

California Building Performance Guidelines For Residential Construction A Practical Guide For Owners Of New Homes Construction Performance Items Information On Home Construction

The main aim of this book is to present an intriguing retrospective of Building Performance Evaluation (BPE) as it evolved from Post-Occupancy Evaluation (POE) over the past 25 years. On one hand, this is done by updating original authors' chapter content of Building Evaluation, the first edition published in 1989. That, in turn, is augmented by an orientation toward current and future practice on the other, including new authors who are engaged in ongoing, cutting edge projects. Therefore, individual, methodology oriented chapters covering the fundamental principles of POE and BPE go along with major thematic chapters, topics of which like sustainability or integration of new technologies are addressed in a diversity of case studies from around the globe. Research, methodologies, and framework of POEs continue to evolve. POEs are one step, on the larger scale of BPE, in understanding how buildings function after they are occupied. This resource helps architects, building owners, and facility managers understand the implications and reactions to the facilities that they designed, built

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and/or commissioned. By considering the whole process from conception to future uses of the building, there can be a more holistic approach to the planning, programming, design, construction, occupancy, and future adaptability of the structure. This book is dedicated to first editor Wolfgang F. E. Preiser who passed away during the process of editing and reviewing chapters of this volume.

Explores and brings together the existent body of knowledge on building performance analysis Building performance is an important yet surprisingly complex concept. This book presents a comprehensive and systematic overview of the subject. It provides a working definition of building performance, and an in-depth discussion of the role building performance plays throughout the building life cycle. The book also explores the perspectives of various stakeholders, the functions of buildings, performance requirements, performance quantification (both predicted and measured), criteria for success, and the challenges of using performance analysis in practice. Building Performance Analysis starts by introducing the subject of building performance: its key terms, definitions, history, and challenges. It then develops a theoretical foundation for the subject, explores the complexity of performance assessment, and the way that performance analysis impacts on actual buildings. In doing so, it attempts to answer the following questions: What is building performance? How can building performance be measured and analyzed? How does the analysis of building performance guide the improvement of buildings? And what can the building domain learn from the way

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performance is handled in other disciplines? Assembles the current body of knowledge on building performance analysis in one unique resource Offers deep insights into the complexity of using building performance analysis throughout the entire building life cycle, including design, operation and management Contributes an emergent theory of building performance and its analysis Building Performance Analysis will appeal to the building science community, both from industry and academia. It specifically targets advanced students in architectural engineering, building services design, building performance simulation and similar fields who hold an interest in ensuring that buildings meet the needs of their stakeholders.

This report describes a recommended methodology for reliably quantifying building system performance and response parameters for use in seismic design. The recommended methodology (referred to herein as the Methodology) provides a rational basis for establishing global seismic performance factors (SPFs), including the response modification coefficient (R factor), the system overstrength factor, and deflection amplification factor (Cd), of new seismic-force-resisting systems proposed for inclusion in model building codes. The purpose of this Methodology is to provide a rational basis for determining building seismic performance factors that, when properly implemented in the seismic design process, will result in equivalent safety against collapse in an earthquake, comparable to the inherent safety against collapse intended by current seismic codes, for buildings with different seismic-force-resisting systems.

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Both professionals and students are increasingly committed to achieving high-performance metrics in the design, construction and operation of residential buildings. This book responds to this demand by offering a comprehensive guide which features: architectural innovations in building skin technologies which make lighter more transparent buildings high performing energy-free architectural design principles and advances in building-integrated photovoltaics essential engineering principles, controls and approaches to simulation for achieving net zero the advantages of integrated design in residential construction and the challenges and opportunities it engenders detailed case studies of innovative homes which have incorporated low-energy design solutions, new materials, alternative building assemblies, digital fabrication, integrated engineering systems and operational controls. Divided into four parts, the book discusses the requisite AEC (Architecture, Engineering and Construction) knowledge needed when building a high-performance home. It also communicates this information across four case studies, which provide the reader with a thorough overview of all aspects to be considered in the design and construction of sustainable homes. With contributions from experts in the field, the book provides a well-rounded and multi-faceted approach. This book is essential reading for students and professionals in design, architecture, engineering (civil, mechanical and electrical), construction and energy management.

