

Albedo A Measure Of Pavement Surface Reflectance Acpa

Eventually, you will unconditionally discover a other experience and completion by spending more cash. still when? accomplish you agree to that you require to get those all needs in the same way as having significantly cash? Why dont you attempt to get something basic in the beginning? Thats something that will lead you to understand even more all but the globe, experience, some places, when history, amusement, and a lot more?

It is your completely own times to show reviewing habit. among guides you could enjoy now is **albedo a measure of pavement surface reflectance acpa** below.

Urban Climates- T. R. Oke
2017-09-14

The first full synthesis of modern scientific and applied research on urban climates, suitable for students and researchers alike.

Pavement Life-Cycle Assessment - Imad L. Al-Qadi
2017-04-11

An increasing number of agencies, academic institutes, and governmental and

industrial bodies are embracing the principles of sustainability in managing their activities and conducting business. Pavement Life-Cycle Assessment contains contributions to the Pavement Life-Cycle Assessment Symposium 2017 (Champaign, IL, USA, 12-13 April 2017) and discusses the current status of as well as future developments for LCA implementation in

project- and network-level applications. The papers cover a wide variety of topics: - Recent developments for the regional inventory databases for materials, construction, and maintenance and rehabilitation life-cycle stages and critical challenges - Review of methodological choices and impact on LCA results - Use of LCA in decision making for project selection - Implementation of case studies and lessons learned: agency perspectives - Integration of LCA into pavement management systems (PMS) - Project-level LCA implementation case studies - Network-level LCA applications and critical challenges - Use-phase rolling resistance models and field validation - Uncertainty assessment in all life-cycle stages - Role of PCR and EPDs in the implementation of LCA Pavement Life-Cycle Assessment will be of interest to academics, professionals, and policymakers involved or interested in Highway and Airport Pavements.

Landscape Architecture - 2007

Urban Overheating - Progress on Mitigation Science and Engineering Applications

Michele Zinzi 2019-04-04

The combination of global warming and urban sprawl is the origin of the most hazardous climate change effect detected at urban level: Urban Heat Island, representing the urban overheating respect to the countryside surrounding the city. This book includes 18 papers representing the state of the art of detection, assessment mitigation and adaption to urban overheating. Advanced methods, strategies and technologies are here analyzed including relevant issues as: the role of urban materials and fabrics on urban climate and their potential mitigation, the impact of greenery and vegetation to reduce urban temperatures and improve the thermal comfort, the role the urban geometry in the air temperature rise, the use of

satellite and ground data to assess and quantify the urban overheating and develop mitigation solutions, calculation methods and application to predict and assess mitigation scenarios.

The outcomes of the book are thus relevant for a wide multidisciplinary audience, including: environmental scientists and engineers, architect and urban planners, policy makers and students.

Recent Developments in Pavement Engineering -

Sherif Badawy 2019-11-01

This book brings together scientific experts in different areas that contribute to the railway track and transportation engineering challenges, evaluate the state of the art, identify the shortcomings and opportunities for research, and promote the interaction with the industry. In particular, scientific topics that are addressed in this book include railway ballasted track degradation/settlement problems and stabilization/reinforcement technologies, switches and

crossings and related derailments causes, train-induced vibrations and mitigation measures, operations, management, and performance of ground transportation, and traffic congestion and safety procedures.

Constructed Climates - Will Wilson 2011-02-28

This study demonstrates the value of urban green. Focusing specifically on the role of vegetation and trees, the book shows the costs and benefits reaped from urban open spaces, from cooler temperatures to better quality ground water - and why it all matters. While a work of science, the book does not ignore the social component: it looks at low-income areas that have poor vegetation, and shows how enhancing these areas through the planting of community gardens and trees can alleviate social ills.

