienced engineers collected and compiled by the author - an experienced engineer himself - into an invaluable book that helps younger engineers find their way from symptoms to causes. This sourcebook is unrivalled in its depth and breadth of coverage, listing five important aspects for each piece of equipment: \* area of application \* sizing guidelines \* capital cost including difficult-to-find installation factors \* principles of good practice, and \* good approaches to troubleshooting. Extensive cross-referencing takes into account that some items of equipment are used for many different purposes, and covers not only the most familiar types, but special care has been taken to also include less common ones. Consistent terminology and SI units are used throughout the book, while a detailed index quickly and reliably directs readers, thus aiding engineers in their everyday work at chemical plants: from keywords to solutions in a matter of minutes.

This work focuses on the application of fundamental cost engineering principles to the capital and operating costs estimation of major projects. It provides detailed coverage of profitability, risk, and sensitivity analysis. This third edition: discusses novel strategies for calculating preliminary estimates using MasterFormat; presents new information on estimating the retrofitting and extension of existing plants; contains current international cost data; and more.;A solutions manual is available to instructors only.

Mechanical Choices details the intimate connection that exists between morality and law: the morality we use to blame others for their misdeeds and the criminal law that punishes them for these misdeeds. This book shows how both law and morality presuppose the accuracy of common sense, a centuries-old psychology that defines people as rational agents who make honorable choices and act for just reasons. It then shows how neuroscience is commonly taken to challenge these fundamental psychological assumptions. Such challenges--four in number--are distinguished from each other by the different neuroscientific facts from which they arise: the fact that human choices are caused by brain events; the fact that those choices don't cause the actions that are their objects but are only epiphenomenal to those choices; the fact that those choices are identical to certain physical events in the brain; and the fact that human subjects are quite fallible in their knowledge of what they are doing and why. The body of this book shows how such challenges are either based on faulty facts or misconceived as to the relevance of such facts to responsibility. The book ends with a detailed examination of the neuroscience of addiction, an examination which illustrates how neuroscience can help rather than challenge both law and morality in their quest to accurately define excuses from responsibility.

In Designing Stock Market Trading Systems Bruce Vanstone and Tobias Hahn guide you through their tried and tested methodology for building rule-based stock market trading systems using both fundamental and technical data. This book shows the steps required to design and test a trading system until a trading edge is found, how to use artificial neural networks and soft computing to discover an edge and exploit it fully. Learn how to build trading systems with greater insight and dependability than ever before Most trading systems today fail to incorporate data from existing research into their operation. This is where Vanstone and Hahn's methodology is unique. Designed to integrate the best of past research on the workings of financial markets into the building of new trading systems, this synthesis helps produce stock market trading systems with unrivalled depth and accuracy. This book therefore includes

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a detailed review of key academic research, showing how to test existing research, how to take advantage of it by developing it into a rule-based trading system, and how to improve it with artificial intelligence techniques. The ideas and methods described in this book have been tried and tested in the heat of the market. They have been used by hedge funds to build their trading systems. Now you can use them too.

The time-saving resource every architect needs The Architect's Studio Companion is a robust, user-friendly resource that keeps important information at your fingertips throughout the design process. It includes guidelines for the design of structure, environmental systems, parking, accessibility, and more. This new sixth edition has been fully updated with the latest model building codes for the U.S. and Canada, extensive new information on heating and cooling systems for buildings, and new structural systems, all in a form that facilitates rapid preliminary design. More than just a reference, this book is a true companion that no practicing architect or student should be without. This book provides quick access to guidelines for systems that affect the form and spatial organization of buildings and allows this information to be incorporated into the earliest stages of building design. With it you can: Select, configure, and size structural systems Plan for building heating and cooling Incorporate passive systems and daylighting into your design Design for parking and meet code-related life-safety and accessibility requirements Relying on straightforward diagrams and clear written explanations, the designer can lay out the fundamental systems of a building in a matter of minutes—without getting hung up on complicated technical concepts. By introducing building systems into the early stages of design, the need for later revisions or redesign is reduced, and projects stay on time and on budget. The Architect's Studio Companion is the time-saving tool that helps you bring it all together from the beginning.