The latest building standards must reflect the latest industry trends and technologies,

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and the California Green Building Standards Code, Title 24 Part 11 was designed to do exactly that. Part 11 of the 12-part California Code of Regulations, Title 24, this valuable resource offers your students the guidelines and regulations to keep up with the increasingly important trend of "going green". With coverage that ranges from energy efficiency to water efficiency and conservation, and from material conservation and resource efficiency to environmental quality and more, it will prove to be an indispensable tool for anyone in or entering the construction industry. Check out our app, DEWALT Mobile Pro(tm). This free app is a construction calculator with integrated reference materials and access to hundreds of additional calculations as add-ons. To learn more, visit dewalt.com/mobilepro.

A valuable, unique reference for every homeowner, builder, contractor, inspector, real estate agent, and property management company. National in scope, it accomplishes what no other homeowner book does - compiling every possible maintenance condition with references to homeowner and homebuilder responsibility. In a thorough, easy-to-read manner, it follows the format of the well-respected California version that has helped homeowners and builders avoid costly construction defect litigation for 10+ years. Index, Glossary, References. Trade paper.

Lists the California code regulations for energy efficient standards for residential and nonresidential buildings. Changes made since the 1992 version are marked with a bar in the outside margin and the index is also expanded to include many more useful

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terms. Changes focus on improving compliance by more clearly describing the responsibilities of each party in the compliance and construction process. Numerous charts and tables.

California Building Performance Guidelines for Residential Construction and Homeowner Maintenance Guide Homeowners Education Associ California Building Performance Guidelines for Residential Construction and Homeowner Maintenance California Building Performance Guidelines for Residential Construction A Practical Guide for Owners of New Homes : Construction Performance Guidelines, Important Maintenance Items, Information on Home Construction Gurmeet Naroola California Building Performance Guidelines for Residential Construction A Practical Guide for Owners of New Homes Residential Construction Performance Guidelines, Contractor Reference Builderbooks

The most comprehensive guide to material selection & installation It takes a wise choice of building materials and details to create durable, attractive, and affordable custom homes and remodeling projects. Best Practices Guide to Residential Construction provides up-to-date, field-tested recommendations that help professionals balance cost and performance when designing and building residential projects. Steven Bliss, former editorial director of The Journal of Light Construction and founding editor of Progressive Builder, draws on his extensive knowledge as a practicing builder, designer, and construction editor to help building professionals select the right materials

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for every job and install them with confidence. This one-stop resource covers the real-world challenges of material selection and installation so designers, contractors, and building owners can make informed decisions for all major building components. Useful to architects, designers, and specifiers--as well as contractors, builders, and developers--Best Practices Guide to Residential Construction features:

- * More than 200 photos and illustrations of critical residential construction details
- * Installation tips and cautions that help prevent costly product failures
- * Descriptions of the latest composites and synthetics that are changing the way we build
- * Easy-to-use charts for making quick product comparisons
- * An authoritative guide to indoor air quality and healthy house construction

The comprehensive guide to construction tolerances, newly revised and updated How much may a steel frame be out of plumb? What are the expected variations of a precast concrete panel? What is required to successfully detail finish materials on masonry? Updating and expanding on its popular first edition, the Handbook of Construction Tolerances, Second Edition remains the only comprehensive reference to the thousands of industry standard tolerances for the manufacture, fabrication, and installation of construction materials and components-- including all-important accumulated dimensional variations. Covering new materials and techniques developed since the book was first published, the Second Edition of this easy-to-use reference features:

- * More than 100 drawings illustrating the tolerance concepts
- * New sections

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on measuring compliance with tolerance standards; right-of-way construction; autoclaved aerated concrete; tilt-up concrete panels; interior stone wall cladding; structural insulated panels; decorative architectural glass; laminated architectural flat glass and bent glass * New guidelines on how to incorporate tolerance requirements in drawings and specifications * New information on how to apply tolerance information during contract administration With the Handbook, architects, engineers, contractors, interior designers, lawyers, and others involved in the construction industry will be armed with the information they need to design and detail more accurately, write better specifications, establish normal practice and standards of care, supervise construction, settle worksite disputes, and save time and money at every stage of building. Performance-based Earthquake Engineering has emerged before the turn of the century as the most important development in the field of Earthquake Engineering during the last three decades. It has since then started penetrating codes and standards on seismic assessment and retrofitting and making headway towards seismic design standards for new structures as well. The US have been a leader in Performance-based Earthquake Engineering, but also Europe is a major contributor. Two Workshops on Performance-based Earthquake Engineering, held in Bled (Slovenia) in 1997 and 2004 are considered as milestones. The ACES Workshop in Corfu (Greece) of July 2009 builds on them, attracting as contributors world-leaders in Performance-based Earthquake Engineering from North America, Europe and the

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Pacific rim (Japan, New Zealand, Taiwan, China). It covers the entire scope of Performance-based Earthquake Engineering: Ground motions for performance-based earthquake engineering; Methodologies for Performance-based seismic design and retrofitting; Implementation of Performance-based seismic design and retrofitting; and Advanced seismic testing for performance-based earthquake engineering. Audience: This volume will be of interest to scientists and advanced practitioners in structural earthquake engineering, geotechnical earthquake engineering, engineering seismology, and experimental dynamics.

