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KEY=GUIDE - HOPE HULL

NET ZERO ENERGY DESIGN

A GUIDE FOR COMMERCIAL ARCHITECTURE

John Wiley & Sons Written by an architect who is director of sustainability at a global architecture firm, this is a guide for architects and related construction professionals to design and build net zero commercial architecture. It offers practical strategies, step-by-step technical analysis, and valuable examples in addition to developed case studies. With a focus on application in a variety of building types and scales, the book also develops a broad based understanding of all the integrated principles involved in achieving net zero energy. The book is a practical guide for anyone venturing into net zero energy design, construction and operation, and also serves as an excellent resource on a variety of sustainable design topics.

DESIGN PROFESSIONAL'S GUIDE TO ZERO NET ENERGY BUILDINGS

Island Press In the Design Professional's Guide to Zero Net Energy Buildings, Charles Eley draws from over 40 years of his own experience, and interviews with other industry experts, to lay out the principles for achieving zero net energy (ZNE) buildings, which produce as much energy as they use over the course of a year. Eley emphasizes the importance of building energy use in achieving a sustainable future; describes how building energy use can be minimized through smart design and energy efficiency technologies; and presents practical information on how to incorporate renewable energy technologies to meet the lowered energy needs. The book shows the reader through examples and explanations that these solutions are viable and cost effective.

NET ZERO ENERGY BUILDINGS

CASE STUDIES AND LESSONS LEARNED

Routledge This book presents 18 in-depth case studies of net zero energy buildings—low-energy building that generate as much energy as they consume over the course of a year—for a range of project types, sizes, and U.S. climate zones. Each case study describes the owner's goals, the design and construction process, design strategies, measurement and verification activities and results, and project costs. With a year or more of post-occupancy performance data and other project information, as well as lessons learned by project owners and developers, architects, engineers, energy modelers, constructors, and operators, each case study answers the questions: What were the challenges to achieving net zero energy performance, and how were these challenges overcome? How would stakeholders address these issues on future projects? Are the occupants satisfied with the building? Do they find it comfortable? Is it easy to operate? How can other projects benefit from the lessons learned on each project? What would the owners, designers, and constructors do differently knowing what they know now? A final chapter aggregates processes to engage in and pitfalls to avoid when approaching the challenges peculiar to designing, constructing, and owning a net zero energy building. By providing a wealth of comparable information, this book which will flatten the learning curve for designing, constructing, and owning this emerging building type and improve the effectiveness of architectural design and construction.

THE NEW NET ZERO

LEADING-EDGE DESIGN AND CONSTRUCTION OF HOMES AND BUILDINGS FOR A RENEWABLE ENERGY FUTURE

Chelsea Green Publishing The new threshold for green building is not just low energy, it's net-zero energy. In *The New Net Zero*, sustainable architect Bill Maclay charts the path for designers and builders interested in exploring green design's new-frontier net-zero-energy structures that produce as much energy as they consume and are carbon neutral. In a nation where traditional buildings use roughly 40 percent of the total fossil energy, the interest in net-zero building is growing enormously--among both designers interested in addressing climate change and consumers interested in energy efficiency and long-term savings. Maclay, an award-winning net-zero designer whose buildings have achieved high-performance goals at affordable costs, makes the case for a net-zero future; explains net-zero building metrics, integrated design practices, and renewable energy options; and shares his lessons learned on net-zero teambuilding. Designers and builders will find a wealth of state-of-the-art information on such considerations as air, water, and vapor barriers; embodied energy; residential and commercial net-zero standards; monitoring and commissioning; insulation options; costs; and more. The comprehensive overview is accompanied by several case studies, which include institutional buildings, commercial projects, and residences. Both new-building and renovation projects are covered in detail. *The New Net Zero* is geared toward professionals exploring net-zero design, but also suitable for nonprofessionals seeking ideas and strategies on net-zero options that are beautiful and renewably powered.

MODELING, DESIGN, AND OPTIMIZATION OF NET-ZERO ENERGY BUILDINGS

John Wiley & Sons 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.

HOME SWEET ZERO ENERGY HOME

WHAT IT TAKES TO DEVELOP GREAT HOMES THAT WON'T COST ANYTHING TO HEAT, COOL OR LIGHT UP, WITHOUT GOING BROKE OR CRAZY

New Society Publishers This practical guidebook to zero energy homes focuses on real costs and savings, exploring such topics as site selection and passive design, heating and cooling, and financial resources and incentives. Original.

