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KEY=DESIGN - BURCH RIDDLE

Reinforced Concrete Design

CEB-FIP Model Code 1990

Design Code

fib Fédération internationale du béton This design code for concrete structures is the result of a complete revision to the former Model Code 1978, which was produced jointly by CEB and FIP. The 1978 Model Code has had a considerable impact on the national design codes in many countries. In particular, it has been used extensively for the harmonisation of national design codes and as basic reference for Eurocode 2. The 1990 Model Code provides comprehensive guidance to the scientific and technical developments that have occurred over the past decade in the safety, analysis and design of concrete structures. It has already influenced the codification work that is being carried out both nationally and internationally and will continue so to do.

Seismic Design of Buildings to Eurocode 8

CRC Press This book focuses on the seismic design of building structures and their foundations to Eurocode 8. It covers the principles of seismic design in a clear but brief manner and then links these concepts to the provisions of Eurocode 8. It addresses the fundamental concepts related to seismic hazard, ground motion models, basic dynamics, seismic analysis, siting considerations, structural layout, and design philosophies, then leads to the specifics of Eurocode 8. Code procedures are applied with the aid of walk-through design examples which, where possible, deal with a common case study in most chapters. As well as an update throughout, this second edition incorporates three new and topical chapters dedicated to specific seismic design aspects of timber buildings and masonry structures, as well as base-isolation and supplemental damping. There is renewed interest in the use of sustainable timber buildings, and masonry structures still represent a popular choice in many areas. Moreover, seismic isolation and supplemental damping can offer low-damage solutions which are being increasingly considered in practice. The book stems primarily from practical short courses on seismic design which have been run over a number of years and through the development Eurocode 8. The contributors to this book are either specialist academics with significant consulting experience in seismic design, or leading practitioners who are actively engaged in large projects in seismic areas. This experience has provided significant insight into important areas in which guidance is required.

Advances in Computer Methods and Geomechanics

IACMAG Symposium 2019 Volume 1

Springer Nature This volume presents selected papers from IACMAG Symposium,The major themes covered in this conference are Earthquake Engineering, Ground Improvement and Constitutive Modelling. This volume will be of interest to researchers and practitioners in geotechnical and geomechanical engineering.

Design of Steel-Concrete Composite Bridges to Eurocodes

CRC Press Combining a theoretical background with engineering practice, Design of Steel-Concrete Composite Bridges to Eurocodes covers the conceptual and detailed design of composite bridges in accordance with the Eurocodes. Bridge design is strongly based on prescriptive normative rules regarding loads and their combinations, safety factors, material proper

Performance-Based Seismic Design of Concrete Structures and Infrastructures

IGI Global Solid design and craftsmanship are a necessity for structures and infrastructures that must stand up to natural disasters on a regular basis. Continuous research developments in the engineering field are imperative for sustaining buildings against the threat of earthquakes and other natural disasters. Performance-Based Seismic Design of Concrete Structures and Infrastructures is an informative reference source on all the latest trends and emerging data associated with structural design. Highlighting key topics such as seismic assessments, shear wall structures, and infrastructure resilience, this is an ideal resource for all academicians, students, professionals, and researchers that are seeking new knowledge on the best methods and techniques for designing solid structural designs.

Advanced Analysis in Steel Frame Design

Guidelines for Direct Second-order Inelastic Advanced Analysis

Amer Society of Civil Engineers This report presents formal guidelines for the use of second-order inelastic analysis in the design and assessment of steel framing systems.

Principles of Reinforced Concrete Design

CRC Press Encouraging creative uses of reinforced concrete, Principles of Reinforced Concrete Design draws a clear distinction between fundamentals and professional consensus. This text presents a mixture of fundamentals along with practical methods. It provides the fundamental concepts required for designing reinforced concrete (RC) structures, emphasizing principles based on mechanics, experience, and experimentation, while encouraging practitioners to consult their local building codes. The book presents design choices that fall in line with the boundaries defined by professional consensus (building codes), and provides reference material outlining the design criteria contained in building codes. It includes applications for both building and bridge structural design, and it is applicable worldwide, as it is not dependent upon any particular codes. Contains concise coverage that can be taught in one semester Underscores the fundamental principles of behavior Provides students with an understanding of the principles upon which codes are based Assists in navigating the labyrinth of ever-changing codes Fosters an inherent understanding of design The text also provides a brief history of reinforced concrete. While the initial attraction for using reinforced concrete in building construction has been attributed to its fire resistance, its increase in popularity was also due to the creativity of engineers who kept extending its limits of application. Along with height achievement, reinforced concrete gained momentum by providing convenience, plasticity, and low-cost economic appeal. Principles of Reinforced Concrete Design provides undergraduate students with the fundamentals of mechanics and direct observation, as well as the concepts required to design reinforced concrete (RC) structures, and applies to both building and bridge structural design.