When used appropriately, building performance simulation has the potential to reduce the environmental impact of the built environment, to improve indoor quality and productivity, as well as to facilitate future innovation and technological progress in construction. Since publication of the first edition of Building Performance Simulation for Design and Operation, the discussion has shifted from a focus on software features to a new agenda, which centres on the effectiveness of building performance simulation in building life cycle processes. This new edition provides a unique and comprehensive overview of building performance simulation for the complete building life cycle from conception to demolition, and from a single building to district level. It contains new chapters on building information modelling, occupant behaviour modelling, urban physics modelling, urban building energy modelling and renewable energy systems modelling. This new edition keeps the same chapter structure throughout including

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learning objectives, chapter summaries and assignments. Moreover, the book: • Provides unique insights into the techniques of building performance modelling and simulation and their application to performance-based design and operation of buildings and the systems which service them. • Provides readers with the essential concepts of computational support of performance-based design and operation. • Provides examples of how to use building simulation techniques for practical design, management and operation, their limitations and future direction. It is primarily intended for building and systems designers and operators, and postgraduate architectural, environmental or mechanical engineering students.

Earthquake engineering is the ultimate challenge for structural engineers. Even if natural phenomena involve great uncertainties, structural engineers need to design buildings, bridges, and dams capable of resisting the destructive forces produced by them. These disasters have created a new awareness about the disaster preparedness and mitigation. Before a building, utility system, or transportation structure is built, engineers spend a great deal of time analyzing those structures to make sure they will perform reliably under seismic and other loads. The purpose of this book is to provide structural engineers with tools and information to improve current building and bridge design and construction practices and enhance their sustainability during and after seismic events. In this

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book, Khan explains the latest theory, design applications and Code Provisions. Earthquake-Resistant Structures features seismic design and retrofitting techniques for low and high rise buildings, single and multi-span bridges, dams and nuclear facilities. The author also compares and contrasts various seismic resistant techniques in USA, Russia, Japan, Turkey, India, China, New Zealand, and Pakistan. Written by a world renowned author and educator Seismic design and retrofitting techniques for all structures Tools improve current building and bridge designs Latest methods for building earthquake-resistant structures Combines physical and geophysical science with structural engineering These proceedings, arising from an international workshop, present research results and ideas on issues of importance to seismic risk reduction and the development of future seismic codes.

Residential construction performance guidelines is the most widely used recommendation by the home building and remodeling industry on how homes should perform during the warranty period. This fully-amended reference tool will help builders and remodelers manage customer expectations and resolve customer complaints, while delivering high-performance homes. Features include: More than 300 guidelines in 13 major construction categories New guidelines on wall insulation, windows and glass, roof trusses, roof vents, roof

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coverings, plumbing, electrical, flooring, and more Glossary of common terms Italicized terms throughout for easy identification in the Glossary The consumer version of Residential Construction Performance Guidelines (BuilderBooks item #00307, sold separately) allows you to: Help customers understand the basics of a properly constructed home and how it should perform during the warranty period Take action to resolve customer concerns before they escalate to complaints Exhibit your professionalism by showing that you consistently meet or exceed accepted industry guidelines

Homeowner maintenance reference manual including 380 residential workmanship guidelines covering conditions and maintenance for topics including: floors and ceilings; roofs and gutters; foundations and basements; interior/exterior components; grounds; utility systems; and walls. Homeowner and builder maintenance responsibilities are stated along with the performance guideline and additional information for each topic. Green home construction is also covered.

This comprehensive code comprises all building, plumbing, mechanical, fuel gas and electrical requirements for one- and two-family dwellings and townhouses up to three stories. The IRC contains many important changes such as: An updated seismic map reflects the most conservative Seismic Design Category (SDC)

based on any soil type and a new map reflects less conservative SDCs when Site Class A, B or D is applicable. The townhouse separation provisions now include options for using two separate fire-resistant-rated walls or a common wall. An emergency escape and rescue opening is no longer required in basement sleeping rooms where the dwelling has an automatic fire sprinkler system and the basement has a second means of egress or an emergency escape opening. The exemption for interconnection of smoke alarms in existing areas has been deleted. New girder/header tables have been revised to incorporate the use of #2 Southern Pine in lieu of #1 Southern Pine. New tables address alternative wood stud heights and the required number of full height studs in high wind areas.

