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Thermal Delight in Architecture - Lisa Heschong 1979-12-05

Our thermal environment is as rich in cultural associations as our visual, acoustic, olfactory, and tactile environments. This book explores the potential for using thermal qualities as an expressive element in building design. Until quite recently, building technology and design has favored high-energy-consuming mechanical methods of neutralizing the thermal environment. It has not responded to the various ways that people use, remember, and care about the thermal environment and how they associate their thermal sense with their other senses. The hearth fire, the sauna, the Roman and Japanese baths, and the Islamic garden are discussed as archetypes of thermal delight about which rituals have developed—reinforcing bonds of affection and ceremony forged in the thermal experience. Not only is thermal symbolism now obsolete but the modern emphasis on central heating systems and air conditioning and hermetically sealed buildings has actually damaged our thermal coping and sensing mechanisms. This book for the solar age could help change all that and open up for us a new dimension of architectural experience. As the cost of energy continues to skyrocket, alternatives to the use of mechanical force must be developed to meet our thermal needs. A major alternative is the use of passive solar energy, and the book will provide those interested in solar design with a reservoir of ideas.

Tropical Architecture - Alexander Tzonis 2001

The tropical region covers a significant proportion of the globe, and yet its architecture receives relatively little outside comment or exposure. Dispersed widely throughout the world, the region incorporates areas as far-flung as the Caribbean islands, India, South-East Asia, and large parts of Australia, Africa and South and Central America. Despite their great cultural diversity, these areas share both climatic and ecological factors, as well as a post-colonial condition and the pressures of modernization in the world of globalization. Architects' reactions to the tropical context are as varied as the region is diverse. Tropical Architecture brings together architects and critics from throughout the tropical region, examining the implications of the opposing forces of tradition and innovation and the struggle between global and local order. Among the issues covered are sustainability, bio- and cultural diversity, micro-climatic control and technology and multi-disciplinary design. The argument centres on Critical Regionalism, a concept introduced into the architectural debate in the early 1980s by two of the book's co-authors, Tzonis and Lefavre. This is not a style but rather an approach to architecture that asks for design to be conceived in response to the needs and opportunities of a specific region - although it is not inherently opposed to global potentials. The theoretical debate is backed up by case studies of a range of projects, from small-scale designs using minimal technology to super-sophisticated, high-tech solutions, and from schemes that look to environmental comfort to ones concerned with issues of symbolism and memory. It is out of this multiplicity of approaches that the general global lesson of Critical Regionalism as applied to tropical architecture is to be found. THE PRINCE CLAUS FUND stimulates and supports activities in the field of culture and development by granting awards, funding and producing publications and by financing and promoting networks and innovative cultural activities. Support is given both to persons and to organizations in African, Asian, Latin American and Caribbearn countries.

Understanding Sustainable Architecture - Helen Bennetts 2003-09-02

Understanding Sustainable Architecture is a review of the assumptions, beliefs, goals and bodies of knowledge that underlie the endeavour to design (more) sustainable buildings and other built developments. Much of the available advice and rhetoric about sustainable architecture begins from positions where important ethical, cultural and conceptual issues are simply assumed. If sustainable architecture is to be a truly meaningful pursuit then it must be grounded in a coherent theoretical framework. This book sets out to provide that framework. Through a series of self-reflective questions for designers, the authors argue the ultimate importance of reasoned argument in ecological, social and built contexts, including clarity in the problem framing and linking this framing to demonstrably effective actions. Sustainable architecture, then, is seen as a revised conceptualisation of architecture in response to a myriad of contemporary concerns about the effects of human activity. The aim of this book is to be transformative by promoting understanding and discussion of commonly ignored assumptions behind the search for a more environmentally sustainable approach to development. It is argued that design decisions must be based on both an ethical position and a coherent understanding of the objectives and systems involved. The actions of individual designers and appropriate broader policy settings both follow from this understanding.

Medieval Calligraphy - Marc Drogin 1989-11-01

Spirited history and comprehensive instruction manual covers 13 styles (ca. 4th-15th centuries). Excellent photographs; directions for duplicating medieval techniques with modern tools. "Vastly rewarding and illuminating." — American Artist.

