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This book explores the intersection of craft, design and sustainability in the developing world. It argues that most sustainable design approaches and efforts fall short of implementing holistic sustainability, and in order to reach this goal, design must be underpinned by alternatives to the mainstream, technology-intensive, industrial design paradigm. Renewable materials such as bamboo, cork and hemp - which are abundantly available in the developing world - have the potential to be a viable resource base for sustainable development. Current sustainable design initiatives and approaches already recon-

textualize these materials using industrial techniques and technologies. However, these efforts fall short of impacting holistic sustainability and tend to focus on the ecological aspect. This book offers the development of one alternative to design for holistic sustainability, called the Rhizome Approach, which draws on existing sustainability praxis and craft. Holistic Sustainability Through Craft-Design Collaboration includes customizable tools which aim to empower designers to guide and evaluate their own designs. Through these tools, and the Rhizome Approach in general, the book aims to enable designers, and students of design, to move beyond green and sustain-

able design, to holistic sustainability design.

This book consists of peer-reviewed papers, presented at the International Conference on Sustainable Design and Manufacturing (SDM 2021). Leading-edge research into sustainable design and manufacturing aims to enable the manufacturing industry to grow by adopting more advanced technologies and at the same time improve its sustainability by reducing its environmental impact. Relevant themes and topics include sustainable design, innovation and services; sustainable manufacturing processes and technology; sustainable manufacturing systems and enterprises; and decision support for sustainability. Applica-

tion areas are wide and varied. The book will provide an excellent overview of the latest developments in the sustainable design and manufacturing area.

Sustainable building also known as "green" or sustainable design of high-performance architecture, economics, human and social welfare, as well as to reduce the impact on the environment. By learning from the vernacular building all around the world, it is very easy to find that building was benefited from use local materials, suitable vernacular construction technique and unique adapting form. Most of them were the best and easy way for building to adapt to the environment, being efficiency and living sustainable. Bamboo as a very successful sustainable material and have been existence for hundreds of years but still not very popular being a main material in the modern world. A lot of research showing that this kind of building material and structure still been very successful in a specific local area and they also have the chance to become a new type of building form in modern cities. By learning from the bamboo structures in a spe-

cific area, such as China and South America. We can find out more possibilities for bamboo structure. Explains how to use this beautiful, versatile, and sustainable material to create an array of items for the home or garden, offering detailed how-to instructions for more than thirty eco-friendly projects that include a trellis for climbing plants, a porch swing, an outdoor shower stall, and a curved garden handrail. Original.

This book of conference proceedings contains papers presented at the Art and Design International Conference (AnDIC 2016). It examines the impact of Cyberology, also known as Internet Science, on the world of art and design. It looks at how the rapid growth of Cyberology and the creation of various applications and devices have influenced human relationships. The book discusses the impact of Cyberology on the behaviour, attitudes and perceptions of users, including the way they work and communicate. With a strong focus on how the Cyberology world influences and changes the methods and works of artists, this book features topics that are relevant to four key players - artists,

intermediaries, policy makers, and the audience - in a cultural system, especially in the world of art and design. It examines the development, problems and issues of traditional cultural values, identity and new trends in contemporary art. Most importantly, the book attempts to discuss the past, present and future of art and design whilst looking at some underlying issues that need to be addressed collectively.

Written by an educator with close to 40 years of experience in developing and teaching design and manufacturing courses at the graduate and undergraduate levels, Green Design and Manufacturing for Sustainability integrates green design and manufacturing within the framework of sustainability, emphasizing cost, recyclables, and reuse. It includes th

Written for students and practitioners in the fields of architecture and interior design, our new Architecture Brief Sustainable Design provides a concise overview of all the techniques available for reducing the energy footprint of structures and spaces. With clear, simple language and a practical "can-do" approach, author David Bergman covers ev-

everything from the profession's ethical responsibility, to design structures and spaces that sustain our natural resources, to specific considerations such as rainwater harvesting, graywater recycling, passive heating techniques, solar orientation, green roofs, wind energy, daylighting, indoor air quality, material evaluation and specification, and how to work with green building certification programs.