Column Shortening in Tall Structures

Prediction and Compensation

Portland Cement Assn

Computational Plasticity

Springer Science & Business Media This book contains 14 invited contributions written by distinguished authors who participated in the VIII International Conference on Computational Plasticity held at CIMNE/UPC (www.cimne.com) from 5-8 September 2005, in Barcelona, Spain. The chapters present recent progress and future research directions in the field of computational plasticity.

Design of Plated Structures

Eurocode 3: Design of Steel Structures, Part 1-5: Design of Plated Structures

John Wiley & Sons The main aim of this book is to provide practical advice to designers of plated structures for correct and efficient application of EN 1993-1-5 design rules. In chapter 1 the purpose, the scope and the structure of the book is explained. In chapter 2 a rather detailed and commented overview of EN 1993-1-5 design rules is given following the structure of the standard. Shear lag effect as

well as plate buckling problems due to direct stresses, shear forces, transverse forces and interactions of these effects are covered. This chapter also includes a reduced stress method and a finite element analysis approach to plate buckling problems. A large number of design examples illustrate the proper application of individual design rules. Chapter 3 and 4 bring two complete design examples on a crane runway and a box-girder bridge.

Structural Concrete

Theory and Design

<u>John Wiley & Sons</u> *Emphasizing a conceptual understanding of concrete design and analysis, this revised and updated edition builds the student's understanding by presenting design methods in an easy to understand manner supported with the use of numerous examples and problems. Written in intuitive, easy–to–understand language, it includes SI unit examples in all chapters, equivalent conversion factors from US customary to SI throughout the book, and SI unit design tables. In addition, the coverage has been completely updated to reflect the latest ACI 318–11 code.*

Computational Methods in Earthquake Engineering

Volume 2

<u>Springer Science & Business Media</u> *This book provides an insight on advanced methods and concepts for the design and analysis of structures against earthquake loading. This second volume is a collection of 28 chapters written by leading experts in the field of structural analysis and earthquake engineering. Emphasis is given on current state-of-the-art methods and concepts in computing methods and their application in engineering practice. The book content is suitable for both practicing engineers and academics, covering a wide variety of topics in an effort to assist the timely dissemination of research findings for the mitigation of seismic risk. Due to the devastating socioeconomic consequences of seismic events, the topic is of great scientific interest and is expected to be of valuable help to scientists and engineers. The chapters of this volume are extended versions of selected papers presented at the COMPDYN 2011 conference, held in the island of Corfu, Greece, under the auspices of the European Community on Computational Methods in Applied Sciences (ECCOMAS).*

Concrete Box-girder Bridges

<u>IABSE</u>

Building Code Requirements for Structural Concrete

(ACI 318-02) and Commentary (ACI 318R-02)

<u>American Concrete Institute</u>

Civil Structural Health Monitoring

Proceedings of CSHM-8 Workshop

<u>Springer Nature</u> *This volume gathers the latest advances and innovations in the field of structural health monitoring, as presented at the 8th Civil Structural Health Monitoring Workshop (CSHM-8), held on March 31–April 2, 2021. It discusses emerging challenges in civil SHM and more broadly in the fields of smart materials and intelligent systems for civil engineering applications. The contributions cover a diverse range of topics, including applications of SHM to civil structures and infrastructures, innovative sensing solutions for SHM, data-driven damage detection techniques, nonlinear systems and analysis techniques, influence of environmental and operational conditions, aging structures and infrastructures in hazardous environments, and SHM in earthquake prone regions. Selected by means of a rigorous peer-review process, they will spur novel research directions and foster future multidisciplinary collaborations.*

AASHTO Guide Specifications for LRFD Seismic Bridge Design

<u>AASHTO</u> *This work offers guidance on bridge design for extreme events induced by human beings. This document provides the designer with information on the response of concrete bridge columns subjected to blast loads as well as blast-resistant design and detailing guidelines and analytical models of blast load distribution. The content of this guideline should be considered in situations where resisting blast loads is deemed warranted by the owner or designer.*

