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Basic Principles of Concrete Structures - Xianglin Gu 2015-12-09
Based on the latest version of designing codes both for buildings and bridges (GB50010-2010 and JTG D62-2004), this book starts from steel and concrete materials, whose properties are very important to the mechanical behavior of concrete structural members. Step by step, analysis of reinforced and prestressed concrete members under basic loading types (tension, compression, flexure, shearing and torsion) and environmental actions are introduced. The characteristic of the book that distinguishes it from other textbooks on concrete structures is that more emphasis has been laid on the basic theories of reinforced concrete and the application of the basic theories in design of new structures and analysis of existing structures. Examples and problems in each chapter are carefully designed to cover every important knowledge point. As a basic course for undergraduates majoring in civil engineering, this course is different from either the previously learnt mechanics courses or the design courses to be learnt. Compared with mechanics courses, the basic theories of reinforced concrete structures cannot be solely derived by theoretical analysis. And compared with design courses, this course emphasizes the introduction of basic theories rather than simply being a translation of design specifications. The book will focus on both the theoretical derivations and the engineering practices.
Basic Civil Engineering - Rakesh Ranjan Bechar 2005-12

Fiber reinforced concrete connections for earthquake resistant design of precast reinforced concrete strcutures - Khaled S. Soubra 1989

Shelter survey technician course - 1985

Concrete Engineering Handbook - Milo F. Janes 1961

Design of Modern Highrise Reinforced Concrete Structures - Hiroyuki Aoyama 2001-12-28
This book presents the results of a Japanese national research project carried out in 1988-1993, usually referred to as the New RC Project. Developing advanced reinforced concrete building structures with high strength and high quality materials under its auspices, the project aimed at promoting construction of highrise reinforced concrete buildings in highly seismic areas such as Japan. The project covered all the aspects of reinforced concrete structures, namely materials, structural elements, structural design, construction, and feasibility studies. In addition to presenting these results, the book includes two chapters giving an elementary explanation of modern analytical techniques, i.e. finite element analysis and earthquake response analysis. Contents:RC Highrise Buildings in Seismic Areas (H Aoyama)The New RC Project (H Hiraishi)New RC Materials (M Abe & H Shiohara)New RC Structural Elements (T Kaminosono)Finite Element Analysis (H Noguchi)Structural Design Principles (M Teshigawara)Earthquake Response Analysis (T Kabeyasawa)Construction of New RC Structures (Y Masuda)Feasibility Studies and Example Buildings (H Fujitani) Readership: Civil, ocean and marine engineers.
Precast Concrete Structures - Kim S. Elliott 2019-08-08
This second edition of Precast Concrete Structures introduces the conceptual design ideas for the prefabrication of concrete structures and presents a number of worked examples that translate designs from BS 8110 to Eurocode EC2, before going into the detail of the design, manufacture, and construction of precast concrete multi-storey buildings. Detailed structural analysis of precast concrete and its use is provided and some details are presented of recent precast skeletal frames of up to forty storeys. The theory is supported by numerous worked examples to Eurocodes and European Product Standards for precast reinforced and prestressed concrete elements, composite construction, joints and connections and frame stability, together with extensive specifications for precast concrete structures. The book is extensively illustrated with over 500 photographs and line drawings.
2nd fib Congress in Naples Italy - Vol 1 - International Federation for Structural Concrete 2006-06-01

