

Designing The Sustainable Site Integrated Design Strategies For Small Scale Sites And Residential Landscapes

Covers the most recent topics in the field of environmental management and provides a broad focus on the theoretical and methodological underpinnings of environmental management Provides an up-to-date survey of the field from the perspective of different disciplines Covers the topic of environmental management from multiple perspectives, namely, natural sciences, engineering, business, social sciences, and methods and tools perspectives Combines both academic rigor and practical approach through literature reviews and theories and examples and case studies from diverse geographic areas and policy domains Explores local and global issues of environmental management and analyzes the role of various contributors in the environmental management process Chapter contents are appropriately demonstrated with numerous pictures, charts, graphs, and tables, and accompanied by a detailed reference list for further readings

This book is an introduction to developing and implementing a successful program in the domain of sustainability and social responsibility. The reader is exposed to financially, environmentally, and socially responsible objectives that are supported by strategies and achieved by clear tactics that have measurable outcomes. The reader is introduced to methods of implementing technologies and practices and will also learn how to measure the consequent social and environmental performance for written reports and persuasive presentations. This book also reveals why we should be sustainable by explaining seemingly complex topics in science in a way that requires very little math or science background. The overview also captures how sustainability and social responsibility can be the source of process and product innovation. This book's approach is practical yet scientific. The nine chapters are dedicated to the practice of environmental and social responsibility in ways that achieve financial stability over the long run. As a result, these chapters help us understand not just why businesses need to be more responsible but how businesses can be more successful over the long run. International standards are given full treatment. ISO 26000 is given detailed attention, slightly more than ISO 9000 or ISO 14000, because it melds guidance on both environmental and social responsibility into one general concept of social responsibility. This book also specifies how to use traditional methods such as Six Sigma, lean, and operations research to improve processes, reduce resource use and waste, and make better social and environmental decisions that are based upon data from key financial, social, and environmental performance indicators. Internal and external data sourcing are given full treatment along with basic statistical data management. A recurring theme throughout the book is the integration of traditional methods of continuous improvement

"The second edition of Sustainable Landscape Construction has been updated to include the most important development and latest scientific research in the field. - It has been expanded to provide more ideas for designing, building, and maintaining environmentally sensitive landscapes."--Jacket.

The Fully Updated, Indispensable Study of Sustainable Design Principles Fundamentals of Integrated Design for Sustainable Building is the first textbook to merge principles, theory, and practice into an integrated workflow. This book introduces the technologies and processes of sustainable design and shows how to incorporate sustainable concepts at every design stage. This comprehensive primer takes an active learning approach that keeps students engaged. This book dispenses essential information from practicing industry specialists to provide a comprehensive introduction to the future of design. This new second edition includes: Expansive knowledge—from history and philosophy to technology and practice Fully updated international codes, like the CAL code, and current legislations Up-to-date global practices, such as the tools used for Life-Cycle Assessment Thorough coverage of critical issues such as climate change, resiliency, health, and net zero energy building Extensive design problems, research exercise, study questions, team projects, and discussion questions that get students truly involved with the material Sustainable design is a responsible, forward-thinking method for building the best structure possible in the most efficient way. Conventional resources are depleting and building professionals are thinking farther ahead. This means that sustainable design will eventually be the new standard and everyone in the field must be familiar with the concepts to stay relevant. Fundamentals of Integrated Design for Sustainable Building is the ideal primer, with complete coverage of the most up to date information. Applications in Design and Simulation of Sustainable Chemical Processes addresses the challenging applications in designing eco-friendly but efficient chemical processes, including recent advances in chemistry and catalysis that rely on renewable raw materials. Grounded in the fundamental knowledge of chemistry, thermodynamics, chemical reaction engineering and unit operations, this book is an indispensable resource for developing and designing innovating chemical processes by employing computer simulations as an efficient conceptual tool. Targeted to graduate and post graduate students in chemical engineering, as well as to professionals, the book aims to advance their skills in process innovation and conceptual design. The work completes the book Integrated Design and Simulation of Chemical Processes by Elsevier (2014) authored by the same team. Includes comprehensive case studies of innovative processes based on renewable raw materials Outlines Process Systems Engineering approach with emphasis on systematic design methods Employs steady-state and dynamic process simulation as problem analysis and flowsheet creation tool Applies modern concepts, as process integration and intensification, for enhancing the sustainability

