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Proceedings of the ASME Advanced Energy Systems Division
Design of Thermal Systems
ASHRAE Handbook
Bulletin de l'Institut international du froid
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Advances in Mechanical and Energy Technology
Thermal System Design and Simulation
Intelligent Buildings

BENTON VAUGHAN

Model-based Fault Diagnosis in Dynamic Systems Using Identification Techniques CRC Press
When used appropriately, building performance simulation has the potential to reduce the environmental impact of the built environment, to improve indoor quality and productivity, as well as to facilitate future innovation and technological progress in construction. Since publication of the first edition of Building Performance Simulation for Design and Operation, the discussion has shifted from a focus on software features to a new agenda, which centres on the effectiveness of building performance simulation in building life cycle processes. This new edition provides a unique and comprehensive overview of building performance simulation for the complete building life cycle from conception to demolition, and from a single building to district level. It contains new chapters on building information modelling, occupant behaviour modelling, urban physics modelling, urban building energy modelling and renewable energy

systems modelling. This new edition keeps the same chapter structure throughout including learning objectives, chapter summaries and assignments. Moreover, the book: • Provides unique insights into the techniques of building performance modelling and simulation and their application to performance-based design and operation of buildings and the systems which service them. • Provides readers with the essential concepts of computational support of performance-based design and operation. • Provides examples of how to use building simulation techniques for practical design, management and operation, their limitations and future direction. It is primarily intended for building and systems designers and operators, and postgraduate architectural, environmental or mechanical engineering students.

High Performance Hospitality Walter de Gruyter

Organic Rankine Cycle (ORC) Power Systems: Technologies and Applications provides a systematic and detailed description of organic Rankine cycle technologies and the way they are increasingly of interest for cost-effective sustainable energy generation. Popular applications include cogeneration from biomass and electricity generation from geothermal reservoirs and concentrating solar power installations, as well as waste heat recovery from gas turbines, internal combustion engines and medium- and low-temperature industrial processes. With hundreds of ORC power systems already in operation and the

market growing at a fast pace, this is an active and engaging area of scientific research and technical development. The book is structured in three main parts: (i) Introduction to ORC Power Systems, Design and Optimization, (ii) ORC Plant Components, and (iii) Fields of Application. Provides a thorough introduction to ORC power systems Contains detailed chapters on ORC plant components Includes a section focusing on ORC design and optimization Reviews key applications of ORC technologies, including cogeneration from biomass, electricity generation from geothermal reservoirs and concentrating solar power installations, waste heat recovery from gas turbines, internal combustion engines and medium- and low-temperature industrial processes Various chapters are authored by well-known specialists from Academia and ORC manufacturers

Hvac 1 Toolkit Amer Society of Heating

There is an increasing demand for dynamic systems to become more safe and reliable. This requirement extends beyond the normally accepted safety-critical systems of nuclear reactors and aircraft where safety is paramount important, to systems such as autonomous vehicles and fast railways where the system availability is vital. It is clear that fault diagnosis (including fault detection and isolation, FDI) has been becoming an important subject in modern control theory and practice. For example, the number of papers on FDI presented in many control-related conferences has been increasing

steadily. The subject of fault detection and isolation continues to mature to an established field of research in control engineering. A large amount of knowledge on model-based fault diagnosis has been ac cumulated through the literature since the beginning of the 1970s. However, publications are scattered over many papers and a few edited books. Up to the end of 1997, there is no any book which presents the subject in an unified framework. The consequence of this is the lack of "common language", dif ferent researchers use different terminology. This problem has obstructed the progress of model-based FDI techniques and has been causing great concern in research community. Many survey papers have been published to tackle this problem. However, a book which presents the materials in a unified format and provides a comprehensive foundation of model-based FDI is urgently needed.

For the computer age The Fairmont Press, Inc.

Featuring a model-based approach to fault detection and diagnosis in engineering systems, this book contains up-to-date, practical information on preventing product deterioration, performance degradation and major machinery damage.;College or university bookstores may order five or more copies at a special student price. Price is available upon request.

Applied Science & Technology Index CRC Press

Intelligent buildings provide stimulating

environments for people to work and live in. This book brings together a body of the latest knowledge about design, management, technology and sustainability set against the background of developments in the cultural landscapes, which affect those living and working in buildings.

