

## Basic Of Vrf Air Conditioning System

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HVAC - Variable Refrigerant Flow (VRF) SystemsQuick BookCreateSpace

Energy demand reduction is fast becoming a business activity for all companies and organisations because it can increase profits regardless of the nature of their core activity. The International Energy Agency believes that industry could improve its energy efficiency and reduce carbon dioxide emissions by almost a third using the best available practices and technologies. This guide looks at the many ways available to energy managers to achieve or even exceed this level of performance, including: base-lining consumption planning a monitoring and verification strategy metering (including smart, wireless metering) energy supply management motors and drives compressed air and process controls. Uniquely, it includes a whole chapter on greening data centres. It also looks at topics covered in greater detail in its companion volume, Energy Management in Buildings: insulation, lighting, renewable heating, cooling and HVAC systems. Further chapters examine minimising water use and how to make the financial case, both to prioritise measures for cost effectiveness, and to get management on board. This title is aimed at all professional energy, industry and facilities managers, energy consultants, students, trainees and academics and can be read alongside training for ISO 50001 - Energy Management Systems. It takes the reader from basic concepts to the latest advanced thinking, with principles applicable anywhere in the world and in any climate.

The use of refrigeration, either directly or as part of an air-conditioning system, is essential to almost every branch of industry. There is a need for practitioners to familiarise themselves with the general principles and methods of refrigeration and air conditioning, and the types of plant and operation currently in use. This book provides a comprehensive introduction to the principles and practice of refrigeration and air-conditioning for the uninitiated student and a general overview of the industry for the practitioner. The fundamentals of the subject are introduced without involving the reader too deeply in theory and the content is presented in a logical order. This fully revised and updated third edition has a new chapter on Refrigerants that deals with the many changes in this area over the last 10 years, including the phase out of CFC and HCFC refrigerants in line with Ozone depletion and Global Warming. New, replacement refrigerants are described, together with Codes of Practice introduced for maintenance and servicing of refrigeration plants. The increased use of Ammonia and Propane are included, with the relevant Health and Safety aspects, and the move towards Absorption refrigeration equipment as more environmentally friendly. This new edition of Refrigeration and Air Conditioning is a valuable reference source for practising engineers and essential reading for students.

'Building Control Systems' provides the building services engineer with a comprehensive understanding of modern control systems and relevant information technology. This will ensure that the best form of control systems for the building is specified and that proper provision is made for its installation, commissioning, operation and maintenance. Beginning with an overview of the benefits of the modern building control system, the authors describe the different controls and their applications, and include advice on their set-up and tuning for stable operation. There are chapters on the practical design of control systems, how to work from the hardware components and their inclusion in networks, through to control strategies in Heating, Ventilation and Air Conditioning (HVAC) systems and whole buildings. The relationship between Building, Management Systems (BMS) and information technology systems is discussed, and the building procurement process and the importance of considering control requirements at an early stage in the design process

In the face of increasingly serious resource and environmental challenges, the world has already accepted low-carbon development as the main way forward for future city construction. Chinese cities have encountered many problems during their development, including land constraints, energy shortages, traffic congestion and air pollution. For this reason, the national meeting of the Central Work Conference on Urbanization made the strategic decision to take a new approach to urbanization and indicated that in future the key features of urbanization in China will be low-carbon development and harmony between the environment and resources. This book discusses the "low-carbon city" as the new pattern of Chinese urbanization. This represents a major change and takes "intensive land use," "intelligent," "green" and "low carbon" as its key words. Low carbon will become an important future development direction for Chinese urbanization development. In the twenty-first Century in response to the global climate change, countries have started a wave of low-carbon city construction. But in China, there are still many disputes and misunderstandings surrounding the issue. Due to a lack of research, low-carbon city construction in China is still in the early stages, and while there have been successes, there have also been failures. There are complex and diverse challenges in applying low-carbon development methods in the context of today's Chinese cities. The construction of low-carbon cities requires efficient government, the technological innovation of enterprises, and professional scholars, but also efforts on the part of the public to change their daily activities. Based on the above considerations, the collection brings together experts from urban planning and design, clean-energy systems, low-carbon transportation, new types of city infrastructure and smart cities etc., in the hope of forming some solutions for Chinese low-carbon city development.

This thesis investigates the use of building performance simulation tools as a method of informing the design decision of Net Zero Energy Buildings (NZEBs).