Construction Engineering Calculations and Rules of Thumb begins with a brief, but rigorous, introduction to the mathematics behind the equations that is followed by self-contained chapters concerning applications for all aspects of construction engineering. Design examples with step-by-step solutions, along with a generous amount of tables, schematics, and calculations are provided to facilitate more accurate solutions through all phases of a project, from planning, through construction and completion. Includes easy-to-read and understand tables, schematics, and calculations Presents examples with step-by-step calculations in both US and SI metric units Provides users with an illustrated, easy-to-understand approach to equations and calculation methods

Fluids -- Heat transfer -- Thermodynamics -- Mechanical seals -- Pumps and compressors -- Drivers -- Gears -- Bearings -- Piping and pressure vessels -- Tribology -- Vibration -- Materials -- Stress and strain -- Fatigue -- Instrumentation -- Engineering economics.

Thirteen papers from a symposium on [title] held in San Francisco, May 1990, are presented in chapters on: what mechanical designers need in tribological modeling, what is available in tribological models, data base and simulation issues for tribological modeling, and principles of model making and

Now in its sixth edition, Pipeline Rules of Thumb Handbook has been and continues to be the standard resource for any professional in the pipeline industry. A practical and convenient reference, it provides quick solutions to the everyday pipeline problems that the pipeline engineer, contractor, or designer faces. Pipeline Rules of Thumb Handbook assembles hundreds of shortcuts for pipeline construction, design, and engineering. Workable "how-to" methods, handy formulas, correlations, and curves all come together in this one convenient volume. Save valuable time and effort using the thousands of illustrations, photographs, tables, calculations, and formulas available in an easy to use

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format Updated and revised with new material on project scoping, plastic pipe data, HDPE pipe data, fiberglass pipe, NEC tables, trenching, and much more A book you will use day to day guiding every step of pipeline design and maintenance

Revised standard textbook and/or reference on the relationship between mechanical and electrical systems and the buildings they serve. This edition extends the philosophy of the seventh edition (1986), emphasizing the themes of energy conservation and the use of renewable energy sources while keeping readers informed of the major changes in equipment technology wrought by the microprocessor and the computer. A background of college-level mathematics and physics is assumed, and the volume is recognized as an important reference for the national architectural licensing examination. Annotation copyrighted by Book News, Inc., Portland, OR

HVAC Tables, Equations & Rules of Thumb Quick-Card This 6-page guide provides the basic numbers, flow rates and formulas the plumber and mechanics needs based on 2015 International Mechanical Code (IMC), ASHRAE & SMACNA Features: Cooling Load & Factors Cooling Towers & Condensers Air Conditioning Heating Load, Systems & Factors Heat Exchanger & Boilers Boilers Steam Piping Systems & Humidification Ventilation, Air Distribution Systems & Ductwork Fans Energy Efficiency Conversions & Occupancy Factors Publisher/Edition: Builder's Book, Inc .10/22/2015 ISBN 10: 1622701275 ISBN 13: 9781622701278

The most complete guide of its kind, this is the standard handbook for chemical and process engineers. All new material on fluid flow, long pipe, fractionators, separators and accumulators, cooling towers, gas treating, blending, troubleshooting field cases, gas solubility, and density of irregular solids. This substantial addition of material will also include conversion tables and a new appendix, "Shortcut Equipment Design Methods." This convenient volume helps solve field engineering problems with its hundreds of common sense techniques, shortcuts, and calculations. Here, in a compact, easy-to-use format, are practical tips, handy formulas, correlations, curves, charts, tables, and shortcut methods that will save engineers valuable time and effort. Hundreds of common sense techniques and calculations help users quickly and accurately solve day-to-day design, operations, and equipment problems.