European Building Construction Illustrated - Francis D. K. Ching 2014-02-10
The first European edition of Francis DK Ching’s classic visual guide to the basics of building construction. For nearly four decades, the US publication Building Construction Illustrated has offered an outstanding introduction to the principles of building construction. This new European edition focuses on the construction methods most commonly used in Europe, referring largely to UK Building Regulations overlaid with British and European, while applying Francis DK Ching’s clear graphic signature style. It provides a coherent and essential primer, presenting all of the basic concepts underlying building construction and equipping readers with useful guidelines for approaching any new materials or techniques they may encounter. European Building Construction Illustrated provides a comprehensive and lucid presentation of everything from foundations and floor systems to finish work. Laying out the material and structural choices available, it provides a full understanding of how these choices affect a building’s form and dimensions. Complete with more than 1000 illustrations, the book moves through each of the key stages of the design process, from site selection to building components, mechanical systems and finishes. Illustrated throughout with clear and accurate drawings that effectively communicate construction processes and materials Provides an overview of the mainstream construction methods used in Europe Based around the UK regulatory framework, the book refers to European level regulations where appropriate. References leading environmental assessment methods of BREEAM and LEED, while outlining the Passive House Standard Includes emerging construction methods driven by the sustainability agenda, such as structural insulated panels and insulating concrete formwork Features a chapter dedicated to construction in the Middle East, focusing on the Gulf States
Precast Concrete in Mixed Construction - fib Fédération internationale du béton 2002-01-01
The purpose of this publication is to show how precast concrete may be mixed in combination with other structural materials to maximise overall building performance. The other materials are: cast insitu concrete, reinforced and post-tensioned, structural steelwork, timber and glue-laminated timber, masonry in brickwork and blockwork, glass and glazing. The aim is to provide a companion volume to composite Floor Structures [FIP, 1998] and to show some of the many other ways that precast concrete can be used to advantage with other materials. The term mixed precast construction is used to describe these other combinations. The intention is not to discuss design calculations - that is for a future 'fib Guide to good practice'. Instead, the bulletin is meant as a 'State-of-art' publication showing photographs, sketches and details of precast concrete with other materials. There are no design equations, although some technical information on how to combine the materials, e.g. bearings, connections, tolerances, thermal and shrinkage effects, etc., is included if appropriate. Thus, the document focuses on the use of mixed construction in multistorey buildings, offices, housing, grandstands, parking garages, and industrial warehouses, etc. i. e. on

precast concrete as the main construction material and looks at the manner in which other materials can be integrated. Chapter by chapter the strengths and weakness of each material studied are assessed as part of the total building design. In some cases it is obvious that the load carrying performance of one material outweighs another. In other cases aspects such as thermal, fire, vibration, fatigue, creep, acoustic, seismic and visual characteristics, and the geographical local availability of that material, may be critical. A world-wide survey, presented in Table 1.1, found that precast concrete is a universal building material, but mixed construction is limited mostly to developed countries where structural steelwork and types of timber, such as glue-laminated timber, is readily available. In addition there may be design, detailing, production, transportation, erection and maintenance limitations, which do or do not favour mixed construction.

Design of Precast Concrete Structures - Fiodor Bljuger 1988

Comparison of Cast-in-place Concrete Versus Precast Concrete Stay-in-place Forming Systems for Lock Wall Rehabilitation - William R. Miles 1993

Fundamentals of Building Construction - Edward Allen 1998-12-01

Multi-Storey Precast Concrete Framed Structures - Kim S. Elliott 2013-10-07

Precast reinforced and prestressed concrete frames provide ahigh strength, stable, durable and robust solution for anymulti-storey structure, and are widely regarded as a high quality,economic and architecturally versatile technology for theconstruction of multi-storey buildings. The resulting buildingssatisfy a wide range of commercial and industrial needs. Precastconcrete buildings behave in a different way to those where theconcrete is cast in-situ, with the components subject to differentforces and movements. These factors are explored in detail in thesecond edition of Multi-Storey Precast Concrete FramedStructures, providing a detailed understanding of theprocedures involved in precast structural design. This new editionhas been fully updated to reflect recent developments, and includesmany structural calculations based on EUROCODE standards. These areshown in parallel with similar calculations based on BritishStandards to ensure the designer is fully aware of the differencesrequired in designing to EUROCODE standards. Civil and structural engineers as well as final year undergraduateand postgraduate students of civil and structural engineering willall find this book to be thorough overview of this importantconstruction technology.

Oscar Faber's Reinforced Concrete, Second Edition - John G Faber 1977-11-24

This book contains detailed coverage of the basic theory of reinforced and prestressed concrete, and demonstrates a wide range of practical applications of reinforced and prestressed concrete, with numerous examples, design-curves, and diagrams.