For over 70 years, Faber & Kell's has been the definitive reference text in its field. It provides an understanding of the principles of heating and air-conditioning of buildings in a concise manner, illustrating practical information with simple, easy-to-use diagrams, now in full-colour. This new-look 11th edition has been re-organised for ease of use and includes fully updated chapters on sustainability and renewable energy sources, as well as information on the new Building Regulations Parts F and L. As well as extensive updates to regulations and codes, it now includes an introduction that explains the role of the building services engineer in the construction process. Its coverage of design

calculations, advice on using the latest technologies, building management systems, operation and maintenance makes this an essential reference for all building services professionals.

This book offers a timely yet comprehensive snapshot of innovative research and developments at the interface between manufacturing, materials and mechanical engineering, and quality assurance. It covers a wide range of manufacturing processes, such as cutting, grinding, assembly, and coatings, including ultrasonic treatment, molding, radial-isostatic compression, ionic-plasma deposition, volumetric vibration treatment, and wear resistance. It also highlights the advantages of augmented reality, RFID technology, reverse engineering, optimization, heat and mass transfer, energy management, quality inspection, and environmental impact. Based on selected papers presented at the Grabchenko's International Conference on Advanced Manufacturing Processes (InterPartner-2020), held in Odessa, Ukraine, on September 8-11, 2020, this book offers a timely overview and extensive information on trends and technologies in production planning, design engineering, advanced materials, machining processes, process engineering, and quality assurance. It is also intended to facilitate communication and collaboration between different groups working on similar topics and offer a bridge between academic and industrial researchers.

This book presents selected papers from the 11th International Symposium on Heating, Ventilation and Air Conditioning (ISHVAC 2019), with a focus on HVAC techniques for improving indoor environment quality and the energy efficiency of heating and cooling systems. Presenting inspiration for implementing more efficient and safer HVAC systems, the book is a valuable resource for academic researchers, engineers in industry, and government regulators.

Refrigeration, air conditioning, and heat pumps (RACHP) have an important impact on the final energy uses of many sectors of modern society, such as residential, commercial, industrial, transport, and automotive. Moreover, RACHP also have an important environmental impact due to the working fluids that deplete the stratospheric ozone layer, which are being phased out according to the Montreal Protocol (1989). Last, but not least, high global warming potential (GWP), working fluids (directly), and energy consumption (indirectly) are responsible for a non-negligible quota of greenhouse gas (GHG) emissions in the atmosphere, thus impacting climate change.

Beginning with an overview of the benefits of the modern building control system, the authors go on to describe the different controls and their applications and include advice on their set-up and tuning for stable operation.

This book offers a timely yet comprehensive snapshot of innovative research and developments in the area of manufacturing. It covers a wide range of manufacturing processes, such as cutting, coatings, and grinding, highlighting the advantages provided by the use of new materials and composites, as well as new methods and technologies. It discusses topics in energy generation and pollution prevention. It shows how computational methods and mathematical models have been applied to solve a number of issues in both theoretical and applied research.

Based on selected papers presented at the Grabchenko's International Conference on Advanced Manufacturing Processes (InterPartner-2019), held in Odessa, Ukraine on September 10-13, 2019, this book offers a timely overview and extensive information on trends and technologies in the area of manufacturing, mechanical and materials engineering. It is also intended to facilitate communication and collaboration between different groups working on similar topics, and to offer a bridge between academic and industrial researchers.

Develop the knowledge and skills you need to maintain and troubleshoot today's complex heating, air conditioning, and refrigeration systems with REFRIGERATION AND AIR CONDITIONING TECHNOLOGY, 8th Edition. This practical, easy-to-understand book provides hands-on guidance, practical applications, and the solid foundation you need to fully understand today's HVAC service and repair, its environmental challenges, and their solutions. Focused on sustainable technology in today's HVAC/R industry with an emphasis on new technologies and green awareness, the 8th Edition covers the latest advances in the industry and the all-important soft skills and customer relations issues that impact customer satisfaction and employment success. Memorable examples, more than 260 supporting photos, and unique Service Call features bring concepts to life and help you develop the critical skills you need for success in your future career. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

This volume features research and case studies across a variety of industries to showcase technological innovations and policy initiatives designed to promote renewable energy and sustainable economic development. The first section focuses on policies for the adoption of renewable energy technologies, the second section covers the evaluation of energy efficiency programs and the final section provides evaluations of energy technology innovations. Environmental concerns, energy availability and political pressure have prompted governments to look for alternative energy resources that can minimize the undesirable effects for current energy systems. For example, shifting away from the conventional fuel resources and increasing the percentage of electricity generated from renewable resources, such as solar and wind power, is an opportunity to guarantee lower CO<sub>2</sub> emissions and to create better economic opportunities for citizens in the long run. Including discussions of such of timely topics and issues as global warming, bio-fuels and nuclear energy, the editors and contributors to this book provide a wealth of insights and recommendations for sustainable energy innovations.