Organic Rankine Cycle (ORC) Power Systems Thomas Telford

Lack of funding is the number one project killer. Most organizations do not have extra cash lying around, therefore most projects must be financed to get approval. Your energy project may be one of many potential projects from which the CFO can choose only a few. If you present your proposal with positive cash flow, your project will stand-out from the crowd. Filled with practical yet innovative financing methods, Handbook of Financing Energy Projects provides effective solutions to finance problems. The authors delineate the key success factors for structuring a financed energy project and getting it approved. They examine and assess the full scope of current project financing, including energy service performance contracting, rate of return analysis, and energy savings measurement and verification. You get all the facts you need to assess a project's payback in advance, avoid potential risks and hidden costs, and assure that their energy projects are an economic success. There are many correct ways to assemble and finance an energy management project. The possibilities are limited only by your creativity. This book explores successful

solutions for every situation and builds increased confidence in your understanding of the many successful ways to assemble and finance an energy management project.

Heating, Ventilating, and Air Conditioning Springer Science & Business Media

Readers of this book will be shown how, with the adoption of ubiquituous sensing, extensive data-gathering and forecasting, and building-embedded advanced actuation, intelligent building systems with the ability to respond to occupant preferences in a safe and energy-efficient manner are becoming a reality. The articles collected present a holistic perspective on the state of the art and current research directions in building automation, advanced sensing and control, including: model-based and model-free control design for temperature control; smart lighting systems; smart sensors and actuators (such as smart thermostats, lighting fixtures and HVAC equipment with embedded intelligence); and energy management, including consideration of grid connectivity and distributed intelligence. These articles are both educational for practitioners and graduate students interested in design and implementation, and foundational for researchers interested in understanding the state of the art and the challenges that must be overcome in realizing the potential benefits of smart building systems. This edited volume also includes case studies from implementation of these

algorithms/sensing strategies in to-scale building systems. These demonstrate the benefits and pitfalls of using smart sensing and control for enhanced occupant comfort and energy efficiency.

Journal of Architectural and Planning Research John Wiley & Sons

The 2014 ASHRAE Handbook--Refrigeration covers the refrigeration equipment and systems for applications other than human comfort. This volume includes data and guidance on cooling, freezing, and storing food; industrial and medical applications of refrigeration; and low-temperature refrigeration.The 2014 ASHRAE Handbook--Refrigeration CD, in both I-P and SI editions, contains PDFs of chapters easily viewable using Adobe Reader. This product must be installed on user's computer. Product cannot be read directly from CD and is not compatible with mobile devices. Opened software cannot be returned for refund or credit.

2008 ASHRAE Handbook McGraw-Hill Companies

Climate change mitigation and sustainable practices are now at the top of political and technical agendas. Environmental system modelling provides a way of appraising options and this book will make a significant contribution to the uptake of such systems. It provides knowledge of the principles involved in modelling systems, builds confidence amongst designers and offers a broad perspective of the potential of these new technologies. The aim of the book is to provide an understanding of the concepts and

principles behind predictive modelling methods; review progress in the development of the modelling software available; and explore modelling in building design through international case studies based on real design problems.
Aerosol Science Educational Institute Net Zero Energy Buildings (NZEB): Concepts, Frameworks and Roadmap for Project Analysis and Implementation provides readers with the elements they need to understand, combine and contextualize design decisions on Net Zero Energy Buildings. The book is based on learned lessons from NZEB design, construction, operation that are integrated to bring the most relevant topics, such as multidisciplinarity, climate sensitivity, comfort requirements, carbon footprints, construction quality and evidence-based design. Chapters introduce the context of high performance buildings, present overviews of NZEB, cover the performance thresholds for efficient buildings, cover materials, micro-grid and smart grids, construction quality, performance monitoring, post occupancy evaluation, and more. Offers a roadmap for engaging in energy efficiency in high performance buildings projects Combines solid grounding in core concepts, such as energy efficiency, with a wider context that includes the technical, socio-cultural and environmental dimensions Covers key areas for decision-making Provides a logical framework to analyze projects in the context of environmental change