This book includes the most recent outcomes from research and professional practice in the ventilative cooling field, gathered by the selected panel of authors. It provides essential contents to face and reduce the rise of space cooling and ventilation energy uses in buildings by alternative ventilation and cooling solutions. The book is organised into three parts which include a detailed description of ventilative cooling boundaries and implications (working principles, KPIs, standards, comfort models, control techniques) and of principal techniques (night ventilation, controlled natural ventilation, hybrid solutions, PCM and mass

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activation, evaporative cooling, earth-to-air heat exchangers) along with an updated analysis of the background to the topic. Furthermore, the last part of the book defines a unique practical and theoretical framework to include ventilative cooling solutions in different building typologies along with their principal implications.

This document from the National Earthquake Hazards Reduction Program (NEHRP) was prepared for the Building Seismic Safety Council (BSSC) with funding from the Federal Emergency Management Agency (FEMA). It provides commentary on the NEHRP Guidelines for the Seismic Rehabilitation of Buildings. It contains systematic guidance enabling design professionals to formulate effective & reliable rehabilitation approaches that will limit the expected earthquake damage to a specified range for a specified level of ground shaking. This kind of guidance applicable to all types of existing buildings & in all parts of the country has never existed before. Illustrated. "TRB's National Cooperative Highway Research Program (NCHRP) Synthesis 440, Performance-Based Seismic Bridge Design (PBSD) summarizes the current state of knowledge and practice for PBSD. PBSD is the process that links decision making for facility design with seismic input, facility response, and potential facility damage. The goal of PBSD is to provide decision makers and stakeholders with data that will enable them to allocate resources for construction based on levels of desired seismic performance"--Publisher's description.

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The one-stop guide for choosing a green building rating system Today, sustainability is a growing concern for the architects, designers, builders, and owners of commercial and residential buildings. Meeting the requirements of a rating system provides a metric to evaluate and set priorities. But the variety and complexity of methods available to assess the eco-friendliness of a building can seem overwhelming. Guide to Green Building Rating Systems informs readers about the rating system selection process. Comparing essential issues such as cost, ease of use, and building performance, this book offers solid guidance that will help readers find the rating system that best fits their needs. This easy-to-follow reference includes: An overview of the major national rating systems, including LEED®, Green Globes®, the National Green Building Standard, and ENERGY STAR® An in-depth look at each rating system, including its evolution, objectives, point structure, levels of certification, benefits, and shortcomings How the ratings systems work for different types of buildings—commercial, multi-family residential, and single-family residential construction Illustrated case studies from different climate regions with project descriptions, cost data, and lessons learned by design teams, constructors, and owners An overview of local, regional, and international rating systems Guide to Green Building Rating Systems demystifies complex material, making this book an essential reference for building professionals engaged in, or wishing to pursue, sustainable building practices.

High performance buildings maximize operational energy savings; improve comfort,

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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.

The building performance evaluation (BPE) framework emphasizes an evaluative stance throughout the six phases of the building delivery and life cycle: (1) strategic planning/needs analysis; (2) program review; (3) design review; (4) post-construction evaluation/review; (5) post-occupancy evaluation; and, (6) facilities management review/adaptive reuse. The lessons learned from positive and negative building performance are fed into future building delivery cycles. The case studies illustrate how this basic methodology has been adapted to a range of cultural contexts, and indicates the positive results of building performance assessment in a wide range of situations. The Loma Prieta earthquake struck the San Francisco area on October 17, 1989, causing 63 deaths and \$10 billion worth of damage. This book reviews existing research on the Loma Prieta quake and draws from it practical lessons that could be applied to other earthquake-prone areas of the country. The volume contains seven keynote papers presented at a symposium on the earthquake and includes an overview

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written by the committee offering recommendations to improve seismic safety and earthquake awareness in parts of the country susceptible to earthquakes.

Developed as a resource for practicing engineers, while simultaneously serving as a text in a formal classroom setting, *Wind and Earthquake Resistant Buildings* provides a fundamental understanding of the behavior of steel, concrete, and composite building structures. The text format follows, in a logical manner, the typical process of designing a building, from the first step of determining design loads, to the final step of evaluating its behavior for unusual effects. Includes a worksheet that takes the drudgery out of estimating wind response. The book presents an in-depth review of wind effects and outlines seismic design, highlighting the dynamic behavior of buildings. It covers the design and detailing the requirements of steel, concrete, and composite buildings assigned to seismic design categories A through E. The author explains critical code specific items and structural concepts by doing the nearly impossible feat of addressing the history, reason for existence, and intent of major design provisions of the building codes. While the scope of the book is intentionally broad, it provides enough in-depth coverage to make it useful for structural engineers in all stages of their careers.