Developments in International Bridge Engineering

Selected Papers from Istanbul Bridge Conference 2014

<u>Springer</u> *The book includes peer-reviewed contributions selected from presentations given at the Istanbul Bridge Conference 2014, held from August 11 – 13 in Istanbul, Turkey. It reports on the current challenges in bridge engineering faced by professionals around the globe, giving a special emphasis to recently developed techniques, innovations and opportunities. The book covers key topics in the field, including modeling and analysis methods; construction and erection techniques; design for extreme events and condition assessment and structural health monitoring. There is a balanced presentation of theory, research and practice. This book, which provides the readers with a comprehensive and timely reference guide on current practices in bridge engineering, is intended for professionals, academic researchers and students alike.*

Precast Segmental Box Girders

Experimental and Analytical Approaches

<u>Springer</u> *This book explores the fundamentals of the elastic behaviour of erected precast segmental box girders (SBG) when subjected to static load, as well as the construction process (casting and erection work) involved. It analyzes and compares the experimental results with those obtained using the finite element method and theoretical calculations. A short-term deflection analysis for different loads is obtained by determining the maximum deflection, stress and strain value of single span precast SBG under a variety of transversal slope. The outcome of this work provides a better understanding of the behaviour of precast SBG in terms of structural responses as well as defects, so that maintenance work can then be focused on the critical section at mid span area specifically for the bridge project longitudinally and transversely. The book is of interest to industry professionals involved in conducting static load tests on bridges, and all researchers, designers, and engineers seeking to validate experimental work with numerical and analytical approaches.*

The Structural Engineer

Journal of the Institution of Structural Engineers

Examples for the Design of Structural Concrete with Strut-and-tie Models

<u>Amer Concrete Inst</u> *"Prepared by members of ACI Subcommittee 445-1, Strut and Tie Models, for sessions at the Fall Convention in Phoenix, October 27 to November 1, 2002, and sponsored by Joint ACI-ASCE Committee 445, Shear and Torsion and ACI Committee 318-E, Shear and Torsion."*

Handbook of Seismic Risk Analysis and Management of Civil Infrastructure Systems

<u>Woodhead Publishing</u> *Earthquakes represent a major risk to buildings, bridges and other civil infrastructure systems, causing catastrophic loss to modern society. Handbook of seismic risk analysis and management of civil infrastructure systems reviews the state of the art in the seismic risk analysis and management of civil infrastructure systems. Part one reviews research in the quantification of uncertainties in ground motion and seismic hazard assessment. Part twi discusses methodologies in seismic risk analysis and management, whilst parts three and four cover the application of seismic risk assessment to buildings, bridges, pipelines and other civil infrastructure systems. Part five also discusses methods for quantifying dependency between different infrastructure systems. The final part of the book considers ways of assessing financial and other losses from earthquake damage as well as setting insurance rates. Handbook of seismic risk analysis and management of civil infrastructure systems is an invaluable guide for professionals requiring understanding of the impact of earthquakes on buildings and lifelines, and the seismic risk assessment and management of buildings, bridges and transportation. It also provides a comprehensive overview of seismic risk analysis for researchers and engineers within these fields. This important handbook reviews the wealth of recent research in the*

area of seismic hazard analysis in modern earthquake design code provisions and practices Examines research into the analysis of ground motion and seismic hazard assessment, seismic risk hazard methodologies Addresses the assessment of seismic risks to buildings, bridges, water supply systems and other aspects of civil infrastructure

Reinforced Concrete Bridges

Dynamics of Railway Bridges

Thomas Telford Services Limited *Provides a comprehensive survey of the dynamic stresses in railway bridges under moving vehicles and summarizes important theoretical and experimental results which has been obtained from various research programs dealing with European railway bridges.*

Steel Connection Analysis

John Wiley & Sons *First book to discuss the analysis of structural steel connections by Finite Element Analysis—which provides fast, efficient, and flexible checking of these vital structural components The analysis of steel structures is complex—much more so than the analysis of similar concrete structures. There are no universally accepted rules for the analysis of connections in steel structures or the analysis of the stresses transferred from one connection to another. This book presents a general approach to steel connection analysis and check, which is the result of independent research that began more than fifteen years ago. It discusses the problems of connection analysis and describes a generally applicable methodology, based on Finite Element Analysis, for analyzing the connections in steel structures. That methodology has been implemented in software successfully, providing a fast, automatic, and flexible route to the design and analysis of the connections in steel structures. Steel Connection Analysis explains several general methods which have been researched and programmed during many years, and that can be used to tackle the problem of connection analysis in a very general way, with a limited and automated computational effort. It also covers several problems related to steel connection analysis automation. Uses Finite Element Analysis to discuss the analysis of structural steel connections Analysis is applicable to all connections in steel structures The methodology is the basis of the commercially successful CSE connection analysis software Analysis is fast and flexible Structural engineers, fabricators, software developing firms, university researchers, and advanced students of civil and structural engineering will all benefit from Steel Connection Analysis.*

Early-age Thermal Crack Control in Concrete

This guide provides a method for estimating the magnitude of crack inducing strain and the risk of cracking; and where cracking will occur guidance is provided on the design of reinforcement to control crack widths.