Precast concrete piles - FIB – International Federation for Structural Concrete 1986-01-01

This technical report covers all aspects of the uses of precast concrete piles - design, manufacture, transport, handling, pitching and driving. Both reinforced and prestressed concrete piles are dealt with and attention is paid to the use of both plan piles and those with enlarged toes. Although the report is a translation of parts of a set of three volumes prodduced in the Netherlands, those parts reproduced are internationally applicable. Special sections deal with the effects of pile driving on adjacent buildings and theor occupants - both as regards vibration and noise.

Modern Construction Envelopes - Andrew Watts 2014-01-21

The second edition of Modern Construction Envelopes was originally based on the two books by Andrew Watts, Modern Construction Roofs and Modern Construction Facades . Both volumes were gathered into one single volume and consolidated in terms of content, which permits the consideration of facades and roofs as envelopes. Using current examples by renowned architects, Watts presents the constructive and material-related details. This presentation is based on a text, photos, and standardized detail drawings, as well as 3D representations of the components. The new edition has 3D views that are easier to understand than the first edition, with sharper images and more key explanations.

Concrete Countertops - Fu-Tung Cheng 2004-04

This book reinvents the countertop with a single material: concrete. Concrete Countertops is an essential book for architects, homeowners and contractors who want to learn how to design, form, mix, pour, color, trowel, inlay and finish decorative concrete countertops. Homeowners will be inspired by the 350 color photographs that bring this exciting medium to life.

Plant Cast Precast and Prestressed Concrete - William R. Phillips 1980

Concrete Construction Engineering Handbook - Edward G. Nawy 2008-06-24

The first edition of this comprehensive work quickly filled the need for an in-depth handbook on concrete construction engineering and technology. Living up to the standard set by its bestselling predecessor, this second edition of the Concrete Construction Engineering Handbook covers the entire range of issues pertaining to the construction

Reinforced Concrete - B.S. Choo 2002-12-24

This new edition of a highly practical text gives a detailed presentation of the design of common reinforced concrete structures to limit state theory in accordance with BS 8110.

Experimental Vibration Analysis for Civil Structures - Jian-Zhi Zhang 2020-11-04

Experimental Vibration Analysis for Civil Structures: Testing, Sensing, Monitoring, and Control covers a wide range of topics in the areas of vibration testing, instrumentation, and analysis of civil engineering and critical infrastructure. It explains how recent research, development, and applications in experimental vibration analysis of civil engineering structures have progressed significantly due to advancements in the fields of sensor and testing technologies, instrumentation, data acquisition systems, computer technology, computational modeling and simulation of large and complex civil infrastructure systems. The book also examines how cutting-edge artificial intelligence and data analytics can be applied to infrastructure systems. Features: Explains how recent technological developments have resulted in addressing the challenge of designing more resilient infrastructure Examines numerous research studies conducted by leading scholars in the field of infrastructure systems and civil engineering Presents the most emergent fields of civil engineering design, such as data analytics and Artificial Intelligence for the analysis and performance assessment of infrastructure systems and their resilience Emphasizes the importance of an interdisciplinary approach to develop the modeling, analysis, and experimental tools for designing more resilient and intelligent infrastructures Appropriate for practicing engineers and upper-level students, Experimental Vibration Analysis for Civil Structures: Testing, Sensing, Monitoring, and Control serves as a strategic roadmap for further research in the field of vibration testing and instrumentation of infrastructure systems.

Construction Management - Denny McGeorge 2009-02-12

The construction industry continues to face substantial demands for improvement in quality and cost control, and a reduction in contract disputes. A number of management concepts have been promoted to help achieve this, but many in the industry find the concepts confusing and are sceptical about their usefulness. This book brings together, in a single volume, the main management concepts relevant to the construction industry, providing an objective account of the concepts and showing how they interrelate: * value management * buildability * benchmarking * total quality management * partnering and alliancing * supply chain management (new for this edition) * re-engineering In addition to a new chapter, a new section on strategic alliancing has been added. Text and references have been updated throughout.

