

The Earthquake Standards New Zealand

Encompassing theory and field experience, this book covers all the main subject areas in earthquake risk reduction, ranging from geology, seismology, structural and soil dynamics to hazard and risk assessment, risk management and planning, engineering and the architectural design of new structures and equipment. Earthquake Risk Reduction outlines individual national weaknesses that contribute to earthquake risk to people and property; calculates the seismic response of soils and structures, using the structural continuum 'Subsoil - Substructure - Superstructure - Non-structure'; evaluates the effectiveness of given designs and construction procedures for reducing casualties and financial losses; provides guidance on the key issue of choice of structural form; presents earthquake resistant design methods for the four main structural materials - steel, concrete, reinforced masonry and timber - as well as for services equipment, plant and non-structural architectural components; contains a chapter devoted to problems involved in improving (retrofitting) the existing built environment. Compiled from the author's extensive professional experience in earthquake engineering, this key text provides an excellent treatment of the complex multidisciplinary process of earthquake risk reduction. This book will prove an invaluable reference and guiding tool to practicing civil and structural engineers and architects, researchers and postgraduate students in seismology, local governments and risk management officials. This book resents expert knowledge, opinions and experiences, and provides valuable insight into the scope of problems involved in protecting schools and their occupants from earthquakes.

This state of the art report from an international task group (TG44) of CIB, the International Council of Building Research Organizations, presents a highly authoritative guide to the application of innovative technologies on response control and seismic isolation of buildings to practice worldwide. Many countries and cities are located in earthquake-prone areas making effective seismic design a major issue in structural engineering. Reassuringly, structural response control and seismic isolation have advanced remarkably in recent years following numerous studies internationally. Several major conferences have been held and reports have been written but little has been issued on the application of the technologies to good structural engineering practice. Plugging that gap, Response Control and Seismic Isolation of Buildings presents researchers in structural engineering (dynamics) and construction management with up-to-date applications of the latest technologies.

Earthquake Resistant Design and Risk Reduction, 2nd edition is based upon global research and development work over the last 50 years or more, and follows the author's series of three books Earthquake Resistant Design, 1st and 2nd editions (1977 and 1987), and Earthquake Risk Reduction (2003). Many advances have been made since the 2003 edition of Earthquake Risk Reduction, and there is every sign that this rate of progress will continue apace in the years to come. Compiled from the author's wide design and research experience in earthquake engineering and engineering seismology, this key text provides an excellent treatment of the complex multidisciplinary process of earthquake resistant design and risk reduction. New topics include the creation of low-damage structures and the spatial distribution of ground shaking near large fault ruptures. Sections on guidance for developing countries, response of buildings to differential settlement in liquefaction, performance-based and displacement-based design and the architectural aspects of earthquake resistant design are heavily revised. This book: Outlines individual national weaknesses that contribute to earthquake risk to people and property Calculates the seismic response of soils and structures, using the structural continuum "Subsoil – Substructure – Superstructure – Non–structure" Evaluates the effectiveness of given design and construction procedures for reducing casualties and financial losses Provides guidance on the key issue of choice of structural form Presents earthquake resistant design methods for the main four structural materials – steel, concrete, reinforced masonry and timber – as well as for services equipment, plant and non-structural architectural components Contains a chapter devoted to problems involved in improving (retrofitting) the existing built environment This book is an invaluable reference and guiding tool to practising civil and structural engineers and architects, researchers and postgraduate students in earthquake engineering and engineering seismology, local governments and risk management officials.

Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions contains invited, keynote and theme lectures and regular papers presented at the 7th International Conference on Earthquake Geotechnical Engineering (Rome, Italy, 17-20 June 2019). The contributions deal with recent developments and advancements as well as case histories, field monitoring, experimental characterization, physical and analytical modelling, and applications related to the variety of environmental phenomena induced by earthquakes in soils and their effects on engineered systems interacting with them. The book is divided in the sections below: Invited papers Keynote papers Theme lectures Special Session on Large Scale Testing Special Session on Liquefact Projects Special Session on Lessons learned from recent earthquakes Special Session on the Central Italy earthquake Regular papers Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions provides a significant up-to-date collection of recent experiences and developments, and aims at engineers, geologists and seismologists, consultants, public and private contractors, local national and international authorities, and to all those involved in research and practice related to Earthquake Geotechnical Engineering. Guidelines for Mine Waste Dump and Stockpile Design is a comprehensive, practical guide to the investigation, design, operation and monitoring of mine waste dumps, dragline spoils and major stockpiles associated with large open pit mines. These facilities are some of the largest man-made structures on Earth, and while most have performed very well, there are cases where instabilities have occurred with severe consequences, including loss of life and extensive environmental and economic damage. Developed and written by industry experts with extensive knowledge and experience, this book is an initiative of the Large Open Pit (LOP) Project. It comprises 16 chapters that follow the life cycle of a mine waste dump, dragline spoil or stockpile from site selection to closure and reclamation. It describes the investigation and design process, introduces a comprehensive stability rating and hazard classification system, provides guidance on acceptability criteria, and sets out the key elements of stability and runout analysis. Chapters on site and material characterisation, surface water and groundwater characterisation and management, risk assessment, operations and monitoring, management of ARD, emerging technologies and closure are included. A chapter is also dedicated to the analysis and design of dragline spoils. Guidelines for Mine Waste Dump and Stockpile Design summarises the current state of practice and provides insight and guidance to mine operators, geotechnical engineers, mining engineers, hydrogeologists, geologists and other individuals that are responsible at the mine site level for ensuring the stability and performance of these structures. Readership includes mining engineers, geotechnical engineers, civil engineers, engineering geologists, hydrogeologists, environmental scientists, and other professionals involved in the site selection, investigation, design, permitting, construction, operation, monitoring, closure and reclamation of mine waste dumps and stockpiles.

The subject of earthquake engineering has been the focus of my teaching and research for many years. Thus, when Mario Paz, the editor of this handbook, asked me to write a Foreword, I was interested and honored by his request. Worldwide, people are beginning to understand the severity of the danger to present and future generations caused by the destruction of the environment. Earthquakes pose a similar threat; thus, the proper use of methods for earthquake-resistant design and construction is vitally important for countries that are at high risk of being subjected to strong-motion earthquakes. Most seismic activity is the result of tectonic earthquakes. Tectonic earthquakes are very special events in that, although they occur frequently, their probability of becoming natural hazards for a specific urban area is very small. When a severe earthquake does occur near an urban area, however, its consequences are very large in terms of structural destruction and human suffering.

The construction of earth buildings has been taking place worldwide for centuries. With the improved energy efficiency, high level of structural

integrity and aesthetically pleasing finishes achieved in modern earth construction, it is now one of the leading choices for sustainable, low-energy building. Modern earth buildings provides an essential exploration of the materials and techniques key to the design, development and construction of such buildings. Beginning with an overview of modern earth building, part one provides an introduction to design and construction issues including insulation, occupant comfort and building codes. Part two goes on to investigate materials for earth buildings, before building technologies are explored in part three including construction techniques for earth buildings. Modern earth structural engineering is the focus of part four, including the creation of earth masonry structures, use of structural steel elements and design of natural disaster-resistant earth buildings. Finally, part five of Modern earth buildings explores the application of modern earth construction through international case studies. With its distinguished editors and international team of expert contributors, Modern earth buildings is a key reference work for all low-impact building engineers, architects and designers, along with academics in this field. Provides an essential exploration of the materials and techniques key to the design, development and construction of modern earth buildings. Comprehensively discusses design and construction issues, materials for earth buildings, construction techniques and modern earth structural engineering, among other topics. Examines the application of modern earth construction through international case studies.