Existing Buildings, Version 2.0 - 2006

Sustainable, Energy-efficient Transportation

Infrastructure - United States. Congress. House. Committee on Science and Technology (2007). Subcommittee on Technology and Innovation 2008

Eco-efficient Pavement Construction Materials - Fernando Pacheco-Torgal 2020-01-18

Eco-efficient Pavement Construction Materials acquaints engineers with research findings on new eco-efficient pavement materials and how they can be incorporated into future pavements. Divided into three distinctive parts, the book emphasizes current research topics such as pavements with recycled waste, pavements for climate change mitigation, self-healing pavements, and pavements with energy harvesting potential. Part One considers techniques for recycling, Part Two reviews the contribution of pavements for climate change mitigation, including cool pavements, the development of new coatings for high albedo targets, and the

design of pervious pavements. Finally, Part Three focuses on self-healing pavements, addressing novel materials and design and performance. Finally, the book discusses the case of pavements with energy harvesting potential, addressing different technologies on this field. Offers a clear and concise lifecycle assessment of asphalt pavement recycling for greenhouse gas emission with temporal aspects Applies key research trends to green the pavement industry Includes techniques for recycling waste materials, the design of cool pavements, self-healing mechanisms, and key steps in energy harvesting

Urban Heat Island (UHI) Mitigation - Napoleon Enteria 2020-12-14

This book discusses the concepts and technologies associated with the mitigation of urban heat islands (UHIs) that are applicable in hot and humid regions. It presents several city case studies on how UHIs can be reduced in various areas to provide

readers, researchers, and policymakers with insights into the concepts and technologies that should be considered when planning and constructing urban centres and buildings. The rapid development of urban areas in hot and humid regions has led to an increase in urban temperatures, a decrease in ventilation in buildings, and a transformation of the once green outdoor environment into areas full of solar-energy-absorbing concrete and asphalt. This situation has increased the discomfort of people living in these areas regardless of whether they occupy concrete structures. This is because indoor and outdoor air quality have both suffered from urbanisation. The development of urban areas has also increased energy consumption so that the occupants of buildings can enjoy indoor thermal comfort and air quality that they need via air conditioning systems. This book offers solutions to the recent increase in the number of heat islands in hot

and humid regions.

Heat Islands - Lisa Mummery Gartland 2012-05-16

Heat islands are urban and suburban areas that are significantly warmer than their surroundings. Traditional, highly absorptive construction materials and a lack of effective landscaping are their main causes. Heat island problems, in terms of increased energy consumption, reduced air quality and effects on human health and mortality, are becoming more pressing as cities continue to grow and sprawl. This comprehensive book brings together the latest information about heat islands and their mitigation. The book describes how heat islands are formed, what problems they cause, which technologies mitigate heat island effects and what policies and actions can be taken to cool communities. Internationally renowned expert Lisa Gartland offers a comprehensive source of information for turning heat islands into cool communities. The author includes sections on cool roofing and cool paving,

explains their benefits in detail and provides practical guidelines for their selection and installation. The book also reviews how and why to incorporate trees and vegetation around buildings, in parking lots and on green roofs.

Scientific and Technical Aerospace Reports - 1992

Eco-materials Processing and Design X - Hyung Sun Kim 2009

The Role of Exergy in Energy and the Environment

- Sandro Nižetić 2018-07-30

This book is devoted to the analysis and applications of energy, exergy, and environmental issues in all sectors of the economy, including industrial processes, transportation, buildings, and services. Energy sources and technologies considered are hydrocarbons, wind and solar energy, fuel cells, as well as thermal and electrical storage. This book provides theoretical insights, along with state-of-the-art case studies and

examples and will appeal to the academic community, but also to energy and environmental professionals and decision makers.

PPI ARE 5.0 Exam Review All Six Divisions, 2nd Edition eText - 3 Months, 6 Months, 1 Year

David Kent Ballast 2020-09-01
NCARB Approved for all Six Divisions PPI's second edition of the ARE 5.0 Exam Review by David Kent Ballast offers a comprehensive review of content areas covered in all six NCARB ARE 5.0 division exams. Building on the first edition, the content has been thoroughly reviewed and updated to the ARE 5.0 exam objectives for all six divisions
Key Features: NEW! NCARB approvals on all six divisions A thorough review of all exam objectives to prepare you to pass all six divisions Over 150 example questions reinforce what you've learned and clarify how to apply key architectural concepts Pages tabbed in six different colors, one for each division, for easy lookup of a particular exam division
Hundreds of tables and figures

to facilitate referencing and problem solving Advice, tips, and exam taking strategies to prepare you for exam day
Binding: Paperback Publisher: PPI, a Kaplan Company All Six ARE 5.0 Exam Divisions Covered Comprehensively Practice Management Project Management Programming & Analysis Project Planning & Design Project Development & Documentation Construction & Evaluation