Traditionally a building material of hot climate zones in Asia and Latin America, bamboo is increasingly discovered by architects of the Northern hemisphere as well. It is lightweight, highly elastic and ductile, and in addition offers qualities especially in demand in an era of limited resources, renewability and abundant availability. Architects and engineers have significantly widened the applications of bamboo in recent years and today even wide-span bridges can be built from it. Impressed with its technical and aesthetic possibilities, European, Japanese and North American architects have adopted bamboo for a variety of construction tasks, ranging from exclusive private residences to experimental pavilions, and

from airy canopies to schools or museums. The book provides a detailed manual for bamboo constructions and presents a broad selection of built examples, among them the spectacular bamboo pavilions of the 2010 Shanghai World Exposition, a parking garage in Leipzig, Germany, the Nomadic Museum in Mexico City and Richard Rogers' Terminal 4 at Madrid Airport.

Fast-growing and local to some of the poorest communities in the tropics and subtropics, bamboo holds huge potential for climate change mitigation, innovative construction and job creation, but the material is rarely used for more than simple construction and household use. Modern Engineered Bamboo Structures collects the papers presented at the third International Conference on Modern Bamboo Structures (ICBS2018, Beijing, China, 25-27 June 2018). The overarching theme of the book is 'Enhancing Cooperation for Green Development through Bamboo's Contribution to the Sustainable Development Goals'. The contributions focus on how to realize bamboo's huge potential in a number of areas: sustainable commodity pro-

duction, disaster-resilient construction, poverty alleviation, climate change mitigation and adaptation, land restoration and biodiversity protection. Modern Engineered Bamboo Structures recognizes bamboo's various benefits, and aims at ministers, policymakers and representatives from research institutes, development organizations, NGOs or UN bodies and the private sector.

'Booming Bamboo' provides a comprehensive overview of the enormous potential of this sustainable resource. Not only for architecture and design but also for a multitude of other applications. After covering the "bamboo basics" (growth, properties, cultural history, industrialisation), the first part of the book introduces the many benefits of bamboo as a fast-growing, renewable resource. The second part presents the various ways in which bamboo can be transformed into many different exciting materials and fabrics.

Indoor residential environments have a direct influence on human health, both in developed and developing countries. Significant levels of indoor pollution can make housing unsafe and can negatively impact on human health.

Housing, therefore, is a key health factor for people all over the world, and various parameters such as air quality, ventilation, hygrothermal comfort, lighting, physical environment, building efficiency, and others can contribute to healthy architecture and the conditions that can result from the poor application of these parameters. Health and Well-Being Considerations in the Design of Indoor Environments addresses issues concerning indoor environmental quality (IEQ), including air quality and ventilation, access to daylight and views, acoustic conditions, and control over lighting and thermal comfort, as well as the impact that this environment can have on human health and mental well-being. The book also investigates the functional aspects of interior design such as whether the layout provides easy access to tools and sufficient space for occupants. It also considers energy demand and building energy losses due to such issues as air renovations and enclosure infiltrations. Covering topics such as sustainable design, pollution, building materials, and lighting, this book is an effective resource for students, professors, aca-

demicians, researchers, architects, designers, planners, engineers, interior designers, building managers, construction companies, and other industry professionals looking to increase building occupant satisfaction by considering all aspects of IEQ.

Nowadays the construction business, more so than other industries, is responsible most of the environmental issues that our society encounters. Given the increasing concern our impact on the environment, the need for new sustainable materials is growing rapidly. Bamboo is a very promising green material with remarkable properties. It has been used as a structural material for centuries in China and in South America. However, it has not yet penetrated the European or the American construction market. Bamboo's exceptional strength and light weight renders it a sustainable alternative to other materials. The objective of this work is to use the results provided by recent studies of bamboo in order to generate a design of a low cost bridge made out of this material. The structure is designed for exclusive pedestrian usage. This affordable suspended footbridge could be used in developing

countries or in emergency situations.

Book & CD-ROM. An active real estate market has turned interior design into a boom industry in recent years. Interior designers owning their own firms have a median income of \$75,000. Tens of thousands of homes are for sale in the United States today, and many need the help of an interior designer to be sold. Interior designers create the spaces where we work, play, and live every day. Whether it is a private residence, corporate office, retail store, or a zany restaurant, interior designers use their creativity, as well as their knowledge of colour principles, architecture, and design, to make it work and look amazing. As a result, they are well compensated for the work. This guide provides readers with an understanding of the basic concepts of starting their own interior design business. This book is a comprehensive and detailed study of the business side of interior design. You will learn everything from the initial start-up decisions to working with clients. If you are investigating opportunities in this type of business, you should begin by reading this book. You can