Tropical Sustainable Architecture - Joe Hwa Bay 2007-03-14

The tropical belt - where large areas of South East Asia, India, Africa and parts of both North and South America are located - forms the biggest landmass in the world and has one of the highest numbers of rapidly developing cities. Coincidentally, architecture in these regions shares common problems, the most easily identifiable being the tropical conditions of climate and natural environment. The context for architecture here is fraught with conflicts between tradition and modernization, massive influx of rural poor into urban areas, poorly managed rapid urban development as well as the cultural and social strain of globalization. Many local and overseas architects, planners and city fathers are interested in the social and environmental dimensions of these areas that contribute towards short terms solutions and long term sustainable developments. This book, developed from the first conference of the International Network for Tropical Architecture, supplies a wealth of information from experts worldwide covering the cultural, environmental and technical aspects of thinking, researching and designing for the tropics.

The Principles of Green Urbanism - Steffen Lehmann 2010

How cities and infrastructure are designed, built and operated has a significant impact on the environment. This book shows how we can transform and future-proof the post-industrial city through strategies of architectural and urban design. The answer is to use an energy-efficient, zero-carbon model based on renewable energy sources and renewable building typologies. This book presents new models for sustainable urban growth, based on the principles of Green Urbanism. Current and emergent forms of urbanism are influenced by climate change, leading to the idea of a new generation of zero-emission cities'.

These cities are seen as applying new concepts in densification and expansion, designed with energy efficiency and sustainability as principal criteria. The aim of this type of 'Systems Thinking' is to connect and integrate sustainable design principles with a holistic idea for the future of our cities to generate future-proof strategies for the revitalization of the urban landscape. The first section of the book clearly explains these principles and how they can be employed, illustrated by clear diagrams for ease of comprehension. The principles as applied are then explored through in-depth case studies of the post-industrial Australian city of Newcastle, which is at an important juncture in its urban evolution. Strategies for Green Urbanism are presented that are both local and global in scope and relevance. This is essential reading for urban designers, architects, landscape architects and researchers/students in these disciplines around the world.

Architectural Lighting - M. David Egan 2002

This second edition contains a comprehensive and in-depth presentation of lighting fundamentals. The text continues to focus on both natural and artificial lighting and includes chapters on Design Tools and the Design Process. Case studies have also been added, providing helpful exercises for the engineering student. The addition of topics such as energy efficiency, computer programs, and urban design will also appeal to architectural students. The text will continue to be the single, comprehensive resource for illumination education.

An Engineer Imagines Peter Rice 2017-04-13

The long-awaited reissue of the autobiography of Peter Rice, one of the main structural engineers behind the Sydney Opera House, the Pompidou Centre, the Menil Collection and Lloyd's of London. 'I am an engineer. Often people will call me an 'architect engineer' as a compliment. It is meant to signify a quality of engineer who is more imaginative and design-orientated than a normal engineer... To call an engineer an 'architect engineer' because he comes up with unusual or original solutions is essentially to misunderstand the role of the engineer in society.' An Engineer Imagines is a rare look into the professional creativity and philosophy of Peter Rice, who was widely acclaimed as the greatest structural engineer of his generation. He was a man who, in Renzo Piano's words, could design structures 'like a pianist who can play with his eyes shut'. Working with many of the world's greatest architects on buildings that became icons of contemporary architecture, he brought a uniquely poetic feeling to his work. Joining Ove Arup & Partners in 1956, Rice had heard that 'it was a place where an oddball could fit in.' Taking on Arup's theory of Total Design to heart, Rice writes about the role of the engineer in society, and how he himself applied his creativity to various projects. He admits he became an engineer by accident, tentatively feeling his way through a career without a natural instinct. But as he takes you through each of his projects, one-by-one, you can trace his development from graduate to veteran. Written in clear and poetic language, Rice's autobiography is perfect for those who want to better understand postwar buildings, our concrete environment, or are budding students of engineering and architecture.

The Evolution of Design Philip Steadman 2008-06-03

This book tells the history of the many analogies that have been made between the evolution of organisms and the human production of artefacts, especially buildings. It examines the effects of these analogies on architectural and design theory and considers how recent biological thinking has relevance for design. Architects and designers have looked to biology for inspiration since the early 19th century. They have sought not just to imitate the forms of plants and animals, but to find methods in design analogous to the processes of growth and evolution in nature. This new revised edition of this classic work adds an extended Afterword covering recent developments such as the introduction of computer methods in design in the 1980s and '90s, which have made possible a new kind of 'biomorphic' architecture through 'genetic algorithms' and other programming techniques.