Earthen architecture constitutes one of the most diverse forms of cultural heritage and one of the most challenging to preserve. It dates from all periods and is found on all continents but is particularly prevalent in Africa, where it has been a building tradition for centuries. Sites range from ancestral cities in Mali to the palaces of Abomey in Benin, from monuments and mosques in Iran and Buddhist temples on the Silk Road to Spanish missions in California. This volume's sixty-four papers address such themes as earthen architecture in Mali, the conservation of living sites, local knowledge systems and intangible aspects, seismic and other natural forces, the conservation and management of archaeological sites, research advances, and training.

The aim of this state-of-art report is to present current practices for use of precast and prestressed concrete in countries in seismic regions, to recommend good practice, and to discuss current developments. The report has been drafted by 30 contributors from nine different countries. This state-of-art report covers: state of the practice in various countries; advantages and disadvantages of incorporating precast reinforced and prestressed concrete in construction; lessons learned from previous earthquakes; construction concepts; design approaches; primary lateral load resisting systems (precast and prestressed concrete frame systems and structural walls including dual systems) diaphragms of precast and prestressed concrete floor units; modelling and analytical methods; gravity load resisting systems; foundations; and miscellaneous elements (shells, folded plates, stairs and architectural cladding panels). Design equations are reported where necessary, but the emphasis is on principles. Ordinary cast-in-place reinforced concrete is not considered in this report. This fib state-of-the-art report is intended to assist designers and constructors to provide safe and economical applications of structural precast concrete and at the same time to allow innovation in design and construction to continue. This Bulletin N° 27 was approved as an fib state-of-art report in autumn 2002 by fib Commission 7, Seismic design.

This document has a broad scope and is not focussed on design issues. Precast construction under seismic conditions is treated as a whole. The main principles of seismic design of different structural systems, their behavior and their construction techniques are presented through rules, construction steps and sequences, procedures, and details that should lead to precast structures built in seismic areas complying with the fundamental performance requirements of collapse prevention and life safety in major earthquakes and limited damage in more frequent earthquakes. The content of this document is largely limited to conventional precast construction and, although some information is provided on the well-known "PRESSS technology" (jointed ductile dry connections), this latter solution is not treated in detail in this document. The general overview, contained in this document, of alternative structural systems and connection solutions available to achieve desired performance levels, intends to provide engineers, architects, clients, and end-users (in general) with a better appreciation of the wide range of applications that modern precast concrete technology can have in various types of construction from industrial to commercial as well as residential. Lastly, the emphasis on practical aspects, from conceptual design to connection detailing, aims to help engineers to move away from the habit of blindly following prescriptive codes in their design, but instead go back to basic principles, in order to achieve a more robust understanding, and thus control, of the seismic behaviour of the structural system as a whole, as well as of its components and individual connections.

Seismic Performance of Soil-Foundation-Structure Systems presents invited papers presented at the international workshop (University of Auckland, New Zealand, 21-22 November 2016). This international workshop brought together outstanding work in earthquake engineering that embraces a holistic consideration of soil-foundation-structure systems. For example, the diversity of papers in this volume is represented by contributions from the fields of shallow foundation in liquefiable soil, spatially distributed lifelines, bridges, clustered structures (see photo on front cover), sea floor seismic motion, multi-axial ground excitation, deep foundations, soil-foundation-structure-fluid interaction, liquefaction-induced settlement and uplift with SFSI. A fundamental knowledge gap is manifested by the isolated manner geotechnical and structural engineers work. A holistic consideration of soil-foundation-structures systems is only possible if civil engineers work collaboratively to the mutual benefit of all disciplines. Another gap occurs by the retarded application of up-to-date research findings in engineering design practices. Seismic Performance of Soil-Foundation-Structure Systems is the outcome from the recognized need to close this gap, since it has been observed that a considerable delay exists between published research findings and application of the principles revealed by the research. Seismic Performance of Soil-Foundation-Structure Systems will be helpful in developing more understanding of the complex nature of responses these systems present under strong earthquakes, and will assist engineers in closing the gaps identified above.

