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[Using the Engineering Literature, Second Edition](#) Routledge

The Elements of Architecture is a clear and well structured introduction to sustainable architecture, which concentrates on general principles to make an accessible and comprehensive primer for undergraduate students. The author takes a fresh and logical approach, focusing on the way aspects of the built environment are experienced by the occupants and how that experience is interpreted in architectural design. He works through basic elements and senses (sun; heat; light; sound; air; water and fire) to explain and frame effective environmental architectural design - not only arguing that the buildings we inhabit should be viewed as extensions of our bodies that interact with and protect us from these elements, but also using this analogy to explain complex ideas in an accessible manner.

Routledge

This important new book bridges the gap between works on classical control and process control, and those dealing with HVAC control at a more elementary level, which generally adopt a qualitative and descriptive control. Both advanced level students and specialist practitioners will welcome the in-depth analytical treatment of the subject presented in this volume. Of particular significance are the current developments in adaptive control, robust control, artificial neural networks and fuzzy logic systems, all of which are given a thorough analytical treatment in the book. First book to provide an analytical treatment of subject Covers all new developments in HVAC control systems Looks at systems both in the UK and abroad

[Integrating Innovation in Architecture](#) Trans Tech Publications Ltd

Protecting the natural environment and promoting sustainability have become important objectives, but achieving such goals presents myriad challenges for even the most committed environmentalist. *American Environmentalism: Philosophy, History, and Public Policy* examines whether competing interests can be reconciled while developing consistent, coherent, effective public policy to regulate uses and protection of the natural environment without destroying the national economy. It then reviews a range of possible solutions. The book delves into key normative concepts that undergird American perspectives on nature by providing an overview of philosophical concepts found in the western intellectual tradition, the presuppositions inherent in neoclassical economics, and anthropocentric (human-centered) and biocentric (earth-centered) positions on sustainability. It traces the evolution of attitudes about nature from the time of the Ancient Greeks through Europeans in the Middle Ages and the Renaissance, the Enlightenment and the American Founders, the nineteenth and twentieth centuries, and up to the present. Building on this foundation, the author examines the political landscape as non-governmental organizations (NGOs), industry leaders, and government officials struggle to balance industrial development with environmental concerns. Outrageous claims, silly misrepresentations, bogus arguments, absurd contentions, and overblown prophecies of impending calamities are bandied about by many parties on all sides of the debate—industry spokespeople, elected representatives, unelected regulators, concerned citizens, and environmental NGOs alike. In lieu of descending into this morass, the author circumvents the silliness to explore the crucial issues through a more focused, disciplined approach. Rather than engage in acrimonious debate over minutiae, as so often occurs in the context of "green" claims, he recasts the issue in a way that provides a cohesive look at all sides. This effort may be quixotic, but how else to cut the Gordian knot?

[U.S. Department of Transportation Federal Motor Carrier Safety](#)

[Administration Register](#) CRC Press

This book focuses on the implementation of Quality Function Deployment (QFD) in the construction industry as a tool to help building designers arrive at optimal decisions for external envelope systems with sustainable and buildable design goals. In particular, the book integrates special features into the conventional QFD tool to enhance its performance. These features include a fuzzy multi-criteria decision-making method, fuzzy consensus scheme, and Knowledge Management System (KMS). This integration results in a more robust decision support tool, known as the Knowledge-based Decision Support System QFD (KBDSS-QFD) tool. As an example, the KBDSS-QFD tool is used for the assessment of building envelope materials and designs for high-rise residential buildings in Singapore in the early design stage. The book provides the reader with a conceptual framework for understanding the development of the KBDSS-QFD tool. The framework is presented in a generalized form in order to benefit building professionals, decision makers, analysts, academics and researchers, who can use the findings as guiding principles to achieve optimal solutions and boost efficiency.