Architecture - Barnabas Calder 2021-07-01

A groundbreaking history of architecture told through the relationship between buildings and energy. The story of architecture is the story of humanity. The buildings we live in, from the humblest pre-historic huts to today's skyscrapers, reveal our priorities and ambitions, our family structures and power structures. And to an extent that hasn't been explored until now, architecture has been shaped in every era by our access to energy, from fire to farming to fossil fuels. In this ground-breaking history of world architecture, Barnabas

Calder takes us on a dazzling tour of some of the most astonishing buildings of the past fifteen thousand years, from Uruk, via Ancient Rome and Victorian Liverpool, to China's booming megacities. He reveals how every building - from the Parthenon to the Great Mosque of Damascus to a typical Georgian house - was influenced by the energy available to its architects, and why this matters. Today architecture consumes so much energy that 40% of the world's greenhouse gas emissions come from the construction and running of buildings. If we are to avoid catastrophic climate change then now, more than ever, we need beautiful but also intelligent buildings, and to retrofit - not demolish - those that remain. Both a celebration of human ingenuity and a passionate call for greater sustainability, this is a history of architecture for our times.

Sun, Wind, and Light: Architectural Design Strategies - Mark DeKay 2013-12-16

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.

Aesthetics of Sustainable Architecture - Sang Lee 2011

The purpose of this book is to reveal, explore and further the debate on the aesthetic potentials of sustainable architecture and its practice. This book opens a new area of scholarship and discourse in the design and production of sustainable architecture, one that is based in aesthetics. The chapters in this book have been compiled from architects and scholars working in diverse research and practice areas in North America, Europe, the Middle East and Asia. While they approach the subject matter from different angles, the chapters of the book help clarify the key principles behind environmental concerns and sustainability in architecture. At its very core, Aesthetics of Sustainable Architecture underlines the connection that exists between our approach to the environment and sustainability on one hand, and our approach to certain aesthetic propositions and practices on the other. With contributions by Nezar AlSayyad, Gabriel Arboleda, Vinayak Bharne, Keith Bothwell, John Brennan, David Briggs, Luca Finocciaro, Kenneth Frampton, Marie Antoinette Glaser, Anne Grete Hestnes, Glen Hill, Stefanie Holzheu, Louisa Hutton, Daniel Jauslin, Ralph L. Knowles, Kengo Kuma, Sang Lee, Giancarlo Mangone, Elisabetta Pero, Matthias Sauerbruch, Patrick Teuffel, Harad N. Røstvik, Matthew Skjonsberg and Minna Sunikka-Blank.

VERSUS: Heritage for Tomorrow - Correia, Mariana 2014

Vernacular architecture represents a great resource that has considerable potential to define principles for sustainable design and contemporary architecture. This publication is the result of an overall aim to produce a valuable tool for analysis regarding vernacular heritage through different assessments, in order to define principles to consider for sustainable development. This was possible through a comprehensive reflection on the principles established and the strategies to recognise in different world contexts. The present publication was the result of an in-depth approach by 46 authors from 12 countries, concerned with the analysis and critical assessment of vernacular heritage and its sustainable perspective. The book presents 8 chapters addressing operational definitions and synopses advances, regarding the main areas of vernacular heritage contribution to sustainable architecture. It also presents 15 chapters and 53 case studies of vernacular and contemporary approaches in all the 5 continents, regarding urban, architectural, technical and constructive strategies and solutions. VERSUS, HERITAGE FOR TOMORROW: Vernacular Knowledge for Sustainable Architecture is the result of a common effort undertaken by the partners ESG | Escola Superior Gallaecia, Portugal, as Project leader; CRATERRE | École Nationale Supérieure d'Architecture de Grenoble, France; DIDA | Università degli Studi di Firenze, Italy; DICAAR | Università degli Studi di Cagliari, Italy; and UPV | Universitat Politècnica de València, Spain. This is the final outcome of VerSus, an European project developed from 2012 to 2014, in the framework of the Culture 2007-2013 programme.

