

Piled Raft Foundation International Journal Of Civil

This book provides a comprehensive guide to the design of foundations for tall buildings. After a general review of the characteristics of tall buildings, various foundation options are discussed followed by the general principles of foundation design as applied to tall buildings. Considerable attention is paid to the methods of assessment of the geotechnical design parameters, as this is a critical component of the design process. A detailed treatment is then given to foundation design for various conditions, including ultimate stability, serviceability, ground movements, dynamic loadings and seismic loadings. Basement wall design is also addressed. The last part of the book deals with pile load testing and foundation performance measurement, and finally, the description of a number of case histories. A feature of the book is the emphasis it places on the various stages of foundation design: preliminary, detailed and final, and the presentation of a number of relevant methods of design associated with each stage.

Books on green building theories, principles and strategies applicable to life cycles of all kinds of buildings and building types are already widely available. However, those specifically on greening affordable housing that guide various housing stakeholders at different life cycles are still very limited. This book intends to fill this gap. Integrating green building enables stakeholders to address the environmental component that has not traditionally been seen as an integral part of affordable housing development. The book presents theories and principles with practical methods, strategies and processes not only to make affordable housing green but also to support economic stability and social equity.

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

"This conference was organized by Instituto Superior Tecnico under the auspices of: International Society of Soil mechanics and Geotechnical Engineering -- ISSMGE, TC18 on Deep Foundations and the Portuguese Geotechnical Society."--T.p. verso.

Energy Geotechnics includes 97 technical papers presented at the 1st International Conference on Energy Geotechnics (ICEGT 2016, Kiel, Germany, 29-31 August 2016). The contributions provides significant advances and critical challenges facing the areas of fundamentals, constitutive and numerical modelling, testing techniques and energy geotechnics applications. Energy Geotechnics contains seven regular sessions and six minisymposia, with contributions on discrete and continuum based modelling as well as investigations based on experimental studies at various scales. The papers on discrete and continuum based modelling examine the behaviour of gas hydrate sediments, cyclic and Thermo-Hydro-Mechanical (T-H-M) modelling of energy piles, non-linear behaviour of energy geo-storage and geo-structures, deformation of geomaterials, modelling of borehole heat exchangers and energy walls, analysis of hydraulic fracturing and discontinuities in reservoirs, engineering problems involving gas hydrates sediments, and modelling of environmental impact of energy geotechnical processes. The technical papers on experimental investigations present small and large scale findings on particle effects, particle-particle and fluid-particle interactions, saturation and thermal effects, water retention, creep behaviour, T-H-M monitoring of energy geotechnical structures, new techniques in laboratory analysis, geomechanical behaviour and cyclic loading of geomaterials. Energy Geotechnics will be of interest to academic and non-academic parties working in the areas of energy production, transport and storage as well as in the fields of energy geotechnics and geomechanics, geotechnical engineering, soil and rock mechanics and geological engineering.

This book results from the 7th ICPMG meeting in Zurich 2010 and covers a broad range of

aspects of physical modelling in geotechnics, linking across to other modelling techniques to consider the entire spectrum required in providing innovative geotechnical engineering solutions. Topics presented at the conference: Soil – Structure – Interaction; Natural Hazards; Earthquake Engineering: Soft Soil Engineering; New Geotechnical Physical; Modelling Facilities; Advanced Experimental Techniques; Comparisons between Physical and Numerical Modelling Specific Topics: Offshore Engineering; Ground Improvement and Foundations; Tunnelling, Excavations and Retaining Structures; Dams and slopes; Process Modelling; Goenvironmental Modelling; Education

Effective measurement of the composition and properties of petroleum is essential for its exploration, production, and refining; however, new technologies and methodologies are not adequately documented in much of the current literature. Analytical Methods in Petroleum Upstream Applications explores advances in the analytical methods and instrumentation that allow more accurate determination of the components, classes of compounds, properties, and features of petroleum and its fractions. Recognized experts explore a host of topics, including: A petroleum molecular composition continuity model as a context for other analytical measurements A modern modular sampling system for use in the lab or the process area to collect and control samples for subsequent analysis The importance of oil-in-water measurements and monitoring The chemical and physical properties of heavy oils, their fractions, and products from their upgrading Analytical measurements using gas chromatography and nuclear magnetic resonance (NMR) applications Asphaltene and heavy ends analysis Chemometrics and modeling approaches for understanding petroleum composition and properties to improve upstream, midstream, and downstream operations Due to the renaissance of gas and oil production in North America, interest has grown in analytical methods for a wide range of applications. The understanding provided in this text is designed to help chemists, geologists, and chemical and petroleum engineers make more accurate estimates of the crude value to specific refinery configurations, providing insight into optimum development and extraction schemes.