A forward looking book on sustainable design that describes problems and then, by providing a different way to conceptualise design and development, leads on to examples of regenerative solutions. Its aim is to move the discussion away from doing less, but still detracting from our ecological capital, to positively contributing and adding to this capital. This book offers a hopeful response to the often frightening changes and challenges we face; arguing that we can actively create a positive and abundant future through mindful, contributive engagement that is rooted in a living systems based worldview. Concepts and practices such as Regenerative Development, Biophilic Design, Biomimicry, Permaculture and Positive Development are explored through interviews and case studies from the built environment to try and answer questions such as: 'How can projects focus on creating a positive ecological footprint and contribute to community?'; How can we as practitioners restore and enrich the relationships in our projects?; and 'How does design focus hope and create a positive legacy?'

This open access book provides insight into the implementation of Life Cycle approaches along the entire business value chain, supporting environmental, social and economic sustainability related to the development of industrial technologies, products, services and policies; and the development and management of smart agricultural systems, smart mobility systems, urban infrastructures and energy for the built environment. The book is based on papers presented at the 8th International Life Cycle

Management Conference that took place from September 3-6, 2017 in Luxembourg, and which was organized by the Luxembourg Institute of Science and Technology (LIST) and the University of Luxembourg in the framework of the LCM Conference Series. Designing Sustainable Forest Landscapes is a definitive guide to the design and management of forest landscapes, covering the theory and principles of forest design as well as providing practical guidance on methods and tools. Including a variety of international case studies the book focuses on ecosystem regeneration, the management of natural forests and the management of plantation forests. Using visualisation techniques, design processes and evaluation techniques it looks at promoting landscapes which are designed to optimise the balance between human intervention and natural evolution. A comprehensive, practical and accessible book, Designing Sustainable Forest Landscapes is essential reading for all those involved in forestry and landscape professions.

Designing with Solar Power is the result of international collaborative research and development work carried out within the framework of the International Energy Agency's Photovoltaic Power Systems Programme (PVPS) and performed within its Task 7 on 'Photovoltaic power systems in the built environment'. Each chapter of this precisely detailed and informative book has been prepared by an international expert in a specific area related to the development, use and application of building-integrated photovoltaics (BiPV). Chapters not only cover the basics of solar power and electrical concepts, but also investigate the ways in which photovoltaics can be integrated into the design and creation of buildings equipped for the demands of the 21st century. The potential for BiPV, in both buildings and other structures, is explored together with broader issues such as market deployment, and international marketing and government strategies. In addition, more than 20 contemporary international case studies describe in detail how building-integrated photovoltaics have been applied to new and existing buildings, and discuss the architectural and technical quality, and the success of various strategies. Packed with photographs and illustrations, this book is an invaluable companion for architects, builders, designers, engineers, students and all involved with the exciting possibilities of building-integrated photovoltaics. Whether it is the effects of climate change, the avalanche of electronic and plastic waste or the substandard living and working conditions of billions of our fellow global citizens, our ability to deal with unsustainability will define the twenty-first century. Given that most consumption is mediated through products and services, the critical question for designers is: How can we radically reshape these into tools for sustainable living? As a guide and reference text, Product Design and Sustainability provides design students, practitioners and educators with the breadth and depth needed to integrate the most appropriate sustainable strategies into their practice. It establishes the principles that underpin sustainability and introduces a diverse range of social, economic and environmental design responses and tools available to designers. The numerous real-world examples illustrate how these strategies play out in different product sectors and reinforce the view that sustainability is the most positive opportunity and creative challenge facing designers today. This book: delivers a comprehensive guide to the principles of sustainability and how they apply to product design that can readily be integrated into curricula and design practice reveals many of the issues specific product sectors are facing, and provides the depth and breadth needed for formulating and developing sustainable design strategies to address these issues empowers and inspires designers to engage with sustainability through its many examples and insightful interviews with practitioners is fully illustrated with over 300 photographs, graphs and diagrams and supported by chapter summaries, annotated further reading suggestions, and a glossary.