This book is a resumption of the work "Integrated M/E Design: Building Systems Engineering" published by Anil Ahuja in 1997.

Together with an international group of authors from the engineering, urban planning, and architecture fields, Mr. Ahuja discussed new trends and paradigms in the smart buildings and smart city sectors and extended the topic of the previous publication from the building to the entire city. A smart, sustainable building is not just about the building itself. There are things happening in the inside of the building and on the outside. A smart building connects the inside with the outside, provides efficiencies on both sides, synchronizes the outside infrastructure with its inside systems, and integrates nature and its occupants in its design. A smart building doesn't just provide technology solutions. It is about constant exchange between the inside and the outside of the building, the contribution of the building to the quality of the entire neighborhood and the rest of the city, how the smart building can connect people in a sharing community, and how technology can be the key to make it happen.

The second volume targets practitioners and focuses on the process of green architecture by combining concepts and technologies with best practices for each integral design component

Temperature and Humidity Independent Control (THIC) of Air-conditioning System focuses on temperature and humidity independent control (THIC) systems, which represents a new concept and new approach for indoor environmental control. This book presents the main components of the THIC systems, including dehumidification devices, high-temperature cooling devices and indoor terminal devices. Other relevant issues, such as operation and control strategy and case studies, are also included.

This book is intended for air-conditioning system designers and engineers as well as researchers working with indoor environments. Xiaohua Liu is an associate professor at the Building Energy Research Center, Tsinghua University, China. Yi Jiang is a member of the Chinese Academy of Engineering, the director of the Building Energy Research Center, Tsinghua University, China and the director of the China-USA Joint Research Center on Clean Energy. Tao Zhang is a Ph.D. candidate at the Building Energy Research Center, Tsinghua University, China.

GRIHA the national rating system of India is an evaluation tool for measuring and rating a building's environmental performance.

This set of 5 GRIHA manuals have been developed as a guide for building professionals (architects, services engineers, landscape

designers, project managers, contractors, etc.) who are involved in the design and construction of green buildings, to provide them a comprehensive understanding of the GRIHA rating system. The information provided in these manuals will serve as a complete guide for individuals who are interested in knowing about this rating system, its underlying criteria, rating process, strategies that should be adopted for complying with all the criteria and the documentation preparation and evaluation procedure.

Time is of the essence. Climate change looms as a malignant force that will reshape our economy and society for generations to come. If we are going to avoid the worst effects of climate change, we are going to need to effectively "decarbonize" the global economy by 2050. This doesn't mean a modest, or even a drastic, improvement in fuel efficiency standards for automobiles. It means 100 percent of the cars on the road being battery-powered or powered by some other non-carbon-emitting powertrain. It means 100 percent of our global electricity needs being met by renewables and other non-carbon-emitting sources such as nuclear power. It means electrifying the global industrial sector and replacing carbon-intensive chemical processes with green alternatives, eliminating scope-one emissions—emissions in production—across all industries, particularly steel, cement, petrochemicals, which are the backbone of the global economy. It means sustainable farming while still feeding a growing global population. Responding to the existential threat of climate change, Michael Lenox and Rebecca Duff propose a radical reconfiguration of the industries contributing the most, and most harmfully, to this planetary crisis. Disruptive innovation and a particular calibration of industry dynamics will be key to this change. The authors analyze precisely what this might look like for specific sectors of the world economy—ranging from agriculture to industrial and building, energy, and transportation—and examine the possible challenges and obstacles to introducing a paradigm shift in each one. With regards to existent business practices and products, how much and what kind of transformation can be achieved? The authors assert that markets are critical to achieving the needed change, and that they operate within a larger scale of institutional rules and norms. Lenox and Duff conclude with an analysis of policy interventions and strategies that could move us toward clean tech and decarbonization by 2050.