Designing Software Architectures - Humberto Cervantes 2016-04-29

Designing Software Architectures will teach you how to design any software architecture in a systematic, predictable, repeatable, and cost-effective way. This book introduces a practical methodology for architecture design that any professional software engineer can use, provides structured methods

supported by reusable chunks of design knowledge, and includes rich case studies that demonstrate how to use the methods. Using realistic examples, you'll master the powerful new version of the proven Attribute-Driven Design (ADD) 3.0 method and will learn how to use it to address key drivers, including quality attributes, such as modifiability, usability, and availability, along with functional requirements and architectural concerns. Drawing on their extensive experience, Humberto Cervantes and Rick Kazman guide you through crafting practical designs that support the full software life cycle, from requirements to maintenance and evolution. You'll learn how to successfully integrate design in your organizational context, and how to design systems that will be built with agile methods. Comprehensive coverage includes Understanding what architecture design involves, and where it fits in the full software development life cycle Mastering core design concepts, principles, and processes Understanding how to perform the steps of the ADD method Scaling design and analysis up or down, including design for pre-sale processes or lightweight architecture reviews Recognizing and optimizing critical relationships between analysis and design Utilizing proven, reusable design primitives and adapting them to specific problems and contexts Solving design problems in new domains, such as cloud, mobile, or big data

Climate Adaptability of Buildings - Mitja Košir 2019-04-27

This book examines bioclimatic design with a focus on the application of climate adaptability in the design of future buildings and renovation of existing energy-efficient buildings. It addresses the challenge of how to construct and renovate buildings so that they maintain desired performance even as the climate changes in future decades. The book is divided into six chapters that guide the reader from basic concepts to discussions on specific aspects of bioclimatic design, including: Why do we construct buildings and why do they matter? Where should we get started with bioclimatic design? The opportunities and potential held by climate for the by bioclimatic architecture and design. How and why should we design bioclimatic buildings to accommodate future climatic conditions? Climatic changes and implications for the bioclimatic design of buildings. The author presents an overview of effective bioclimatic design strategies that enable climate-adaptable buildings. He also addresses the problems of designing with climate, which are relevant for all types of building design—in particular, the implications for bioclimatic buildings that are intrinsically connected to the climate they were adapted to. The book combines representative examples, diagrams, and illustrations, and concludes each chapter by reviewing the most important findings and concepts discussed. The book offers a valuable source of information for researchers and architectural engineers, who will gain essential insights into the process of using the available tools and data to design buildings that can respond to future climate challenges, as well as a general introduction into the field of bioclimatic building design. The book will also be of interest to graduate students and architects, as it approaches bioclimatic design with a particular focus on the analytical design process for such buildings.

Introduction to Architectural Science - Steven V. Szokolay 2014-04-11

Now in its third edition, this book provides the ideal and only reference to the physical basis of architectural design. Fully updated and expanded throughout, the book provides the data required for architects to design buildings that will maintain the users comfort in a variety of conditions, with minimal reliance on energy intensive methods like air conditioning. This is not a 'how to' book but answers the question why. It equips the reader with the tools to realize the full potential of the good intentions of sustainable, bioclimatic design. All sections have been revised and updated for this third edition including all the most relevant developments affecting heat, light and sound controls. The book responds to the need of understanding beyond 'rules of thumb'.

House Form and Culture - Amos Rapoport 1969

Climate and the need for shelter - Socio-cultural factors - Construction materials - Yurts - Indian tepee - Mud-vault roof - Japanese houses - Folk art.

Biomimicry in Architecture - Michael Pawlyn 2019-08-12

When searching for genuinely sustainable building design and technology - designs that go beyond conventional sustainability to be truly restorative - we often find that nature got there first. Over 3.5 billion years of natural history have evolved innumerable examples of forms, systems, and processes that can be applied to modern green design. For architects, urban designers and product designers, this new edition of Biomimicry in Architecture looks to the natural world to achieve radical increases in resource efficiency.

Packed with case studies predicting future trends, this edition also contains updated and expanded chapters on structures, materials, waste, water, thermal control and energy, as well as an all-new chapter on light. An amazing sourcebook of extraordinary design solutions, Biomimicry in Architecture is a must-read for anyone preparing for the challenges of building a sustainable and restorative future.