For more than half a century, this book has been a fixture in architecture and construction firms the world over. Twice awarded the AIA's Citation for Excellence in International Architecture Book Publishing, Mechanical and Electrical Equipment for Buildings is recognized for its comprehensiveness, clarity of presentation, and timely coverage of new design trends and technologies. Addressing mechanical and electrical systems for buildings of all sizes, it provides design guidelines and detailed design procedures for each topic covered. Thoroughly updated to cover the latest technologies, new and emerging design trends, and relevant codes, this latest edition features more than 2,200

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illustrations--200 new to this edition--and a companion Website with additional resources.

Electrical Engineering 101 covers the basic theory and practice of electronics, starting by answering the question "What is electricity?" It goes on to explain the fundamental principles and components, relating them constantly to real-world examples. Sections on tools and troubleshooting give engineers deeper understanding and the know-how to create and maintain their own electronic design projects. Unlike other books that simply describe electronics and provide step-by-step build instructions, EE101 delves into how and why electricity and electronics work, giving the reader the tools to take their electronics education to the next level. It is written in a down-to-earth style and explains jargon, technical terms and schematics as they arise. The author builds a genuine understanding of the fundamentals and shows how they can be applied to a range of engineering problems. This third edition includes more real-world examples and a glossary of formulae. It contains new coverage of: Microcontrollers FPGAs Classes of components Memory (RAM, ROM, etc.) Surface mount High speed design Board layout Advanced digital electronics (e.g. processors) Transistor circuits and circuit design Op-amp and logic circuits Use of test equipment Gives readers a simple explanation of complex concepts, in terms they can understand and relate to everyday life. Updated content throughout and new material on the latest technological advances. Provides readers with an invaluable set of tools and references that they can use in their everyday work.

QUICKLY AND EASILY ESTIMATE THE IMPACT OF CHANGE WITH 300 PROVEN PHOTONICS CALCULATIONS! UPDATED WITH 100 COMPLETELY NEW AND IMPROVED RULES AND ORGANIZED INTO 18 CHAPTERS THAT INCLUDE LASERS, DETECTORS, OPTICS OF THE ATMOSPHERE, AND MANY MORE! Here is a handy compilation of 300 cost-saving, think-on-your-feet photonics rules of thumb designed to save you hours of design time and a world of frustration. Within seconds you can accurately gauge the impact of a suggested design change on your project. It is the premiere collection of these valuable rules in a single, quick look-up reference. These simple-to-implement calculations allow you to rapidly pinpoint trouble spots, ask the right questions at meetings, and are perfect for quick sanity checks of last-minute specifications or performance feature additions. Offering a convenient alphabetical arrangement according to specialty, this unique reference spans the entire spectrum of photonics, including: \* Eighteen chapters covering optics, electro-optics, optics of the atmosphere, radiometry, technologies related to security and surveillance systems, lasers, and many others. \* If you want to develop a sense of what will work and what won't and want the calculations to keep things real, Photonics Rules of Thumb belongs on your desk or in your pocket.

Praise for the First Edition: "For a beginner [this book] is a treasure trove; for an experienced person it can provide new ideas on how better to pursue the subject of applied statistics." —Journal of Quality Technology Sensibly organized for quick reference, Statistical Rules of Thumb, Second Edition compiles simple rules that are widely applicable, robust, and elegant, and each captures key statistical concepts.

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This unique guide to the use of statistics for designing, conducting, and analyzing research studies illustrates real-world statistical applications through examples from fields such as public health and environmental studies. Along with an insightful discussion of the reasoning behind every technique, this easy-to-use handbook also conveys the various possibilities statisticians must think of when designing and conducting a study or analyzing its data. Each chapter presents clearly defined rules related to inference, covariation, experimental design, consultation, and data representation, and each rule is organized and discussed under five succinct headings: introduction; statement and illustration of the rule; the derivation of the rule; a concluding discussion; and exploration of the concept's extensions. The author also introduces new rules of thumb for topics such as sample size for ratio analysis, absolute and relative risk, ANCOVA cautions, and dichotomization of continuous variables. Additional features of the Second Edition include: Additional rules on Bayesian topics New chapters on observational studies and Evidence-Based Medicine (EBM) Additional emphasis on variation and causation Updated material with new references, examples, and sources A related Web site provides a rich learning environment and contains additional rules, presentations by the author, and a message board where readers can share their own strategies and discoveries. Statistical Rules of Thumb, Second Edition is an ideal supplementary book for courses in experimental design and survey research methods at the upper-undergraduate and graduate levels. It also serves as an indispensable reference for statisticians, researchers, consultants, and scientists who would like to develop an understanding of the statistical foundations of their research efforts. A related website [www.vanbelle.org](http://www.vanbelle.org) provides additional rules, author presentations and more.