This book systematically introduces readers to the operator method, which can be used in different stages of urban planning. Energy planning should ideally be accompanied by urban planning, ranging from comprehensive planning and detailed planning, to the design of individual construction projects. This book discusses a range of methods and models for defining energy planning objectives; analyzing and predicting energy demand; assessing available energy resources; optimizing integrated energy systems; analyzing the cost-effectiveness of proposals; implementation management; and post-assessment. Part one focuses on energy planning in different urban planning stages, while part two provides detailed discussions of key issues related to energy planning. INTERNATIONAL WORKSHOPS (at IAREC'17) (This book includes English (main) and Turkish languages) International Workshop on Mechanical Engineering International Workshop on Mechatronics Engineering International Workshop on Energy Systems Engineering International Workshop on Automotive Engineering and Aerospace Engineering International Workshop on Material Engineering International Workshop on Manufacturing Engineering International Workshop on Physics Engineering International Workshop on Electrical and Electronics Engineering International Workshop on Computer Engineering and Software Engineering International Workshop on Chemical Engineering International Workshop on Textile Engineering International Workshop on Architecture International Workshop on Civil Engineering International Workshop on Geomatics Engineering International Workshop on Industrial Engineering International Workshop on Food Engineering International Workshop on Aquaculture Engineering International Workshop on Agriculture Engineering International Workshop on Mathematics Engineering International Workshop on Bioengineering Engineering International Workshop on Biomedical Engineering International Workshop on Genetic Engineering International Workshop on Environmental Engineering International Workshop on Other Engineering Science

VRF (Variable refrigerant flow) is an air-condition system configuration where there is one outdoor condensing unit and multiple indoor units. The term variable refrigerant flow (VRF) refers to the ability of the system to control the amount of refrigerant flowing to the multiple evaporators (indoor units), enabling the use of many evaporators of differing capacities and configurations connected to single condensing unit. The arrangement provides an individualized comfort control, and simultaneous heating and cooling in different zones. Currently widely applied in large buildings especially in Japan and Europe, these systems are just starting to be introduced in the U.S. The VRF technology/system was developed and designed by Daikin Industries, Japan who named and protected the term variable refrigerant volume (VRV) system so other manufacturers use the term VRF "variable refrigerant flow". In essence both are same. With a higher efficiency and increased controllability, the VRF system can help achieve a sustainable design. Unfortunately, the design of VRF systems is more complicated and requires additional work compared to designing a conventional direct expansion (DX) system. This 3 -hour quick book provides an overview of VRF system technology. Emphasis is placed on the control principles, terminology, basic components, advantages and design limitations. This course is aimed at the personnel who have some limited background in the air conditioning field and is suitable for mechanical, electrical, controls and HVAC engineers, architects, building designers, contractors, estimators, energy auditors and facility managers. The course includes a multiple-choice quiz consisting of fifteen (15) questions at the end. Learning Objective At the conclusion of this course, the reader will: \* Understand the difference between multi-split air conditioning system and VRF systems; \* Understand the operating principle of direct expansion split and VRF system; \* Understand the concept of thermal zone; \* Understand how VRF with heat recovery are different from ordinary heat pump systems; \* Understand the operation of thermostatic expansion valve (TXV) and electronic expansion valve (EEV); \* Understand the influence of building characteristics and load profile on selection of VRF system; \* Learn the advantages and application of VRF systems; \* Understand the design limitations and challenges in design of VRF systems.

Equip yourself with the knowledge and skills to maintain and troubleshoot today's complex heating, air conditioning, and refrigeration systems with REFRIGERATION AND AIR CONDITIONING TECHNOLOGY, 7th Edition. Now celebrating its 25th anniversary, this time honored best seller provides the exceptional hands-on guidance, practical applications, latest technology and solid foundation you need to fully understand today's HVAC service and repair, its environmental challenges, and their solutions. Focused on sustainable technology in today's HVAC/R industry with an emphasis on new technologies and the latest advancements in the industry, the 7th edition has been updated to include more on Green Awareness, LEED accreditation and building performances with two new chapters on Energy Audits and Heat Gains and Losses. This edition covers the all-important soft skills and customer relation issues that impact customer satisfaction and employment success. Memorable examples, more than 260 supporting photos and unique Service Call features emphasize the relevance and importance of what you are learning. Trust Refrigeration and Air Conditioning TECHNOLOGY 7E to provide you with clear and accurate coverage of critical skills your

HVAC/R success. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

HVAC - Heating, Ventilation and Air conditioning systems and applications are used everyday by a substantial population in developed and developing countries. Apparently most of the users are not aware of the types and the concepts of these systems. Perhaps many of them feel that there is no need to understand the concepts and applications. However, students/ Technicians and others who would like to learn and deal with the systems need an introductory level book, that would initiate them into this field. This book is planned to include fundamental concepts of HVAC systems and hopefully meet the expectations of students aspiring to learn in general about these systems.

