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An Introduction to Heating and Cooling Upgrades for Buildings for Energy Efficiency - J. Paul Guyer, P.E., R.A. 2018-02-15

Introductory technical guidance for mechanical engineers interested in heating and cooling upgrades for energy efficiency. Here is what is discussed: 1. OVERVIEW 2. CENTRAL COOLING SYSTEMS 3. CENTRAL HEATING SYSTEMS 4. UNITARY SYSTEMS 5. ADDITIONAL STRATEGIES 6. SUMMARY 7. BIBLIOGRAPHY.

Energy Audit of Building Systems - Moncef Krarti 2020-12-01

Updated to include recent advances, this third edition presents strategies and analysis methods for conserving energy and reducing operating costs in residential and commercial buildings. The book explores the latest approaches to measuring and improving energy consumption levels, with calculation examples and Case Studies. It covers field testing, energy simulation, and retrofit analysis of existing buildings. It examines subsystems—such as lighting, heating, and cooling—and techniques needed for accurately evaluating them. Auditors, managers, and students of energy systems will find this book to be an invaluable resource for their work. Explores state-of-the-art techniques and technologies for reducing energy combustion in buildings. Presents the latest energy efficiency strategies and established methods for energy estimation. Provides calculation examples that outline the application of the methods described. Examines the major building subsystems: lighting, heating, and air-conditioning. Addresses large-scale retrofit analysis approaches for existing building stocks. Introduces the concept of energy productivity to account for the multiple benefits of energy efficiency for buildings. Includes Case Studies to give readers a realistic look at energy audits. Moncef Krarti has vast experience in designing, testing, and assessing innovative energy efficiency and renewable energy technologies applied to buildings. He graduated from the University of Colorado with both MS and PhD in Civil Engineering. Prof. Krarti directed several projects in designing energy-efficient buildings with integrated renewable energy systems. He has published over 3000 technical journals and handbook chapters in various fields related to energy efficiency, distribution generation, and demand-side management for the built environment. Moreover, he has published several books on building energy-efficient systems. Prof. Krarti is Fellow member to the American Society for Mechanical Engineers (ASME), the largest international professional society. He is the founding editor of the ASME Journal of Sustainable Buildings & Cities Equipment and Systems. Prof. Krarti has taught several different courses related to building energy systems for over 20 years in the United States and abroad. As a professor at the University of Colorado, Prof. Krarti has been managing the research activities of an energy management center at the school with an emphasis on testing and evaluating the performance of mechanical and electrical systems for residential and commercial buildings. He has also helped the development of similar energy efficiency centers in other countries, including Brazil, Mexico, and Tunisia. In addition, Prof. Krarti has extensive experience in promoting building energy technologies and policies overseas, including the establishment of energy research centers, the development of building energy codes, and the delivery of energy training programs in several countries.

Report of the TEAP, May 2006 Progress Report - 2006

Heating and Cooling of Buildings - T. Agami Reddy 2016-09-01

Heating and Cooling of Buildings: Principles and Practice of Energy Efficient Design, Third Edition is

structured to provide a rigorous and comprehensive technical foundation and coverage to all the various elements inherent in the design of energy efficient and green buildings. Along with numerous new and revised examples, design case studies, and homework problems, the third edition includes the HCB software along with its extensive website material, which contains a wealth of data to support design analysis and planning. Based around current codes and standards, the Third Edition explores the latest technologies that are central to design and operation of today's buildings. It serves as an up-to-date technical resource for future designers, practitioners, and researchers wishing to acquire a firm scientific foundation for improving the design and performance of buildings and the comfort of their occupants. For engineering and architecture students in undergraduate/graduate classes, this comprehensive textbook:

Waste Heat Recovery in Process Industries - Hussam Jouhara 2022-05-31

Explore modern waste heat recovery technology across a variety of industries In Waste Heat Recovery in Process Industries, esteemed thermal engineer Hussam Jouhara delivers an organized and comprehensive exploration of waste heat recovery systems with a focus on industrial applications in different temperature ranges. The author describes various waste heat recovery systems, like heat exchangers, waste heat boilers, air preheaters, direct electrical conversion devices, and thermal storage. The book also offers discussions of the technologies and applications relevant to different temperature ranges present in industrial settings along with revealing case studies from various industries. Waste Heat Recovery in Process Industries examines a variety of industries, from steel to ceramics, chemicals, and food, and how plants operating in these sectors can use waste heat to improve their energy efficiency, reduce energy costs, and minimize their carbon footprint. The book also offers: A thorough introduction to waste heat recovery systems, including recuperative and regenerative burners, heat exchangers, waste heat boilers, air preheaters, and heat pumps Comprehensive explorations of low temperature applications, below 100°C, including advantages and drawbacks, as well as illustrative case studies Practical discussions of medium temperature applications, between 100°C and 400°C, including case studies In-depth examination of high temperature applications, above 400°C, including several case studies Perfect for chemical, mechanical, process, and power engineers, Waste Heat Recovery in Process Industries is also an ideal resource for professionals working in the chemical, metal processing, pharmaceutical, and food industries.

Refrigeration and Air Conditioning - Air-Conditioning and Refrigeration Institute 1998

Helps prepare readers for the Federally required (EPA) Certification for technicians. Exceptionally comprehensive, authoritative, up-to-date, and well-illustrated in full color. It focuses on accepted and expected industry practices applicable to a wide variety of HVACR jobs. For anyone interested in Basic Refrigeration, Commercial Refrigeration, Residential Air Conditioning, Commercial Air Conditioning. Warm Air Heating, Hydronic Heating, HVAC Control Systems, and Servicing HVAC Systems.

Leadership Strategies for Global Supply Chain Management in Emerging Markets - Dwivedi, Ashish 2020-05-22

In recent decades, the rapid expansion of trade and investment among developing countries has resulted in a scenario wherein firms from developing countries account for an increasing share of capital, goods, and wealth in the global economy. Industry leaders from developing countries have observed that firms in developing countries need to identify and develop key supply chain capabilities in order to succeed in emerging markets. It is argued that customers in emerging markets are likely to have different needs and

supply chain expectations as compared to customers in developed economies. Reaching into these emerging markets, understanding the customer diversity, and translating it into effective segmentation schemes are critical for the efficient design of supply chain operations. Leadership Strategies for Global Supply Chain Management in Emerging Markets is a pivotal reference source that provides vital research on creating efficient supply chain operations in emerging markets. While highlighting topics such as consumer behavior, global operations, and information transparency, this publication investigates the needs of consumers in emerging markets as well as the methods of designing effective operations. This book is ideally designed for supply chain managers, logistics managers, operations and warehousing professionals, industry practitioners, academicians, students, and researchers.

Guide to Energy Management, Eighth Edition - International Version - Barney L. Capehart 2020-11-26

This new International Version includes all material covered in the standard eighth edition, but numerical data and calculations are expressed in Systeme International (SI) units. Completely revised, this latest edition includes new chapters on electrical systems; motors and drives; commissioning; and human behavior and facility energy management. Also updated are chapters on lighting, HVAC systems, web-based building automation, control systems, green buildings, and greenhouse gas management. Written by respected professionals, this book examines objectives of energy management and illustrates techniques proven effective for achieving results.

Analysis and Design of Heating, Ventilating, and Air-Conditioning Systems, Second Edition - Herbert W. Stanford III 2019-04-01

Analysis and Design of Heating, Ventilating, and Air-Conditioning Systems, Second Edition, provides a thorough and modern overview of HVAC for commercial and industrial buildings, emphasizing energy efficiency. This text combines coverage of heating and air conditioning systems design with detailed information on the latest controls technologies. It also addresses the art of HVAC design along with carefully explained scientific and technical content, reflecting the extensive experience of the authors. Modern HVAC topics are addressed, including sustainability, IAQ, water treatment and risk management, vibration and noise mitigation, and maintainability from a practical point of view.