Optimal Design and Retrofit of Energy Efficient Buildings, Communities, and Urban Centers presents current techniques and technologies for energy efficiency in buildings. Cases introduce and demonstrate applications in both the design of new buildings and retrofit of existing structures. The book begins with an introduction that includes energy consumption statistics, building energy efficiency codes, and standards and labels from around the world. It then highlights the need for integrated and comprehensive energy analysis approaches. Subsequent sections present an overview of advanced energy efficiency technologies for buildings, including dynamic insulation materials, phase change materials, LED lighting and daylight controls, Life Cycle Analysis, and more. This book provides researchers and professionals with a coherent set of tools and techniques for enhancing energy efficiency in new and existing buildings. The case studies presented help practitioners implement the techniques and technologies in their own projects. Introduces a holistic analysis approach to energy efficiency for buildings using the concept of energy productivity Provides coverage of individual buildings, communities and urban centers Includes both the design of new buildings and retrofitting of existing structures to improve energy efficiency Describes state-of-the-art energy efficiency technologies Presents several cases studies and examples that illustrate the analysis techniques and impact of energy efficiency technologies and controls

Artful Rainwater Design has three main parts: first, the book outlines five amenity-focused goals that might be highlighted in a project: education, recreation, safety, public relations, and aesthetic appeal. Next, it focuses on techniques for ecologically sustainable stormwater management that complement the amenity goals. Finally, it features diverse case studies that show how designers around the country are implementing principles of artful rainwater design.

Sustainability in the Design, Synthesis and Analysis of Chemical Engineering Processes is an edited collection of contributions from leaders in their field. It takes a holistic view of sustainability in chemical and process engineering design, and incorporates economic analysis and human dimensions. Ruiz-Mercado and Cabezas have brought to this book their experience of researching sustainable process design and life cycle sustainability evaluation to assist with development in government, industry and academia. This book takes a practical, step-by-step approach to designing sustainable plants and processes by starting from chemical engineering fundamentals. This method enables readers to achieve new process design approaches with high influence and less complexity. It will also help to incorporate sustainability at the early stages of project life, and build up multiple systems level perspectives. Ruiz-Mercado and Cabezas' book is the only book on the market that looks at process sustainability from a chemical engineering fundamentals perspective. Improve plants, processes and products with sustainability in mind; from conceptual design to

life cycle assessment Avoid retro fitting costs by planning for sustainability concerns at the start of the design process