Practical Engineering Management of Offshore Oil and Gas Platforms delivers the first must-have content to the multiple engineering managers and clients devoted to the design, equipment, and operations of offshore oil and gas platforms. Concepts explaining how to interact with the various task forces, getting through bid proposals, and how to maintain project control are all covered in the necessary training reference. Relevant equipment and rule of thumb techniques to calculate critical features on the design of the platform are also covered, including tank capacities and motor power, along with how to consistently change water, oil, and gas production profiles over the course of a project. The book helps offshore oil and gas operators and engineers gain practical understanding of the multiple disciplines involved in offshore oil and gas projects using experience-based approaches and lessons learned. Delivers the first ever must-have content to the multiple engineering managers and clients devoted to the design, equipment, and operations of offshore oil and gas platforms Contains rules of thumb techniques to calculate critical features on the design of the platform Includes practical checklists for project estimates and cost evaluation for effective project execution in budgeting and scheduling Helps offshore oil and gas operators and engineers gain practical understanding of the multiple disciplines involved in offshore oil and gas projects using experience-based approaches and lessons learned

The Latest Information and "Tricks of the Trade" for Achieving First-Rate HVAC Designs on Any Construction Job! HVAC Equations, Data, and Rules of Thumb presents a wealth of state-of-the-art HVAC design information and guidance, ranging from air distribution to piping systems to plant equipment. This popular reference has

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now been fully updated to reflect the construction industry's new single body of codes and standards. Featuring an outline format for ease of use, the Second Edition of this all-in-one sourcebook contains: Updated HVAC codes and standards, including the 2006 International Building Code Over 200 equations for everything from ductwork to air-handling systems ASME and ASHRAE code specifications Over 350 rules of thumb for cooling, heating, ventilation, and more New material including: coverage of the new single body of construction codes now used throughout the country Inside This Updated HVAC Design Guide • Definitions • Equations • Rules of Thumb for Cooling, Heating, Infiltration, Ventilation, Humidification, People/Occupancy, Lighting, and Appliance/Equipment • Cooling Load Factors • Heating Load Factors • Design Conditions and Energy Conservation • HVAC System Selection Criteria • Air Distribution Systems • Piping Systems (General, Hydronic, Glycol, Steam, Steam Condensate, AC Condensate, Refrigerant) • Central Plant Equipment (Air-Handling Units, Chillers, Boilers, Cooling Towers, Heat Exchangers) • Auxiliary Equipment (Fans, Pumps, Motors, Controllers, Variable-Frequency Drives, Filters, Insulation, Fire Stopping) • Automatic Controls/Building Automation Systems • Equipment Schedules • Equipment Manufacturers • Building Construction Business Fundamentals • Architectural, Structural, and Electrical Information • Conversion Factors • Properties of Air and Water • Designer's Checklist • Professional Societies and Trade Organizations • References and Design Manuals • Cleanroom Criteria and Standards