ICE Manual of Bridge Engineering

Thomas Telford Services Limited *Addresses key topic within bridge engineering, from history and aesthetics to design, construction and maintenance issues. This book is suitable for practicing civil and structural engineers in consulting firms and government agencies, bridge contractors, research institutes, and universities and colleges.*

International Handbook of Earthquake Engineering

Codes, Programs, and Examples

Springer Science & Business Media *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.*

Maintenance, Safety, Risk, Management and Life-Cycle Performance of Bridges

Proceedings of the Ninth International Conference on Bridge Maintenance, Safety and Management (IABMAS 2018), 9-13 July 2018, Melbourne, Australia

CRC Press *Maintenance, Safety, Risk, Management and Life-Cycle Performance of Bridges contains lectures and papers presented at the Ninth International Conference on Bridge Maintenance, Safety and Management (IABMAS 2018), held in Melbourne, Australia, 9-13 July 2018. This volume consists of a book of extended abstracts and a USB card containing the full papers of 393 contributions presented at IABMAS 2018, including the T.Y. Lin Lecture, 10 Keynote Lectures, and 382 technical papers from 40 countries. The contributions presented at IABMAS 2018 deal with the state of the art as well as emerging concepts and innovative applications related to the main aspects of bridge maintenance, safety, risk, management and life-cycle performance. Major topics include: new design methods, bridge codes, heavy vehicle and load models, bridge management systems, prediction of future traffic models, service life prediction, residual service life, sustainability and life-cycle assessments, maintenance strategies, bridge diagnostics, health monitoring, non-destructive testing, field testing, safety and serviceability, assessment and evaluation, damage identification, deterioration modelling, repair and retrofitting strategies, bridge reliability, fatigue and corrosion, extreme loads, advanced experimental simulations, and advanced computer simulations, among others. This volume provides both an up-to-date overview of the field of bridge engineering and significant contributions to the process of more rational decision-making on bridge maintenance, safety, risk, management and life-cycle performance of bridges for the purpose of enhancing the welfare of society. The Editors hope that these Proceedings will serve as a valuable reference to all concerned with bridge structure and infrastructure systems, including students, researchers and engineers from all areas of bridge engineering.*

Ella Enchanted

Harper Collins *This beloved Newbery Honor-winning story about a feisty heroine is sure to enchant readers new and old. At her birth, Ella of Frell receives a foolish fairy's gift—the "gift" of obedience. Ella must obey any order, whether it's to hop on one foot for a day and a half, or to chop off her own head! But strong-willed Ella does not accept her fate... Against a bold backdrop of princes, ogres, giants, wicked stepsisters, and fairy godmothers, Ella goes on a quest to break the curse forever. A tween favorite for 25 years—now shared with today's young readers by moms, teachers, and other adults who remember the pleasure of discovering this fun fairy-tale retelling themselves!*

Technology and Management for Sustainable Buildings and Infrastructures

Mdpi AG *A total of 30 articles have been published in this special issue, and it consists of 27 research papers, 2 technical notes, and 1 review paper. A total of 104 authors from 9 countries including Korea, Spain, Taiwan, USA, Finland, China, Slovenia, the Netherlands, and Germany participated in writing and submitting very excellent papers that were finally published after the review process had been conducted according to very strict standards. Among the published papers, 13 papers directly addressed words such as sustainable, life cycle assessment (LCA) and CO2, and 17 papers indirectly dealt with energy and CO2 reduction effects. Among the published papers, there are 6 papers dealing with construction technology, but a majority, 24 papers deal with management techniques. The authors of the published papers used various analysis techniques to obtain the suggested solutions for each topic. Listed by key techniques, various techniques such as Analytic Hierarchy Process (AHP), the Taguchi method, machine learning including Artificial Neural Networks (ANNs), Life Cycle Assessment (LCA), regression analysis, Strength-Weakness-Opportunity-Threat (SWOT), system dynamics, simulation and modeling, Building Information Model (BIM) with schedule, and graph and data analysis after experiments and observations are identified.*

Seismic Design Methodologies for the Next Generation of Codes

Routledge *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.*

Computational Structural Engineering

Proceedings of the International Symposium on Computational Structural Engineering, held in Shanghai, China, June 22–24, 2009

