

Precast Vs Cast In Situ Reinforced Concrete Industrial

Textbook
 Basic Principles of Concrete Structures
 State-of-the-art Report
 State-of-art report
 Precast tunnel segments in fibre-reinforced concrete
 Construction Project Management
 Precast Concrete Structures
 Facing the Challenges in Structural Engineering
 Safety and performance concept. Reliability assessment of concrete structures
 Design, Durability and Performance
 Guide to Good Practice
 Manual of Precast Concrete Construction with Large Reinforced Concrete and Prestressed Concrete Components: Industrial shed-type and low-rise buildings; special structures
 Precast Concrete in Mixed Construction
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 A Comparative Study on the Productivity of Precast and Cast-in-situ Concrete Construction in South Africa's High Rise Commercial Building Projects
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PATRICK ANGELIQUE

Textbook Woodhead Publishing
 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.

Basic Principles of Concrete Structures Macmillan International Higher Education
 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.

State-of-the-art Report Cast in Situ Concrete Vs. Pre-stressed Concrete Design of a VillaModern Construction Envelopes

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.

State-of-art report John Wiley & Sons

Since the 1980s in Europe high-speed rail has emerged rapidly as a means of transportation, and in the upcoming years many more tunnel, bridge and other infrastructure projects will be developed across the continent. At the same time design concepts and technologies have

improved and innovative structural ideas have appeared, since trains travelling

Precast tunnel segments in fibre-reinforced concrete Firewall Media

With the publication of this bulletin, fib Commission 1 is initiating a new series of documents related to the use of structural concrete in underground construction, where structural concrete plays a major and increasingly important role. The usage of underground space is more than ever a key issue of urban planning and fib decided to start addressing the issues related to the design and construction of concrete structures in this particular environment. In this context one of the most significant applications of structural concrete is tunnel lining, for which the properties of reinforced concrete are particularly well suited through compressive strength, water tightness, ductility, and durability. Reinforced concrete tunnels linings have mostly been traditionally cast in situ, but the development of Tunnel Boring Machines has led to the invention of precast concrete segmental lining technology, which is nowadays one of the most promising applications of Fibre Reinforced Concrete (FRC). Thanks to the courage and dedication of innovative designers and contractors, a number of large tunnels have already been built around the World with FRC precast linings, and this report presents the experience acquired with these projects, and also provides guidance about the way to apply 2010 fib Model Code recommendations on FRC to these structures. The main drivers of this evolution from RC to FRC are a better ductility, more durability, and easier fabrication and construction process. As Commission 1 chair, I am very grateful to Alberto Meda and to all members of this task group for opening the way to this new field of underground structures within our commission, and to have efficiently produced a document that will be useful to our members and to the construction community around the World.

Construction Project Management Springer

The former FIP Commission Prefabrication drafted the FIP Recommendations on the design of Precast prestressed hollow core floors, published by FIP in 1988 (Telford, London, ISBN 0-7277-1375-2). That document was highly appreciated by designers and public authorities because of the lack of guidance available elsewhere, especially with respect to some specific features of the product, for example the absence of transverse reinforcement. It has also served as a reference guide for national standards and especially for the CEN product standard on prestressed hollow core slabs. During the production of that report it was felt that some design rules were incomplete or missing. In addition, research carried out since has resulted in complementary knowledge on the behaviour of hollow core floors, for example in combination with slender floor beams. The present guide to good practice is intended to complement the existing recommendations. The research for the different items was carried out at Chalmers University of Technology (Sweden), Politecnico di Torino (Italy), VTT (Finland), University of Nottingham (United Kingdom), Building Research Institute (Poland), and the University of Rome (Italy).

Precast Concrete Structures FIB - Féd. Int. du Béton

The third edition of the Structural Concrete Textbook is an extensive revision that reflects advances in knowledge and technology over the past decade. It was prepared in the intermediate period from the CEP-FIP Model Code 1990 (MC90) to fib Model Code for Concrete Structures 2010 (MC2010), and as such incorporates a significant amount of information that has been already finalized for MC2010, while keeping some material from MC90 that was not yet modified considerably. The objective of the textbook is to give detailed information on a wide range of concrete engineering from selection of appropriate structural system and also materials, through design and execution and finally behaviour in use. The revised fib Structural Concrete Textbook covers the following main topics: phases of design process, conceptual design, short and long term properties of conventional concrete (including creep, shrinkage, fatigue and temperature influences), special types of concretes (such as self compacting concrete, architectural concrete, fibre reinforced concrete, high and ultra high performance concrete), properties of reinforcing and prestressing materials, bond, tension stiffening, moment-curvature, confining effect, dowel action, aggregate interlock; structural analysis (with or without time dependent effects), definition of limit states, control of cracking and deformations, design for moment, shear or torsion, buckling, fatigue, anchorages, splices, detailing; design for durability (including service life design aspects, deterioration mechanisms, modelling of deterioration mechanisms, environmental influences, influences of design and execution on durability); fire design (including changes in material and structural properties, spalling, degree of deterioration), member design (linear members and slabs with reinforcement layout, deep beams); management, assessment, maintenance, repair (including, conservation strategies, risk management, types of interventions) as well as aspects of execution (quality assurance), formwork and curing. The updated textbook provides the basics of