Commercial Interiors, Version 2.0 - U.S. Green Building Council 2006

Programming & Analysis (PA) ARE 5.0 Exam Guide (Architect Registration Examination): ARE 5.0 Overview, Exam Prep Tips, Guide, and Critical Content -

Gang Chen 2020-09-05
A Practical Exam Guide for the ARE 5.0 Programming & Analysis (PA) Division! To become a licensed architect, you need to have a proper combination of education and/or experience, meet your Board of Architecture's special requirements, and pass the

ARE exams. This book provides an ARE 5.0 exam overview, suggested reference and resource links, exam prep and exam taking techniques, tips and guides, and critical content for the ARE 5.0 Programming & Analysis (PA) Division. More specifically this book covers the following subjects: · ARE 5.0, AXP, and education requirements · ARE 5.0 exam content, format, and prep strategies · ARE 5.0 credit model and the easiest way to pass ARE exams · Allocation of your time and scheduling · Timing of review: the 3016 rule; memorization methods, tips, suggestions, and mnemonics · Environmental & contextual conditions · Codes & regulations · Site analysis & programming · Building analysis & programming This book will help you pass the PA division of the ARE 5.0 and become a licensed architect! Can you study and pass the ARE 5.0 Programming & Analysis (PA) exam in 2 weeks? The answer is yes: If you study the right materials, you can pass with 2 weeks of prep. If

you study our book, "Programming & Analysis (PA) ARE 5.0 Exam Guide (Architect Registration Examination)" & "Programming & Analysis (PA) ARE 5.0 Mock Exam (Architect Registration Examination)," you have an excellent chance of studying and passing the ARE 5.0 Programming & Analysis (PA) division in 2 weeks. We have added many tips and tricks that WILL help you pass the exam on your first try. Our goal is to take a very complicated subject and make it simple. "Programming & Analysis (PA) ARE 5.0 Exam Guide (Architect Registration Examination)" & "Programming & Analysis (PA) ARE 5.0 Mock Exam (Architect Registration Examination)" will save you time and money and help you pass the exam on the first try! ArchiteG®, Green Associate Exam Guide®, and GreenExamEducation® are registered trademarks owned by Gang Chen. ARE®, Architect Registration Examination® are registered trademarks owned by NCARB. *EG-ICE 2020 Workshop on*

Intelligent Computing in Engineering- Ungureanu, Lucian Constantin 2020-06-30 The 27th EG-ICE International Workshop 2020 brings together international experts working at the interface between advanced computing and modern engineering challenges. Many engineering tasks require open-world resolutions to support multi-actor collaboration, coping with approximate models, providing effective engineer-computer interaction, search in multi-dimensional solution spaces, accommodating uncertainty, including specialist domain knowledge, performing sensor-data interpretation and dealing with incomplete knowledge. While results from computer science provide much initial support for resolution, adaptation is unavoidable and most importantly, feedback from addressing engineering challenges drives fundamental computer-science research. Competence and knowledge transfer goes both ways. Der 27. Internationale EG-ICE

Workshop 2020 bringt internationale Experten zusammen, die an der Schnittstelle zwischen fortgeschrittener Datenverarbeitung und modernen technischen Herausforderungen arbeiten. Viele ingenieurwissenschaftliche Aufgaben erfordern Open-World-Resolutionen, um die Zusammenarbeit mehrerer Akteure zu unterstützen, mit approximativen Modellen umzugehen, eine effektive Interaktion zwischen Ingenieur und Computer zu ermöglichen, in mehrdimensionalen Lösungsräumen zu suchen, Unsicherheiten zu berücksichtigen, einschließlich fachspezifischen Domänenwissens, Sensordateninterpretation durchzuführen und mit unvollständigem Wissen umzugehen. Während die Ergebnisse aus der Informatik anfänglich viel Unterstützung für die Lösung bieten, ist eine Anpassung unvermeidlich, und am wichtigsten ist, dass das Feedback aus der Bewältigung

technischer Herausforderungen die computer-wissenschaftliche Grundlagenforschung vorantreibt. Kompetenz und Wissenstransfer gehen in beide Richtungen.