The Bled workshops have traditionally produced reference documents providing visions for the future development of earthquake engineering as foreseen by leading researchers in the field. The participants of the 2011 workshop built on the tradition of these events initiated by Professors Fajfar and Krawinkler to honor their important research contributions and have now produced a book providing answers to crucial questions in today's earthquake engineering: "What visible changes in the design practice have been brought about by performance-based seismic engineering? What are the critical needs for future advances? What actions should be taken to respond to those needs?" The key answer is that research interests should go beyond the narrow technical aspects and that the seismic resilience of society as a whole should become an essential part of the planning and design process. The book aims to provide essential guidelines for researchers, professionals and students in the field of earthquake engineering. It will also be of particular interest for all those working at insurance companies, governmental, civil protection and emergency management agencies that are responsible for assessing and planning community resilience. The introductory chapter of the book is based on the keynote presentation given at the workshop by the late Professor Helmut Krawinkler. As such, the book includes Helmut's last and priceless address to the engineering community, together with his vision and advice for the future development of performance-based design, earthquake engineering and seismic risk management.

Behaviour of Steel Structures in Seismic Areas is a comprehensive overview of recent developments in the field of seismic resistant steel structures. It comprises a collection of papers presented at the seventh International Specialty

Conference STESSA 2012 (Santiago, Chile, 9-11 January 2012), and includes the state-of-the-art in both theory and practice. The aim of this major reference work is to provide a first point of entry to the literature for the researchers in any field relating to structural integrity in the form of a definitive research/reference tool which links the various sub-disciplines that comprise the whole of structural integrity. Special emphasis will be given to the interaction between mechanics and materials and structural integrity applications. Because of the interdisciplinary and applied nature of the work, it will be of interest to mechanical engineers and materials scientists from both academic and industrial backgrounds including bioengineering, interface engineering and nanotechnology. The scope of this work encompasses, but is not restricted to: fracture mechanics, fatigue, creep, materials, dynamics, environmental degradation, numerical methods, failure mechanisms and damage mechanics, interfacial fracture and nano-technology, structural analysis, surface behaviour and heart valves. The structures under consideration include: pressure vessels and piping, off-shore structures, gas installations and pipelines, chemical plants, aircraft, railways, bridges, plates and shells, electronic circuits, interfaces, nanotechnology, artificial organs, biomaterial prostheses, cast structures, mining... and more. Case studies will form an integral part of the work.

fib Bulletin 69 illustrates and compares major buildings seismic codes applied in the different Continents, namely U.S., Japan, New Zealand, Europe, Canada, Chile and Mexico. Bulletin 69 was prepared by Task Group 7.6 of fib Commission 7, under the leadership of the late Professor Robert (Bob) Park which, in tandem with Professor Paulay, had developed in the seventies new fundamental design concepts, most notably capacity design approach and structural design for ductility, that had made the NZ seismic Code the most advanced one of the time. This new approach has highly influenced the development of Eurocode 8, to which Bob Park has significantly contributed. Bob Park was also well informed of the situation in Japan, USA, Canada and South America. Such a wide view is reflected in Bulletin 69 showing similarities and differences among the major seismic codes, accompanied as far as possible by comments, hopefully useful for fostering international harmonization. A comprehensive summary of the major codes is provided in the first chapter of the bulletin. All codes are separately presented according to a common framework: an introduction section, which describes the history, the philosophy, the process development, the performance-based criteria, the strength of materials and the incorporation of strength reduction factors of each code; a second section devoted to the demand side, which specify the seismic design actions and associated criteria of each code for areas of different seismicity and for structures with different ductility properties/requirements; a third section devoted to the capacity side, which describes the capacities of members and joints and associated criteria of each code, including member strengths in flexure, shear and bars anchorage, desirable hierarchies of strength attainment, deformation capacities of mechanisms of inelastic deformation, detailing of beams, columns and structural walls, detailing of beam-column joints for shear and the detailing of diaphragms. The second chapter is devoted to the comparison of the more significant issues dealt in the considered codes. This includes: seismic design actions and associated criteria, capacity design practice, beams, columns, confinement, structural walls and joints. It is felt that fib Bulletin 69 represents a useful, unique instrument for rapidly gaining an overview of the distinguishing features of the major world codes, under both their conceptual framework and application rules.