material and structural behaviour and the fundamental knowledge needed for the design, assessment or retrofitting of concrete structures. It will be essential reading material for graduate students in the field of structural concrete, and also assist designers and consultants in understanding the background to the rules they apply in their practice. Furthermore, it should prove particularly valuable to users of the new editions of Eurocode 2 for concrete buildings, bridges and container structures, which are based only partly on MC90 and partly on more recent knowledge which was not included in the 1999 edition of the textbook.

Facing the Challenges in Structural Engineering Birkhäuser

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

Safety and performance concept. Reliability assessment of concrete structures Createspace Independent Pub

Construction Project Management deals with different facets of construction management emphasizing the basic concepts that any engineering student is supposed to know. The book features computer applications (Primavera and MS Project) used to explain

Design, Durability and Performance CRC Press

Construction Project Management deals with different facets of construction management emphasizing the basic concepts that any engineering student is supposed to know. The major principles of project management have been derived through real life case studies from the field. Simplified examples have been used to facilitate better understanding of the concepts before going into the large and complex problems. The book features computer applications (Primavera and MS Project) used to explain planning, scheduling, resource leveling, monitoring and reporting; it is highly illustrated with line drawings.

Guide to Good Practice fib Fédération internationale du béton

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.

Manual of Precast Concrete Construction with Large Reinforced Concrete and Prestressed Concrete Components: Industrial shed-type and low-rise buildings; special structures John Wiley & Sons

This report was drafted by fib Task Group 6.4, Precast bridges: José Calavera (Convenor, Spain) André De Chefdebien (CERIB, France), David Fernández-Ordóñez (Prefabricados Castelo, S.A., Spain, Secretary), Antonello Gasperi (Consulting engineer, Italy), Jorge Ley (INTEMAC, Spain), Fritz Mönnig (Prof. Bechert & Partner, Germany), Pierre Passeman (CERIB, France), C. Quartel (Spanbeton BV, The Netherlands), Ladislav Sasek (VPU DECO Praha, Czech Republic), George Tootell (Buchan Concrete Ltd., UK), Arnold Van Acker (Belgium)

Precast Concrete in Mixed Construction Pearson Education India

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 in situ 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.

Precast Concrete Construction Springer

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.

A Comparative Study on the Productivity of Precast and Cast-in-situ Concrete Construction in South Africa's High Rise Commercial Building Projects Springer

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 produced in the Netherlands, those parts reproduced are internationally applicable. Special sections deal with the effects of pile driving on adjacent buildings and their occupants - both as regards vibration and noise.

Precast-concrete buildings in seismic areas FIB - International Federation for Structural Concrete
Marine Concrete Structures: Design, Durability and Performance comprehensively examines structures located in, under, or in close proximity to the sea. A major emphasis of the book is on the long-term performance of marine concrete structures that not only represent major infrastructure investment and provision, but are also required to operate with minimal maintenance. Chapters review the design, specification, construction, and operation of marine concrete structures, and examine their performance and durability in the marine environment. A number of case studies of significant marine concrete structures from around the world are included which help to reinforce the principles outlined in earlier chapters and provide useful background to these types of structures. The result is a thorough and up-to-date reference source that engineers, researchers, and postgraduate students in this field will find invaluable. Covers, in detail, the design, specification, construction, and operation of marine concrete structures. Examines the properties and performance of concrete in the marine environment. Provides case studies on significant marine concrete structures and durability-based design from around the world.

Precast and Cast in Situ Concrete FIB - Féd. Int. du Béton

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.

Planning and design handbook on precast building structures FIB - Féd. Int. du Béton
 V. 1. Principles. Roof and floor units. Wall panels.--v. 2. Industrial shed-type and low-rise buildings; special structures.--v. 3. Multi-storey industrial and administrative buildings. School and university buildings. Residential buildings.

Revised Papers from the Workshop, Porto, Portugal, 3 - 4 June 2004 CRC Press

Outlines the benefits of contemporary building design with insulating concrete formwork. The system uses cast in-situ concrete between two layers of insulation, offering quick and easy construction, which is sustainable and economical.

Bridges for High-Speed Railways CRC Press

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.

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