Sun, Wind & Light - G. Z. Brown 2000-11-07

Architecture/Environment How to design buildings that heat with the sun, cool with the wind, light with the sky, and move into the future using on-site renewable resources Developed for rapid use during schematic design, this book clarifies relationships between form and energy and gives designers tools for designing sustainably. It also: * Applies the latest passive energy and lighting design research * Organizes information by architectural elements at three scales: * building groups, individual buildings, and building parts * Brings design strategies to life with examples and practical design tools * Features: * 109 analysis techniques and design strategies * More than 750 illustrations, sizing graphs, and tables * Both inch-pound and metric units

Modern Architectural Theory - Harry Francis Mallgrave 2009-07-13

Modern Architectural Theory is the first book to provide a comprehensive survey of architectural theory, primarily in Europe and the United States, during three centuries of development. In this synthetic overview, Harry Mallgrave examines architectural discourse within its social and political context. He explores the philosophical and conceptual evolution of its ideas, discusses the relation of theory to the practice of building, and, most importantly, considers the words of the architects themselves, as they contentiously shaped Western architecture. He also examines the compelling currents of French rationalist and British empiricist thought, radical reformation of the theory during the Enlightenment, the intellectual ambitions and historicist debates of the nineteenth century, and the distinctive varieties of modern theory in the twentieth century up to the profound social upheaval of the 1960s. Modern Architectural Theory challenges many assumptions about architectural modernism and uncovers many new dimensions of the debates about modernism.

Sustainable Building Design for Tropical Climates - Federico Butera 2014

The Selective Environment - Dean Hawkes 2013-10-08

The complex art of architecture embraces all of the concerns of the world's cultures. It meets the fundamental needs for shelter from the elements, but, almost from its origins, has acquired other purposes and meanings. The Selective Environment is an approach to environmentally responsive architectural design that seeks to make connections between the technical preoccupations of architectural science, and the necessity, never more urgent than today, to sustain cultural identity at a time of rapid global, technological change.

Sustainable Building Design - Chitrarekha Kabre 2017-10-10

This book bridges the gap between research and practice in the area of sustainable design of buildings, exploring the passive (climate-responsive) design and thermal behavior of buildings and ways to incorporate these enhancements in architectural and civil engineering practice. It presents climatic data and its analysis in a readily usable form and shows ways in which such data can be used to achieve passive (climate-responsive) and sustainable building design. The book presents case studies of sustainable building in each of five climatic zones of India. The book includes climatic data from 62 cities in India and describes how it can be synthesized in sustainable building design. The book can serve as a practical tool or handbook for architects, engineers, and designers, providing them with an understanding of the physical phenomena involved and a means for suitably implementing and applying passive (climate-responsive) design principles. It also offers a valuable resource for researchers, students, and policymakers working in the area of sustainable building design and construction.

Design with Climate Victor Olgay 2015-09-01

Architects today incorporate principles of sustainable design as a matter of necessity. But the challenge of unifying climate control and building functionality, of securing a managed environment within a natural setting—and combating the harsh forces of wind, water, and sun—presented a new set of obstacles to architects and engineers in the mid-twentieth century. First published in 1963, Design with Climate was

one of the most pioneering books in the field and remains an important reference for practitioners, teachers, and students, over fifty years later. In this book, Victor Olgyay explores the impact of climate on shelter design, identifying four distinct climatic regions and explaining the effect of each on orientation, air movement, site, and materials. He derives principles from biology, engineering, meteorology, and physics, and demonstrates how an analytical approach to climate management can merge into a harmonious and aesthetically sound design concept. This updated edition contains four new essays that provide unique insights on issues of climate design, showing how Olgyay's concepts work in contemporary practice. Ken Yeang, John Reynolds, Victor W. Olgyay, and Donlyn Lyndon explore bioclimatic design, eco design, and rational regionalism, while paying homage to Olgyay's impressive groundwork and contributions to the field of architecture.