THE PASSIVHAUS DESIGNER'S MANUAL

A TECHNICAL GUIDE TO LOW AND ZERO ENERGY BUILDINGS

Routledge Passivhaus is the fastest growing energy performance standard in the world, with almost 50,000 buildings realised to date. Applicable to both domestic and non-domestic building types, the strength of Passivhaus lies in the simplicity of the concept. As European and global energy directives move ever closer towards Zero (fossil) Energy standards, Passivhaus provides a robust 'fabric first' approach from which to make the next step. The Passivhaus Designers Manual is the most comprehensive technical guide available to those wishing to design and build Passivhaus and Zero Energy Buildings. As a technical reference for architects, engineers and construction professionals The Passivhaus Designers Manual provides: State of the art guidance for anyone designing or working on a Passivhaus project; In depth information on building services, including high performance ventilation systems and ultra-low energy heating and cooling systems; Holistic design guidance encompassing: daylight design, ecological materials, thermal comfort, indoor air quality and economics; Practical advice on procurement methods, project management and quality assurance; Renewable energy systems suitable for Passivhaus and Zero Energy Buildings; Practical case studies from the UK, USA, and Germany amongst others; Detailed worked examples to show you how it's done and what to look out for; Expert advice from 20 world renowned Passivhaus designers, architects, building physicists and engineers. Lavishly illustrated with nearly 200 full colour illustrations, and presented by two highly experienced specialists, this is your one-stop shop for comprehensive practical information on Passivhaus and Zero Energy buildings.

NET ZERO ENERGY BUILDINGS (NZE)

CONCEPTS, FRAMEWORKS AND ROADMAP FOR PROJECT ANALYSIS AND IMPLEMENTATION

Butterworth-Heinemann **Net Zero Energy Buildings (NZEB): Concepts, Frameworks and Roadmap for Project Analysis and Implementation** provides readers with the elements they need to understand, combine and contextualize design decisions on Net Zero Energy Buildings. The book is based on learned lessons from NZEB design, construction, operation that are integrated to bring the most relevant topics, such as multidisciplinary, climate sensitivity, comfort requirements, carbon footprints, construction quality and evidence-based design. Chapters introduce the context of high performance buildings, present overviews of NZEB, cover the performance thresholds for efficient buildings, cover materials, micro-grid and smart grids, construction quality, performance monitoring, post occupancy evaluation, and more. Offers a roadmap for engaging in energy efficiency in high performance buildings projects Combines solid grounding in core concepts, such as energy efficiency, with a wider context that includes the technical, socio-cultural and environmental dimensions Covers key areas for decision-making Provides a logical framework to analyze projects in the context of environmental change Presents worldwide examples and cases for different climates and societies

NET ZERO ENERGY DESIGN

A GUIDE FOR COMMERCIAL ARCHITECTURE

John Wiley & Sons Conveniently organized and packed with robust technical content and clear explanations of key principles Written by an architect who is the director of sustainability at a global architecture firm, **Net Zero Energy Design** is a practical guide for architects and related construction professionals who want to design and build net zero energy commercial architecture. It offers no-nonsense strategies, step-by-step technical analysis, and valuable examples, in addition to developed case studies. With a focus on application in a variety of building types and scales, the book also develops a broad-based understanding of all the integrated principles involved in achieving net zero energy. This book is an indispensable resource for anyone venturing into net zero energy design, construction, and operation, and it also serves as an excellent resource on a variety of sustainable design topics. Important features include: Organization based upon the commercial building delivery process Robust technical content for use in actual project applications Analysis examples that demonstrate key technical principles Plenty of design data for use as a valuable design resource Abundant and sophisticated information graphics and color illustrations and photographs A distinct design focus on the content that inspires adoption of principles into projects

TOWARD A ZERO ENERGY HOME

A COMPLETE GUIDE TO ENERGY SELF-SUFFICIENCY AT HOME

The authors of "Green from the Ground Up" explore the design and construction of self-sufficient houses. With unequalled knowledge and a passion for the subject, the authors walk readers through the process of building and living in a truly green home.

