

## Pive Solar Building Design GUIDelines And Recognition

Introduction to Renewable Energy, Second Edition covers the fundamentals of renewable energy and serves as a resource to undergraduates in renewable energy courses, non-specialists within the energy industries, or anyone working to support the successful implementation of renewable energy. The second edition discusses developments that have occurred

This book presents the main principles for designing buildings and neighborhoods with increased potential to capture and utilize solar energy. It discusses practical issues in the design of the built environment and their impact on energy performance; and a range of design considerations, from building components (e.g. the building envelope) to urban planning issues (e.g. density and street layouts). In addition to design guidelines on how to increase buildings' potential to capture solar energy, the book provides creative tips to increase the aesthetic value of solar technology integration in buildings. Helping readers plan energy-efficient buildings with innovative building envelope technologies, and to understand the impact of early-stage design considerations on the energy performance of buildings and communities, the book offers a valuable source of information for building professionals, including architects, engineers, and urban planners. It can also serve as a reference guide for academics and students of energy efficiency in buildings and urban planning.

A Complete Guide to Passive Solar Home, Greenhouse, and Building Design

Sustainable Development and Planning IX

A Compilation of Abstracts and Key Word Author Indexes

Solar Home Design Manual for Cool Climates

Achieving Energy Independence Through Solar, Wind, Biomaas, and Hydropower

Introduction to Renewable Energy

An updated guide to designing buildings that heat with the sun, cool with the wind, and light with the sky. This fully updated Third Edition covers principles of designing buildings that use the sun for heating, wind for cooling, and daylight for natural lighting. Using hundreds of illustrations, this book offers practical strategies that give the designer the tools they need to make energy efficient buildings. Hundreds of illustrations and practical strategies give the designer the tools they need to make energy efficient buildings. Organized to quickly guide the designer in making buildings respond to the sun, wind and light.

This first volume of Sustainable building design manuals focuses on policy and regulatory mechanisms and serves as a guide to policy-makers and local authorities

Energy Abstracts for Policy Analysis

NBS Building Science Series

Architectural Graphic Standards

Solar Energy Update

Energy Initiatives Review, Department of Defense

Publications of the National Bureau of Standards

Sustainable environmental control through building design Heating, Cooling, and Lighting is the industry standard text on environmental control systems with the emphasis on sustainable design. By detailing the many factors that contribute to the comfort in a building, this book helps architects minimize mechanical systems and energy usage over the life of the building by siting, building design, and landscaping to maximize natural heating, cooling, and lighting. This new fourth edition includes new information on integrated design strategies and designing for the Tropics. Resources include helpful case studies, checklists, diagrams, and a companion website featuring additional cases, an image bank, and instructor materials. Designing buildings that require less energy to heat, cool, and light means allowing the natural energy of the sun and wind to reduce the burden on the mechanical and electrical systems. Basic design decisions regarding size, orientation, and form have a great impact on the sustainability, cost, and comfort of a building. Heating, Cooling, and Lighting provides detailed guidance for each phase of a design project. Readers will: Understand the concept of sustainability as applied to energy sources Review the basic principles of thermal comfort, and the critical role of climate Learn the fundamentals of solar responsive design, including active and passive solar systems as well as photovoltaics Discover how siting, architectural design, and landscaping can reduce the requirements for mechanical and electrical systems in sustainable design, mechanical, and electrical systems should be used to only accomplish what the architect could not by the design of the building itself. With this in mind, designers require a comprehensive understanding of both the properties

of energy and the human factors involved in thermal comfort. Heating, Cooling, and Lighting is the complete, industry-leading resource for designers interested in sustainable environmental control. If you want an inexpensive, environmentally sound source of energy for your home, you need look no further than the sun. Solar heat is not subject to rate increases, is totally renewable, pollution free and requires little or no technology. It is here for you today, and can easily provide up to 50% of your space and water heating requirements. This is a book that simply and clearly explains the principles of using solar energy to heat your home. Anyone building a new home, or renovating an old one can incorporate one or several aspects of solar energy into their design. Taking you through the process of designing a solar home from the ground up this manual is also a basic course in conservation and sustainable house design. If you live in a 'heating' climate, meaning if you have space heating requirements for most of the year then this is an invaluable resource. A house is the biggest single investment most of us will make in our lives - the way it is built and how it operates can reflect a long term investment in both the building and the planet.