Link sustainability to the chemical engineering fundamentals

Presents comprehensive coverage of process intensification and integration for sustainable design, along with fundamental techniques and experiences from the industry Drawing from fundamental techniques and recent industrial experiences, this book discusses the many developments in process intensification and integration and focuses on increasing sustainability via several overarching topics such as Sustainable Manufacturing, Energy Saving Technologies, and Resource Conservation and Pollution Prevention Techniques. Process Intensification and Integration for Sustainable Design starts discussions on: shale gas as an option for the production of chemicals and challenges for process intensification; the design and techno-economic analysis of separation units to handle feedstock variability in shale gas treatment; RO-PRO desalination; and techno-economic and environmental assessment of ultrathin polysulfone membranes for oxygen-enriched combustion. Next, it looks at process intensification of membrane-based systems for water, energy, and environment applications; the design of internally heat-integrated distillation column (HIDiC); and graphical analysis and integration of heat exchanger networks with heat pumps. Decomposition and implementation of large-scale interplant heat integration is covered, as is the synthesis of combined heat and mass exchange networks (CHAMENs) with renewables. The book also covers optimization strategies for integrating and intensifying housing complexes; a sustainable biomass conversion process assessment; and more. Covers the many advances and changes in process intensification and integration Provides side-by-side discussions of fundamental techniques and recent industrial experiences to guide practitioners in their own processes Presents comprehensive coverage of topics relevant, among others, to the process industry, biorefineries, and plant energy management Offers insightful analysis and integration of reactor and heat exchanger network Looks at optimization of integrated water and multi-regenerator membrane systems involving multi-contaminants Process Intensification and Integration for Sustainable Design is an ideal book for process engineers, chemical engineers, engineering scientists, engineering consultants, and chemists. This book explores an emerging design culture that rigorously applies systems thinking to the practice of design as a form of facilitating change on an increasingly crowded planet. Designers conversant in topics such as living systems, cultural competence, social justice, and power asymmetries can contribute their creative skills to the world of social innovation to help address the complex social challenges of the 21st century. By establishing a foundation built on the capabilities approach to human development, designers have an opportunity to transcend previous disciplinary constraints, and redefine our understanding of design agency. With an emphasis on developing an adaptability to dynamic situations, the cultivation of diversity, and an insistence on human dignity, this book weaves together theories and practices from diverse fields of thought and action to provide designers with a concrete yet flexible set of actionable design principles. And, with the aim of equipping designers with the ability to drive long-term, sustainable change, it proposes a new set of design competences that emphasize a deeper mindfulness of our interdependence; with each other, and with our life-giving natural systems. It's a call to action to use design and design thinking as a tool to transform our collective worldviews toward an appreciation for what we all hold in common; a hope and a belief that our future is a place where all of humankind will flourish.

The objective of Sustainable Communities Design Handbook is to ensure a better quality of life for everyone, both now and for generations to come. This means creating a better and safer environment internationally through the sustainable use of natural resources, encouraging sustainable development which supports a strong economy, and ensuring a high quality environment that can be enjoyed by all. Sustainable Development Partnerships brings together in one reference today's most cutting edge technologies and methods for creating sustainable communities. With this book, Environmental Engineers, Civil Engineers, Architects, Mechanical Engineers, and Energy Engineers find a common approach to building environmental friendly communities which are energy efficient. The five part treatment starts with a clear and rigorous exposition of sustainable development in practice, followed by self-contained chapters concerning applications. Methods for the sustainable use of natural resources in built communities Clearly explains the most cutting edge sustainable technologies Provides a common approach to building sustainable communities Coverage of sustainable practices from architecture to construction

GREEN BUILDING: PRINCIPLES AND PRACTICES IN RESIDENTIAL CONSTRUCTION provides a current, comprehensive guide to this exciting, emerging field. From core concepts to innovative applications of cutting-edge technology and the latest industry trends, this text offers an in-depth introduction to the construction of green homes. Unlike many texts that adopt a product-oriented approach, this book emphasizes the crucial planning, processes, and execution methods necessary for effective, environmentally sound construction. This text demonstrates that Earth-friendly products and energy-efficient materials take planning in order to make a building truly green. This visionary text helps students and professionals develop the knowledge and skills to think green from start to finish, empowering and inspiring them to build truly sustainable homes. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Designing the Sustainable Site Integrated Design Strategies for Small Scale Sites and Residential Landscapes John Wiley & Sons With growing global competition, the process industries must spare no effort in insuring continuous process improvement in terms of Increasing profitability; Conservation of resources and Prevention of pollution. The question is how can engineers achieve these goals for a given process with numerous units and streams? Until recently conventional approaches to process design and operation put emphasis only on individual units and parts of the process. A more powerful integrated approach was lacking. The new field of Process Integration looks towards the processing plant as a whole in its attempt to find solutions and improvements. Research over the past two decades has resulted in many techniques that allow engineers to better understand complex facilities and significantly enhance their performance. This textbook presents a comprehensive and authoritative treatment of the concepts, tools and applications of Process Integration. Emphasis is given to systematic ways of analyzing process performance. Graphical, algebraic and mathematical procedures are presented in detail. In addition to covering the fundamentals of the subject, the book

also includes numerous case studies and examples that illustrate how Process Integration is solving actual industrial problems. Systematic methodology for analyzing the process as an integrated system, identifying global insights of the process, and generating optimum strategies and solutions Proper mix of fundamental principles, insightful tools, and industrial applications Generic techniques that are applicable to a wide variety of processing facilities Packed with case studies, practical tools, charts, tables, and performance criteria Extensive bibliography to provide ready access to process integration literature Excellent review of state-of-the-art technology, development trends, and future research directions