Critical comparison of major seismic codes for buildings Technical report fib Fédération internationale du béton Soil-Foundation-Structure Interaction contains selected papers presented at the International Workshop on Soil-Foundation-Structure Interaction held in Auckland, New Zealand from 26-27 November 2009. The workshop was the venue for an international exchange of ideas, disseminating information about experiments, numerical models and practical en

Health monitoring of civil structures (HMS) is a new discipline, which contributes to successful and on time detection of damages to structures. This book is a collection of chapters on different topics written by leading scientists in the field. It is primarily focused on the latest achievements in monitoring the earthquake effect upon the health of civil structures. The first chapter of the book deals with the geotechnical and structural aspects of the 2010-2011 Christchurch earthquakes. Further chapters are dedicated to the latest HMS techniques of identification of damage to structures caused by earthquakes. Real time damage detection as well as sensors and acquisition systems used for that purpose are presented. The attention is focused on automated modal analysis, dynamic artificial neural networks and wavelet techniques used in HMS. Particular emphasis is put on wireless sensors and piezo-impedance transducers used for evaluation of seismically induced structural damage. The discussion is followed by presentation of case studies of application of health monitoring for buildings and other civil structures, including a super tall structure. The book ends with a presentation of shaking table tests on physical models for the purpose of monitoring their behaviour under earthquake excitation. Audience The book is primarily intended for engineers and scientists working in the field of application of the HMS technique in earthquake engineering. Considering that real time health monitoring of structures represents a sophisticated approach applying the latest techniques of monitoring of structures, many experts from other industries will also find this book useful.

Soil Liquefaction during Recent Large-Scale Earthquakes contains selected papers presented at the New Zealand – Japan Workshop on Soil Liquefaction during Recent Large-Scale Earthquakes (Auckland, New Zealand, 2-3 December 2013). The 2010-2011 Canterbury earthquakes in New Zealand and the 2011 off the Pacific Coast of Tohoku Earthquake in Japan have caused significant damage to many residential houses due to varying degrees of soil liquefaction over a very wide extent of urban areas unseen in past destructive earthquakes. While soil liquefaction occurred in naturally-sedimented soil formations in Christchurch, most of the areas which liquefied in Tokyo Bay area were reclaimed soil and artificial fill deposits, thus providing researchers with a wide range of soil deposits to characterize soil and site response to large-scale earthquake shaking. Although these earthquakes in New Zealand and Japan caused extensive damage to

life and property, they also serve as an opportunity to understand better the response of soil and building foundations to such large-scale earthquake shaking. With the wealth of information obtained in the aftermath of both earthquakes, information-sharing and knowledge-exchange are vital in arriving at liquefaction-proof urban areas in both countries. Data regarding the observed damage to residential houses as well as the lessons learnt are essential for the rebuilding efforts in the coming years and in mitigating buildings located in regions with high liquefaction potential. As part of the MBIE-JSPS collaborative research programme, the Geomechanics Group of the University of Auckland and the Geotechnical Engineering Laboratory of the University of Tokyo co-hosted the workshop to bring together researchers to review the findings and observations from recent large-scale earthquakes related to soil liquefaction and discuss possible measures to mitigate future damage. Soil Liquefaction during Recent Large-Scale Earthquakes will be of great interest to researchers, academics, industry practitioners and other professionals involved in Earthquake Geotechnical Engineering, Foundation Engineering, Earthquake Engineering and Structural Dynamics.