DESIGN ENERGY SIMULATION FOR ARCHITECTS

GUIDE TO 3D GRAPHICS

Routledge Leading architectural firms are now using in-house design simulation to help make more sustainable design decisions. Taking advantage of these new tools requires understanding of what can be done with simulation, how to do it, and how to interpret the results. This software-agnostic book, which is intended for you to use as a professional architect, shows you how to reduce the energy use of all buildings using simulation for shading, daylighting, airflow, and energy modeling. Written by a practicing architect who specializes in design simulation, the book includes 30 case studies of net-zero buildings, as well as of projects with less lofty goals, to demonstrate how energy simulation has helped designers make early decisions. Within each case study, author Kjell Anderson mentions the software used, how the simulation was set up, and how the project team used the simulation to make design decisions. Chapters and case studies are written so that you learn general concepts without being tied to particular software. Each chapter builds on the theory from previous chapters, includes a summary of concept-level hand calculations (if applicable), and gives comprehensive explanations with graphic examples. Additional topics include simulation basics, comfort, climate analysis, a discussion on how simulation is integrated into some firms, and an overview of some popular design simulation software.

HEATING, COOLING, LIGHTING

SUSTAINABLE DESIGN STRATEGIES TOWARDS NET ZERO ARCHITECTURE

John Wiley & Sons The essential guide to environmental control systems in building design For over 25 years **Heating, Cooling, Lighting: Sustainable Design Strategies Towards Net Zero Architecture** has provided architects and design professionals the knowledge and tools required to design a sustainable built environment at the schematic design stage. This Fifth Edition offers cutting-edge research in the field of sustainable architecture and design and has been completely restructured based on net zero design strategies. Reflecting the latest developments in codes, standards, and rating systems for energy efficiency, **Heating, Cooling, Lighting: Sustainable Design Strategies Towards Net Zero Architecture** includes three new chapters: **Retrofits: Best practices for efficient energy optimization in existing buildings** **Integrated Design: Strategies for synergizing passive and active design** **Design Tools: How to utilize the best tools to benchmark a building's sustainability and net zero potential** **Heating, Cooling, Lighting: Sustainable Design Strategies Towards Net Zero Architecture** is a go-to resource for practicing professionals and students in the fields of environmental systems technology or design, environmental design systems, construction technology, and sustainability technology.

ADVANCED ENERGY DESIGN GUIDE FOR SMALL TO MEDIUM OFFICE BUILDINGS

ACHIEVING ZERO ENERGY

"Provides recommendations for achieving a net zero energy small or medium office building; allows contractors, consulting engineers, architects, and designers to easily achieve advanced levels of energy savings without resorting to detailed calculations or analyses"--

GREEN FROM THE GROUND UP

SUSTAINABLE, HEALTHY AND ENERGY-EFFICIENT HOME CONSTRUCTION : A BUILDER'S GUIDE

Taunton Press Highlighted by more than 350 full-color photographs and illustrations, a comprehensive study of sustainable, energy-efficient, and healthful home construction offers a detailed explanation of green building fundamentals that covers such topics as site planning, materials selection, efficient energy alternatives, indoor air quality, and more at every stage in the construction process, from framing to finishes. Original.

ZERO-ENERGY BUILDINGS

NEW APPROACHES AND TECHNOLOGIES

BoD - Books on Demand The building industry is one of the largest energy consumers and countries all over the world are striving to design buildings that satisfy the user's expectations while containing their energy consumption. In this context, zero-energy buildings have emerged as a technological paradigm that can solve this global issue, but its implementation in different contexts has brought a profound debate about its technical, social, and environmental limitations. Thanks to contributions from a variety of scholars from different countries, this book explores different aspects of the zero-energy buildings and gives the reader a broad view of the feasibility of implementation in different contexts.

PASSIVE HOUSE DETAILS

SOLUTIONS FOR HIGH-PERFORMANCE DESIGN

Routledge **Passive House Details** introduces the concepts, principles, and design processes of building ultralow-energy buildings. The objective of this book is to provide design goals, research, analysis, systems, details, and inspiring images of some of the most energy-efficient, carbon-neutral, healthy, and satisfying buildings currently built in the region. Other topics included: heat transfer, moisture management, performance targets, and climatic zones. Illustrated with more than 375 color images, the book is a visual catalog of construction details, materials, and systems drawn from projects contributed from forty firms. Fourteen in-depth case studies demonstrate the most energy-efficient systems for foundations, walls, floors, roofs, windows, doors, and more.

CARBON-NEUTRAL ARCHITECTURAL DESIGN

CRC Press The energy used to operate buildings is one of the most significant sources of greenhouse gas emissions. While it is possible to reduce emissions through climate-responsive design, many architects are not trained to do this. Filling an urgent need for a design reference in this emerging field, this book describes how to reduce building-related greenhouse gas emissions through appropriate design techniques. It presents strategies to achieve CO₂ reductions, with an emphasis on control of energy flows through the building envelope and passive heating and cooling strategies. This new, revised edition is updated throughout, and includes a new chapter on building simulations.