Air Conditioning - David V. Chadderton 2014-05-09

David Chadderton's Air Conditioning is the complete introduction and reference guide for students and practitioners of air conditioning design, installation and maintenance. The scientific principles involved are introduced with the help of case studies and exercises, and downloadable spreadsheets help you work through important calculations. New chapters on peak summertime air temperature in buildings without cooling systems, air duct acoustic calculations and air conditioning system cost enhance the usefulness to design engineers. Case studies are created from real life data, including PROBE post-occupancy reports, relating all of the theoretical explanations to current practice. Trends and recent applications in lowering energy use by air conditioning are also addressed, keeping the reader informed of the latest sustainable air conditioning technologies. Over 75 multiple choice questions will help the reader check on their progress. Covering both tropical and temperate climates, this is the ideal book for those learning about the basic principles of air conditioning, seeking to understand the latest technological developments, or maintaining a successful HVAC practice anywhere in the world.

Thomas Register of American Manufacturers and Thomas Register Catalog File - 2003

Vols. for 1970-71 includes manufacturers' catalogs.

Handbook of Air Conditioning and Refrigeration - Shan K. Wang 2001

* A broad range of disciplines--energy conservation and air quality issues, construction and design, and the manufacture of temperature-sensitive products and materials--is covered in this comprehensive handbook * Provide essential, up-to-date HVAC data, codes, standards, and guidelines, all conveniently located in one volume * A definitive reference source on the design, selection and operation of A/C and refrigeration systems

Electronic Facilities Engineering - 1989

High Performance Buildings: A Guide for Owners & Managers - Anthony Robinson, MS 2015-03-30

High Performance Buildings: A Guide for Owners and Managers, is a template - a blueprint for action for

those making decisions about how to improve the energy efficiency and performance of new or existing buildings. It is designed to have broad appeal, both for the seasoned veteran facility or energy manager and for the new manager alike, but can also be utilized as a practical desk reference by professionals such as architects, engineers, and construction managers. The full spectrum of topics relevant to achieving optimum building performance is addressed, including analysis of overall building energy use and performance, building commissioning, applicable codes, standards and rating systems, building envelope, onsite power generating options, optimizing performance of building mechanical and electrical equipment, and importance of effective building operation and maintenance practices. Fundamental principles are discussed and illustrated with case studies.

Guide to Energy Management, Fifth Edition - Barney L. Capehart 2006-01-18

Written by three of the most respected energy professionals in the industry, this fifth edition of a bestseller is an energy manager's guide to the most important areas of energy cost cutting. It examines the core objectives of energy management and illustrates the latest and most effective strategies, techniques, and tools for improving lighting efficiency, combustion processes, steam generation/distribution, and industrial waste reutilization. The book thoroughly brings up to date such topics as energy system management, energy auditing, rate structures, economic evaluation, HVAC optimization, control systems and computers, process energy, renewable energy, and industrial water management.

Guide to Energy Management - Barney L. Capehart 2003

This thoroughly revised and updated, Guide to Energy Management, Fourth Edition is a manager's guide to the most important areas of energy cost cutting. Written by three of the most respected energy professionals in the industry, the book provides valuable insights into these areas and also builds the skills needed to succeed in the fast changing energy management field. The new edition features a new chapter on Distributed Generation, presenting the basic ideas and operational strategies, as well as covering the common technologies. This valuable reference book examines the objectives of energy management and the most effective techniques and tools for achieving results.

Heating & Air Conditioning - 1996

HVAC Water Chillers and Cooling Towers - Herbert W. Stanford III 2003-04-04

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

Energy Management Handbook, Fifth Edition - Steve Doty 2004-09-22

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.

Plastics World - 1994

Installing Seismic Restraints For Electrical Equipment - 2002

Energy Management Principles - Craig B. Smith 2015-11-06

Energy Management Principles: Applications, Benefits, Savings, Second Edition is a comprehensive guide to the fundamental principles and systematic processes of maintaining and improving energy efficiency and reducing waste. Fully revised and updated with analysis of world energy utilization, incentives and utility rates, and new content highlighting how energy efficiency can be achieved through 1 of 16 outlined principles and programs, the book presents cost effective analysis, case studies, global examples, and guidance on building and site auditing. This fully revised edition provides a theoretical basis for conservation, as well as the avenues for its application, and by doing so, outlines the potential for cost reductions through an analysis of inefficiencies. Provides extensive coverage of all major fundamental energy management principles Applies general principles to all major components of energy use, such as HVAC, electrical end use and lighting, and transportation Describes how to initiate an energy management program for a building, a process, a farm or an industrial facility