Residential solar design review

New Ways to Lower Utility Costs, Cut Taxes, and Take Control of Your Energy Needs

Design Considerations for High Energy Performance

policy and regulatory mechanisms

The Complete Idiot's Guide to Solar Power for Your Home

The Homeowner's Guide to Renewable Energy

A practical approach to planning residential spaces Residential Interior Design: A Guide To Planning Spaces is the industry-standard reference for all aspects of residential space planning, with a practical focus on accessible design, ergonomics, and how building systems affect each space. This new third edition has been updated with the most recent code information, including the 2015 International Residential Code and the International Green Construction Code, and new content on remodeling. Packed with hundreds of drawings and photographs, this book illustrates a step-by-step approach to design that applies to any residential space, and ensures that the most important factors are weighted heavily in the decision making process. Daily use is a major consideration, and the authors explore the minimum amount of space each room requires to function appropriately while examining the host of additional factors that impact bedrooms, bathrooms, kitchens, hallways, and more. Detailed information about accessibility is included in each chapter, making this book a reliable design reference for "aging in place" and universal design. The new companion website features teaching tools and a variety of learning supplements that help reinforce the material covered. Interior design is a fundamental component of a residential space, and a required skill for architecture and design professionals. This book is a complete reference on all aspects of residential design, and the factors that make a space "work." Design spaces with primary consideration of daily use Account for building systems, accessibility, human factors, and more Get up to date on the latest residential interior building codes Plan interiors for any home, any style, and any budget Designing a residential interior is about more than choosing paint colors and furniture—it's about people, and how they interact and use the space. It's about shaping the space to conform to its function in the best possible way. Residential Interior Design provides clear,

comprehensive guidance on getting it right every time. 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.

a manual on community architectural controls and solar energy use Joint Hearing Before the Subcommittees on Energy Production and Supply and Energy Research and Development of the Committee on Energy and Natural Resources, and the Select Committee on Small Business, United States Senate, Ninety-fifth Congress, First Session, on the Role of Small Business in Solar Energy, Golden, Colo., June 1, 1977

A Student Guide to Energy

Hearing Before the Subcommittee on Energy Conservation and Regulation of the Committee on Energy and Natural Resources, United States Senate, Ninety-fifth Congress, First Session ....

Consumer Guide to Solar Energy

Publications of the National Bureau of Standards, 1976 Catalog

Integrated Design and Delivery Solutions (IDDS) represent a significant new research trajectory in the integration of architecture and construction through the rapid adoption of new processes. This book examines the ways in which collaboration and new methods of contracting and procurement enhance skills and improve processes in terms of lean and sustainable construction. Based on high quality research and practice-based examples that provide key insights into IDDS and its future potential, this book surveys the technologies that are being employed to create more sustainable buildings with added value for clients, stakeholders and society as whole.

This book focuses on the attributes that underlie well-designed, successful residential environments. In drawing up the guide the authors looked at a series of case studies, both of contemporary developments and places that have stood the test of time. These places illustrate how better attention to design can enhance the quality of life experienced within these home environments; places should be designed around people. Energy Research Abstracts

Ecohouse: A Design Guide

Publications of the National Bureau of Standards ... Catalog

Performance Criteria for Solar Heating and Cooling Systems in Residential Buildings

Supplement 2 : 1977

Sustainable Design Strategies Towards Net Zero Architecture

Explains the fundamentals of solar power and other renewable energy sources, including estimating energy needs, selecting the right equipment, and maintaining the system once it is installed.

Ecohouse is an exciting and timely text that tells you how to design low energy, environmentally friendly buildings today. It also provides the foundations for building design in a warming world, and stepping stones towards the zero-carbon emission buildings of tomorrow. Sue Roaf is famed for her approach to design and her awareness of energy efficiency. Here she reveals the concepts, structures and techniques that lie behind the realization of her ideals. By using her own house as a case-study Roaf guides the reader through the ideas for energy efficient design or 'eco design'. This guide to the ecohouse also explores 21 case-studies from around the world, from Norway and Sweden to India and Japan, Argentina and Mexico. Chapters by Christopher Day, Katherine Bohn and Andre Viljoen on ecological building materials and methods and a contribution by Robert and Brenda Vale - all experts in this field Ecohouse has a regularly updated companion web site providing further information on all issues relating to Ecohouse and eco design. Log on to www.bh.com/companions/ecohouse for a direct link.