SOLUTION SETS FOR NET ZERO ENERGY BUILDINGS

FEEDBACK FROM 30 BUILDINGS WORLDWIDE

John Wiley & Sons Net Zero-Energy Buildings have been the object of numerous studies in recent years as various countries have set this performance level as a long-term goal of their energy policies. This book presents a unique study of 30 NZEBs that have been constructed and have had their performance measured for at least 12 months. The study is based upon an international collaborative research initiated by the International Energy Agency - the Solar Heating and Cooling Programme (SHC). It is the first book to evaluate building strategies in houses, educational buildings and offices that have been demonstrated to work in practice. It examines how the design challenges of climate and building type have been addressed, and to what extent the various design approaches have been successful. This book presents convincing evidence that a careful re-thinking of conventional design norms can achieve a far greater performance benefit than is normally feasible. It identifies `solution sets? that work at the whole building level and at the individual building design challenge level for each climate and building type. In doing so, the book provides guidance as to how to improve the design by learning from these cases. Unusually for a book of this type it has examples of buildings in what are conventionally labeled "hot" and "cold" climates. A simple process is proposed for the reader to commission the analysis of their own climate to assess not only the conventional measure of how hot or cold or humid it is, but also to assess its suitability to support other NZEB technical challenge solutions sets such as Daylight or Natural Ventilation or comfort based climate conditioning.

ENERGY FREE

HOMES FOR A SMALL PLANET

Energy Free is designed to equip building professionals and homeowners alike with a toolkit for creating homes that use no more energy than they produce—this means homes that are free from the vagaries of energy-price fluctuations and that help to free society of the high political and environmental costs of fossil fuels. Individuals and institutions have been working toward "zero-energy" homes for decades. This volume is the first record of those collective efforts, distilling their experience into a practical and comprehensive how-to guide. The author includes resource information and step-by-step guidance on how to make decisions that will yield an energy-free residential project, whether a single-family home or multifamily building, new or existing, in an urban or a rural setting. The unique needs and opportunities of each context are addressed. The principal topics include: Project boundaries (why you have to consider not only your home's behavior, but also your own) Prioritizing strategies (e.g., insulation vs. photovoltaics) Economics (including payback periods and incentives) How to minimize a building's energy needs How to minimize your energy needs How to power the energy needs that remain The critical role of integrated project planning Energy Free offers a wide array of resource information, including detailed window and insulation comparisons; assessments of the relative contribution of different building elements; and overall performance. It draws on research and empirical data from myriad sources, including the Department of Energy's Building America program; Sacramento Municipal Utility District's House of the Future; Passiv Haus Institute in Europe and the Passive House Institute of the U.S.; Florida Solar Energy Center; Living Building Challenge; Affordable Comfort, Inc.'s, Thousand Home Challenge; and many pioneering individual home projects across North America.

ENERGY AND ENVIRONMENT IN ARCHITECTURE

A TECHNICAL DESIGN GUIDE

Taylor & Francis A unique and revolutionary text which explains the principles behind the LT Method (2.1), a manual design tool developed in Cambridge by the BRE. The LT Method is a unique way of estimating the combined energy usage of lighting, heating, cooling and ventilation systems, to enable the designer to make comparisons between options at an early, strategic stage. In addition, Energy and Environment in Architecture the book deals with other environmental issues such as noise, thermal comfort and natural ventilation design. A variety of case studies provide a critique of real buildings and highlight good practice. These topics include thermal comfort, noise and natural ventilation.

ADVANCED ENERGY DESIGN GUIDE FOR LARGE HOSPITALS

ACHIEVING 50% ENERGY SAVINGS TOWARD A NET ZERO ENERGY BUILDING

Ashrae "Designed to provide recommendations for achieving 50% energy savings over the minimum code requirements of ANSI/ASHRAE/IESNA Standard 90.1-2004 for large hospitals; allows contractors, consulting engineers, architects, and designers to easily achieve advanced levels of energy savings without having to resort to detailed calculations or analyses" -

GREEN BUILDING A TO Z

UNDERSTANDING THE LANGUAGE OF GREEN BUILDING

New Society Publishers Green building is the fastest-growing trend to hit since the Internet, bringing with it an enormous range of new products, systems, and technologies. Green Building A to Z is an informative, technically accurate, and highly visual guide to green building, for both decision-makers and interested citizens. It begins with an introduction to the importance of green buildings and a brief history of the green building movement, outlines the benefits and costs of green buildings, and shows how you can influence the spread of green buildings. The book touches on key issues, such as enhancing water conservation, reducing energy use, and creating a conservation economy. The book examines all aspects of green buildings, including: Architecture 2030 Locally sourced materials Natural ventilation Solar energy Zero-net-energy buildings More than just a reference, this book emphasizes the importance of green buildings and green developments for a sustainable future. It will be an invaluable resource for businesspeople, homeowners, product manufacturers, developers, building industry professionals, and government officials.