Introducing the Quality of Protection Modeling Language (QoP-ML), this book provides for the abstraction of security systems while maintaining emphasis on the details of quality protection . It delineates the steps used in cryptographic protocol and introduces a multilevel protocol analysis that expands current understanding. Every operation defined by QoP-ML is described within parameters of security metrics, therefore evaluating the impact of the operation on the entire system's security.

The construction materials industry is a major user of the world's resources. While enormous progress has been made towards sustainability, the scope and opportunities for improvements are significant. To further the effort for sustainable development, a conference on Sustainable Construction Materials and Technologies was held at Coventry University, Coventry, U.K., from June 11th - 13th, 2007, to highlight case studies and research on new and innovative ways of achieving sustainability of construction materials and technologies. This book presents selected, important contributions made at the conference. Over 190 papers from over 45 countries were accepted for presentation at the conference, of which approximately 100 selected papers are published in this book. The rest of the papers are published in two supplementary books. Topics covered in this book include: sustainable alternatives to natural sand, stone, and Portland cement in concrete; sustainable use of recyclable resources such as fly ash, ground municipal waste slag, pozzolan, rice-husk ash, silica fume, gypsum plasterboard (drywall), and lime in construction; sustainable mortar, concrete, bricks, blocks, and backfill; the economics and environmental impact of sustainable materials and structures; use of construction and demolition wastes, and organic materials (straw bale, hemp, etc.) in construction; sustainable use of soil, timber, and wood products; and related sustainable construction and rehabilitation technologies.

NUMGE 2018 is the ninth in a series of conferences on Numerical Methods in Geotechnical Engineering organized by the ERTC7 under the auspices of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE). The first conference was held in 1986 in Stuttgart, Germany and the series continued every four years (1990 Santander, Spain; 1994 Manchester, United Kingdom; 1998 Udine, Italy; 2002 Paris, France; 2006 Graz, Austria; 2010 Trondheim, Norway; 2014 Delft, The Netherlands). The conference provides a forum for exchange of ideas and discussion on topics related to numerical modelling in geotechnical engineering. Both senior and young researchers, as well as scientists and engineers from Europe and overseas, are invited to attend this conference to share and exchange their knowledge and experiences. This work is the first volume of NUMGE 2018.

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 Liquefaction 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.

Although progressing very well over the last years, the design criteria for bored and auger piles are still not fully under control and in acceptable synergism with the real pile foundation behaviour. Although there has been a lot of research in the past years worldwide on deep foundation engineering, the strong and competitive market has

The book deals with the geotechnical analysis and design of foundation systems for high-rise buildings and other complex structures with a distinctive soil-structure interaction. The basics of the analysis of stability and serviceability, necessary soil investigations, important technical regulations and quality and safety assurance are explained and possibilities for optimised foundation systems are given. Additionally, special aspects of foundation systems such as geothermal activated foundation systems and the reuse of existing foundations are described and illustrated by examples from engineering practice.

Developments in Geographic Information Technology have raised the expectations of users. A static map is no longer enough; there is now demand for a dynamic representation. Time is of great importance when operating on real world geographical phenomena, especially when these are dynamic. Researchers in the field of Temporal Geographical Information Systems (TGIS) have been developing methods of incorporating time into geographical information systems. Spatio-temporal analysis embodies spatial modelling, spatio-temporal modelling and spatial reasoning and data mining. Advances in Spatio-Temporal Analysis contributes to the field of spatio-temporal analysis, presenting innovative ideas and examples that reflect current progress and achievements.

An overview of recent developments in constitutive modelling, numerical implementation issues, and coupled and dynamic analysis. There is a special section dedicated to the numerical modelling of ground improvement techniques, with applications of numerical methods for solving practical boundary value problems, such as deep excavations, tunnels, shallow and deep foundations, embankments and slopes. These proceedings not only contain

the latest scientific research, but also give valuable insight into the applications of numerical methods in solving practical engineering problems, thus narrowing the gap between advanced academic research and practical application.

The 5th International Conference on Civil Engineering and Urban Planning (CEUP2016) was held in Xi'an, China on August 23 – 26, 2016. CEUP2016 gathered outstanding scientists and researchers worldwide to exchange and discuss new findings in civil engineering and urban planning associated with transportation and environmental topics. The conference program committee is also greatly honored to have four renowned experts for taking time off to present their keynotes to the conference. The conference had received a total of 410 submissions, which after peer review by the Technical Program Committee, only 108 were selected to be included in this conference proceedings, which covers Architecture and Urban Planning; Civil Engineering and Transportation Engineering.