Springer Science & Business Media *Following the great progress made in computing technology, both in computer and programming technology, computation has become one of the most powerful tools for researchers and practicing engineers. It has led to tremendous achievements in computer-based structural engineering and there is evidence that current devel- ments will even accelerate in the near future. To acknowledge this trend, Tongji University, Vienna University of Technology, and Chinese Academy of Engine- ing, co-organized the International Symposium on Computational Structural En-*

neering 2009 in Shanghai (CSE'09). CSE'09 aimed at providing a forum for presentation and discussion of sta- of-the-art development in scientific computing applied to engineering sciences. Emphasis was given to basic methodologies, scientific development and engine- ing applications. Therefore, it became a central academic activity of the Inter- tional Association for Computational Mechanics (IACM), the European Com- nity on Computational Methods in Applied Sciences (ECCOMAS), The Chinese Society of Theoretical and Applied Mechanic, the China Civil Engineering So- ety, and the Architectural Society of China. A total of 10 invited papers, and around 140 contributed papers were p- sented in the proceedings of the symposium. Contributors of papers came from 20 countries around the world and covered a wide spectrum related to the compu- tional structural engineering.

Dynamic Behaviour of Reinforced Concrete Frames Designed with Direct Displacement- Based Design

Building Code Requirements for Structural Concrete (ACI 318-05) and Commentary (ACI 318R-05)

American Concrete Institute

ICSECM 2019

Proceedings of the 10th International Conference on Structural Engineering and Construction Management

Springer Nature *This book highlights current research and developments in the area of Structural Engineering and Construction Management, which are important disciplines in Civil Engineering. It covers the following topics and categories of Structural Engineering. The main chapters/sections of the proceedings are Structural and Solid Mechanics, Construction Materials, Systems and Management, Loading Effects, Construction Safety, Architecture & Architectural Engineering, Coastal Engineering, Foundation engineering, Materials, Sustainability. The content of this book provides necessary knowledge for construction management practices, new tools and technologies on local and global levels in civil engineering which can mitigate the negative effects of built environment.*

Heritage Building Information Modelling

Routledge *Building Information Modelling (BIM) is being debated, tested and implemented wherever you look across the built environment sector. This book is about Heritage Building Information Modelling (HBIM), which necessarily differs from the commonplace applications of BIM to new construction. Where BIM is being used, the focus is still very much on design and construction. However, its use as an operational and management tool for existing buildings, particularly heritage buildings, is lagging behind. The first of its kind, this book aims to clearly define the scope for HBIM and present cutting-edge research findings alongside international case studies, before outlining challenges for the future of HBIM research and practice. After an extensive introduction to HBIM, the core themes of the book are arranged into four parts: Restoration philosophies in practice Data capture and visualisation for maintenance and repair Building performance Stakeholder engagement This book will be a key reference for built environment practitioners, researchers, academics and students engaged in BIM, HBIM, building energy modelling, building surveying, facilities management and heritage conservation more widely.*

Computational Structures Technology

Papers Presented at the First International Conference on Computational Structures Technology Held on 20-22 August 1991, Heriot-Watt University, Edinburgh, U.K.; [held During the 25th Anniversary Year of the University's Royal Charter].. Special issues of "Computing systems in engineering". ...

Dynamics of Structures

Theory and Applications to Earthquake Engineering

This title is designed for senior-level and graduate courses in Dynamics of Structures and Earthquake Engineering. The new edition from Chopra includes many topics encompassing the theory of structural dynamics and the application of this theory regarding earthquake analysis, response, and design of structures. No prior knowledge of structural dynamics is assumed and the manner of presentation is sufficiently detailed and integrated, to make the book suitable for self-study by students and professional engineers.

Seismic Design of Reinforced Concrete Buildings

McGraw Hill Professional *Complete coverage of earthquake-resistant concrete building design Written by a renowned seismic engineering expert, this authoritative resource discusses the theory and practice for the design and evaluation of earthquakeresisting reinforced concrete buildings. The book addresses the behavior of reinforced concrete materials, components, and systems subjected to routine and extreme loads, with an emphasis on response to earthquake loading. Design methods, both at a basic level as required by current building codes and at an advanced level needed for special problems such as seismic performance assessment, are described. Data and models useful for analyzing reinforced concrete structures as well as numerous illustrations, tables, and equations are included in this detailed reference. Seismic Design of Reinforced Concrete Buildings covers: Seismic design and performance verification Steel reinforcement Concrete Confined concrete Axially loaded members Moment and axial force Shear in beams, columns, and walls Development and anchorage Beam-column connections Slab-column and slab-wall connections Seismic design overview Special moment frames Special structural walls Gravity framing Diaphragms and collectors Foundations*