Time-saver Standards for Architectural Design Data - John Hancock Callender 1974

High Performance Building Guidelines - Andrea Woodner 1999-04-01

High performance buildings maximize operational energy savings; improve comfort, health, & safety of occupants & visitors; & limit detrimental effects on the environment. These Guidelines provide instruction in the new methodologies that form the underpinnings of high performance buildings. They further indicate how these practices may be accommodated within existing frameworks of capital project administration & facility management. Chapters: city process; design process; site design & planning; building energy use; indoor environment; material & product selection; water mgmt.; construction admin.; commissioning; & operations & maintenance.

Mechanical and Electrical Equipment for Buildings - William J. McGuinness 1980

Tremaine Houses - Volker M. Welter 2019-11-19

This volume analyzes the extraordinary patronage of modern architecture that the Tremaine family sustained for nearly four decades in the mid-twentieth century. From the late 1930s to the early 1970s, two brothers, Burton G. Tremaine and Warren D. Tremaine, and their respective wives, Emily Hall Tremaine and Katharine Williams Tremaine, commissioned approximately thirty architecture and design projects. Richard Neutra and Oscar Niemeyer designed the best-known Tremaine houses; Philip Johnson and Frank Lloyd Wright also created designs and buildings for the family that achieved iconic status in the modern movement. Focusing on the Tremaines' houses and other projects, such as a visitor center at the meteor crater in Arizona, this volume explores the Tremaines' architectural patronage in terms of the family's motivations and values, exposing patterns in what may appear as an eclectic collection of modern architecture. Architectural historian Volker M. Welter argues that the Tremaines' patronage was not driven by any single factor; rather, it stemmed from a network of motives comprising the clients' practical requirements, their private and public lives, and their ideas about architecture and art.

Handbook of Green Building Design and Construction - Sam Kubba 2016-10-15

Handbook of Green Building Design and Construction: LEED, BREEAM, and Green Globes, Second Edition directly addresses the needs of building professionals interested in the evolving principles, strategies, and concepts of green/sustainable design. Written in an easy to understand style, the book is updated to reflect new standards to LEED. In addition, readers will find sections that cover the new standards to BREEAM that involve new construction Infrastructure, data centers, warehouses, and existing buildings. Provides vital information and penetrating insights into three of the top Green Building Codes and Standards applied Internationally Includes the latest updates for complying with LEED v4 Practices and BREEAM Presents case studies that draws on over 35 years of personal experience from across the world

Man, Climate and Architecture - Baruch Givoni 1976

Urban Energy Transition - Peter Droege 2018-09-07

Urban Energy Transition, second edition is the definitive science and practice-based compendium of energy transformations in the global urban system. This volume is a timely and rich resource as citizens, companies and their communities, from remote villages to megacities and metropolitan regions, rapidly move away from fossil fuel and nuclear power, to renewable energy as civic infrastructure investment,

source of revenue and prosperity, and existential resilience strategy. Covers technical, financial, systems, urban planning and design, landscape, mapping and modelling, and sociological issues related to urban renewable energy transformations Features foci on societal, community and user enabling aspects such as energy justice, prosperity and democracy, and urban renewable energy legislation, programs and incentives Contains innovations in both individual and mass transport systems in a context of urban mobility trends and related energy innovations Examines city-wide solar strategies and urban thermal performance planning, sector coupling systems, and opportunities of smart distributed renewable energy and storage systems Includes analytic case insights into successful practices from around the globe that provide local, regional and country-specific governance and organizational perspectives Presents successful practical innovations in solar bond finance, blockchain technology enabled peer-to-peer renewable energy trading systems, and the case for regional monetary systems and sustainable lifestyles.

The Work of Architects Olgyay & Olgyay - Aladar Olgyay 1952

Climates - James Graham 2016-07

This book is a collection of essays at the intersection of architecture and climate change. Neither a collective lament nor an inventory of architectural responses, the essays consider cultural values ascribed to climate and ask how climate reflects our conception of what architecture is and does. Which materials and conceptual infrastructures render climate legible, knowable, and actionable, and what are their spatial implications? How do these interrelated questions offer new vantage points on the architectural ramifications of climate change at the interface of resiliency, sustainability, and ecotechnology? *Climates* also contains a dossier of precedents for thinking about architecture and climate change drawn from a number of leading practitioners. New approaches to understanding climate in architecture make this book invaluable. This publication is a project by The Avery Review, a journal produced by the Office of Publications at Columbia University's Graduate School of Architecture, Planning and Preservation."