Presents worldwide examples and cases for different climates and societies
ASHRAE Handbook Refrigeration 2014 Cambridge University Press
First published in 2008. This practical application reference provides a resource for those seeking to utilize the innovative methods now available to finance energy projects. The full scope of current project financing practices are fully examined and assessed, including coverage of energy service performance contracting, rate of return analysis, measurement and verification of energy savings, and more. Readers will receive the facts they need to assess a project's payback in advance, anticipate and avoid potential risks and/or hidden costs, and assure that your energy project is an overall economic success. Other topics covered include financing international projects and ESCO's (Energy Service Company's) financing.
Energy Project Financing Woodhead Publishing
Safety in industrial process and production plants is a concern of rising importance but because the control devices which are now exploited to improve the performance of industrial processes include both sophisticated digital system design techniques and complex hardware, there is a higher probability of failure. Control systems must include automatic supervision of closed-loop operation to detect and isolate malfunctions quickly. A promising method for solving this problem is "analytical redundancy", in which residual signals are obtained and an

accurate model of the system mimics real process behaviour. If a fault occurs, the residual signal is used to diagnose and isolate the malfunction. This book focuses on model identification oriented to the analytical approach of fault diagnosis and identification covering: choice of model structure; parameter identification; residual generation; and fault diagnosis and isolation. Sample case studies are used to demonstrate the application of these techniques.

Energy Project Financing Academic Press

This text aims to provide simplified practical guidelines to start a hematopoietic stem cell transplantation unit which could be implemented in most centers and countries worldwide. The book also provides guidelines for existing transplantation units to upgrade their practice and implement new policies and procedures, in addition to developing therapies according to latest international standards and regulations. The book covers a wide range of practical implementation tools including HSCT program team structure, building inpatient and outpatient HSCT units, requisite laboratory support for transplantation program, practical aspects of stem cell collection and processing, HSCT program quality management, education and training, and data management. The book also addresses cost effectiveness and recommendations for establishing transplantation program in countries with limited resources. Written by group of internationally established experts in

their corresponding hematopoietic stem cell transplantation fields, with contributions from many leaders of hematopoietic stem cell transplantation organizations, Establishing a Hematopoietic Stem Cell Transplantation Unit: A Practical Guide is an essential, practical resource for all members of the multidisciplinary hematopoietic stem cell transplantation team.

Robust Model-Based Fault Diagnosis for Dynamic Systems Springer

Considered as particularly difficult by generations of students and engineers, thermodynamics applied to energy systems can now be taught with an original instruction method. Energy Systems applies a completely different approach to the calculation, application and theory of multiple energy conversion technologies. It aims to create the reader's foundation for understanding and applying the design principles to all kinds of energy cycles, including renewable energy. Proven to be simpler and more reflective than existing methods, it deals with energy system modeling, instead of the thermodynamic foundations, as the primary objective. Although its style is drastically different from other textbooks, no concession is done to coverage: with encouraging pace, the complete range from basic thermodynamics to the most advanced energy systems is addressed. The accompanying ThermoptimTM portal (http://direns.mines-paristech.fr/Sites/Thopt/en/co/_Arborescence_web.html) presents the software and manuals (in English and French) to solve over 200

examples, and programming and design tools for exercises of all levels of complexity. The reader is explained how to build appropriate models to bridge the technological reality with the theoretical basis of energy engineering. Offering quick overviews through e-learning modules moreover, the portal is user-friendly and enables to quickly become fully operational. Students can freely download the ThermoptimTM modeling software demo version (in seven languages) and extended options are available to lecturers. A professional edition is also available and has been adopted by many companies and research institutes worldwide - www.thermoptim.org This volume is intended as for courses in applied thermodynamics, energy systems, energy conversion, thermal engineering to senior undergraduate and graduate-level students in mechanical, energy, chemical and petroleum engineering. Students should already have taken a first year course in thermodynamics. The refreshing approach and exceptionally rich coverage make it a great reference tool for researchers and professionals also. Contains International Units (SI).

Net Zero Energy Buildings (NZEB)

CRC Press

This book presents the select proceedings the 2nd International Conference on Mechanical and Energy Technologies (ICMET 2021). The broad range of topics and issues covered are bulk deformation processes and sheet metal forming, composites, ceramics, and polymers processing, corrosion, heat

treatment, microstructure and materials properties, energy materials, failure and fracture mechanics, friction, wear, tribology, and surface engineering, functionally graded materials, cellular materials, low friction and corrosion resistive materials for energy applications, lubricants and lubrication, machinability and formability of materials, material science and engineering, and materials for energy storage. This book will be useful for students, researchers, and professionals working in the areas of mechanical and industrial engineering, energy technologies, and allied fields.