Eco-efficient Materials for Mitigating Building Cooling Needs - Fernando Pacheco-Torgal 2015-02-27

Climate change is one of the most important environmental problems faced by Planet Earth. The majority of CO₂ emissions come from burning fossil fuels for energy production and improvements in energy efficiency shows the greatest potential for any single strategy to abate global greenhouse gas (GHG) emissions from the energy sector. Energy related emissions account for almost 80% of the EU's total greenhouse gas emissions. The building sector is the largest energy user responsible for about 40% of the EU's total final energy consumption. In Europe the number of installed air conditioning systems has increased 500% over the last

20 years, but in that same period energy cooling needs have increased more than 20 times. The increase in energy cooling needs relates to the current higher living and working standards. In urban environments with low outdoor air quality (the general case) this means that in summer-time one cannot count on natural ventilation to reduce cooling needs. Do not forget the synergistic effect between heat waves and air pollution which means that outdoor air quality is worse in the summer aggravating cooling needs. Over the next few years this phenomenon will become much worse because more people will live in cities, more than 2 billion by 2050 and global warming will aggravate cooling needs. An overview of materials to lessen the impact of urban heat islands Excellent coverage of building materials to reduce air conditioning needs Innovative products discussed such as Thermo and Electrochromic materials
Urban Climate Mitigation Techniques - Mat Santamouris

2016-01-08

The urban climate is continuously deteriorating. Urban heat lowers the quality of urban life, increases energy needs, and affects the urban socio-economy. *Urban Climate Mitigation Techniques* presents steps that can be taken to mitigate this situation through a series of innovative technologies and examples of best practices for the improvement of the urban climate. Including tools for evaluation and a comparative analysis, this book addresses anthropogenic heat, green areas, cool materials and pavements, outdoor shading structures, evaporative cooling and earth cooling. Case studies demonstrate the success and applicability of these measures in various cities throughout the world. Useful for urban designers, architects and planners, *Urban Climate Mitigation Techniques* is a step by step tour of the innovative technologies improving our urban climate, providing a holistic approach supported by well-established quantitative

examples.

Pavimentazioni stradali in calcestruzzo -

Sustainable Cities and Resilience - Indrajit Pal

2021-10-25

This book presents the select proceedings of the Virtual Conference on Disaster Risk Reduction (VCDRR 2021). It provides insights on urban resilience and sustainable infrastructure. All the chapters in this volume are segregated into five clusters, e.g., Resilient infrastructure in construction, Innovative construction interventions, Waste Management and Disaster Risk Reduction, Urban Development and Sustainability, and Cross-cutting issues. Various topics covered in this book are risk assessment, prevention, mitigation, preparedness and response, renewable energy, waste management, resilient cities, and environmental management. This book is a comprehensive volume on disaster risk reduction (DRR) and its management for a sustainable built environment.

This book will be useful for the students, researchers, policy makers and professionals working in the area of civil engineering, especially disaster management.

Improvement Measures of Urban Thermal Environment - Hideki Takebayashi 2014-12-27

Maximizing readers' insights into urban and architectural environmental planning with consideration for the thermal environment, this work highlights how various urban heat-island strategies have been developed and their effectiveness in urban areas. Specific measures to combat the urban heat-island phenomenon, including improvement of surface cover, reduction of exhaust heat, improvement of ventilation are summarized and various heat-island measurement technologies, which have been proposed in recent years, are organized systematically based on surface-heat budget and surface boundary layer models. With suggestions for the selection of appropriate heat-island technologies depending

on the location, this book elucidates the relationship between the thermal environment and urban block form characteristics. Covering the latest research findings, this book is of interest for all those concerned with environmentally friendly urban and architectural planning.

Sustainable Landscaping - Marietta Loehrlein 2013-09-26

While landscaping has the potential to be part of the solution to certain environmental problems, the quest for beauty can also produce effects that are harmful to the environment.

Sustainable Landscaping: Principles and Practices examines landscape practices that adversely affect the environment, which occur in the process of constructing, impleme

Materials for Sustainable Sites - Meg Calkins 2008-09-22

This complete guide to the evaluation, selection, and use of sustainable materials in the landscape features strategies to minimize environmental and human health impacts of

conventional site construction materials as well as green materials. Providing detailed current information on construction materials for sustainable sites, the book introduces tools, techniques, ideologies and resources for evaluating, sourcing, and specifying sustainable site materials. Chapters cover types of materials, both conventional and emerging green materials, environmental and human health impacts of the material, and detailed strategies to minimize these impacts. Case studies share cost and performance information and lessons learned.