This comprehensive volume, often called the "HVAC bible," has been thoroughly updated to cover the latest code changes, equipment, and techniques HVAC Equations, Data, and Rules of Thumb, 3e offers all of the information an HVAC student or professional needs in one resource. The book thoroughly explains the expansion of piping systems and temperature limitations of new materials such as polyethylene, polypropylene, PVC, CPVC, and PEX. Detailed information is included for all types of facilities, including offices, hotels, hospitals, restaurants, commercial spaces, and computer rooms. This practical handbook reflects all the latest code changes—including the ASHRAE standards—and explains how to interpret and put them to use. It includes completely updated coverage of new pumps, chillers, air handling units, cooling equipment, boilers, and pipe material. You will get complete coverage of sustainability organizations that have become more important since last edition, including LEED, USGBC, Energy Star. Features hundreds of equations and rules for everything from ductwork to air-handling systems Includes a brand-new chapter on sound, vibration, and acoustics Contains an updated list of equipment manufacturers for all products featured

The fourth edition of Ludwig's Applied Process Design for Chemical and Petrochemical Plants, Volume Three is a core reference for chemical, plant, and process engineers and provides an unrivalled reference on methods, process fundamentals, and supporting design data. New to this edition are expanded chapters on heat transfer plus additional chapters focused on the design of shell and tube heat exchangers, double pipe heat exchangers and air coolers. Heat tracer requirements for pipelines and heat loss from insulated pipelines are covered in this new edition, along with batch heating and cooling of process fluids, process integration, and industrial reactors. The book also looks at the troubleshooting of process equipment and corrosion and metallurgy. Assists engineers in rapidly analyzing problems and finding effective design methods

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and mechanical specifications Definitive guide to the selection and design of various equipment types, including heat exchanger sizing and compressor sizing, with established design codes Batch heating and cooling of process fluids supported by Excel programs

**THE DEFINITIVE GUIDE TO HVAC DESIGN** This practical manual describes the HVAC system design process step by step using photographs, drawings, and a discussion of pertinent design considerations for different types of HVAC components and systems. Photographs of HVAC components in their installed condition illustrate actual size and proper configuration. Graphical representations of the components as they should appear on construction drawings are also included. Learn how to design HVAC systems accurately and efficiently from this detailed resource. **HVAC DESIGN SOURCEBOOK COVERS:** The design process HVAC load calculations Codes and standards Coordination with other design disciplines Piping, valves, and specialties Central plant equipment and design Air system equipment and design Piping and ductwork distribution systems Terminal equipment Noise and vibration control Automatic temperature controls Construction drawings

This book discusses the rationale for correcting market prices in the evaluation of public investments. It also aims at covering techniques of project appraisals, such as the effects method, cost efficiency techniques, multicriteria analysis, and related logical frameworks. Featuring in-depth discussions on tensile and compressive properties, shear properties, strength, hardness, environmental effects, and creep crack growth, "Mechanical Properties of Engineered Materials" considers computation of principal stresses and strains, mechanical testing, plasticity in ceramics, metals, intermetallics, and polymers, materials selection for thermal shock resistance, the analysis of failure mechanisms such as fatigue, fracture, and creep, and fatigue life prediction. It is a top-shelf reference for professionals and students in materials, chemical, mechanical, corrosion, industrial, civil, and maintenance engineering; and surface chemistry.

Storyboarding is a very tough business, and a new storyboarder really needs to have their wits about them and have professional savvy to survive in this competitive field. Storyboarding: Rules of Thumb offers highly illustrative examples of basic storyboarding concepts, as well as sound, career-oriented advice for the new artist. This book also features a number of veteran storyboard artists sharing their experiences in the professional world.

Pipeline Engineering ebook Collection contains 6 of our best-selling titles, providing the ultimate reference for every pipeline professional's library. Get access to over 3000 pages of reference material, at a fraction of the price of the hard-copy books. This CD contains the complete ebooks of the following 6 titles: McAllister, Pipeline Rules of Thumb 6th Edition, 9780750678520 Muhlbauer, Pipeline Risk Management Manual 3rd Edition, 9780750675796 Parker, Pipeline Corrosion & Cathodic Protection 3rd Edition, 9780872011496 Escoe, Piping & Pipeline Assessment Guide V1, 9780750678803 Parisher, Pipe Drafting & Design 2nd Edition, 9780750674393 Farshad, Plastic Pipe Systems: Failure Investigation and Diagnosis, 9781856174961 \*Six fully searchable titles on one CD providing instant access to the ULTIMATE library of engineering materials for pipeline professionals \*3000 pages of practical and theoretical pipeline information in one portable package. \* Incredible value at a fraction of the cost of the print books