build a highly successful business using your talent and understanding of colour and architectural features, while providing a much needed service to home owners. If you enjoy working with people and have that creative knack, this may be the perfect business for you. Keep in mind that this business looks easy but, as with any business, looks can be deceiving. This complete manual will arm you with everything you need, including sample business forms; contracts; worksheets and checklists for planning, opening, and running day-to-day operations; setting up your office; and dozens of other valuable, timesaving tools of the trade that no business should be without. While providing detailed instruction and examples, the author leads you through every detail that will bring success. You will learn how to draw up a winning business plan (the companion CD-ROM has the actual business plan you can use in Microsoft Word® and about choosing a name; getting Started; the who, what, when, why, and how of interior design; equipment; selling your other services to your present customers; home staging and interior rede-

sign; how to build a portfolio; how to get your first clients; how to attract and bid on new jobs; contracts and billing procedures; advertising; insurance; legal matters; basic cost control systems; market research; getting new clients; tax laws; zoning laws; pricing; leads; sales and marketing techniques; and pricing formulas. You will learn how to set up computer systems to save time and money, how to hire and keep a qualified professional staff if necessary, how to meet IRS requirements, how to manage and train employees, how to generate high profile public relations and publicity, and how to implement low cost internal marketing ideas. You will learn how to build your business by using low and no cost ways to satisfy customers, as well as increase sales and have customers refer others to you. You will learn the basics of accounting and bookkeeping procedures, auditing, successful budgeting, and profit planning development, as well as thousands of great tips and useful guidelines. This manual delivers innovative ways to streamline your business. Learn new ways to make your operation run smoother and in-

crease performance. Successful entrepreneurs will appreciate this valuable resource and reference it in their daily activities as a source of ready-to-use forms, Web sites, operating and cost cutting ideas, and mathematical formulas that can easily be applied to their operations. The companion CD-ROM contains all the forms found in the book, as well as a sample business plan you can adapt for your own use.

This highly illustrated text brings together two areas which have both grown in popularity in recent years: gridshells and bamboo. Bamboo is a fast-growing, naturally available, renewable resource which is quite strong and lends itself to structural applications. In this unique text, David Rockwood demonstrates the viability of bamboo as a building material and considers the advantages - as well as the challenges - of working with bamboo. Its properties, workability, connections, assembly, erection processes, structural behavior, and final use are explored in detail through a series of design-build experiments and case studies from Hawai'i and Vietnam. The only book available on the subject, *Bamboo Gridshells* pro-

vides a comprehensive introduction to this emerging technology which will be of interest to anyone working in the areas of sustainable or environmental design, ecological construction, low technology strategies, or alternative materials.

Fascinating bamboo buildings and architectural designs from around the world from the International Bamboo Building Design Competition, the 2010 Shanghai World Expo and several other competitions and exhibitions. Architects and designers from 64 countries submitted 250 designs in 12 building categories such as family houses, urban buildings, emergency shelters, commercial and public buildings, pavilions, and even tree houses. The buildings and designs use bamboo and other natural building materials, and range from modest to majestic, commercial to humanitarian, and practical to fanciful. The results are truly exciting and innovative, providing a fresh outlook for the possibilities for using bamboo to build a new green world. At the 2010 Shanghai World Expo, great architects showcased bamboo in eight remarkable pavilions, demonstrating the contribution bamboo can play in a

better life.

At last, there's an authoritative guide to help interior designers apply green-building and sustainability applications to their environments. *Sustainable Interior Design* expertly introduces the principles of environmentally responsible design for interior environments. This useful reference provides beginning designers and experienced professionals alike with a comprehensive survey that covers everything from theoretical approaches to current practices. It helps designers understand the environmentally responsible approach and make design decisions that are ethical and do not harm the world's environment.

This book offers a comprehensive overview of the use of bamboo in building industry. It systematically demonstrates bamboo's utility in terms of its properties, describing the material properties of typical industrial bamboo products, and discussing their performance evaluation and optimization as building components and in the creation of building envelopes. The book also includes examples of the high-value utilization of bamboo forest resources. Further, it examines how

building performance may be affected by conditions such as climate. Including insights from material science, construction design, building physics and building climatology, the book also provides data obtained from technology and market status investigation, laboratory test and the computer simulation. This book appeals to scientists and professionals, as it introduces and tests various bamboo products, demonstrating the advantages and disadvantages for each one. The book is also a valuable resource for civil engineers and students interested in this unique plant material and its application in the building industry.