The Power of Evidence to Create Design Excellence This practical, accessible book—for design professionals and students alike—is about design excellence and how to achieve it. The authors propose an evidence-based design approach that builds on design ingenuity with the use of research in ways that enhance opportunities to innovate. They show the power of research data to both reveal new design opportunities and convince stakeholders of the value of extraordinary work. A guide for all designers who want to earn their place as their clients'

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trusted advisor and who aspire to create places of beauty and purpose, the book demonstrates: An approach to applying evidence to design that neither turns designers into scientists nor requires large-firm resources The wide range of types of evidence that can be applicable to design and where to look for it Direct, practical application of the evidence-based design approaches in use today Provides tools to distinguish strong evidence that can improve design decisions from misleading assertions resulting from weak research Benefits of evidence-based design, including improved human and building performance Two featured case studies illustrate the theory and practice of evidence-based design. The work of the authors' 2005–2007 AIA College of Fellows Benjamin Latrobe Research Fellowship provided an empirical foundation for this book, and addresses the use of rigorous research methods to understand relationships between design choices and health outcomes. The California Academy of Sciences, designed by Renzo Piano Building Workshop, Chong Partners Architecture, and Arup, provides transparent evidence that enhances building technology performance in the context of a powerful design expression. In-depth interviews and case studies are clustered around three research categories: modeling, simulation, and data mining; social and behavioral science and the physical and natural sciences; and including cutting-edge use of neuroscience to understand human response to physical environments. The twenty-two featured thought leaders include: William Mitchell, MIT Media Lab; Fred Gage, Salk Institute; Phil Bernstein, Autodesk; Sheila Kennedy, Kennedy & Violich; James Timberlake, KieranTimberlake; William and Chris Sharples, SHoP Architects; Vivian Loftness, Carnegie Mellon University; John Zeisel, Hearthstone; Paco Underhill, EnviroSell; Susan Ubbelohde and George Loisos, Loisos+Ubbelohde Architecture-Energy; Chris Luebke, Arup; Martin

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Fischer, Stanford University CIFE; and Kevin Powell, GSA.

Safety, Reliability, Risk and Life-Cycle Performance of Structures and Infrastructures contains the plenary lectures and papers presented at the 11th International Conference on STRUCTURAL SAFETY AND RELIABILITY (ICOSSAR2013, New York, NY, USA, 16-20 June 2013), and covers major aspects of safety, reliability, risk and life-cycle performance of str Includes drawings.

Daylight Harvesting for Commercial Buildings provides guidance towards meeting and exceeding California's Building Energy Efficiency Standards for daylight harvesting. Daylight design guidelines and associated Energy Standards are provided in an easy to read, side-by-side layout, organized into sections for each building-related discipline that impacts daylight performance from building siting, through architectural and interior design, to construction, commissioning and operation. This guide also includes a useful reference section for further education and a glossary of important terms. It is an excellent introduction to daylighting for the novice and a reference that connects daylighting techniques to the California Energy Efficiency Standards for the expert.

Building Performance Evaluation (BPE) informs and enhances the usability and sustainability of building designs with lessons learned from evaluation of building performance throughout the building life cycle, from initial planning through occupancy to adaptive re-use. A key feature of BPE is that it examines design and technical performance of buildings alongside human performance criteria. That is, it seeks to examine facilities in order to determine whether they will work for the people that will use and occupy them. Rigorous BPE helps to improve design practice by providing feedback on the effectiveness of the choices made about the building to

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ensure that its design is optimised for stakeholders' uses. The overarching theme for Enhancing Building Performance is to present the next generation of BPE work. The book provides an updated systematic approach for BPE as well as chapters written by experts from around the world who demonstrate how to apply BPE to enhance building design. Topics covered include: evidence-based and integrative design processes, evaluation methods and tools, and education and knowledge transfer. In addition, case studies provide specific examples of how BPE has been used to study such things as the impact of workplace design on human productivity and innovation. Written primarily for design professionals and facility managers who wish to use BPE to deliver improved building performance that is responsive to the needs of stakeholders, Enhancing Building Performance will also be of great value to researchers and students across a range of architecture and construction disciplines.

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