Design philosophy for precast buildings of two or more storeys - FIB International Federation for Structural Concrete 1982-06-01

Accelerated Bridge Construction - Mohiuddin Ali Khan 2014-08-12

The traveling public has no patience for prolonged, high cost construction projects. This puts highway construction contractors under intense pressure to minimize traffic disruptions and construction cost. Actively promoted by the Federal Highway Administration, there are hundreds of accelerated bridge construction (ABC) construction programs in the United States, Europe and Japan. Accelerated Bridge Construction: Best Practices and Techniques provides a wide range of construction techniques, processes and technologies designed to maximize bridge construction or reconstruction operations while minimizing project delays and community disruption. Describes design methods for accelerated bridge substructure construction; reducing foundation construction time and methods by using pile bents Explains applications to steel bridges, temporary bridges in place of detours using quick erection and demolition Covers design-build systems' boon to ABC; development of software; use of fiber reinforced polymer (FRP) Includes applications to glulam and sawn lumber bridges, precast concrete

bridges, precast joints details; use of lightweight aggregate concrete, aluminum and high-performance steel

Precast Concrete - Maurice Levitt 2007-09-12

This general treatise on precast concrete reflects Maurice Levitt's extensive experience in the construction industry and as a researcher and consultant. It gives detailed coverage of the subject from the material's properties through its manufacture and quality control, and on to specialist topics such as accelerated curing and use in hot and cold climates. It then looks at the properties of precast concrete and its performance in situ before covering standards and testing and then the issues of finishing, repair and jointing. A wide range of professionals in both the civil engineering and general construction sectors should find this an invaluable reference for its guidance on the range of practical questions they can expect to encounter. It will also be useful for students at graduate level.

Bridge Engineering Handbook - Wai-Fah Chen 2014-01-24

Over 140 experts, 14 countries, and 89 chapters are represented in the second edition of the Bridge Engineering Handbook. This extensive collection highlights bridge engineering specimens from around the world, contains detailed information on bridge engineering, and thoroughly explains the concepts and practical applications surrounding the subjec

Structural Elements for Architects and Builders: Design of Columns, Beams, and Tension Elements in Wood, Steel, and Reinforced Concrete, 2nd Edition - Jonathan Ochshorn 2015-08-07

Concise but comprehensive, Jonathan Ochshorn's Structural Elements for Architects and Builders explains how to design and analyze columns, beams, tension members and their connections. The material is organized into a single, self-sufficient volume, including all necessary data for the preliminary design and analysis of these structural elements in wood, steel, and reinforced concrete. Every chapter contains insights developed by the author and generally not found elsewhere. Appendices included at the end of each chapter contain numerous tables and graphs, based on material contained in industry publications, but reorganized and formatted especially for this text to improve clarity and simplicity, without sacrificing comprehensiveness. Procedures for design and analysis are based on the latest editions of the National Design Specification for Wood Construction (AF&PA and AWC), the Steel Construction Manual (AISC), Building Code Requirements for Structural Concrete (ACI), and Minimum Design Loads for Buildings and Other Structures (ASCE/SEI). This thoroughly revised and expanded second edition of Structural Elements includes an introduction to statics and strength of materials, an examination of loads, and new sections on material properties and construction systems within the chapters on wood, steel, and reinforced concrete design. This permits a more comprehensive overview of the various design and analysis procedures for each of the major structural materials used in modern buildings. Free structural calculators (search online for: Ochshorn calculators) have been created for many examples in the book, enabling architects and builders to quickly find preliminary answers to structural design questions commonly encountered in school or in practice.