How do we design in a climate emergency? A new social and ecological prerogative demands appropriate material choices, a re-invention of construction and evolving building programmes that look at lifecycle, embodied energy and energy use. Highly illustrated with practical information and simple explanations for design ideas, this book is the perfect introduction to sustainable design for architecture students. It presents key concepts in relation to the embodied energy of construction, mate-

rial properties and environmental performance of buildings in an accessible way. In explaining the principles and technologies by which we heat, cool, moderate and mitigate, it demystifies environmental design as a technical exercise and enables students to create sustainable buildings with impact. Keep this sourcebook with you. Features: Amphibious House (Baca Architects), Ashen Cabin (HANNAH), Bunhill 2 Energy Centre (Ramboll, Cullinan Studio, McGurk Architects and Colloide), Cork House (Matthew Barnett Howland, Oliver Wilton and Dido Milne), Dymaxion House (Richard Buckminster Fuller), Eastgate Centre (Mick Pearce), Neuron Pod (Will Alsop - aLL Design and AKT II), Quik House (Adam Kalkin) and Tension Pavilion (StructureMode and Weber Industries). Covers: Acoustics, bamboo construction, biopolymer, bioremediation, CLT, climatic envelope, computational fluid dynamics, earthen architecture, fabric formwork, hempcrete, insulation, mycelium bio-fabrication, paper construction, passive solar heating, pneumatic structures, solar geometry, tensegrity structures, thermal mass and more. This volume represents

the proceedings of the 2013 International Conference on Innovation, Communication and Engineering (ICICE 2013). This conference was organized by the China University of Petroleum (Huadong/East China) and the Taiwanese Institute of Knowledge Innovation, and was held in Qingdao, Shandong, P.R. China, October 26 - November 1, 2013. The conference received 653 submitted papers from 10 countries, of which 214 papers were selected by the committees to be presented at ICICE 2013. The conference provided a unified communication platform for researchers in a wide range of fields from information technology, communication science, and applied mathematics, to computer science, advanced material science, design and engineering. This volume enables interdisciplinary collaboration between science and engineering technologists in academia and industry as well as networking internationally. Consists of a book of abstracts (260 pp.) and a USB flash card with full papers (912 pp.). This book is a guide to a sustainable design process that moves from theory, to site and energy use, to building systems, and finally to evaluation

and case studies, so you can integrate design and technology for effective sustainable building. Kupaswamy Iyengar shows you how to get it right the first time, use free energy systems, and utilise technologies that minimize fossil fuel use. Each chapter has a sustainable design overview, technical details and strategies marked by clear sections, a summary, and further resources. Heavily illustrated with charts, tables, drawings, photographs, and case studies, the book shows technologies and concepts integrated into cohesive project types, from small and large office spaces to single and multiuse residences, hospitals, schools, restaurants, and warehouses to demonstrate implementing your designs to meet clients' needs now and for the future. Includes an overview of alternate assessment and evaluation systems such as BREEAM, CASBEE, GBTool, Green Globes alongside LEED, ECOTECT, energy 10, HEED and eQuest simulation programs. The guide reveals the importance of the building envelope—walls, superstructure, insulation, windows, floors, roofs, and building materials—on the environmental

impact of a building, and has a section on site systems examining site selection, landscape design, thermal impact, and building placement.

Bamboo isn't just for Asia anymore! Author Gale Goldberg shows us how to creatively bring bamboo home, teaching us how to live with it indoors and outdoors--even how to grow your own bamboo. Every room in your home can be decorated or accented with beautiful, sensual bamboo furniture, flooring, wall covering, ceiling material and accessories. Bamboo is highly versatile, requiring little care yet having a visual appeal that can change a mundane setting into an exotic oasis. The resource directory includes connections to designers, manufacturers, artists, suppliers and bamboo organizations. For do-it-yourselfers, the bamboo projects in this book--from a simple ladle to a more complex pergola for the garden--will inspire you to create other designs of your own.