Numerical Methods in Geotechnical Engineering IX contains 204 technical and scientific papers presented at the 9th European Conference on Numerical Methods in Geotechnical Engineering (NUMGE2018, Porto, Portugal, 25—27 June 2018). The papers cover a wide range of topics in the field of computational geotechnics, providing an overview of recent developments on scientific achievements, innovations and engineering applications related to or employing numerical methods. They deal with subjects from emerging research to engineering practice, and are grouped under the following themes: Constitutive modelling and numerical implementation Finite element, discrete element and other numerical methods. Coupling of diverse methods Reliability and probability analysis Large deformation – large strain analysis Artificial intelligence and neural networks Ground flow, thermal and coupled analysis Earthquake engineering, soil dynamics and soil-structure interactions Rock mechanics Application of numerical methods in the context of the Eurocodes Shallow and deep foundations Slopes and cuts Supported excavations and retaining walls Embankments and dams Tunnels and caverns (and pipelines) Ground improvement and reinforcement Offshore geotechnical engineering Propagation of vibrations Following the objectives of previous eight thematic conferences, (1986 Stuttgart, Germany; 1990 Santander, Spain; 1994 Manchester, United Kingdom; 1998 Udine, Italy; 2002 Paris, France; 2006 Graz, Austria; 2010 Trondheim, Norway; 2014 Delft, The Netherlands), Numerical Methods in Geotechnical Engineering IX updates the state-of-the-art regarding the application of numerical methods in geotechnics, both in a scientific perspective and in what concerns its application for solving practical boundary value problems. The book will be much of interest to engineers, academics and professionals involved or interested in Geotechnical Engineering.

This book comprises select proceedings of the annual conference of the Indian Geotechnical Society. The conference brings together research and case histories on various aspects of geotechnical and geoenvironmental engineering. The book presents papers on geotechnical applications and case histories, covering topics such as (i) Characterization of Geomaterials and Physical Modelling; (ii) Foundations and Deep Excavations; (iii) Soil Stabilization and

Ground Improvement; (iv) Geoenvironmental Engineering and Waste Material Utilization; (v) Soil Dynamics and Earthquake Geotechnical Engineering; (vi) Earth Retaining Structures, Dams and Embankments; (vii) Slope Stability and Landslides; (viii) Transportation Geotechnics; (ix) Geosynthetics Applications; (x) Computational, Analytical and Numerical Modelling; (xi) Rock Engineering, Tunnelling and Underground Constructions; (xii) Forensic Geotechnical Engineering and Case Studies; and (xiii) Others Topics: Behaviour of Unsaturated Soils, Offshore and Marine Geotechnics, Remote Sensing and GIS, Field Investigations, Instrumentation and Monitoring, Retrofitting of Geotechnical Structures, Reliability in Geotechnical Engineering, Geotechnical Education, Codes and Standards, and other relevant topics. The contents of this book are of interest to researchers and practicing engineers alike.

Shells are basic structural elements of modern technology and everyday life. Examples of shell structures in technology include automobile bodies, water and oil tanks, pipelines, silos, wind turbine towers, and nanotubes. Nature is full of living shells such as leaves of trees, blooming flowers, seashells, cell membranes or wings of insects. In the human body arteries, the eye shell, the diaphragm, the skin and the pericardium are all shells as well. Shell Structures: Theory and Applications, Volume 4 contains 132 contributions presented at the 11th Conference on Shell Structures: Theory and Applications (Gdansk, Poland, 11-13 October 2017). The papers reflect a wide spectrum of scientific and engineering problems from theoretical modelling through strength, stability and dynamic behaviour, numerical analyses, biomechanic applications up to engineering design of shell structures. Shell Structures: Theory and Applications, Volume 4 will be of interest to academics, researchers, designers and engineers dealing with modelling and analyses of shell structures. It may also provide supplementary reading to graduate students in Civil, Mechanical, Naval and Aerospace Engineering.

This volume focuses on the role of soil-structure-interaction and soil dynamics. It discusses case studies as well as physical and numerical models of geo-structures. It covers: Soil-Structure-Interaction under static and dynamic loads, dynamic behavior of soils, and soil liquefaction. It is hoped that this volume will contribute to further advance the state-of-the-art for the next generation infrastructure as a key to creating a sustainable community affecting our future well-being as well as the economic climate. The volume is based on the best contributions to the 2nd GeoMEast International Congress and Exhibition on Sustainable Civil Infrastructures, Egypt 2018 – The official international congress of the Soil-Structure Interaction Group in Egypt (SSIGE).