The architect's favorite handbook-more informative and easier to use than ever! The Architect's Studio Companion is the laborsaving design resource that architects and builders have relied on for years. Now in its fourth edition, this industry standard continues its reputation as a reliable tool for the preliminary selecting, configuring, and sizing of the structural, mechanical, and egress systems of a building. Bestselling authors Edward Allen and Joseph Iano reduce

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complex engineering and building code information to simple approximations that enable the designer to lay out the fundamental systems of a building in a matter of minutes and get on with the design. Now in a flex binding that makes it even easier to use, The Architect's Studio Companion, Fourth Edition provides quick access to reliable rules of thumb that offer vital help for selecting, configuring, and sizing: \* Structural systems \* Heating, cooling, and electrical systems \* Egress provisions, including exit stairways, parking garages, and parking lots \* Daylight provisions The book concludes with precalculated tables of building code height and area limitations.

Geotechnical Engineering Calculations Manual offers geotechnical, civil and structural engineers a concise, easy-to-understand approach the formulas and calculation methods used in of soil and geotechnical engineering. A one stop guide to the foundation design, pile foundation design, earth retaining structures, soil stabilization techniques and computer software, this book places calculations for almost all aspects of geotechnical engineering at your finger tips. In this book, theories is explained in a nutshell and then the calculation is presented and solved in an illustrated, step-by-step fashion. All calculations are provided in both fps and SI units. The manual includes topics such as shallow foundations, deep foundations, earth retaining structures, rock mechanics and tunnelling. In this book, the author's done all the heavy number-crunching for you, so you get instant, ready-to-apply data on activities such as: hard ground tunnelling, soft ground tunnelling, reinforced earth retaining walls, geotechnical aspects of wetland mitigation and geotechnical aspects of landfill design. • Easy-to-understand approach the formulas and calculations • Covers calculations for foundation, earthworks and/or pavement subgrades • Provides common codes for working with computer software • All calculations are provided in both US and SI units

This comprehensive sister volume to Cliff Matthews' highly successful Handbook of Mechanical Works Inspection gives a detailed coverage of pressure equipment and other mechanical plant such as cranes and rotating equipment. Key features: Accessible source of information Lavishly illustrated with numerous diagrams, photographs, and tables A wealth of valuable information Detailed, comprehensive coverage Written in easily accessible style A 'must buy' reference book The Handbook of Mechanical In-Service Inspection is a vital source of information for: plant owners and operators maintenance engineers inspection engineers from insurance companies and 'competent bodies' who perform in-service inspection health and safety operatives engineers operating pressure systems and mechanical plant all those concerned with the safe and efficient operation of machinery, plant, and pressure equipment. All engineering pressure systems and other types of mechanical equipment must be installed, operated, and maintained properly. It must be safe and comply with standards, regulations, and guidelines. In-service inspection is more formally controlled by statutory requirements than other types of inspection. The Handbook of Mechanical In-service Inspection puts a good deal of emphasis on the 'compliance' aspects and the 'duty of care' requirements placed on plant owners, operators, and inspectors. The book is suitable for those who operate pressure systems, lifting equipment, and similar mechanical plant are subject to rigorous inspection from external bodies as a matter of course. All operators have a duty to conduct in-service checks and internal inspection procedures to ensure the safe, reliable, and economic running of their equipment.