[Web Based Enterprise Energy and Building Automation Systems](#) CRC Press

Saving resources and cutting costs, protecting the environment and using renewable energies are the criteria which are important for modern buildings, and as such, designers today face the complex challenges of "integral planning", demanding the interaction of various disciplines to create a building with optimum efficiency whilst saving material and running costs. Active factors such as construction, buildings skins, layout of rooms, and exterior space should take up as little of the internal technical units as possible and all passive measures should be exploited to the maximum. Daniel's Advanced Building Systems provides an up-to-date overview of all essential building installations and most recent technologies, complete with a wide range of detailed technical plans. It is not merely a systematic handbook focusing on building technology for students of architecture, civil engineering and mechanical engineering, it is also a reference work enabling the practitioner to draw up initial plans and dimensions.

[American Environmentalism](#) Routledge

[Synergistic Design of Sustainable Built Environments](#)

introduces and illustrates a novel systems approach that fosters both design excellence and a leap toward a more biocentric (ecologically sustainable) design paradigm. The book provides a deeper understanding of the theories and principles of biocentric design and offers detailed descriptions of the synergistic design process of integrating theories and principles into practice. It also presents extensive thermal and visual built environment design strategies, along with qualitative and quantitative information that designers can use to generate feasible solutions in response to varying climate and occupant comfort. Features: Examines the principles and practices of the synergistic design (a fusion of anthropocentric and biocentric) of sustainable built environments and how they relate to practical applications. Presents climatic data and its analysis along with sun-path diagrams for numerous cities to aid in the design of sustainable built environments in multiple regional contexts. Includes numerous case studies of sustainable built environments in varying climatic zones. Explains how renewable energy (solar, wind, biomass, geothermal, hydro, fuel cells) can be successfully integrated in the built environment. This forward-thinking and highly illustrated book will be an invaluable reference to all those concerned with sustainable built environments and related architectural issues.

[Quality Function Deployment for Buildable and Sustainable Construction](#) CRC Press

'Several high quality scientific journals are published in the area of building energy and indoor/outdoor environment; however, one has been missing. Advances in Building Energy Research fills the gap. I recommend ABER to all technical libraries, research institutes and universities. It should also be used by construction companies and those manufacturing building materials and building products.' Professor Olli Seppänen, President of REHVA (Federation of Heating and Air-conditioning Associations) 'Advances in Building Energy Research is a unique index. It will be an inexhaustible resource for energy related sciences and a continuous inspiration for architects around the world.' N. Fintikakis, Architect and Director of UIA-ARES WP (Architecture and Renewable Energy Sources) Advances in Building Energy Research (ABER) offers state-of-the-art information on the environmental science and performance of buildings, linking new technologies and methodologies with the latest research on systems, simulations and standards. As stringently reviewed as a journal but with the breadth of a book, this annual volume brings together invited contributions from the foremost international experts on energy efficiency and environmental quality of buildings. Spanning a broad range of technical subjects, this is a 'must have' reference on global developments in the field, suitable for architects and building engineers, environmental engineers, industry professionals, students, teachers and

researchers in building science, technical libraries and laboratories.

[A Handbook of Sustainable Building Design and Engineering](#) CRC Press

Architecture 2030; BUG; Biophilic Design; BIPV; Circular Economy; LEED; Passive Design; Solar Chimney; Systems Thinking; WELL; Xeriscaping. What does it all mean? The complex and evolving language used in the sustainable design community can be very challenging, particularly to those new to environmentally friendly and resource-efficient design strategies that are needed today. Definitions of over two hundred terms with further sources. Clearly cross-referenced with Sustainaspeak, Theoryspeak, and Archispeak terms. Illustrated throughout with sustainable award-winning buildings by e.g. Behnisch, Brooks + Scarpa, EHDD, KieranTimberlake, LakeFlato, Leddy Mahtum Stacy, SmithGroup, Perkins+Will, ZGF, VMDO, and McDonough + Partners.

Sustainaspeak: A Guide to Sustainable Design Terms provides a current guide to the sustainable design strategies, terms, and practices needed for the next generation of designers, architects, students, and community leaders to design a carbon-neutral world for future generations.