ADVANCED ENERGY DESIGN GUIDE FOR MEDIUM TO BIG BOX RETAIL BUILDINGS

ACHIEVING 50% ENERGY SAVINGS TOWARD A NET ZERO ENERGY BUILDING

American Society of Heating Refrigerating and Air-Conditioning Engineers "Designed to provide recommendations for achieving 50% energy savings over the minimum code requirements of ANSI/ASHRAE/IESNA Standard 90.1-2004 for medium to big box retail buildings; allows contractors, consulting engineers, architects, and designers to easily achieve advanced levels of energy savings without having to resort to detailed calculations or analyses" --

NEW CARBON ARCHITECTURE

BUILDING TO COOL THE PLANET

New Society Publishers "Green buildings" that slash energy use and carbon emissions are all the rage, but they aren't enough. The hidden culprit is embodied carbon—the carbon emitted when materials are mined, manufactured, and transported—comprising some ten percent of global emissions. With the built environment doubling by 2030, buildings are a carbon juggernaut threatening to overwhelm the climate. It doesn't have to be this way. Like never before in history, buildings can become part of the climate solution. With biomimicry and innovation, we can pull huge amounts of carbon out of the atmosphere and lock it up as walls, roofs, foundations, and insulation. We can literally make buildings out of the sky with a massive positive impact. The New Carbon Architecture is a paradigm-shifting tour of the innovations in architecture and construction that are making this happen. Office towers built from advanced wood products; affordable, low-carbon concrete alternatives; plastic cleaned from the oceans and turned into building blocks. We can even grow insulation from mycelium. A tour de force by the leaders in the field, The New Carbon Architecture will fire the imagination of architects, engineers, builders, policy makers, and everyone else captivated by the possibility of architecture to heal the climate and produce safer, healthier, and more beautiful buildings. Bruce King, a structural engineer for thirty-five years, is Founder and Director of the Ecological Building Network (EBNet) and author of Buildings of Earth and Straw, Making Better Concrete, and Design of Straw Bale Buildings. He lives in San Rafael, California.

DESIGNING ZERO CARBON BUILDINGS USING DYNAMIC SIMULATION METHODS

Taylor & Francis In addition to the application of fundamental principles that lead to a structured method for zero carbon design of buildings, this considerably expanded second edition includes new advanced topics on multi-objective optimisation; reverse modelling; reduction of the simulation performance gap; predictive control; nature-inspired emergent simulation leading to sketches that become 'alive'; and an alternative economics for achieving the sustainability paradigm. The book features student design work from a Master's programme run by the author, and their design speculation for a human settlement on Mars. Tasks for simple simulation experiments are available for the majority of topics, providing the material for classroom exercise and giving the reader an easy introduction into the field. Extended new case studies of zero carbon buildings are featured in the book, including schemes from Japan, China, Germany, Denmark and the UK, and provide the reader with an enhanced design toolbox to stimulate their own design thinking.

ENDING FOSSIL FUELS

WHY NET ZERO IS NOT ENOUGH

Verso Books Ending the fossil fuel industry is the only credible path for climate policy Around the world, countries and companies are setting net-zero carbon emissions targets. But what will it mean if those targets are achieved? One possibility is that fossil fuel companies will continue to produce billions of tons of atmospheric CO2 while relying on a symbiotic industry to scrub the air clean. Focusing on emissions draws our attention away from the real problem: the point of production. The fossil fuel industry must come to an end but will not depart willingly; governments must intervene. By embracing a politics of rural-urban coalitions and platform governance, climate advocates can build the political power needed

to nationalize the fossil fuel industry and use its resources to draw carbon out of the atmosphere.