Planning and design handbook on precast building structures - FIB - Féd. Int. du Béton 2014

In 1994 fib Commission 6: Prefabrication edited a successful Planning and Design Handbook that ran to approximately 45,000 copies and was published in Spanish and German. Nearly 20 years later Bulletin 74 brings that first publication up to date. It offers a synthesis of the latest structural design knowledge about precast building structures against the background of 21st century technological innovations in materials, production and construction. With it, we hope to help architects and engineers achieve a full understanding of precast concrete building structures, the possibilities they offer and their specific design philosophy. It was principally written for non-seismic structures. The handbook contains eleven chapters, each dealing with a specific aspect of precast building structures. The first chapter of the handbook highlights best practice opportunities that will enable architects, design engineers and contractors to work together towards finding efficient solutions, which is something unique to precast concrete buildings. The second chapter offers basic design recommendations that take into account the possibilities, restrictions and advantages of precast concrete, along with its detailing, manufacture, transport, erection and serviceability stages. Chapter three describes the precast solutions for the most common types of buildings such as offices, sports stadiums, residential buildings, hotels, industrial warehouses and car parks. Different application possibilities are explored to teach us which types of precast units are commonly used in all those situations. Chapter four covers the basic design principles and systems related to stability. Precast concrete structures should be designed according to a specific stability concept, unlike cast in-situ structures. Chapter five discusses structural connections. Chapters six to nine address the four most commonly used systems or subsystems of precast concrete in buildings, namely, portal and skeletal structures, wall-frame structures, floor and roof structures and architectural concrete facades. In chapter ten the design and detailing of a number of specific construction details in precast elements are discussed, for example, supports, corbels, openings and cutouts in the units, special features related to the detailing of the reinforcement, and so forth. Chapter eleven gives guidelines for the fire design of precast concrete structures. The handbook concludes with a list of references to good literature on precast concrete construction.

Precast Concrete Structures - Alfred Steinle 2019-01-28

Building with precast concrete elements is one of the most innovative forms of construction. This book serves as an introduction to this topic, including examples, and thus supplies all the information necessary for conceptual and detailed design.

Louis I. Kahn - Exposed concrete and hollow stones - Roberto Gargiani 2014-07-09

Through sheer determination and courage, Kahn has researched the nature of concrete in the form of precast, cast in place or blocks. Each of his renowned works in exposed concrete, such as the Yale Art Gallery, the Richards Laboratories, the Bath House, the Salk Institute, the National Assembly, the Kimbell Museum, the Exeter Library and the Yale Center for British Art, is itself an important chapter in the history of architecture for the exploration into concrete's formal expression, beyond the lesson of Le Corbusier. Kahn's obsession on concrete fabrication processes, on the formwork and the mix design, is systematically examined in two volumes. The authors illustrate Kahn's vision with documents that have never been revealed in other essays, drawing heavily from original sketches, plans, specifications, worksite photographs, and correspondences with collaborators, engineers, technicians and contractors. The first volume Exposed Concrete and Hollow Stones focuses on the first ten-year period of Kahn's research on concrete. Moving through the many construction systems experienced by Kahn, from the discovery of exposed concrete in the form of béton brut at the Yale Art Gallery, to the precast and poured-in-place techniques, to the values of joint, growth and ornament, the essay culminates in the reconstruction of the artistic and technical characteristics of two great worksite, the Richards Laboratories and the First Unitarian Church and School. The second volume, Towards the Zero Degree of Concrete, covers the following fourteen years and leads the reader along Kahn's path to the true "nature of concrete," focusing on his main techniques and poetic discoveries such as the "liquid stone" of the Salk Institute, the "smooth finish" at Bryn Mawr and the concept of "monolithic" at the Yale Center for British Art.

Adjacent Precast Concrete Box Beam Bridges - H. G. Russell 2009

At head of title: National Cooperative Highway Research Program.

Perspectives on European Earthquake Engineering and Seismology - Atilla Ansal 2014-09-01

This book collects 5 keynote and 15 topic 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 twenty state-of-the-art papers 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 Third Ambraseys Distinguished Award Lecture given by Prof. Robin Spence in honor of Prof. Nicholas N. Ambraseys. 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.