A Design Manual

Residential Interior Design

Heating, Cooling, Lighting

Integrated Design and Delivery Solutions

Publications of the National Bureau of Standards 1977 Catalog

Passive Solar Heating Analysis

This is a must for those who are tired of power brownouts and blackouts, skyrocketing energy bills and the feeling that there is nothing we can do to help resolve these problems ourselves. Don't wait for utility bill sticker shock to worsen, or sit through another power outage or energy disruption. This new edition of the guide can help readers to seize their own destiny, become more self-reliant and use the available technology to make their homes more comfortable and their power bills more affordable. Two experts on solar energy have updated their classic guide for homeowners and businesses. Learn about numerous new products, proven reliable and effective, which are now available on the shelves of hardware stores, home supply centres and other outlets. The new edition includes updated information on solar energy tax credits and a host of new state programs supporting clean energy. The incentives total over \$3 billion for clean energy installations, and the authors provide a quick guide to accessing these and other consumer benefits.

This multivolume resource is an excellent research tool for developing a working knowledge of basic energy concepts and topics. \* Includes interviews of teachers, students, and businesspeople in the renewable energy fields \* Provides energy timelines charting the historic development of different energy sources \* Offers 150 detailed illustrations of electric vehicles and hydrogen fuel cells plus 50 tables, and charts of data \* Presents a number of maps showing the global development of wind power, solar power, and geothermal power \* A bibliography of print and online resources is included for further reading

A Guide To Planning Spaces

Publications of the National Institute of Standards and Technology ... Catalog

Better Places to Live

Sun Rise: Your Complete Guide to Sustainable Living

Status of Federal Energy Conservation Programs

Solar Energy

Containing papers presented at the 9th International Conference on Sustainable Development and Planning this volume brings together the work of academics, policy makers, practitioners and other international stakeholders and discusses new academic findings and their application in planning and development strategies, assessment tools and decision making processes. Problems related to development and planning are present in all areas and regions of the world. Accelerated urbanisation has resulted in both the deterioration of the environment and quality of life. Taking into consideration the interaction between different regions and developing new methodologies for monitoring, planning and implementation, new strategies can offer solutions mitigating environmental pollution and non-sustainable use of available resources. Energy saving and eco-friendly buildings have become an important part of modern day progress with emphasis on resource optimisation. Planning is a key part in ensuring that these solutions along with new materials and processes are efficiently incorporated. Planners, environmentalists, architects, engineers and economists have to work collectively to ensure that present and future needs are met. The papers in the book cover a number of topics, including: City planning; Regional planning; Rural developments; Sustainability and the built environment; Sustainability supply chain; Resilience; Environmental management; Energy resources; Cultural heritage; Quality of life; Sustainable solutions in emerging countries; Sustainable tourism; Learning from nature; Transportation; Social and political issues; Community planning; UN Sustainable Development Goals and Timber Structures.

Presents information on how to improve a home's energy efficiency and switch to renewable energy resources to provide electricity, hot water, heat, and cooling for a home.

By Design : a Companion Guide to PPG3

Hearing Before the Subcommittee on Military Construction and Stockpiles of the Committee on Armed Services, United States Senate, Ninety-fifth Congress, Second Session, December 18, 1978

Publications

Guideline for sustainable, energy efficient architecture and construction

The Passive Solar Energy Book

Solar Buildings and Neighborhoods

Presents technical information on passive energy design and application, using illustrations and text, and includes 27 design patterns for use in designing a passive energy system.