Rules of Thumb for Maintenance and Reliability Engineers will give the engineer the "have to have" information. It will help instill knowledge on a daily basis, to do his or her job and to maintain and assure reliable equipment to help reduce costs. This book will be an easy reference for engineers and managers needing immediate solutions to everyday problems. Most civil, mechanical, and electrical engineers will face issues relating to maintenance and reliability, at some point in

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their jobs. This will become their “go to” book. Not an oversized handbook or a theoretical treatise, but a handy collection of graphs, charts, calculations, tables, curves, and explanations, basic “rules of thumb” that any engineer working with equipment will need for basic maintenance and reliability of that equipment. • Access to quick information which will help in day to day and long term engineering solutions in reliability and maintenance • Listing of short articles to help assist engineers in resolving problems they face • Written by two of the top experts in the country

People across the world are becoming more aware of the need for the buildings and cities they live and work in to be sustainable, but the issue of how to be sustainable can seem a confusing and complex one. These rules of thumb provide universal guidelines for the sustainable design of both buildings and the urban realm. It's a global primer and textbook for anyone interested in understanding sustainability in the built environment, an ideal starting point for students as well as an aide memoir for more experienced readers and practitioners interested in this field.

HVAC Water Chillers and Cooling Towers provides fundamental principles and practical techniques for the design, application, purchase, operation, and maintenance of water chillers and cooling towers. Written by a leading expert in the field, the book analyzes topics such as piping, water treatment, noise control, electrical service, and energy effi

Geared toward the HVAC professional, Practical Controls: A Guide to Mechanical Systems provides a solid foundation and well-rounded understanding of the role of controls in mechanical systems design and installation. This book takes a concise look at HVAC controls and controls methods - including electrical, electronic, and microprocessor-based controls and control systems. Using "real world" examples, it explores how various mechanical systems installed in today's facilities are best controlled. The text is a practical resource to controls contracting, providing basic rules, equipment guidelines, rules of thumb, pros and cons, and do's and don'ts.

In order to compete in the current commercial environment companies must produce greater product variety, at lower cost, all within a reduced product life cycle. To achieve this, a concurrent engineering philosophy is often adopted. In many cases the main realization of this is Design for Manufacture and Assembly (DFM/A). There is a need for in-depth study of the architectures for DFM/A systems in order that the latest software and knowledge-based techniques may be used to deliver the DFM/A systems of tomorrow. This architecture must be based upon complete understanding of the issues involved in integrating the design and manufacturing domains. This book provides a comprehensive view of the capabilities of advanced DFM/A systems based on a common architecture. 101 Rules of Thumb sets out the essential elements of low energy architecture in a fresh, intuitive way. In an area where ever-changing technology and complex legislation and can cloud the designer's thought-processes, this book

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encourages the designer to think clearly and intuitively about the fundamentals of low energy buildings. With reliable, simple rules of thumb that will provide new ideas and refresh the designer's palette, each page focuses on a single piece of advice or guidance along with a clear hand-drawn illustration, while there are also plenty of tips and more detailed information for those who wish to dig deeper. The emphasis is on passive low-energy principles, and the rules of thumb cover all the design fundamentals from site and location to orientation and form, peppered with some which will help the designer to think 'outside the box' about the design process itself.

You find yourself in a court of law, accused of having hit someone. What can you do to avoid conviction? You could simply deny the accusation: 'No, I didn't do it'. But suppose you did do it. You may then give a different answer. 'Yes, I hit him', you grant, 'but it was self-defence'; or 'Yes, but I was acting under duress'. To answer in this way-to offer a 'Yes, but. . .' reply-is to hold that your particular wrong was committed in exceptional circumstances. Perhaps it is true that, as a rule, wrongdoers ought to be convicted. But in your case the court should set the rule aside. You should be acquitted. Within limits, the law allows for exceptions. Or so we tend to think. In fact, the line between rules and exceptions is harder to draw than it seems. How are we to determine what counts as an exception and what as part of the relevant rule? The distinction has important practical implications. But legal theorists have found the notion of an exception surprisingly difficult to explain. This is the longstanding jurisprudential problem that this book seeks to solve. The book is divided into three parts. Part I, Defeasibility in Question, introduces the topic and articulates the core puzzle of defeasibility in law. Part II, Defeasibility in Theory, develops a comprehensive proof-based account of legal exceptions. Part III, Defeasibility in Action, looks more closely into the workings of exceptions in accusatory contexts, including the criminal trial.

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