New Zealand's recovery has stalled since mid-2010. Spare capacity has helped contain inflation. The Reserve Bank of New Zealand (RBNZ) lifted its policy rate in two steps from a record low of 2.5 percent to 3 percent in mid-2010. The exchange rate appreciated and financial markets have largely recovered from the global financial crisis. The banking sector remains profitable and is dominated by four subsidiaries of Australian banks that performed well during the crisis. The 2010 Canterbury earthquakes have disrupted economic activity, reduced wealth, and weakened confidence. Insight Guide New Zealand is a comprehensive, full colour travel guide to this small but amazingly diverse country, and provides both inspiration and information to plan a memorable trip. The Best Of New Zealand section is our pick of the top attractions and unmissable experiences such as walking on Franz Josef Glacier, discovering the Waitomo glow-worm caves, and taking a jetboat ride on the Dart River through the pristine Mount Aspiring National Park. Lively features immerse you in New Zealand's fascinating history and culture, exploring Maori handicrafts and traditions as well as contemporary Kiwi music, theatre and film. We also show you where to sample the country's high-quality food and wine, try out adrenaline-pumping outdoor activities, and get up close to gurgling geysers and other sulphurous geothermal wonders. The Places section covers the entire country in detail, from the sun-kissed capital, Auckland, in the north to the remote Fiordland National Park in the South. There are insightful descriptions of all the main attractions, and detailed, full-colour maps for easy orientation, plus beautiful photography throughout. The Travel Tips section provides comprehensive planning information, and our independent reviews of selected hotels and restaurants lead you to the most authentic establishments. About Insight Guides: Insight Guides has over 40 years' experience of publishing high-quality, visual travel guides. We produce around 400 full-color print guide books and maps as well as picture-packed eBooks to meet different travelers' needs. Insight Guides' unique combination of beautiful travel photography and focus on history and culture together create a unique visual reference and planning tool to inspire your next adventure. 'Insight Guides has spawned many imitators but is still the best of its type.' - Wanderlust Magazine

Brick and Block Masonry - Trends, Innovations and Challenges contains the lectures and regular papers presented at the 16th International Brick and Block Masonry Conference (Padova, Italy, 26-30 June 2016). In an ever-changing world, in which innovations are rapidly implemented but soon surpassed, the challenge for masonry, the oldest and most traditional building material, is that it can address the increasingly pressing requirements of quality of living, safety, and sustainability. This abstracts volume and full paper USB device, focusing on challenges, innovations, trends and ideas related to masonry, in both research and building practice, will prove to be a valuable source of information for researchers and practitioners, masonry industries and building management authorities, construction professionals and educators.

Contracts for Construction and Engineering Projects provides unique and invaluable guidance on the role of contracts in construction and engineering projects. The work explores various aspects of the intersection of contracts and construction projects involving the work of engineers and other professionals engaged in construction, whether as project managers, designers, constructors, contract administrators, schedulers, claims consultants, forensic engineers or expert witnesses. Compiling papers written and edited by the author, refined and expanded with additional chapters in this new edition, this book draws together a lifetime of lessons learned in these fields and covers the topics a practising professional might encounter in construction and engineering projects, developed in bite-sized chunks. The chapters are divided into five key parts: 1. The engineer and the contract 2. The project and the contract 3. Avoidance and resolution of disputes 4. Forensic engineers and expert witnesses, and 5. International construction contracts. The inclusion of numerous case studies to illustrate the importance of getting the contract right before it is entered into – and the consequences that may ensue if this is not done – makes this book essential reading for professionals practising in any area of design, construction, contract administration, preparation of claims or expert evidence, as well as construction lawyers who interact with construction professionals.

Seismic isolation offers the highest degree of earthquake protection to buildings and their inhabitants. Modern applications of the technology are less than 50 years old and uptake in seismically active regions continues to soar. Seismic Isolation for Architects is a comprehensive introduction to the theory and practice in this field. Based on the latest research findings and the authors' extensive experience, coverage includes the application, effectiveness, benefits, and limitations of seismic isolation, as well as the architectural form, design aspects, retrofitting, economics, construction, and maintenance related to this method. The book is written for an international audience: the authors review codes and practices from a number of countries and draw on examples from eleven territories including the US, Chile, Argentina, Italy, Japan, and New Zealand. Aimed at readers without prior knowledge of structural engineering, the book provides an accessible, non-technical approach without using equations or calculations, instead using over 200 drawings, diagrams and images to support the text. This book is key reading for students on architecture and civil engineering courses looking for a clear introduction to seismic-resistant design, as well as architects and engineers working in seismically active regions.