Geotechnical Fundamentals and Applications in Construction. New Materials, Structures, Technologies and Calculations contains the papers presented at the International Conference on Geotechnical Fundamentals and Applications in Construction. New Materials, Structures, Technologies and Calculations (GFAC 2019, Saint Petersburg, Russia, 6-8 February 2019). The contributions present

the latest research findings, developments, and applications in the areas of geotechnics, soil mechanics, foundations, geological engineering and share experiences in the design of complex geotechnical objects, and are grouped in 8 sections: • Analytical decisions and numerical modeling for foundations; • Design and construction in geologically hazardous conditions; • Methods for surveying the features of dispersed, rocky soils and structurally unstable soils; • Exploration, territory improvement and reconstruction in conditions of compact urban planning and enterprises, etc.; • Construction, reconstruction and exploitation of infrastructure facilities in different soil conditions; • R&D support and quality control of new materials, design and technology solutions in constructing bases, foundations, underground and surface constructions; • Condition survey and accident evolution analysis in construction; • Up-to-date monitoring techniques in building construction and exploitation. Geotechnical Fundamentals and Applications in Construction. New Materials, Structures, Technologies and Calculations collects the state-of-the-art in geotechnology and construction, and will be of interest to academia and professionals in geotechnics, soil mechanics, foundation engineering and geological engineering. Civil Engineering has recently seen enormous progress in the core field of the construction of deep foundations. This book is the result of the International Workshop on Recent Advances in Deep Foundations (IWDPF07), which was held in Yokosuka, Japan from the 1st to the 2nd of February, 2007. Topics under discussion in this book include recent rese

Numerical Methods in Geotechnical Engineering contains the proceedings of the 8th European Conference on Numerical Methods in Geotechnical Engineering (NUMGE 2014, Delft, The Netherlands, 18-20 June 2014). It is the eighth in a series of conferences organised by the European Regional Technical Committee ERTC7 under the auspices of the International

This book presents computational tools and design principles for piles used in a wide range of applications and for different loading conditions. The chapters provide a mixture of basic engineering solutions and latest research findings in a balanced manner. The chapters are written by world-renowned experts in the field. The materials are presented in a unified manner based on both simplified and rigorous numerical methods. The first four chapters present the basic elements and steps in analysis of piles under static and cyclic loading together with clear references to the appropriate design regulations in Eurocode 7 when relevant. The analysis techniques cover conventional code-based methods, solutions based on pile-soil interaction springs, and advanced 3D finite element methods. The applications range from conventional piles to large circular steel piles used as anchors or monopiles in offshore applications. Chapters 5 to 10 are devoted to dynamic and earthquake analyses and design. These chapters cover a range of solutions from dynamic pile-soil springs to elasto-dynamic solutions of large pile groups. Both linear and nonlinear soil behaviours are considered along with response due to dynamic loads and earthquake shaking including possible

liquefaction. The book is unique in its unified treatment of the solutions used for static and dynamic analysis of piles with practical examples of application. The book is considered a valuable tool for practicing engineers, graduate students and researchers.

An excellent source of reference on the current practice of physical modelling in geotechnics and environmental engineering. Volume One concentrates on physical modelling facilities and experimental techniques, soil characterisation, slopes, dams, liquefaction, ground improvement and reinforcement, offshore foundations and anchors, and pipelines. V

This volume comprises three keynote lectures by internationally well-known experts in the field of underground construction, the inaugural Fujita lecture to honor professor Keiichi Fujita, and the regular papers presented at the 8th International Symposium on Geotechnical Aspects of Underground Construction in Soft Ground (IS-Seoul 2014).

Topics co

Utilizes both Computer- and Hand-Based Calculations... Modern practice in geomechanics is becoming increasingly reliant on computer-based software, much of which can be obtained through the Internet. In Geomechanics in Soil, Rock, and Environmental Engineering the application of these numerical techniques is examined not only for soil mechanics, but also for rock mechanics and environmental applications. ... For Use in Complex Analysis It deals with the modern analysis of shallow foundations, deep foundations, retaining structures, and excavation and tunneling. In recent years, the environment has become more and more important, and so it also deals with municipal and mining waste and solutions for the disposal and containment of the waste. Many fresh solutions to problems are presented to enable more accurate and advanced designs to be carried out. A Practical Reference for Industry Professionals, This Illuminating Book: Offers a broad range of coverage in soil mechanics, rock mechanics, and environmental engineering Incorporates the author's more than 40 years of academic and practical design experience Describes the latest applications that have emerged in the last ten years Supplies references readily available online for further research Geomechanics in Soil, Rock, and Environmental Engineering should appeal to students in their final undergraduate course in geomechanics or master's students, and should also serve as a useful reference to practitioners in the field of geomechanics, reflecting the author's background in both industry and academia.