[Sustainaspeak](#) Springer

This book aims at capitalizing and transmitting know-how about the design of Augmented Environments (AE) from some of the most prominent laboratories in the field worldwide. The authors belong to the RUF AE network (Research on User-Friendly Augmented Environments, founded in 2002) who meet in research seminars to share experience; Writing this book was perceived as an opportunity to look back over the last few years to sum up important findings; and formalize their approach and experience, which they never had the time or opportunity to do. Although the authors of this book have very different backgrounds, striking similarities emerge in their approach and design principles: never-endingness, activity-orientedness, continuous design, realism are some of the pillars of this approach; enabling to deal with the complex, heterogeneous, multi-user and mul-purpose constructions which AE designers have to face. The book illustrates how these principles enabled them to construct robust, efficient, and user-friendly Augmented Environments in spite of the many challenges to make these operational. We hope their experience will help the reader. Primary audience: Academics, Students and Professionals involved in the CHI, CSCW, Ubicomp, Cooperative Building communities. Computer Scientists interested by end-users and applications, Social Scientists operating in the IT domain, IT & Organization Consultants. Secondary audience: Developers of office and conferencing applications or middleware, Architects of office buildings, Space Planners, Designers; Facility Managers; IT, furniture & building Business Communities.

[Building Systems Design](#) John Wiley & Sons

Solar thermal is now a proven technology in terms of reliability, cost-benefit, and low environmental impact. The integration of solar thermal systems and installations into the design of buildings can provide a clean, efficient and sustainable low-energy solution for heating and cooling, whilst, taken in a wider context, contributing to climate protection. This book covers the state of the art in the application of solar thermal technologies for buildings. This is the first book in the BEST (Buildings, Energy and Solar Technology) Series. This series presents high-quality theoretical and application-oriented material on solar energy and energy-efficient technologies. Leading international experts cover the strategies and technologies that form the basis of high-performance, sustainable buildings, crucial to enhancing our built and urban environment.

[HVAC Control Systems](#) John Wiley & Sons

Practical solutions for sustainability In this timely guide, one of the world's leaders in advanced building technology implementation shows architects and engineers proven and practical methods for implementing these technologies in sustainably-designed buildings. Because of the very limited time architects are given from being awarded a project to concept design, this book offers clear and workable solutions for implementing solar energy, radiant heating and cooling floors, displacement ventilation, net zero, and more. It provides helpful tips and suggestions for architects and engineers to work together on implementing these technologies, along with many innovative possibilities for developing a truly integrated design. This book also explores and explains the many benefits of advanced technologies, including reduced greenhouse gas emissions, lower operating costs, noise reduction, improved indoor air quality, and more. In addition, *Advanced Building Technologies for Sustainability*: Offers detailed coverage of solar energy systems, thermal energy storage, geothermal systems, high-performance envelopes, chilled beams, under-floor air distribution, displacement induction units, and much more Provides case studies of projects using advanced technologies and demonstrates their implementation in a variety of contexts and building types Covers the implementation of advanced technologies in office towers, large residential buildings, hospitals, schools, dormitories, theaters, colleges, and more Complete with a clear and insightful explanation of the requirements for and benefits of acquiring the U.S. Green

Building Council's LEED certification, Advanced Building Technologies for Sustainability is an important resource for architects, engineers, developers, and contractors involved in sustainable projects using advanced technologies.

[Building Procurement](#) John Wiley & Sons

Advanced Building Systems Birkhauser

[Building Systems](#) Routledge

Building Systems Magazine (BSM) is an award winning United States-based trade magazine read by builders, developers and general contractors using or considering using innovative construction technologies. Once commonly known as "pre-fab," today's modern building systems employ innovative materials and techniques to create residential or commercial structures in a factory setting in a fraction of the time it takes to site build. BSM focuses mainly on log, timber frame, modular, panel, and structural insulated panel building technologies. Since factory fabrication and site preparation take place simultaneously, structures are finished and ready for occupancy in weeks, rather than months or years as required by conventional site-building schedules.