The Sustainable Sites Handbook - Meg Calkins 2012-01-18

Get the definitive resource guide for sustainable site design, construction, and management. The Sustainable Sites Initiative (SITES) is transforming land design, development, and management practices across the United States with the first national rating system for sustainable landscapes. The Sustainable

Sites Handbook features comprehensive and detailed information on principles, strategies, technologies, tools, and best practices for sustainable site design. Contributors to this book are some of the same experts that carefully shaped the SITES rating tool, ensuring thorough coverage of the broad range of topics related to sustainable site design. The Sustainable Sites Handbook offers in-depth coverage of design, construction, and management for systems of hydrology, vegetation, soils, materials, and human health and well-being. Focusing primarily on environmental site design and ecosystem services, this wide-ranging guide also covers issues of social equity, economic feasibility, and stewardship, which are crucial to the success of any sustainable site. Equally useful as a handbook for obtaining SITES credits or for the independent development of sustainable sites, The Sustainable Sites Handbook is an indispensable resource for

practicing professionals in landscape architecture, landscape design, architecture, civil engineering, land planning, horticulture, ecology, environmental engineering, landscape contracting, and parks and recreation management.

Visualizing Weather and Climate - Bruce Anderson
2008-09-22

Visualizing Weather and Climate Change will capture the reader's interest in weather and climate and then use that interest to engage them in activities that demonstrate the science that serves as the basis of the discipline. Sections such as Eye on the Atmosphere use beautiful imagery to help them see the atmosphere through the eyes of a meteorologist and ask scientific questions that place significant features in atmospheric context. It also includes expanded coverage of global change and recent phenomena. Chapter summaries, self-tests and critical thinking questions help prepare readers for quizzes and tests while the illustrated

case studies offer a wide variety of in-depth examinations that address important issues in the field of environmental science.

Pavement Materials for Heat Island Mitigation - Hui Li 2015-08-19

About 90 percent of this excessive heat is due to buildings and pavements that absorb and store solar heat (According to the Green Buildings Council). The only reference that focuses specifically on pavements, *Pavement Materials for Heat Island Mitigation: Design and Management Strategies* explores different advanced paving materials, their properties, and their associated advantages and disadvantages. Relevant properties of pavement materials (e.g. albedo, permeability, thermal conductivity, heat capacity and evaporation rate) are measured in many cases using newly developed methods. Includes experimental methods for testing different types of pavements materials Identifies different cool pavement

strategies with their advantages and associated disadvantages Design and construct local microclimate models to evaluate and validate different cool pavement materials in different climate regions

Using Remote Sensing to Quantify Albedo of Roofs in Seven California Cities - Ronnen Levinson 2014

New Construction Reference Guide Version 2. U.S. Green Building Council 2007

LEED-NC for New Construction U.S. Green Building Council 2005

Visible Light Communications - Zabih Ghassemlooy 2017-06-26
Visible Light Communications, written by leading researchers, provides a comprehensive overview of theory, stimulation, design, implementation, and applications. The book is divided into two parts - the first devoted to the underlying theoretical concepts of the VLC and the second part covers

VLC applications. Visible Light Communications is an emerging topic with multiple functionalities including data communication, indoor localization, 5G wireless communication networks, security, and small cell optimization. This concise book will be of valuable interest from beginners to researchers in the field.

Eco-efficient Materials for Reducing Cooling Needs in Buildings and Construction -

Fernando Pacheco-Torgal
2020-10-05

Eco-efficient Materials for Reducing Cooling Needs in Buildings and Construction: Design, Properties and Applications provides a comprehensive review on building envelope materials and technologies for reducing cooling needs in buildings. The book offers in-depth analysis of the performance of new innovative materials and technologies used in pavements, facade and roofing materials, PCMs and chromogenic smart materials. Includes practical case study

examples of their applications in building and construction. The book is an essential reference resource for researchers, architects and civil engineers, city planners, product developers, manufacturers, and other professionals working in eco-efficient cooling materials and sustainable and zero-energy building design. Offers a comprehensive review of building envelope materials and technologies for reducing cooling needs Features practical case studies, which are fundamental for building design and applications Provides in-depth analysis of performance for different materials and technologies Features brand new chapters on pavements, facade and roofing materials, PCMs and chromogenic smart materials
Embankment Design and Construction in Cold Regions
E. G. Johnson 1988
Offers a report on embankment design and construction in cold regions involving either permafrost or seasonal frost areas. The similarities and

differences of the two types of areas are considered. This work presents embankment case histories in both types of climatic regions. Other topics include embankment stabilization techniques.