“Green gold” or “Poor Man’s Timber” are commonly used terms for bamboo that is a valuable and renewable resource of the world, and has always been an elemental part of

human beings in terms of social and economic value. Bamboo is considered a multipurpose plant and has a prolonged history as an adaptable and extensively used renewable resource in conventional and commercial applications. Therefore, the annual demands for bamboos have already out-crossed the annual yields across the world. And the current scenario has forced scientists to pay more attention to the utilization of biotechnological tools for better understanding and improving bamboos. The book provides an overview of the different biotechnological approaches to advance bamboo research and better utilization of bamboo resources for human beings. Various applications of biological techniques in relation to bamboo have been discussed in details, for example, plant tissue culture techniques, somatic embryogenesis, germplasm conservation techniques, use of the molecular markers, transcriptomics, polymorphism, and phylogenetic relations in bamboo. It also addresses the novel industrial applications of bamboo in structural, food, and pharmaceuticals along with traditional uses. The aggregated information in this

book demonstrates the way for the improved and sustainable practice of bamboos to fulfill the future needs of the world. This book is intended for use in both the industry and academia

Please note that the content of this book primarily consists of articles available from Wikipedia or other free sources online. Pages: 174. Chapters: Axe historique, Bamboo, Frederick Law Olmsted, Arcology, Ecovillage, Eden Project, Parkway, Landscape ecology, Maharishi Sthapatya Veda, Urban sprawl, Italian Renaissance, History of gardening, Environmental impact assessment, Zero-energy building, Feng shui, Human impact on the environment, Sustainable design, Passive house, Italian Renaissance garden, Flying Star Feng Shui, Leadership in Energy and Environmental Design, Reusable shopping bag, Cradle to Cradle Design, Community gardening in the United States, The Blue Economy: Design Theory, Urban forest, Cultural landscape, Landscape planning, Noise mitigation, Urban forestry, Land art, Air source heat pumps, Superinsulation, Rubanisation, Stannon stone circle, PlusEnergy, Grade, Regenerative Design, Displace-

ment ventilation, Under-floor air distribution, Fernacre, Design to the Environment, Living Building Challenge, Radiant cooling, Burnham Plan, CEE-QUAL, Work of art, Tiang Seri, Tree lawn, CIRIA, Brown Willy Cairns, Space in landscape design, Collaborative for High Performance Schools, Children Youth and Environments Center, Novus International Headquarters, Genius loci, 2000-watt society, Passive cooling, Best management practice for water pollution, Leper Stone, Sociology of architecture, Jersey barrier, Sense of place, Sustainable urban infrastructure, Craddock Moor stone circle, Showery Tor, Garden designer, Ecodesign, Waterpod, In-situ conservation, Spirit of place, Power tower, Rural-urban fringe, Building Engineering Physics, Spatial network, The Pipers, New England Grassroots Environment Fund, Ecological design, EGM Green, ENBau, Earthpark, Deep energy retrofit, Village Building Convergence, Vermont Studio Center, Arts & Architecture, Conservation development, Teague, Roden Crater, Hu h i an, Vermont Land Trust, Tumbleweed Tiny House Company, ...

This book includes both theoretical conceptualiza-

tion and practical applications in the fields of product design, architecture, engineering, and materials. The book aimed to inspire scholars and professionals to look at nature as a source of inspiration for developing new project solutions. Moreover, being one of the literature's first direct associations of bionics with sustainability, the book can be used as a reference for those who seek to know more about the theory of bioinspired applications, as well as new technologies, methods, materials, and processes.

An accessible, climate-diverse guide that transforms readers from sustainable design novices to whole-solution problem solvers. Sustainable Design Basics is a student-friendly introduction to a holistic and integral view of sustainable design. Comprehensive in scope, this textbook presents basic technical information, sustainability strategies, and a practical, step-by-step approach for sustainable building projects. Clear and relatable chapters illustrate how to identify the factors that reduce energy use, solve specific sustainable design problems, develop holistic design solutions,

and address the social and cultural aspects of sustainable design. Requiring no prior knowledge of the subject, the text's easy-to-follow methodology leads readers through the fundamental sustainable design principles for the built environment. Sustainably-constructed and maintained buildings protect the health and improve the productivity of their occupants, as well as help to restore the global ecosystem. The authors, leading practitioners and educators in sustainable design, have created a resource that provides a solid introduction to broad level sustainability thinking that students can take forward into their professional practice. Topics include space planning for sustainable design, integrative and collaborative design, standards and rating systems, real-world strategies to conserve energy and resources through leveraging renewable natural resources and innovative construction techniques and their impact on our environment. Usable and useful both in and beyond the classroom, this book: Covers building location strategies, building envelopes and structures, integration of passive and active systems, green ma-

materials, and project presentation Examines cultural factors, social equity, ecological systems, and aesthetics Provides diverse student exercises that vary by climate, geography, setting, perspective, and typology Features a companion website containing videos for each sustainable strategy, matrices, templates, SketchUp and AutoCAD files, PowerPoint slides, and extensive instructor resources Sustainable Design Basics is an important resource aimed at undergraduate architecture and interior design students, or first-year graduate students, as well as design professionals wishing to integrate sustainable design knowledge and techniques into their practice.