This book presents an in-depth analysis covering climatic and weather conditions, house and building development history, construction methods and technologies, and environmental conditions. It provides relevant house and building information and highlights recent advances in hot and humid regions, as well as developments in other regions that are relevant to hot and humid climates. The countries in hot and humid regions, which include the tropical countries, the Middle Eastern countries around the Mediterranean, and many countries of Central Asia and Africa, are home to some of the most challenging conditions in the world in terms of house and building design and construction, and in terms of maintaining indoor thermal comfort and air quality in an energy-efficient way. The book's respective chapters, prepared by expert contributors, cover essential concepts, designs, and construction methodologies for houses and commercial buildings. As such, the book offers a valuable resource for undergraduate and graduate students in architecture and engineering, house and building designers, and building sciences researchers. Building contractors, manufacturers and distributors of building equipment and devices, and government policymakers and legislators will also benefit from the information provided in this book.

This book gathers the main scientific outputs of POREEN, a four-year project on partnering opportunities between Europe and China in the renewable energy and environmental industries. It investigates the main challenges and opportunities related to Sino-European dialogue and cooperation in the green sector with a focus on sustainable growth.

The Code of Federal Regulations Title 10 contains the codified Federal laws and regulations that are in effect as of the date of the publication pertaining to energy, including: nuclear energy, testing, and waste; oil, natural gas, wind power and hydropower; climate change, energy conservation, alternative fuels, and energy site safety and security. Includes energy sales regulations, power and transmission rates.

This book presents the proceedings of the 2019 International Scientific and Technical Conference "Integrated Computer Technologies in Mechanical Engineering" – Synergetic Engineering (ICTM' 2019). The ICTM was established by the National Aerospace University "Kharkiv Aviation Institute" to bring together outstanding researchers and practitioners in the fields of information technology in the design and manufacture of engines, creation of rocket space systems, and aerospace engineering from around the globe all to share their knowledge and expertise. The ICTM'2019 conference was held in Kharkiv, Ukraine, on November 28–30, 2019. During the event, technical exchanges between the research communities took place in the form of keynote speeches, panel discussions, and special sessions. In addition, participants had the opportunity to forge new collaborations with their fellow researchers. ICTM'2019 received 172 submissions from various countries. This book features selected papers offering insights into the following topics: Information technology in the design and manufacture of engines; Information technology in the creation of rocket space systems; Aerospace engineering; Transport systems and logistics; Big data and data science; Nano-modeling; Artificial intelligence and smart systems; Networks and communication; Cyber-physical system and IoE; Software Engineering and IT-infrastructure. The organizers of ICTM 2019 made great efforts to ensure the success of this conference. The authors would like to thank all the members of the ICTM'2019 Advisory Committee for their guidance and advice, the members of Program Committee and Organizing Committee, the referees for their time and effort in reviewing and soliciting the papers, and the authors for their contributions to the formation of a common intellectual environment for solving relevant scientific problems. Also, the authors are grateful to Springer, especially Janusz Kacprzyk and Thomas Ditzinger as the editors responsible for the series "Advances in Intelligent System and Computing" for their valuable support in publishing these selected papers.