Cooling the Cities
Matheos Santamouris 2004

Ultraviolet Ground- and Space-based Measurements, Models, and Effects 2005

Designing the Sustainable Site
- Heather L. Venhaus
2012-03-27

The full-color, practical guide to designing sustainable residential landscapes and small-scale sites "Going green" is no longer a choice; it's a necessity. Developed landscapes have played a significant role in exacerbating the environmental and social problems that threaten humanity; however, they can also be part of the solution. *Designing the Sustainable Site: Integrated Design Strategies for Small-Scale Sites and Residential Landscapes* gives site designers and landscape

architects the tools and information they need to become a driving force in the quest for sustainability.

Advocating a regenerative design approach in which built landscapes sustain and restore vital ecological functions, this book guides readers through a design process for new and

redeveloped sites that not only minimizes damage to the environment but also actively helps to repair it. Designing

the Sustainable Site: Assists designers in identifying and incorporating sustainable practices that have the greatest positive impact on both the project and the surrounding community, within a regional context Uses photographs, sketches, and case studies to provide a comprehensive look at successful green landscape design Illustrates how sustainable practices are relevant and applicable to projects of any size or budget Demonstrates how built environments can protect and restore ecosystem services Explains the multiple and far-

reaching benefits that sustainable design solutions can provide Assists project teams in fulfilling credit requirements of green building assessment tools, such as LEED, BREEAM, or SITES With attention to six global environmental challenges—including air pollution, urban flooding and water pollution, water shortages, invasive species, and loss of biodiversity—along with guidance on how to meet these challenges, *Designing the Sustainable Site* is a practical design manual for sustainable alternatives to small-scale site and residential landscape design.

Principles of Pavement

Design - E. J. Yoder

1991-01-08

Presents a complete coverage of all aspects of the theory and practice of pavement design including the latest concepts. [Programming & Analysis \(PA\) ARE 5.0 Exam Guide \(Architect Registration Examination\), 2nd Edition: ARE 5.0 Overview, Exam Prep Tips, Guide, and Critical Content](#) - Gang Chen

A Practical Exam Guide for the ARE 5.0 Programming & Analysis (PA) Division! This is the second edition of *Programming & Analysis (PA) ARE 5.0 Exam Guide*, with 120 pages of new content. To become a licensed architect, you need to have a proper combination of education and/or experience, meet your Board of Architecture's special requirements, and pass the ARE exams. This book provides an ARE 5.0 exam overview, suggested reference and resource links, exam prep and exam taking techniques, tips and guides, and critical content for the ARE 5.0 Programming & Analysis (PA) Division. More specifically this book covers the following subjects: · ARE 5.0, AXP, and education requirements · ARE 5.0 exam content, format, and prep strategies · ARE 5.0 credit model and the easiest way to pass ARE exams · Allocation of your time and scheduling · Timing of review: the 3016 rule; memorization methods, tips, suggestions, and mnemonics · Environmental &

contextual conditions · Codes & regulations · Site analysis & programming · Building analysis & programming This book will help you pass the PA division of the ARE 5.0 and become a licensed architect! Can you study and pass the ARE 5.0 Programming & Analysis (PA) exam in 2 weeks? The answer is yes: If you study the right materials, you can pass with 2 weeks of prep. If you study our book, "Programming & Analysis (PA) ARE 5.0 Exam Guide (Architect Registration Examination)" & "Programming & Analysis (PA) ARE 5.0 Mock Exam (Architect Registration Examination)," you have an excellent chance of studying and passing the ARE 5.0 Programming & Analysis (PA) division in 2

weeks. We have added many tips and tricks that WILL help you pass the exam on your first try. Our goal is to take a very complicated subject and make it simple. "Programming & Analysis (PA) ARE 5.0 Exam Guide (Architect Registration Examination)" & "Programming & Analysis (PA) ARE 5.0 Mock Exam (Architect Registration Examination)" will save you time and money and help you pass the exam on the first try! ArchiteG®, Green Associate Exam Guide®, and GreenExamEducation® are registered trademarks owned by Gang Chen. ARE®, Architect Registration Examination® are registered trademarks owned by NCARB. *Energy Research Abstracts* 1991-11