Newsdays there is an ever growing awareness regarding inevitable importance of sustainable development and its sub topics such as environment protection, ecology, resource saving, energy efficiency, etc. Due to massive and rapid development in recent years, this topic is getting more crucial in developing countries for instance Iran. It is getting more obvious that most of the development activities in absence of precise analysis of current conditions, as well as consequences of such activities, will lead to devastation of natural resources. The resources that is essential for further development of the country. Therefore, It is necessary to deal with sustainable development and environmental issues from the broader perspective, where includes items underlying immediate causes of environmental impact and at the same time tries to improve them. Sustainability or sustainable development is an umbrella covering many issues and aspects, among them energy, which is the key item, because energy consumption of buildings could have an impact on environment more than other aspects. Considering the huge portion of energy consumption in construction industry and housing sector, paying special attention to improvements in this sector is essential. Following this goal, the aim of this publication is to highlight procedures and practices which promote sustainable construction that is about creating a better quality of building and more healthy places to live in. Procedure of sustainable design includes various approaches and methods to develop energy efficient and environmentally sensitive buildings. Such approaches and methods demonstrate how to design, develop and construct all buildings in general and residential buildings in particular. Among various approaches towards sustainability, " Passive solar strategies " are well-known thanks to their cost efficiency and context friendliness of its principals and measures. The approach of passive design (architectural) strategies could be considered as the most applicable approach for resource saving and sustainability, thinking about special situation of Iran in particular and the Mena region in general. Such an approach requires paying special attention to climate, social characteristics of current or prospective inhabitants, topographical-physical characteristics as well as architectural characteristics of the understudied area. The relationships and interactions among society, building and its architecture and climate is " Site-specific " and dynamic. Therefore, they should be studied and properly analyzed throughout a specific project process for each certain place. The most expecting outcomes are precise definitions of passive design strategies, generally for buildings in MENA Region and especially for Iran. This publication is prepared in the young cities project framework, as the reasonable outcome of the developed pilot projects. The book starts with introducing the target group, related definitions and a brief overview on a conventional approach and its impact on environment. This chapter ends up with a brief review on benefits of applying sustainable guidelines. As the next step, after analyzing the climate and its relationship with thermal comfort and building, the main principals of passive solar design are introduced. The selected principles are: orientation, day-lightning, shading, thermal mass, insulated and ventilation. After a brief introduction of the principals, each one is explained in detail through its general principles and design strategies. Sustainable construction is examined based on its main pillars: construction systems, building elements, ecological building materials, and applicable measures for building physic. Construction systems are sorted out in six main groups as: block work- brick infill, block work- lightweight block infill, conventional panels, light weight steel frame, tunnel form structural system and precast modular. All selected systems are introduced based on following factors: brief description of the building concept, factory production, insulation, wastage, finishes, labor, installation, transport- lifting, services, hydronic cooling/ heating and safety. Then main building elements are examined. Here the elements are limited to: foundations, walls, floors, roofs, doors and windows. After a short description, different types of each element are introduced. Ecological building materials are investigated in chapter four. To find a base to compare, several common criteria are selected such as: embodied energy, pollution and waste, local production, reusability and recyclability, durability and interdependency. Applicable measures for building physic are examined in chapter five. The selected main measures are as follows: insulation, glazing, thermal mass, day-lighting, shading, ventilation and air-tightness. After describing the general principles of each measure, several recommendations in frame of design considerations are provided. Die enorme Bedeutung nachhaltiger Projekte wie Umweltschutz, Ökologie, sparsamer Umgang mit Rohstoffen, Energieeffizienz usw. dringt immer stärker in unser Bewusstsein. Aufgrund der massiven und rasanten Entwicklung in den Schwellen ländern, z. B. Iran, gewinnen Umweltschutz und Nachhaltigkeit immer mehr an Relevanz. Ein einseitiges Wirtschaftswachstum, ohne Berücksichtigung ökologischer und klimatischer Bedingungen, verursacht die Zerstörung der Umwelt und Rohstoffe, Ressourcen, die für die weitere Entwicklung der Länder unverzichtbar sind. Es ist unumgänglich, sich umfassend mit nachhaltiger Entwicklung und ökologischen Aspekten auseinanderzusetzen, die unmittelbaren Auswirkungen auf die Umwelt zu erfassen und gleichzeitig Möglichkeiten zur Optimierung aufzuzeigen. Nachhaltigkeit und Umweltschutz erfassen eine Vielzahl von Themen und Aspekten, u. a. den Energieverbrauch; ein wesentlicher Faktor, da der Energieverbrauch in Gebäuden den größten Einfluss auf die Umweltbilanz hat. In Anbetracht des enormen Energieverbrauchs in Bauwirtschaft und Wohnungsbau ist es unerlässlich, gerade in diesem Bereich eine Optimierung in der weiteren Entwicklung zu verfolgen. Diesem Ziel folgend, werden in dieser Publikation Verfahren und Methoden, für nachhaltige Bauweisen, unter Berücksichtigung einer besseren Bauqualität und gesundheitlicher Aspekte, erörtert. Die Maßnahmen umfassen verschiedene Ansätze und Methoden, energieeffiziente und umweltfreundliche Gebäude zu entwickeln. Sie zeigen Entwurf, Konstruktion und bauliche Ausführung von Gebäuden im Allgemeinen und Wohnungsbau im Speziellen. Neben den verschiedenen Ansätzen sind die passive solar strategies die wohl namhaftesten Methoden, da diese sehr rentabel und daher für Bauherren attraktiv sind. Angesichts der speziellen Situation im Iran im Besonderen und der MENA-Region im Allgemeinen, können die passiven Design- (Architektur-) Strategien als eine der am besten anzuwendenden Methoden für Rohstoffeffizienz und Nachhaltigkeit betrachtet werden. Dies setzt eine besondere Berücksichtigung des dortigen Klimas, der sozialen Charakteristiken derzeitiger oder zukünftiger Einwohner als auch der topographisch-physischen und architektonischen Charakteristiken der betroffenen Region voraus. Beeinflussung und Beziehungen zwischen Gesellschaft, Gebäuden, Architektur und Klima sind „lokal spezifisch“ und dynamisch. Deshalb sollten diese Faktoren für jeden Standort neu geprüft und analysiert werden. Die Resultate dieser Analysen, allgemein für Gebäude in der MENA-Region und im Besonderen im Iran, zeigen deutlich die Überlegenheit von passiven Designstrategien. Diese Publikation ist das Resultat der entwickelten Pilotprojekte im Rahmen des Young Cities-Projektes. Sie beginnt mit der Vorstellung der Zielgruppe, relevanten Definitionen und einem kurzem Überblick des konventionellen Ansatzes und dessen Einfluss auf die Umwelt. Das Kapitel endet mit einem kurzen Rückblick über den Nutzen nachhaltiger Bauweise. Nach Analyse des Klimas und seine Beziehung zu thermischem Komfort und Gebäuden werden die wichtigsten Prinzipien passiver Solarenergie vorgestellt: Orientierung, Tageslicht, Schatten, thermale Masse, Isolierung und Ventilation; ihre Grundlagen und Designstrategien detailliert erläutert. Nachhaltige Konstruktion und deren Hauptpfeiler, Baustysteme, Bauelemente, ökologische Bauelemente und anwendbare Maßnahmen für die Bauphysik, werden anschließend beleuchtet. Dabei wurden die Konstruktionssysteme in sechs Hauptgruppen gegliedert: Ziegelmauerwerk, Leichtgewichtige Ziegelmauerwerk, Leichtgewichtige Stahlrahmen, Tunnelbrückenbauweise und vorgefertigte Modelle. Anhand folgender Faktoren werden diese eingehend dargestellt: Baukonzept, Fabrikproduktion, Isolierung, Abnutzung, Verarbeitung, Arbeitsaufwand, Installation, Transport-Beförderung, Services, hydronische Kühlung/Heizung und Sicherheit. Die Hauptbauelemente wie Unterbau, Wände, Böden, Dach, Tür und Fenster werden beschrieben und verschiedene Bauweisen dieser vorgestellt. Das vierte Kapitel befasst sich mit ökologischen Baumaterialien. Um hierbei eine vergleichbare Basis zu finden, wurden gemeinsame Kriterien ausgewählt: graue Energie, Verschmutzung und Abfall, lokale Produktion, Wiederverwendung und Recycling, Nachhaltigkeit und Interdependenzen. Im fünften Kapitel werden anwendbare Bauweisen für die Bauphysik, wie Isolierung, Laser, Wärmemasse,