This volume is a technical and operative contribution to the United Nations "Decade on Education for Sustainable Development" (2005-2014), aiding the development of a new generation of designers, responsible and able in the task of designing environmentally sustainable products. The book provides a comprehensive framework and a practical tool to support the design process. This is an important text for those interested in the product development processes.

This book discusses the most significant ways in which design has been applied to sustainability challenges using an evolutionary perspective. It puts forward an innovation framework that is capable of coherently integrating multiple design for sustainability (DfS) approaches developed so far. It is now widely understood that design can and must play a crucial role in the societal transformations towards sustainability. Design can in fact act as a catalyst to trigger and support innovation, and can help to shape the world at different levels: from materials to products, product-service systems, social organisations and socio-technical systems. This book offers a unique perspective on how DfS has evolved in the past decades across these innovation levels, and provides insights on its promising and necessary future development directions. For design scholars, this book will trigger and feed the academic debate on the evolution of DfS and its next research frontiers. For design educators, the book can be used as a supporting tool to design courses and programmes on DfS. For bachelor's and master's level design, engineering and management students, the book can be a general resource to provide an understanding of the historical evolution of DfS. For design practitioners and businesses, the book offers a rich set of practical examples, design methods and tools to apply the various DfS approaches in practice, and an innovation framework which can be used as a tool to support change in organisations that aim to integrate DfS in their strategy and processes.

The movement toward creating more sustainable communities has been growing for decades, and in recent years has gained new prominence with the increasing visibility of planning approaches such as the New Urbanism. Yet there are few examples of successful and time-tested sustainable communities. Village Homes outside of Davis, California offers one such example. Built between 1975 and 1981 on 60 acres of land, it offers unique features including extensive common areas and green space; community gardens, orchards, and vineyards; narrow streets; pedestrian and bike paths; solar homes; and an innovative ecological drainage system. Authors Judy and Michael Corbett were intimately involved with the design, development, and building of Village Homes, and have resided there since 1977. In *Designing Sustainable Communities*, they examine the history of the sustainable community movement and discuss how Village Homes fits into the context of that movement. They offer an inside look at the development of the project from start to finish, describing how the project came about, obstacles that needed to be overcome, design approaches they took, problems that were encountered and how those problems were solved, and changes that have occurred over the years. In addition, they compare Village Homes with other communities and developments across the country, and discuss the future prospects for the continued growth of the sustainable communities movement. The book offers detailed information on a holistic approach to designing and building successful communities. It represents an invaluable guide for professionals and students involved with planning, architecture, development, and landscape architecture, and for anyone interested in creating more sustainable communities.

"*Designing Sustainable Commercial Interiors: Applying Concepts and Practices* is a core text that teaches students and designers how to apply sustainable principles to all stages of the design process for residential and commercial interiors. An overview of the types of design projects emphasizes a three-pronged approach to sustainability: equity, economy and ecology. Through case studies for a range of project types - including retail, healthcare, hospitality, corporate, adaptive reuse, civic and institutional, and residential - readers will learn how to use a sustainable concept as the foundation for well-designed projects."--

"*Fundamentals of Integrated Design for Sustainable Building* offers an introduction to green building concepts as well as design approaches that reduce and can eventually eliminate the need for fossil fuel use in buildings while also conserving materials, maximizing their efficiency, protecting the indoor air from chemical intrusion, and reducing the introduction of toxic materials into the environment. It represents a necessary road map to the future designers, builders, and planners of a post-carbon world." —from the Foreword by Ed Mazria A rich sourcebook covering the breadth of environmental building, *Fundamentals of Integrated Design for Sustainable Building* introduces the student and practitioner to the history, theory and technology of green building. Using an active learning approach, the concepts of sustainable architecture are explained and reinforced through design problems, research exercises, study questions, team projects, and discussion topics. Chapters by specialists in the green movement round out this survey of all the important issues and developments that students and professionals need to know. From history and philosophy to design technologies and practice, this sweeping resource is sure to be referenced until worn out.