Building energy design is currently going through a period of major changes. One key factor of this is the adoption of net-zero energy as a long term goal for new buildings in most developed countries. To achieve this goal a lot of research is needed to accumulate knowledge and to utilize it in practical applications. In this book, accomplished international experts present advanced modeling techniques as well as in-depth case studies in order to aid designers in optimally using simulation tools for net-zero energy building design. The strategies and technologies discussed in this book are, however, also applicable for the design of energy-plus buildings. This book was facilitated by International Energy Agency's Solar Heating and Cooling (SHC) Programs and the Energy in Buildings and Communities (EBC) Programs through the joint SHC Task 40/EBC Annex 52: Towards Net Zero Energy Solar Buildings R&D collaboration. After presenting the fundamental concepts, design strategies, and technologies required to achieve net-zero energy in buildings, the book discusses different design processes and tools to support the design of net-zero energy buildings (NZEBS). A substantial chapter reports on four diverse NZEBs that have been operating for at least two years. These case studies are extremely high quality because they all have high resolution measured data and the authors were intimately involved in all of them from conception to operating. By comparing the projections made using the respective design tools with the actual performance data, successful (and unsuccessful) design techniques and processes, design and simulation tools, and technologies are identified. Written by both academics and practitioners (building designers) and by North Americans as well as Europeans, this book provides a very broad perspective. It includes a detailed description of design processes and a list of appropriate tools for each design phase, plus methods for parametric analysis and mathematical optimization. It is a guideline for building designers that draws from both the profound theoretical background and the vast practical experience of the authors. Equip your students with the knowledge and skills they need to maintain and troubleshoot today's complex heating, air conditioning, and refrigeration systems. REFRIGERATION & AIR CONDITIONING TECHNOLOGY, Ninth Edition, is a time-honored best-seller offering the hands-on guidance, practical applications, and solid foundation your students need to understand modern HVAC service and repair, its environmental challenges, and their solutions. Focused on sustainable technology and emphasizing new technologies and green awareness, the Ninth Edition features the latest advances in the HVAC/R industry, including updated content throughout the text and more than 400 new and revised figures and images. Drawing on decades of industry experience, the authors also cover the all-important soft skills and customer relations issues that today's professionals

need to master for career success. Memorable real-world examples, hundreds of vibrant photos, and unique Service Call features bring key concepts to life and help students develop the knowledge and skills to succeed in today's dynamic industry. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Mechanic Refrigeration and Air Conditioner is a simple e-Book for ITI Engineering Course Mechanic Refrigeration and Air Conditioner, First & Second Year, Sem- 1,2,3 & 4, Revised Syllabus in 2018, It contains objective questions with underlined & bold correct answers MCQ covering all topics including all about personal safety and machinery safety, manipulating tools, instruments and equipments in refrigeration workshop, fitting and sheet metal works related to repair refrigeration and air conditioning equipments, electrical area to measure current, voltage, resistance and able to connect star and delta connections, gas welding machines for brazing in refrigeration systems, gas charging, diagnosis & remedial measures in Refrigerator (Direct cool), Frost free refrigerator and Inverter technology Refrigerator, different compressor, DOL, Star Delta starter and changing DOR, refrigerant controls and service evaporator, handling of gas cylinders, CFC/HFC machine with ozone friendly refrigerant, Split A.C (wall mounted), Split A.C (floor, ceiling /cassette mounted Split A.C), Split A.C ( ducted ), multi Split A.C and Inverter Split A.C., gas charging in Car Air Conditioner, water cooled condensers, Evaporative condenser and Cooling tower, water cooler & water dispenser, visible cooler, bottle cooler, deep freezer / display cabinet, ice cube machine and softy machine, HVAC (study of psychrometry, blowers& fans, static and velocity pressure measurements), dampers, Checking airflow, damper, temperature and pressure, operation, De-scaling condenser and cooling tower of central AC plant(Direct and Indirect), VRF / VRV system, Check and service of VRF / VRV system, Connect master unit and IDU, mobile A.C (bus, train) and lots more.

Special edition of the Federal Register, containing a codification of documents of general applicability and future effect ... with ancillaries.

Provides guidance relevant to those with a role in system design, installation and operation, covering how variable refrigerant flow (VRF) systems work and how they can be designed so that they operate in a highly efficient way.

For 70 years, Faber & Kell's has been the definitive reference text in its field. The book provides understanding of the principles of heating and air-conditioning of buildings in a concise manner. Practical, applicable information is illustrated with simple, easy-to-use diagrams. This 10th edition includes chapters on sustainability, renewable energy sources as well as information on the updated Approved Documents Part F and L whilst still retaining the structure and character of the previous editions. Building services professionals will find this a reliable everyday source of information. The book is also an ideal purchase for newly-qualified building services students beginning their career. \* THE book for building services engineers for everyday reference on heating and air-conditioning design \* Includes updates to take into account revised Part F and L, sustainability and renewable energy sources \* Recommended purchase for newly-qualified students in the building services sector

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