Daylighting - Derek Phillips 2012-05-23

Daylighting offers a general theory and introduction to the use of natural light in architecture. The fourth of Derek Phillip's lighting books draws on his experience to illustrate how best to bring natural light into building design. As sustainability becomes a core principal for designers, daylighting comes to the fore as an alternative to artificial, energy consuming, light. Here, Phillips makes a rational argument for considering daylight first, outlining the arguments in favour of a daylight approach, and goes on to show, through a series of beautifully illustrated case studies, how architects have created buildings in which natural light has been shown to play a major strategic role in the development of the design of a building.

Building-Integrated Photovoltaic Designs for Commercial and Institutional Structures: A Sourcebook - Architects

Computer Systems - Ata Elahi 2017-11-08

This textbook covers digital design, fundamentals of computer architecture, and assembly language. The book starts by introducing basic number systems, character coding, basic knowledge in digital design, and components of a computer. The book goes on to discuss information representation in computing; Boolean algebra and logic gates; sequential logic; input/output; and CPU performance. The author also covers ARM architecture, ARM instructions and ARM assembly language which is used in a variety of devices such as cell phones, digital TV, automobiles, routers, and switches. The book contains a set of laboratory experiments related to digital design using Logisim software; in addition, each chapter features objectives, summaries, key terms, review questions and problems. The book is targeted to students majoring Computer Science, Information System and IT and follows the ACM/IEEE 2013 guidelines. • Comprehensive textbook covering digital design, computer architecture, and ARM architecture and assembly • Covers basic number system and coding, basic knowledge in digital design, and components of a computer • Features laboratory exercises in addition to objectives, summaries, key terms, review questions, and problems in each chapter

Sustainable Vernacular Architecture - Ali Sayigh 2019-03-29

This book discusses applying vernacular strategies to modern architectural design to adhere to basic green principles of energy efficiency and materials utilization. Written from an international perspective, chapters

present the perspectives and experiences of architects and engineers from across the globe. Historically successful approaches are integrated with modern design concepts to create novel, sustainable, and resource conscious solutions. The scope of topics covered include natural ventilation, cooling and heating, daylight and shading devices, and green micro-climate and functional facades, making this a useful reference for a wide range of researchers and workers in the built environment. Covers the most up-to-date research developments, best practices, and innovations from countries all over the globe; Presents the latest research in vernacular architecture and sustainable building; Contains case studies and examples to enhance practical application of the technologies presented.

Synergistic Design of Sustainable Built Environments - Chitrarekha Kabre 2020-11-09

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

Modern Architecture and Climate - Daniel A. Barber 2020-07-07

How climate influenced the design strategies of modernist architects Modern Architecture and Climate

explores how leading architects of the twentieth century incorporated climate-mediating strategies into their designs, and shows how regional approaches to climate adaptability were essential to the development of modern architecture. Focusing on the period surrounding World War II—before fossil-fuel powered air-conditioning became widely available—Daniel Barber brings to light a vibrant and dynamic architectural discussion involving design, materials, and shading systems as means of interior climate control. He looks at projects by well-known architects such as Richard Neutra, Le Corbusier, Lúcio Costa, Mies van der Rohe, and Skidmore, Owings, and Merrill, and the work of climate-focused architects such as MMM Roberto, Olgyay and Olgyay, and Cliff May. Drawing on the editorial projects of James Marston Fitch, Elizabeth Gordon, and others, he demonstrates how images and diagrams produced by architects helped conceptualize climate knowledge, alongside the work of meteorologists, physicists, engineers, and social scientists. Barber describes how this novel type of environmental media catalyzed new ways of thinking about climate and architectural design. Extensively illustrated with archival material, *Modern Architecture and Climate* provides global perspectives on modern architecture and its evolving relationship with a changing climate, showcasing designs from Latin America, Europe, the United States, the Middle East, and Africa. This timely and important book reconciles the cultural dynamism of architecture with the material realities of ever-increasing carbon emissions from the mechanical cooling systems of buildings, and offers a historical foundation for today's zero-carbon design.

The Elements of Architecture Scott Drake 2014-02-04

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