The Ecological Engineer - David R. Macaulay 2006

THE ECOLOGICAL ENGINEER is a new book series that celebrates the most innovative engineers in North America and the practices and principles that they use to produce functionally outstanding structures, systems and technologies, in a way that embraces the emerging philosophy of sustainable design. Organized into three critical sections--Practice, Principles and Projects, the book provides a valuable resource and touchstone for engineers, architects and other design professionals who hope to embrace an ethic that is responsible to both people and the environment. VOLUME ONE: KEEN ENGINEERING focuses on the innovative work of one of the leading sustainable MEP firms in North America--KEEN Engineering. As mechanical, electrical and plumbing engineers who work on projects all over the continent, they have consistently been inspiring on multiple levels--as a company, as individuals and just by the sheer volume and quantity of their work.--Provided by publisher.

Energy Audit and Management - L. Ashok Kumar 2022-12-30

This book describes the energy management concepts, energy audit principles, resource efficiency, and other energy conservation opportunities involved in different sectors across varied industries. Real-time case studies from various large industrial sectors, like cement, paper and pulp, refineries, manufacturing, garments and textile processing, power plants, and other MSME industrial sectors with cross functional energy conservation opportunities, are included. It also describes the future scope of energy auditing and management including IoT and data analytics. It also helps to gather the energy generated and utilization, energy conservation, and other process related data. Features: Provides entire coverage of energy management and audit concepts Explores energy audit methodologies and energy saving initiatives Incorporates current technologies like machine learning, IoT, data analytics in energy audit for reliability improvement Includes case studies covering detailed energy saving calculation with investment pay back calculations This book is aimed at researchers, professionals, and graduate students in electrical engineering, power systems, energy systems, and renewable energy.

The Building Services Engineer - 1976

Absorption Chillers and Heat Pumps - Keith E. Herold 2016-04-21

Significantly revised and updated since its first publication in 1996, Absorption Chillers and Heat Pumps, Second Edition discusses the fundamental physics and major applications of absorption chillers. While the popularity of absorption chillers began to dwindle in the United States in the late 1990's, a shift towards sustainability, green buildings and the use of renewable energy has brought about a renewed interest in absorption heat pump technology. In contrast, absorption chillers captured a large market share in Asia in the same time frame due to relative costs of gas and electricity. In addition to providing an in-depth discussion of fundamental concepts related to absorption refrigeration technology, this book provides detailed modeling of a broad range of simple and advanced cycles as well as a discussion of applications. New to the Second Edition: Offers details on the ground-breaking Vapor Surfactant theory of mass transfer enhancement Presents extensively revised computer examples based on the latest version of EES

(Engineering Equation Solver) software, including enhanced consistency and internal documentation Contains new LiBr/H₂O property routines covering a broad range of temperature and the full range of concentration Utilizes new NH₃/H₂O helper functions in EES which significantly enhance ease of use Adds a new chapter on absorption technology applications Offers updated absorption fluid transport property information Absorption Chillers and Heat Pumps, Second Edition provides an updated and thorough discussion of the physics and applications of absorption chillers and heat pumps. An in-depth guide to evaluating and simulating absorption systems, this revised edition provides significantly increased consistency and clarity in both the text and the worked examples. The introduction of the vapor surfactant theory is a major new component of the book. This definitive work serves as a resource for both the newcomer and seasoned professional in the field.