The work of Vo Trong Nghia is a call for architecture to transform itself from a source of pollution to a reason for hope. The World Green Building Council estimates that thirty-nine percent of energy-related carbon emissions can be attributed to buildings. An awareness of architecture's responsibilities has permeated the profession and new ideas and solutions are coming from places where these issues are most acute. Following a long recovery

from decades of war, Vietnam has emerged as one of the most exciting centers of design in Asia--led largely by the work of architect Vo Trong Nghia, whose work has gained an international following. The buildings of Vo Trong Nghia Architects, established in Ho Chi Minh City in 2006, make clear reference to the past, and to Vo's own adherence to the Five Precepts of Buddhist teaching. The architect's two main themes---green architecture and bamboo as a building material--form the basis of this two-volume celebration of his work. From the Wind and Water Bar, his first foray into bamboo as a building material, to resort complexes, art installations, and his game-changing series of residences, House for Trees, Vo Trong Nghia: Building Nature proves that green architecture creates local relevance, beauty, and elegance in its own right.

The Second Edition of Sustainable Residential Interiors addresses cutting edge processes, strategies, and principles as well as details for in-depth product vetting criteria. Award-winning, leading interior designer Annette Stelmack shares her expertise from the perspective of LEED Building De-

sign & Construction projects, healthy interiors, and chemical sensitivities, addressing principles, strategies, and solutions for design practitioners. A comprehensive update of the current state of the sustainable interior design industry is provided, including present and upcoming industry transformations, thought-leading principles, strategies and practices for project implementation, and fine points and resources for in-depth product vetting to support high-performing, healthy interiors. Sustainable Residential Interiors takes readers through an integrated design process, demonstrating relevant principles and practices that apply to essentially any interiors project toward creating an environment that is healthy, high-performing, functional, sustainable, and beautiful. In doing so, it: Promotes critical thinking about health and environmental issues in the building industry Features checklists and current resources, providing a "hands on" practical approach Addresses in-depth, applicable third party certifications and details on relevant building rating systems Provides in-depth strategies and criteria for fixed interior finishes, fixtures, equipment

and furnishings Demonstrates successful, relevant, diverse and inspiring case studies Delivers comprehensive tools and resources for researching and vetting products' composition and chemical make-up. Evaluates all aspects of a building's interior to identify and implement methods that: save energy and water; reduce Co2 emissions and waste; improve indoor air quality free of toxins; and are responsive to environmental impacts Encourages forward-thinking by featuring inspirational statements from mentors, peers, and industry leaders Urges interior designers to commit to designing safe, healthy environments that are integral to a professional code of ethics, which ensure the delivery of positive outcomes for the client and any building's future occupants

"Bamboo has been used as building material for many centuries in all regions in which it grows, especially in Asia, Africa and South America. Today it is gaining in popularity also among Western architects and engineers due to its reputation of a quickly replenishing and therefore sustainable raw material. In addition, its tensile as well as compressive strength, which can com-

pete with those of steel, stone and concrete, make bamboo a very desirable construction material. The range extends from traditional building styles and their modern interpretation to the combination of bamboo with other materials. Frequently, beyond its use for purely construction purposes it also serves as a primary design element. This volume presents contemporary projects that show the impressive versatility of its usage"--Provided by publisher.

In this timely book, author Marcus Fairs helps readers understand the shift of green design from marginal to mainstream by featuring products and buildings that address immediate concerns about global warming and environmental degradation. Through vast architectural projects to modest one-off pieces of salvaged furniture, the book shows how the design world is responding to the environmental challenges of this century. Author Fairs demonstrates key developments in sustainable design as seen in lighting, houseware, furniture, textiles, products, interiors, architecture, and transportation, including the innovative use of fuel-cell technologies and ultra-

-lightweight materials. The book shows how the introduction of eco-friendly materials is changing the products around us and charts the rise of low-energy lighting sources and their impact on lighting design. Emerging trends in green design are also covered, from recycling (reusing existing objects to create new products) to ethical sourcing (ensuring products come from sustainable sources). By presenting existing green innovations as well as visionary projects, Green Design paints a bright future in which technology and ethics merge for the benefit of people and the planet.