Designing Ecological Habitats is an anthology of work by writers who have created, built, lived in and thrived in eco-developments, and addresses green building; food resources; appropriate technology; and restoring nature."--pub. desc.

Water conservation is one of the most effective sustainable design practices, yet few professionals know how to collect and use rainwater effectively. *Rainwater Harvesting* the first comprehensive book on designing rainwater harvesting systems. It provides practical guidelines for developing a rainwater harvesting strategy, taking into account climate, public policies, environmental impact, and end uses. Case studies are included throughout. *Rainwater Harvesting* is a valuable reference for architects, landscape architects, and site engineers.

Sustainability is a powerful force that is fundamentally reshaping humanity's relationship to the natural world and is ushering in the Age of Integration. The move from well-intentioned environmental friendliness to the higher bar of integral sustainability and regenerative design demands a new type of design professional, one that is deeply collaborative, ethically grounded, empathically connected and technologically empowered. As a response, this book argues for a great leap forward in design education: from an individualistic and competitive model casually focused on greening; to a new approach defined by an integral consciousness, shaped by the values of inclusivity and cooperation, and implemented by a series of integrative behaviors including: an ethically infused design brief a co-creative design process on-going value engineering pre-emptive engineering design validation through simulation on-line enabled integrated learning the use of well vetted rating systems. This book contains the integral frameworks, whole system change methodologies and intrinsic values that will assist professors and their students in an authentic and effective pursuit of design education for a sustainable future.

This comprehensive work shows how to design and develop innovative, optimal and sustainable chemical processes by applying the

principles of process systems engineering, leading to integrated sustainable processes with 'green' attributes. Generic systematic methods are employed, supported by intensive use of computer simulation as a powerful tool for mastering the complexity of physical models. New to the second edition are chapters on product design and batch processes with applications in specialty chemicals, process intensification methods for designing compact equipment with high energetic efficiency, plantwide control for managing the key factors affecting the plant dynamics and operation, health, safety and environment issues, as well as sustainability analysis for achieving high environmental performance. All chapters are completely rewritten or have been revised. This new edition is suitable as teaching material for Chemical Process and Product Design courses for graduate MSc students, being compatible with academic requirements world-wide. The inclusion of the newest design methods will be of great value to professional chemical engineers. Systematic approach to developing innovative and sustainable chemical processes Presents generic principles of process simulation for analysis, creation and assessment Emphasis on sustainable development for the future of process industries

Here is a design manual for those interested in gaining the knowledge and skills necessary for achieving sustainability in residential settings. The book introduces the concept of regenerative design whereby built landscapes sustain and restore vital ecological functions. It guides readers through a design process relevant to new or retrofit residential landscapes that not only minimizes environmental damage, but help repair it. Photos, sketches and case studies from built projects illustrate concepts and practices. The text offers an excellent tool for a wide range of professionals involved in the residential landscape industry.

Sustainable Site Design introduces the core concepts of sustainability as applied to landscape architecture. Focusing on site-scale design, this book provides a regional framework for integrating sustainable practices throughout the design process. From landscape analysis to program and design development, each design phase is illustrated with detailed case studies covering a broad range of innovative built landscape architectural projects.

As a cultivated form of invention, product design is a deeply human phenomenon that enables us to shape, modify and alter the world around us – for better or worse. The recent emergence of the sustainability imperative in product design compels us to recalibrate the parameters of good design in an unsustainable age. Written by designers, for designers, the Routledge Handbook of Sustainable Product Design presents the first systematic overview of the burgeoning field of sustainable product design. Brimming with intelligent viewpoints, critical propositions, practical examples and rich theoretical analyses, this book provides an essential point of reference for scholars and practitioners at the intersection of product design and sustainability. The book takes readers to the depth of our engagements with the designed world to advance the social and ecological purpose of product design as a critical twenty-first-century practice. Comprising 35 chapters across 6 thematic parts, the book's contributors include the most significant international thinkers in this dynamic and evolving field.