Tageslicht, Schatten, Ventilation und Luftdichte, untersucht, deren Grundlagen beschrieben und Empfehlungen bezüglich der Gestaltung präsentiert

Sustainable Design Methods for Architects

The Energy Consumer Guide

Sustainable Building - Design Manual

Sun, Wind, and Light: Architectural Design Strategies

Student Edition

The new student edition of the definitive architectural reference For seventy-five years, Architectural Graphic Standards has been the go-to reference for architects, builders, and engineers. Revised for the first time since 2000, Architectural Graphic Standards, Student Edition gives students their own handy resource. Carefully abridged from the Eleventh Edition of Architectural Graphic Standards, this Student Edition features the same richly detailed graphics and text that have made Architectural Graphic Standards a classic, but updated and reorganized in a way that is relevant to today's student. Thousands of illustrations and a rich index offer immediate access to hundreds of architectural elements, while the wide variety of topics covered makes this work relevant throughout a student's architecture education and into the early stages of professional practice. With a wealth of information for the student preparing for professional practice, this new edition: \* Covers building standards and practices, materials and systems, and details for every type of project \* Follows CSI's Uniformat, a classification system that closely matches an architect's workflow \* Features completely updated content with a wide variety of standard architectural details \* Offers an ancillary Web site featuring sample curriculums, student exercises, classroom projects, PowerPoint(r) slides, and more

NBS Special Publication

Building Technology Publications

A Compilation of Abstracts and Key Word and Author Indexes