The rise of manufacturing intelligence is fuelling innovation in processes and products concerning a low environmental impact over the product's lifecycle. Sustainable intelligent manufacturing is regarded as a manufacturing paradigm for the 21st century, in the move towards the next generation of manufacturing and processing technologies. The manufacturing industry has reached a turning point in its evolution and new business opportunities are emerging. With sustainable development arises the immense challenge of combining innova-

tive ideas regarding design, materials and products with non-polluting processes and technologies, conserving energy and other natural resources. On the other hand, sustainability has become a key concern for government policies, businesses and the general public. Model cities are embracing novel ecosystems, combining environmental, social and economic issues in more inclusive and integrated frameworks. Green Design, Materials and Manufacturing Processes includes essential research in the field of sustainable intelligent manufacturing and related topics, making a significant contribution to further development of these fields. The volume contains reviewed papers presented at the 2nd International Conference on Sustainable Intelligent Manufacturing, conjointly organized by the Centre for Rapid and Sustainable Product Development, Polytechnic Institute of Leiria, and the Faculty of Architecture, Technical University of Lisbon, both in Portugal. This event was held at the facilities of the Faculty of Architecture, Lisbon, from June 26 to June 29, 2013. A wide range of topics is covered, such as Eco Design and In-

novation, Energy Efficiency, Green and Smart Manufacturing, Green Transportation, Life-Cycle Engineering, Renewable Energy Technologies, Reuse and Recycling Techniques, Smart Design, Smart Materials, Sustainable Business Models and Sustainable Construction. Green Design, Materials and Manufacturing Processes is intended for engineers, architects, designers, economists and manufacturers who are actively engaged in the advancement of science and technology regarding key sustainability issues, leading to more suitable, efficient and sustainable products, materials and processes. The technologies applied in design studies vary from basic theories to more application-based systems, and intelligence engineering technologies – such as computer-aided industrial design, human factor design, and greenhouse design – play a significant role in design science. Intelligence engineering technologies encompass both theoretical and application perspectives, such as computational technologies, sensing technologies, and video detection. Intelligence engineering is multidisciplinary in nature, promoting cooperation, exchange

and discussion between organizations and researchers from diverse fields. This book presents the proceedings of DSIE2021, the 2021 International Symposium on Design Studies and Intelligence Engineering, held in Hangzhou, China, on 27 & 28 November 2021. This annual conference invites renowned experts from around the world to speak on their specialist topics, providing a platform for many professionals and researchers from industry and academia to exchange and discuss recent advances in the field of design studies and intelligence engineering. The 210 submissions received were rigorously reviewed, and each of the 50 papers presented here was selected based on scores from three or four referees. Papers cover a very wide range of topics, from the design of a pneumatic soft finger with two joints, and the emotion of texture, to the design evaluation of a health management terminal for the elderly, and a multi-robot planning algorithm with quad tree map division for obstacles of irregular shape. Providing a varied overview of recent developments in design and intelligence engineering, this book will be of interest to researchers and

all those working in the field.

Bambusa guadua, the tropical giant bamboo, is the most versatile, reliable architectural material of its native mountainous regions. Bamboo's delightful exterior and exotic reputation obscures its oak-like strength. 'New Bamboo' is a colour portfolio of contemporary structures and decorative designs demonstrating the appeal of building with natural materials for the modern eye. Properly treated, bamboo is as reliable as prime-grade hardwoods, beautiful in its own right, and suitable for commercial and residential structures in any climate. This is an anthology of bamboo construction by different experts: an agronomist, architects, a designer, and a builder, that showcases projects in Mexico, Brazil, Ecuador, Panama, and Colombia, where this product has been used as a traditional construction material for centuries. Also covered are France and Germany, where architects are discovering the delights of working with bamboo. *Guadua* is beautiful but not so delicate that it cannot be used in commercial structures like the auditorium-size pavilion built for the Hannover Expo 2000.

Here are delightful details and rugged outbuildings that show bamboo as a most natural design element.

From the world's leading publisher of Architecture and Architectural Practices, comes a look into how VTN Architects have used bamboo to create groundbreaking projects. With the climate crisis raging and awareness of humanity's detrimental impact on the environment now patently apparent, the need for architects to come up with sustainable new solution has never been more pressing. A key part of any green approach to architecture is the use of local natural materials with a low environmental impact. Bamboo, which has been widely used in Asian architecture for centuries as scaffolding and for bridges, pavilions, houses and other structures, is an ideal material in this context: lightweight, strong and readily available. In an effort to meet the challenges of the 21st century, VTN Architects has developed new ways of working with two species of bamboo in particular, the flexible Tam Vong and the sturdier Luong, creating a manufacturing workflow that allows for the produc-

tion of standardised modules, a knitting technique that enables the material to span large distances and environmentally friendly traditional treatments such as mud-soaking and smoking. In *Bamboo Architecture*, we see how these methods have been applied in award-winning, groundbreaking projects such as the Wind and Water Café, Diamond Island Community enter, and the majestic Vedana Restaurant, alongside an illuminating introduction by Masaaki Iwamoto and an interview with the studio principal Vo Trong Nghia who offers an inspiring vision for the future of natural, green architecture.