This open access book originates from an international workshop organized by Turkish Natural Catastrophe Insurance Pool (TCIP) in

November 2019 that gathered renown researchers from academia, representatives of leading international reinsurance and modeling companies as well as government agencies responsible of insurance pricing in Turkey. The book includes chapters related to post-earthquake damage assessment, the state-of-art and novel earthquake loss modeling, their implementation and implication in insurance pricing at national, regional and global levels, and the role of earthquake insurance in building resilient societies and fire following earthquakes. The rich context encompassed in the book makes it a valuable tool not only for professionals and researchers dealing with earthquake loss modeling but also for practitioners in the insurance and reinsurance industry.

Seismic Design for Architects shows how structural requirements for seismic resistance can become an integral part of the design process. Structural integrity does not have to be at the expense of innovative, high standard design in seismically active zones. * By emphasizing design and discussing key concepts with accompanying visual material, architects are given the background knowledge and practical tools needed to deal with aspects of seismic design at all stages of the design process * Seismic codes from several continents are drawn upon to give a global context of seismic design * Extensively illustrated with diagrams and photographs * A non-mathematical approach focuses upon the principles and practice of seismic resistant design to enable readers to grasp the concepts and then readily apply them to their building designs Seismic Design for Architects is a comprehensive, practical reference work and text book for students of architecture, building science, architectural and civil engineering, and professional architects and structural engineers.

This book collects 4 keynote and 15 theme lectures presented at the 2nd European Conference on Earthquake Engineering and Seismology (2ECEES), held in Istanbul, Turkey, from August 24 to 29, 2014. The conference was organized by the Turkish Earthquake Foundation - Earthquake Engineering Committee and Prime Ministry, Disaster and Emergency Management Presidency under the auspices of the European Association for Earthquake Engineering (EAEE) and European Seismological Commission (ESC). The book's nineteen state-of-the-art chapters were written by the most prominent researchers in Europe and address a comprehensive collection of topics on earthquake engineering, as well as interdisciplinary subjects such as engineering seismology and seismic risk assessment and management. Further topics include engineering seismology, geotechnical earthquake engineering, seismic performance of buildings, earthquake-resistant engineering structures, new techniques and technologies, and managing risk in seismic regions. The book also presents the First Professor Inge Lehmann Distinguished Award Lecture given by Prof. Shamita Das in honor of Prof. Dr. Inge Lehmann. The aim of this work is to present the state-of-the art and latest practices in the fields of earthquake engineering and seismology, with Europe's most respected researchers addressing recent and ongoing developments while also proposing innovative avenues for future research and development. Given its cutting-edge content and broad spectrum of topics, the book offers a unique reference guide for researchers in these fields.

Audience: This book is of interest to civil engineers in the fields of geotechnical and structural earthquake engineering; scientists and researchers in the fields of seismology, geology and geophysics. Not only scientists, engineers and students, but also those interested in earthquake hazard assessment and mitigation will find in this book the most recent advances.

The book presents research papers presented by academicians, researchers, and practicing structural engineers from India and abroad in the recently held Structural Engineering Convention (SEC) 2014 at Indian Institute of Technology Delhi during 22 – 24 December 2014. The book is divided into three volumes and encompasses multidisciplinary areas within structural engineering, such as earthquake engineering and structural dynamics, structural mechanics, finite element methods, structural vibration control, advanced cementitious and composite materials, bridge engineering, and soil-structure interaction. Advances in Structural Engineering is a useful reference material for structural engineering fraternity including undergraduate and postgraduate students, academicians, researchers and practicing engineers.

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