Heating and Cooling of Buildings

CRC Press

The Global Energy Assessment (GEA) brings together over 300 international researchers to provide an independent, scientifically based, integrated and policy-relevant analysis of current and emerging energy issues and options. It has been peer-reviewed anonymously by an additional 200 international experts. The GEA assesses the major global challenges for sustainable development and their linkages to energy; the technologies and resources available for providing energy services; future energy systems that address the major challenges; and the policies and other measures that are needed to realize transformational change toward sustainable energy futures. The GEA goes beyond existing studies on energy issues by presenting a comprehensive and integrated analysis of energy challenges, opportunities and strategies,

for developing, industrialized and emerging economies. This volume is an invaluable resource for energy specialists and technologists in all sectors (academia, industry and government) as well as policymakers, development economists and practitioners in international organizations and national governments.

Modelling Methods for Energy in Buildings CRC Press

This book discusses conventional as well as unconventional wood drying technologies. It covers fundamental thermophysical and energetic aspects and integrates two complex thermodynamic systems, conventional kilns and heat pumps, aimed at improving the energy performance of dryers and the final quality of dried lumber. It discusses advanced components, kiln energy requirements, modeling, and software and emphasizes dryer/heat pump optimum coupling, control, and energy efficiency. Problems are included in most chapters as practical, numerical examples for process and system/components calculation and design. The book presents promising advancements and R&D challenges and future requirements.

Establishing a Hematopoietic Stem Cell Transplantation Unit Springer Nature

HEATING, VENTILATING, AND AIR CONDITIONING Completely revised with the latest HVAC design practices! Based on the most recent standards from ASHRAE, this Sixth Edition provides

complete and up-to-date coverage of all aspects of heating, ventilation, and air conditioning. You'll find the latest load calculation procedures, indoor air quality procedures, and issues related to ozone depletion. Throughout the text, numerous worked examples clearly show you how to apply the concepts in realistic scenarios. In addition, several computer programs (several new to this edition) help you understand key concepts and allow you to simulate various scenarios, such as psychometrics and air quality, load calculations, piping system design, duct system design, and cooling coil simulation. Additionally, the load calculation program has been revised and updated. These computer programs are available at the book's website:

www.wiley.com/college/mcquiston Key Features of the Sixth Edition Additional new worked examples in the text and on the accompanying software. Chapters 6-9 have been extensively revised for clarity and ease of use. Chapter 8, The Cooling Load, now includes two approaches: the heat balance method, as recommended by ASHRAE, and the simpler RTS method. Both approaches include computer applications to aid in calculations. Provides complete, authoritative treatment of all aspects of HVAC, based on current ASHRAE standards. Numerous worked examples and homework problems provide realistic scenarios to apply concepts.

Net zero energy buildings CRC Press

With the widespread availability of high-speed, high-capacity microprocessors

and microcomputers with high-speed communication ability, and sophisticated energy analytics software, the technology to support deployment of automated diagnostics is now available, and the opportunity to apply automated fault detection and diagnostics to every system and piece of equipment in a facility, as well as for whole buildings, is imminent. The purpose of this book is to share information with a broad audience on the state of automated fault detection and diagnostics for buildings applications, the benefits of those applications, emerging diagnostic technology, examples of field deployments, the relationship to codes and standards, automated diagnostic tools presently available, guidance on how to use automated diagnostics, and related issues.

Handbook of Financing Energy Projects Butterworth-Heinemann Originally published two decades ago, the Energy Management Handbook has become recognized as the definitive stand-alone energy manager's desk reference, used by thousands of energy management professionals throughout the industry. Known as the bible of energy management, it has helped more energy managers reach their potential than any other resource. Completely revised and updated, the fifth edition includes new chapters on building commissioning and green buildings. You'll find in-depth coverage of every component of effective energy management, including boiler and steam system optimization, lighting and

electrical systems, HVAC system performance, waste heat recovery, cogeneration, thermal energy storage, energy management control systems, energy systems maintenance, building envelope, industrial insulation, indoor air quality, energy economic analysis, energy procurement decision making, energy security and reliability, and overall energy management program organization. You'll also get the latest facts on utility deregulation, energy project financing, and in-house vs. outsourcing of energy services. The energy industry has change radically since the initial publication of this reference over 20 years ago. Looking back on the energy arena, one thing becomes clear: energy is the key element that must be managed to ensure a company's profitability. The Energy Management Handbook, Fifth Edition is the definitive reference to guide energy managers through the maze of changes the industry has experienced.