From the arid deserts of Tucson, Arizona to the icy forests of Poori, Finland to the tropical beaches of New South Wales, Australia to the urban jungle of downtown Manhattan, critics Alanna Stang and Christopher Hawthorne have travelled to the farthest reaches of the globe to find all that is new in the design of sustainable, or "green" homes. The result is more than thirty-five residences in fifteen countries, and nearly every conceivable natural environment, designed by a combination of star architects and heretofore un-

known practitioners including Santiago Calatrava, Shigeru Ban, Miller/Hull, Rick Joy, Lake Flato, Ken- go Kuma, Glenn Murcutt, Pugh & Scarpa, Werner Sobek, and many others. Projects are presented with large colour images, plans, drawings, and an accompanying text that describes their green features and explains how they work with and in the environment. The Green House is not only a beautiful object in its own right, but is sure to be an indispensable reference for anyone building or interested in sustainable design.

Although traditionally a building material of the warmer climate zones, bamboo is becoming increasingly popular amongst architects in the northern hemisphere; bamboo has several advantages - it is very stable, of low weight, and highly elastic, in addition to being readily available as well as renewable. The applications of bamboo in architecture have become significantly wider and diversified, so that today, even structures with large spans - such as bridges - are built with this material. The new and revised second edition of this manual provides a practical, systematic overview of

the numerous potential applications and processing methods of this renewable material. The comprehensive presentation of groundbreaking bamboo buildings has been updated with more recent projects.

International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies publishes a wide spectrum of research and technical articles as well as reviews, experiments, experiences, modelings, simulations, designs, and innovations from engineering, sciences, life sciences, and related disciplines as well as interdisciplinary/cross-disciplinary/multidisciplinary subjects. Original work is required. Article submitted must not be under consideration of other publishers for publications.

Bamboo--one of the most sustainable building materials on the planet--is deployed in ingenious ways throughout this globetrotting tour of twenty residential designs. There are many ways to help alleviate the effects of climate change, and changing the way we design and build our homes is one of them. Building with bamboo, a perennial grass that grows rapidly and rivals

steel, concrete, and wood in strength, is a step in the right direction. Employed in residential design around the world, it's only beginning to gain traction as a construction material in the United States. Bamboo Contemporary is an inspirational collection of twenty dwellings in locales from China to the Czech Republic and Norway to the Netherlands, each an example of bamboo's structural or design potential. Three projects--in New York, Washington, DC, and Hawaii--represent nascent efforts in this country. Fascinating project descriptions, documentary photography, and architectural drawings are complemented by an appendix rich in technical information about this remarkably versatile plant.

Building automation systems and digital technologies are highly relevant for the environmental and energy performance of buildings. However, a clear gap remains between architectural engineering and the use of such technologies. Building Automation and Digital Technologies shows how to assimilate automation and digital technologies into making buildings smarter and more environmentally sustainable. This

book shows why architects need smart and digital systems in building design and construction and promotes innovative technological tools for improving sustainability. It focuses on the development of automated environmental conditions and how new technology informs architectural engineering. The book also provides new evidence on the impact of building automation systems and digital technologies, such as the Internet of Things, artificial intelligence, and information and communication technology for developing a performance-based ap-

proach to the environmental sustainability of buildings, and provides a key reference for architects on how digital technology can inform their practice. Its four chapters cover: developing strategies for improving sustainable and smart buildings; architectural practice and construction technology; creativity and innovation in building automation systems; and the use phase of buildings. Building Automation and Digital Technologies meets a critical need for a sustainable and smart built environment from an architectu-

ral perspective, providing an important reference to architects and professionals in related fields by demonstrating the assimilation of the latest information and automation technologies. Puts forward an architectural perspective on the design and construction of smart, sustainable buildings. Presents the use of digital technologies for design and construction. Bridges the gap between architectural engineering and the use of automation and digital technology. Considers the development of automated environmental conditions and new technology.