DESIGNING CLIMATE SOLUTIONS

A POLICY GUIDE FOR LOW-CARBON ENERGY

Island Press With the effects of climate change already upon us, the need to cut global greenhouse gas emissions is nothing less than urgent. It's a daunting challenge, but the technologies and strategies to meet it exist today. A small set of energy policies, designed and implemented well, can put us on the path to a low carbon future. Energy systems are large and complex, so energy policy must be focused and cost-effective. One-size-fits-all approaches simply won't get the job done. Policymakers need a clear, comprehensive resource that outlines the energy policies that will have the biggest impact on our climate future, and describes how to design these policies well. *Designing Climate Solutions: A Policy Guide for Low-Carbon Energy* is the first such guide, bringing together the latest research and analysis around low carbon energy solutions. Written by Hal Harvey, CEO of the policy firm Energy Innovation, with Robbie Orvis and Jeffrey Rissman of Energy Innovation, *Designing Climate Solutions* is an accessible resource on lowering carbon emissions for policymakers, activists, philanthropists, and others in the climate and energy community. In Part I, the authors deliver a roadmap for understanding which countries, sectors, and sources produce the greatest amount of greenhouse gas emissions, and give readers the tools to select and design efficient policies for each of these sectors. In Part II, they break down each type of policy, from renewable portfolio standards to carbon pricing, offering key design principles and case studies where each policy has been implemented successfully. We don't need to wait for new technologies or strategies to create a low carbon future—and we can't afford to. *Designing Climate Solutions* gives professionals the tools they need to select, design, and implement the policies that can put us on the path to a livable climate future.

THE YEAR-ROUND SOLAR GREENHOUSE

HOW TO DESIGN AND BUILD A NET-ZERO ENERGY GREENHOUSE

New Society Publishers Comprehensive coverage of passive solar greenhouse design including material selection, building methods and how to store thermal energy using a variety of simple and innovative strategies. Over a dozen case studies provide real-life inspiration, capped off with how-to guidance for building a durable, energy-efficient greenhouse. Variations include underground and aquaponic greenhouses and integrating solar panels to grow off-grid, year-round.

ADVANCED ENERGY DESIGN GUIDE FOR K-12 SCHOOL BUILDINGS

ACHIEVING 30% ENERGY SAVINGS TOWARD A NET ZERO ENERGY BUILDING

Amer Society of Heating "Provides guidance for using ANSI/ASHRAE/IESNA Standard 90.1-1999, Energy Standards for Buildings Except Low-Rise Residential Buildings, as a benchmark to build new schools that are 30% more energy efficient"--Provided by publisher.

RENEWABLE ENERGY SYSTEMS FOR BUILDING DESIGNERS

FUNDAMENTALS OF NET ZERO AND HIGH PERFORMANCE DESIGN

Taylor & Francis *Renewable Energy Systems for Building Designers* presents a comprehensive introduction to the latest resources and technologies used in high performance and net zero energy buildings, with a practical focus on the design and integration of these systems. This textbook and convenient reference offers a single-source guide to renewable technologies, balancing broad knowledge with the details of implementation crucial for successful sustainable design. It equips students and professionals with foundations and critical information needed to confidently plan for and meet the highest standards of energy efficiency in new construction and retrofitted buildings. Part I of the book establishes key principles of renewable systems, power production, and design for climate, introducing energy modeling and measurements of performance. Part II focuses in more depth on renewable energy systems, including photovoltaics, heat pumps, solar thermal, and more. Dedicated chapters break down the fundamental concepts behind each renewable technology and present guidelines for configuration and installation including system requirements, equipment specification, sizing, and location of components. Part III discusses topics relevant across renewable systems, including energy storage, control and monitoring, and cost/payback calculation. Part IV comprises case studies of exemplary renewable energy projects. Features: Covers resources and technologies including photovoltaics, solar thermal hot water, heat pumps, biomass, wind and microhydro turbines, marine renewable energy, deep cycle rechargeable batteries, and system controllers. Compiles up-to-date, essential information on designing with renewable systems in one location, organized by technology for easy reference. Presents clear explanations of all concepts and system aspects, using US/SI units and full-color diagrams and illustrations throughout. Features case studies of renewable energy systems in completed projects, demonstrating a range of climate specific applications. Includes study questions, a comprehensive guide to terminologies and acronyms, spreadsheets for calculations, system sizing worksheets, and additional online resources. *Renewable Energy Systems for Building Designers: Fundamentals of Net Zero and High Performance Design* will serve as an essential introduction and enduring reference for students of architecture, engineering, construction, and building science. Equally valuable as a professional resource, it will quickly become the go-to guide for energy efficient design for practitioners in these areas.