[Handbook of Web Based Energy Information and Control Systems](#)

Advanced Building Systems

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.

[Independent Offices and Department of Housing and Urban Development Appropriations](#) CRC Press

This book provides a comprehensive, systematic overview of original theoretical, experimental, and numerical studies in the building services engineering domain. It brings together different strands of the topic, guided by the two key features of energy savings and reduction of the pollutant emissions.

Technical, economic, and energy efficiency aspects related to the design, modelling, optimisation, and operation of diverse building services systems are explored. This book includes various theoretical studies, numerical and optimisation models, experiments, and applications in this field, giving an emphasis to: indoor environment quality assurance; energy analysis, modelling, and optimisation of heating systems; improving the energy performance of refrigeration and air-conditioning systems; valorising the solar and geothermal energies; analysis of thermal energy storage technologies; hydraulic simulation and optimisation of water distribution systems; and improving the energy efficiency of water pumping. With 11 pedagogically structured chapters, containing numerous illustrations, tables, and examples, this book provides researchers, lecturers, engineers, and graduate students with a thorough guide to building service engineering.

[Architectural Research Addressing Societal Challenges Volume 1](#) Springer Science & Business Media

Future buildings require not only energy efficiency but also proper building automation and control system functionalities in order to respond to the needs of occupants and energy grids. These development paths require a focus on occupant needs such as good indoor climate, easy operability, and monitoring. Another area to be tackled is energy flexibility, which is needed to make buildings responsive to the price signals of electricity grids with increasing amounts of fluctuating renewable energy generation installed both in central grids and at building sites. This Special Issue is dedicated to HVAC systems, load shifting, indoor climate, and energy and ventilation performance analyses in buildings. All these topics are important for improving the energy performance of new and renovated buildings within the roadmap of low energy and nearly zero energy buildings. To improve energy performance and, at the same time, occupant comfort and wellbeing, new technical solutions are required. Occupancy patterns and recognition, intelligent building management, demand response and performance of heating, cooling and ventilation systems are some common keywords in the articles of this Special Issue contributing to future highly performing buildings with reliable operation.

[Advanced Building Systems](#) IGI Global

This book promotes the benefits of the development and application of energy information and control systems. This wave of information technology (IT) and web-based energy information and control systems (web based EIS/ECS) continues to roll on with increasing speed and intensity. This handbook presents recent technological advancements in the field, as well as a compilation of the best information from three previous books in this area. The combined thrust of this information is that the highest level functions of the building and facility automation system are delivered by a web based EIS/ECS system that provides energy management, facility management, overall facility operational management and ties in with the enterprise resource management system for the entire facility or the group of facilities being managed.

[Synergistic Design of Sustainable Built Environments](#) Routledge

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BSM focuses mainly on log, timber frame, modular, panel, and structural insulated panel building technologies. Since factory fabrication and site preparation take place simultaneously, structures are finished and ready for occupancy in weeks, rather than months or years as required by conventional site-building schedules.

[Building Systems](#) Routledge

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[Intelligent Buildings: An Introduction](#) Birkhauser

The escalating interdependency of nations drives global geopolitics to shift ever more quickly. Societies seem unable to control any change that affects their cities, whether positively or negatively. Challenges are global, but solutions need to be implemented locally. How can architectural research contribute to the future of our changing society? How has it contributed in the past? The theme of the 10th EAAE/ARCC International Conference, "Architectural Research Addressing Societal Challenges", was set to address these questions. This book, Architectural Research Addressing Societal Challenges, includes reviewed papers presented in June 2016, at the 10th EAAE/ARCC International Conference, which was held at the facilities of the Faculty of Architecture of the University of Lisbon. The papers have been further divided into the following five sub-themes: a Changing Society; In Transit – Global Migration; Renaturalization of the City; Emerging Fields of Architectural Practice; and Research on Architectural Education. The EAAE/ARCC International Conference, held under the aegis of the EAAE and of the ARCC, is a conference organized every other year, in collaboration with one of the member schools/ universities of those associations, alternatively in North America or in Europe.