Advanced Concrete Technology 4 - John Newman 2003-08-21
Based on the Institute of Concrete Technology's Advanced Concrete Technology Course, these four volumes are a comprehensive educational and reference resource for the concrete materials technologist. An expert international team of authors from research, academia and industry has been brought together to produce this unique series. Each volume deals with a different aspect of the subject: constituent materials, properties, processes and testing and quality. With worked examples, case studies and illustrations throughout, the books will be a key reference for the concrete specialist for years to come. Expert international authorship ensures the series is authoritative Case studies and worked examples help the reader apply their knowledge to practice Comprehensive coverage of the subject gives the reader all the necessary reference material

Prestressed Concrete Segmental Bridges - 1979

Structural Engineering Series - United States. Federal Highway Administration 1976

Prefabrication with Concrete - A.S.G. Bruggeling 1991-01-01
Both authors are innovators of the prefabrication of concrete structures an important advance towards industrialization of the building process. The detailing of connections between the factory produced elements is crucial, and the "strut and tie" models presented here can be directly applied in str

Novel Precast Concrete Structure Systems - Gang Wu 2022-12-20
This book systematically presents these findings for the first time, focusing on the composition, force mode, structural characteristics, performance advantages, and calculation methods for each new structural system, and comparing each one with traditional structural systems. In view of the persistent problems in the current equivalent cast in situ precast concrete structural systems and the development of non-equivalent cast in situ precast concrete structure systems, Southeast University and Harbin Institute of Technology have conducted extensive research and proposed several new types of precast concrete structural systems. Their findings in this regard can promote the development of basic theories and technologies for building industrialization, accelerate the advancement of China's building industrialization, promote the application of precast building technology, and realize the concept of green building.

Hybrid Composite Precast Systems - Won-Kee Hong 2019-11-30
Hybrid Composite Precast Systems: Numerical Investigation to Construction focuses on the design and construction of novel composite precast frame systems that permit almost effortless erection and structural efficiency. The precast frame systems discussed in the book are similar to that of steel frames, but offer similar savings to concrete frames. The design of connections and detailed analysis of their structural behavior is discussed in detail. Fundamentals with regards to the post yield behavior of concrete and metal are also presented to illustrate how these two different materials are integrated together to remove individual material drawbacks. Readers are given a broad introduction to existing technologies that are then combined with a description of the construction methods the author proposes. This book will help the end users become familiar with the existing types of structural forms, not just the "Lego" type frame system that the author proposes. Discusses how traditional construction methods can be replaced by innovative hybrid composite precast frame systems that provide rapid and effortless erection capabilities and structural efficiency Contains several design examples using non-linear finite element analysis completed with Abaqus based-software Contains new milestone inventions in construction that offer structural engineering solutions using a novel, modularized hybrid frame system Provides information on structural testing that verifies the accuracy of the structural design

Concrete Portable Handbook R. Dodge Woodson 2011-07-21
Whether or not, you are on the job site or back in the office, this book will help you to avoid mistakes, code violations, and wasted time and money. The book’s four part treatment begins with constituent materials followed by self contained parts on Concrete Properties, Processes, and Concrete Repair and Rehabilitation. Designed to be an "all in one" reference, the author includes a wealth information for the most popular types of testing. This includes: Analysis of Fresh Concrete; Testing Machines; Accelerated Testing Methods; Analysis of Hardened Concrete and Mortar; Core Sampling and Testing; Assessment of Concrete Construction ; Repair; Quality Concepts; Quality Control; Statistics; Standards, Specifications, and Codes of Practice. With this book in hand, construction engineers and even technicians find valuable information regarding Exposed Concrete Finishes, Repairing Concrete, Formwork, Precast Concrete, Concrete Roads, and Industrial Floors. Project managers and owners will find this reference a valuable guide to concrete both in terms of its applications in construction projects and the science and chemistry of concrete for its own sake. Fundamentals of Concrete Chemistry Handy at your figure tip calculations Tips for working with all types of concretes Covers Roads, floors, and finishes Principles of Precast, Reinforced and Prestressed Concrete