The combined challenges of health, comfort, climate change and energy security cross the boundaries of traditional building disciplines. This authoritative collection, focusing mostly on energy and ventilation, provides the current and next generation of building engineering professionals with what they need to work closely with many disciplines to meet these challenges. A Handbook of Sustainable Building Engineering covers: how to design, engineer and monitor a building in a manner that minimises the emissions of greenhouse gases; how to adapt the environment, fabric and services of existing and new buildings to climate change; how to improve the environment in and around buildings to provide better health, comfort, security and productivity; and provides crucial expertise on monitoring the performance of buildings once they are occupied. The authors explain the principles behind built environment engineering, and offer practical guidance through international case studies.

In the age of corporate responsibility, green technology and sustainability continue to grip the consciousness of business and academic institutions. However, development of appropriate business-driven green applications requires an awareness of best practices of the green agenda. Green Technology Applications for Enterprise and Academic Innovation addresses the importance of green technology and sustainability for technology, enterprise, and academic innovation in energy management, renewable energy, and carbon reduction strategies. This book acts as the bridge for practitioners, academia, businesses, industrialists, governmental executives, and students seeking research in this emerging area.

Written by the chair of the LEED-Neighborhood Development (LEED-ND) initiative, Sustainable Urbanism: Urban Design with Nature is both an urgent call to action and a comprehensive introduction to "sustainable urbanism"--the emerging and growing design reform movement that combines the creation and enhancement of walkable and diverse places with the need to build high-performance infrastructure and buildings. Providing a historic perspective on the standards and regulations that got us to where we are today in terms of urban lifestyle and attempts at reform, Douglas Farr makes a powerful case for sustainable urbanism, showing where we went wrong, and where we need to go. He then explains how to implement sustainable urbanism through leadership and communication in cities, communities, and neighborhoods. Essays written by Farr and others delve into such issues as: Increasing sustainability through density. Integrating transportation and land use. Creating sustainable neighborhoods, including housing, car-free areas, locally-owned stores, walkable neighborhoods, and universal accessibility. The health and environmental benefits of linking humans to nature, including walk-to open spaces, neighborhood stormwater systems and waste treatment, and food production. High performance buildings and district energy systems. Enriching the argument are in-depth case studies in sustainable urbanism, from BedZED in London, England and Newington in Sydney, Australia, to New Railroad Square in Santa Rosa, California and Dongtan, Shanghai, China. An epilogue looks to the future of sustainable urbanism over the next 200 years. At once solidly researched and passionately argued, Sustainable Urbanism is the ideal guidebook for urban designers, planners, and architects who are eager to make a positive impact on our--and our descendants'--buildings, cities, and lives.

This edited collection brings together leading theoretical and applied research with the intent to design a sustainable global financial future. The contributors argue that our world cannot move toward sustainability, address climate change, reverse environmental degradation, and improve human well-being without aligning the financial system with sustainable development goals like those outlined by the United Nations. Such a system would: a) be environmentally and socially responsible; b) align with planetary boundaries; c) manage natural resources sustainably; d) avoid doing more harm than good; and e) be resilient and adaptable to changing conditions. The overarching theme in this collection of chapters is a response to the worldwide, supranational sustainable finance discussions about how we can transition to a new socio-ecological system where finance, human well-being, and planetary health are recognized as being highly intertwined.