ZERO NET ENERGY CASE STUDY HOMES

VOLUME 1

This is the first volume of in-depth case studies of zero-net-energy (ZNE) residential structures. Following the same descriptive approach and format of Volumes 1-3 of the previously published *Zero Net Energy Case Study Buildings*, this book focuses entirely on examples of housing archetypes in the United States. These include the single-family private house, one-off spec houses, manufactured housing, tract house developments and mixed-use multifamily projects. In this well-illustrated book, all the case study projects are described in terms of how they were built to achieve verified ZNE performance, that is, the energy used by the building over the course of a year was equal to the amount of energy supplied by its on-site renewable energy system. This book goes beyond recent publications on ZNE buildings with its reporting and analysis of the actual measured energy use and renewable energy production, including graphs and charts of this performance over a full year, verifying actual achievement of the zero-net-energy goal. As in the previous volumes, each case study concludes with a candid discussion of post-occupancy issues and "lessons learned" for the project. Enhanced by many beautiful photographs, architectural drawings and illustrations, it is attractive and easy to read, while still providing detailed technical information common to all the case study residential projects.

DRAWDOWN

THE MOST COMPREHENSIVE PLAN EVER PROPOSED TO REVERSE GLOBAL WARMING

Penguin • *New York Times* bestseller • The 100 most substantive solutions to reverse global warming, based on meticulous research by leading scientists and policymakers around the world "At this point in time, the *Drawdown* book is exactly what is needed; a credible, conservative solution-by-solution narrative that we can do it. Reading it is an effective inoculation against the widespread perception of doom that humanity cannot and will not solve the climate crisis. Reported by-effects include increased determination and a sense of grounded hope." —Per Espen Stoknes, Author, *What We Think About When We Try Not To Think About Global Warming* "There's been no real way for ordinary people to get an understanding of what they can do and what impact it can have. There remains no single, comprehensive, reliable compendium of carbon-reduction solutions across sectors. At least until now. . . . The public is hungry for this kind of practical wisdom." —David Roberts, *Vox* "This is the ideal environmental sciences textbook—only it is too interesting and inspiring to be called a textbook." —Peter Kareiva, Director of the Institute of the Environment and Sustainability, UCLA In the face of widespread fear and apathy, an international coalition of researchers, professionals, and scientists have come together to offer a set of realistic and bold solutions to climate change. One hundred techniques and practices are described here—some are well known; some you may have never heard of. They range from clean energy to educating girls in lower-income countries to land use practices that pull carbon out of the air. The solutions exist, are economically viable, and communities throughout the world are currently enacting them with skill and determination. If deployed collectively on a global scale over the next thirty years, they represent a credible path forward, not just to slow the earth's warming but to reach drawdown, that point in time when greenhouse gases in the atmosphere peak and begin to decline. These measures promise cascading benefits to human health, security, prosperity, and well-being—giving us every reason to see this planetary crisis as an opportunity to create a just and livable world.

BUILDING A SUSTAINABLE HOME

PRACTICAL GREEN DESIGN CHOICES FOR YOUR HEALTH, WEALTH, AND SOUL

Simon and Schuster The green building movement has produced hundreds of "how-to" books and websites that are filled with tips about green building and what homeowners should do to go green. While helpful and informative, when it comes to making actual purchasing and installation decisions, these books do not make it any easier for a homeowner to prioritize against a budget. Here, Schiffman shares her knowledge and experience for others to use in their journey toward a greener way of living. Whether the reader is building a new home or doing a minor remodel, a homeowner needs a framework by which to guide their decisions. These decisions are based on values, and the author posits that there are really only three reasons to go green: For Our Health: By building more sustainably, we reduce our exposure to harmful chemicals and toxins. For Our Wealth: By building a more durable home and being more efficient with resources like water and electricity, we reduce our monthly utility bills and ongoing maintenance expenses. For Our Soul: Collectively doing the right thing for our planet does make a difference—and that is soul-nourishing. Learn the logistics of choosing windows, insulation, appliances, and lighting. Find out about FSC certified wood and about using reclaimed materials. Here is everything you need to make your home sustainable.

ADVANCED ENERGY DESIGN GUIDE FOR SMALL RETAIL BUILDINGS

ACHIEVING 30% ENERGY SAVINGS OVER TOWARD A NET ZERO ENERGY BUILDING

Amer Society of Heating "Second in series that provides recommendations for achieving 30% energy savings over minimum code requirements of ANSI/ASHRAE/IESNA Standard 90.1-1999. Focuses on small retail buildings up to 20,000 sq. ft. Recommendations for the 8 US Climate Zones allow owners/designers to achieve advanced levels of savings without resorting to calculations or analysis"--Provided by publisher.