Correctly understanding, designing and analyzing the foundations that support structures is fundamental to their safety. This book by a range of academic, design and contracting world experts provides a review of the state-of-the-art techniques for modelling foundations using both linear and non linear numerical analysis. It applies to a range of infrastructure, civil engineering and structural engineering projects and allows designers, engineers, architects, researchers and clients to understand some of the advanced numerical techniques used in the analysis and design of foundations.

Topics include: Ground vibrations caused by trains Pile-group effects Bearing capacity of shallow foundations under static and seismic conditions Bucket foundation technology for offshore oilfields Seismically induced liquefaction in earth embankment foundations and in pile foundations Free vibrations of industrial chimneys and TV towers with flexibility of the soil Settlements of high rise structures Seepage, stress

fields and dynamic responses in dams Site investigation

A broad cross-section of papers from the 6th International Symposium FMGM in Oslo September 2003 detailing the latest developments in geomechanical field measurement technology and methods. Taking in a wide range of real-world applications from tunnels to off-shore structures, these papers look at both theoretical and practical aspects of the subject and assess performances in the field, providing a wealth of knowledge for professionals and researchers interested in field measurements, soil and granular mechanics, engineering, geology or construction.

Futures in Mechanics of Structures and Materials is a collection of peer-reviewed papers presented at the 20th Australasian Conference on the Mechanics of Structures and Materials (ACMSM20, University of Southern Queensland, Toowoomba, Queensland, Australia, 2 - 5 December 2008) by academics, researchers and practicing engineers mainly from Austral

Advances in Spatio-Temporal Analysis CRC Press

Selected, peer reviewed papers from the 4th International Conference on Civil Engineering, Architecture and Building Materials (CEABM 2014), May 24-25, 2014, Haikou, China

A valuable source of reference on the current practices of analysis, design and construction of tunnels and underground structures in soft ground. This collection of reviewed papers covers a wide range of tunnelling practice, from deep excavations in Singapore to the construction of a new metro line in Barcelona. The international scope of the contributors makes this a truly comprehensive collection of work on the geotechnical aspects of soft ground excavation.

This contributed volume encompasses contributions by eminent researchers in the field of geotechnical engineering. The chapters of this book are based on the keynote and sub-theme lectures delivered at the Indian Geotechnical Conference 2017. The book provides a comprehensive overview of the current state-of-the-art research and practices in different domains of geotechnical engineering in the areas of soil dynamics, earth retaining structures, ground improvement, and geotechnical and geophysical investigations. It will serve as an ideal resource for academics, researchers, practicing professionals, and students alike.

This set of proceedings is based on the International Conference on Advances in Building Technology in Hong Kong on 4-6 December 2002. The two volumes of proceedings contain 9 invited keynote papers, 72 papers delivered by 11 teams, and 133 contributed papers from over 20 countries around the world. The papers cover a wide spectrum of topics across the three technology sub-themes of structures and construction, environment, and information technology. The variety within these categories spans a width of topics, and these proceedings provide readers with a good general overview of recent advances in building research.

This book presents 09 keynote and invited lectures and 177 technical papers from the 4th International Conference on Geotechnics for Sustainable Infrastructure Development, held on 28-29 Nov 2019 in Hanoi, Vietnam. The papers come from 35 countries of the five different continents, and are grouped

in six conference themes: 1) Deep Foundations; 2) Tunnelling and Underground Spaces; 3) Ground Improvement; 4) Landslide and Erosion; 5) Geotechnical Modelling and Monitoring; and 6) Coastal Foundation Engineering. The keynote lectures are devoted by Prof. Harry Poulos (Australia), Prof. Adam Bezuijen (Belgium), Prof. Delwyn Fredlund (Canada), Prof. Lidija Zdravkovic (UK), Prof. Masaki Kitazume (Japan), and Prof. Mark Randolph (Australia). Four invited lectures are given by Prof. Charles Ng, ISSMGE President, Prof. Eun Chul Shin, ISSMGE Vice-President for Asia, Prof. Norikazu Shimizu (Japan), and Dr. Kenji Mori (Japan).

Piled foundations are generally designed using empirical methods, in particular the traditional capacity based approach on which the majority of codes of practice are based. However in recent years the analysis of pile groups and piled rafts has undergone substantial development in the light of new research and the mechanisms for the interactions b

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