In the near future the appearance and spatial organization of urban and rural landscapes will be strongly influenced by the generation of renewable energy. One of the critical tasks will be the re-integration of these sustainable energy landscapes into the existing environment--which people value and want to preserve--in a socially fair, environmental

Sustainable Design through Process Integration: Fundamentals and Applications to Industrial Pollution Prevention, Resource Conservation, and Profitability Enhancement, Second Edition, is an important textbook that provides authoritative, comprehensive, and easy-to-follow coverage of the fundamental concepts and practical techniques on the use of process integration to maximize the efficiency and sustainability of industrial processes. The book is ideal for adoption in process design and sustainability courses. It is also a valuable guidebook to process, chemical, and environmental engineers who need to improve the design, operation, performance, and sustainability of industrial plants. The book covers pressing and high growth topics, including benchmarking process performance, identifying root causes of problems and opportunities for improvement, designing integrated solutions, enhancing profitability, conserving natural resources, and preventing pollution. Written by one of the world's foremost authorities in integrated process design and sustainability, the new edition contains new chapters and

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updated materials on various aspects of process integration and sustainable design. The new edition is also packed with numerous new examples and industrial applications. Allows the reader to methodically develop rigorous targets that benchmark the performance of industrial processes then develop cost-effective implementations Contains state-of-the-art process integration and improvement approaches and techniques including graphical, algebraic, and mathematical methods Covers topics and applications that include profitability enhancement, mass and energy conservation, synthesis of innovative processes, retrofitting of existing systems, design and assessment of water, energy, and water-energy-nexus systems, and reconciliation of various sustainability objectives

Urban Systems Design: Creating Sustainable Smart Cities in the Internet of Things Era shows how to design, model and monitor smart communities using a distinctive IoT-based urban systems approach. Focusing on the essential dimensions that constitute smart communities energy, transport, urban form, and human comfort, this helpful guide explores how IoT-based sharing platforms can achieve greater community health and well-being based on relationship building, trust, and resilience. Uncovering the achievements of the most recent research on the potential of IoT and big data, this book shows how to identify, structure, measure and monitor multi-dimensional urban sustainability standards and progress. This thorough book demonstrates how to select a project, which technologies are most cost-effective, and their cost-benefit considerations. The book also illustrates the financial, institutional, policy and technological needs for the successful transition to smart cities, and concludes by discussing both the conventional and innovative regulatory instruments needed for a fast and smooth transition to smart, sustainable communities. Provides operational case studies and best practices from cities throughout Europe, North America, Latin America, Asia, Australia, and Africa, providing instructive examples of the social, environmental, and economic aspects of "smartification Reviews assessment and urban sustainability certification systems such as LEED, BREEAM, and CASBEE, examining how each addresses smart technologies criteria Examines existing technologies for efficient energy management, including HEMS, BEMS, energy harvesting, electric vehicles, smart grids, and more

Get the comprehensive guide to the sustainable design of schools. The elementary and secondary school buildings and campuses built today are the schools of the future. Sustainable School Architecture is a guide to the planning, architecture, and design of schools that are healthy, stimulating, and will conserve energy and resources. Written with the needs of architects, construction professionals, educators, and school administration in mind, the book provides a road map for sustainable planning, design, construction, and operations. By its very nature, a school is often the centerpiece of its community and, therefore, well positioned to take the lead in influencing environmental awareness. Building on this point, Sustainable School Architecture shows how eco-friendly practices for school construction can create an environment that young students will emulate and carry into the world. Written by experts on sustainable school design, this book: Focuses on the links between best sustainable practices and the specific needs of educational institutions. Has nineteen international case studies of the best contemporary sustainable schools located in urban, suburban, and rural communities in temperate, tropical, and extreme climate zones. Contains valuable information on the California Collaborative for High Performance Schools (CHPS) and the Leadership in Energy and Environmental Design (LEED®) rating system. Serves as a resource for incremental modernization and operation strategies as well as comprehensive transformation. Offers tips on running an integrated, community-based design process with support information on the materials and systems of the sustainable school. Includes contributions by experts on approaches to the sites, systems, maintenance, and operation of sustainable schools. With a practical overview of how sustainability can be achieved in new and existing schools, and how to maintain this momentum in the years ahead, this important book provides architects with detailed guidance for designing healthier learning environments to help usher in a more promising future.

"Written for architects, planners, landscape architects, engineers, public officials, and change agent professionals, this important resource defines the issues of sustainable design, illustrates conceptual and case studies, and provides support for continued learning in this increasingly central focus of architects' and urban planners' work."--Jacket.

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