ESSENTIAL SUSTAINABLE HOME DESIGN

A COMPLETE GUIDE TO GOALS, OPTIONS, AND THE DESIGN PROCESS

New Society Publishers Design your own sustainable home Many people dream of building a beautiful, environmentally friendly home. But until now there has been no systematic guide to help potential builders work through the complete process of imagining, planning, designing, and building their ideal, sustainable home. Essential Sustainable Home Design walks potential homebuilders through the process starting with key concepts, principles, and a project vision that will guide the house to completion. Coverage includes: How to clarify your ideas and create a practical pathway to achieving your dream A criteria matrix to guide design, material, and systems decisions Creating a strong, integrated design team and working with professionals and code officials to keep the project on track from start to finish. Key building science concepts that make for a high-performance, durable building Primer on building logistics, material sourcing, and protocols to ensure that the initial vision for the project comes to fruition. One-page summaries and ratings of popular sustainable building materials and system options. Ideal for owner-builders and sustainable building contractors working with clients aiming to design and build a sustainable home. Chris Magwood has designed and built some of the most innovative, sustainable buildings in North America, including the first off-grid, straw bale home in Ontario. He is co-founder and director the Endeavour Centre for Innovative Building and Living and co-editor of the Sustainable Building Essentials series. Chris is the author of Essential Prefab Straw Bale Construction, Essential Hempcrete Construction, Straw Bale Details, More Straw Bale Building , and Making Better Buildings .

ANALYSIS AND DESIGN OF HEATING, VENTILATING, AND AIR-CONDITIONING SYSTEMS, SECOND EDITION

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

ZERO-CARBON HOMES

A ROAD MAP

Routledge Housing is a major contributor to CO2 emissions in Europe and America today and the construction of new homes offers an opportunity to address this issue. Providing homes that achieve "zero carbon", "carbon neutral", "zero-net energy" or "energy-plus" standard is becoming the goal of more innovative house-builders globally, whilst energy providers seek to decarbonise the energy supply to new and existing development. Various new technical systems for achieving these goals are beginning to emerge. For example the passive house whose energy requirement for space heating and cooling is almost zero; the smart grid that has revolutionized the management of energy, whilst enabling the connection of small-scale, renewable energy producers and electric vehicles to the grid; or the European super-grid which will enable zero carbon energy to be generated in the Sahara desert and stored in Norway. This book explores the diverse approaches that are being adopted around the world to deliver zero carbon homes and the different societal systems and geographic circumstances in which they have developed. It postulates a roadmap for delivering zero carbon homes, together with a toolbox approach for policy and practice to suit particular national and local circumstances. A series of case studies are presented that offer lessons for delivering zero carbon homes. These examples are also used to demonstrate how prototype systems can move into the mainstream. The book highlights some of the instruments and mechanisms that could be used to support this transformation and addresses the wider implications of introducing these innovative systems in terms of industry, lifestyle and urban form.

ECOTRAIN GREEN CAREER GUIDE ALMANAC

2010. 2011

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GUIDE TO PURCHASING GREEN POWER

RENEWABLE ELECTRICITY, RENEWABLE ENERGY CERTIFICATES AND ON-SITE RENEWABLE GENERATION

Environmental Protection Agency "This guide can be downloaded from: www.eere.energy.gov/femp/technologies/renewable%5Fpurchasepower.cfm, www.epa.gov/greenpower/buygreenpower.htm, www.thegreenpowergroup.org/publications.html, www.resource-solutions.org."--Verso. t.p.

THE GREEN STUDIO HANDBOOK

ENVIRONMENTAL STRATEGIES FOR SCHEMATIC DESIGN

Routledge The Green Studio Handbook remains an essential resource for design studios and professional practice. This extensive and user-friendly tool presents practical guidelines for the application of green strategies during the schematic design of buildings. Students and professionals can quickly get up to speed on system viability and sizing. Each of forty-three environmental strategies includes a brief description of principles and concepts, step-by-step guidance for integrating the strategy during the early stages of design, annotated tables and charts to assist with preliminary sizing, key issues to consider when implementing the strategy, and pointers to further resources. Ten new in-depth case studies illustrate diverse and successful green buildings integrated design projects and how the whole process comes together This third edition features updated tables and charts that will help to save energy, water, and material resources during the early stages of design. More than 500 sketches and full-color images illustrate how to successfully apply strategies. A glossary, a project index listing 105 buildings in 20 countries, updated tables and drawings, and I-P and SI units increase the usefulness of The Green Studio Handbook.