Solar Heating and Cooling Systems - Ioan Sarbu 2016-10-18

Solar Heating and Cooling Systems: Fundamentals, Experiments and Applications provides comprehensive coverage of this modern energy issue from both a scientific and technical level that is based on original research and the synthesis of consistent bibliographic material that meets the increasing need for modernization and greater energy efficiency to significantly reduce CO₂ emissions. Ioan Sarbu and Calin Sebarchievici present a comprehensive overview of all major solar energy technologies, along with the fundamentals, experiments, and applications of solar heating and cooling systems. Technical, economic, and energy saving aspects related to design, modeling, and operation of these systems are also explored. This reference includes physical and mathematical concepts developed to make this publication a self-contained and up-to-date source of information for engineers, researchers, and professionals who are interested in the use of solar energy as an alternative energy source. Includes learning aims, chapter summaries, problems and solutions to support the theories presented Puts a specific emphasis on the practical application of the technologies in heating and cooling systems Contains calculating equations for the energy and economic index of solar systems

Finishing Industries - 1981

High-Performance Buildings - M.S. Robinson 2020-12-17

This book provides a blueprint for action for readers making decisions about how to improve the energy efficiency and performance of new or existing buildings. Suitable for both seasoned veterans and new managers, it takes an objective and orderly approach to what is often a complex, costly, and time-consuming process. The book presents fundamental principles illustrated with case studies. It thoroughly covers the topics in a concise, technically accurate way. The book is designed for architects, engineers, and construction managers.

Water's Interface with Energy, Air, and Solids - 1975

An Introduction to Energy Efficiency for Buildings - J. Paul Guyer, P.E., R.A.

Introductory technical guidance for professional engineers and others interested in energy efficient design of buildings. Here is what is discussed: 1. HVAC SYSTEM UPGRADES 2. HVAC CONTROLS 3. LIGHTING UPGRADES 4. AIR DISTRIBUTION UPGRADES 5. ENERGY EFFICIENCY FOR DATA CENTERS 6. SOLAR COLLECTORS 7. PASSIVE SOLAR HEATING 8. SOLAR WATER HEATING FUNDAMENTALS 9. SOLAR COOLING SYSTEMS

Advances in Materials and Mechanical Engineering - Chandan Pandey 2021-06-06

This book presents the select proceedings of 1st International Conference on Future Trends in Materials and Mechanical Engineering (ICFTMME-2020), organised by Mechanical Engineering Department, SRM Institute of Science and Technology (Formerly known as SRM University), Delhi-NCR Campus, Ghaziabad, Uttar Pradesh, India. The book provides a deep insight of future trends in the advancement of materials and mechanical engineering. A broad range of topics and issues in material development and modern mechanical engineering are covered including polymers, nanomaterials, magnetic materials, fiber composites, stress analysis, design of mechanical components, theoretical and applied mechanics, tribology, solar, additive manufacturing and many more. This book will prove its worth to a broad readership of engineering students, researchers, and professionals.

Air Pollution Mitigation Measures for Airports and Associated Activity - 1994

Consulting-specifying Engineer - 2003

Sustainable Energy - Serdar Celik 2022-12-31

An introduction to sustainable energy with coding examples, real-world case studies, video solutions, and over 160 end-of-chapter problems.

Solar Cooling Technologies - Sotirios Karellas 2018-10-03

Solar Cooling Technologies presents a detailed study of the potential technologies for coupling solar energy and cooling systems. Unifies all the various power based solar techniques into one book, investigates tri-generation schemes for maximization of cooling efficiency, especially for small scale applications and offers direct comparison of all possible technologies of solar cooling Includes detailed numerical investigations for potential cooling applications

Ergonomics - Pamela McCauley-Bush 2011-12-13

A complete introduction to the field, Ergonomics: Foundational Principles, Applications and Technologies discusses scientific principles, research, applications, and emerging trends in technology. Covering the foundational principles and major topics in physical ergonomics, the book contains the necessary components of a quality ergonomics course,

The Steam and Heating Engineer - 1972

The Technology of Ecological Building - Klaus Daniels 1994

This book is an introduction to the technology of ecological building in the sense of integrated planning: global prognoses and ecological cycles help to formulate guidelines for buildings in the future, standards that must be observed if we are to guard against environmental crises. The book presents the technology needed to integrate the supply of water, heat, cooling, electricity, natural ventilation and lighting into the building's structure and design from the start. In short, the book explains how to contribute now to the protection of natural resources by utilizing solar energy and rainwater, geothermal and other thermal systems, to name but a few.