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Exercise for Frail Elders Mar 09 2021 As the older adult population increases, so does the demand for fitness professionals who understand the capabilities and special needs of seniors with illnesses, disabilities, chronic disorders, and sedentary lifestyles. Exercise for Frail Elders, Second Edition, is the only exercise fitness guidebook that focuses on working with frail elders and adults with special conditions. It is an invaluable resource for improving functional fitness, maintaining aspects of independent living, and enhancing quality of life. With Exercise for Frail Elders, Second Edition, readers will gain a deeper understanding of 14 medical conditions common to older adults, how these conditions may affect participants' ability to perform activities of daily living, and what exercises can help them maintain and increase functional fitness. This book focuses on special needs stemming from conditions including arthritis, cardiovascular disease, diabetes, hypertension, orthopedic issues, osteoporosis, Parkinson's disease, and Alzheimer's disease. The updated second edition provides a broader focus on balance, a critical component of any functional fitness program, to aid in designing classes that incorporate various stability exercises. Exercises that provide significant benefits to balance are indicated with a symbol to ensure effective program design. Additional features of this edition include the following: · Learning objectives at the beginning and review questions at the conclusion of each chapter provide a framework for understanding. · Reproducible forms provide readers with easy-to-use appraisals, questionnaires, and exercise logs for evaluating clients. · Checklists and reference charts highlight key areas of concern and consider specific needs when planning functional fitness programs for clients. · Guidelines and safety precautions for special conditions and how they apply to range-of-motion exercises, resistance training, aerobic exercise, and stretching have been updated. · Specific exercise instructions, including variations and progression options, show professionals how to add interest and challenge for participants. · Suggested resources encourage exercise leaders to continue their education. To enhance learning and program development, the text is divided into two parts. Part I covers planning an exercise program for frail elders or adults with special needs, including knowing the needs of class participants, motivating students to exercise, and keeping them safe while participating. It also offers strategies for success, including basic class structure creating a sense of fun and community. Part II covers implementation of a successful program, including course design, warm-up and cool-down, and exercises for range of motion, resistance training, aerobic training, and stretching, with their variations. Over 150 photos illustrate safe and effective execution of the exercises. Exercise for Frail Elders, Second Edition, is an easy-to-follow resource for working with elderly individuals in assisted living and nursing homes, rehabilitation facilities, hospitals, day centers, senior centers, recreation and community centers, and home health care environments. This unique guide has the hands-on information necessary for creating safe and effective exercise programs and understanding medical disorders, safety precautions for specific disorders, and implications for exercise. Readers will learn to design and teach a dynamic fitness program for older adults—and keep it fun, safe, and functional—with Exercise for Frail Elders.

Research Handbook on Disasters and International Law Nov 24 2019 International law's role in governing disasters is undergoing a formative period in its development and reach, in parallel with concerted efforts by the international community to respond more effectively to the increasing number and intensity of disasters across the world. This Research Handbook examines a broad range of legal regimes directly and indirectly relevant to disaster prevention, mitigation and reconstruction across a spectrum of natural and

manmade disasters, including armed conflict.

Precast Insulated Sandwich Panels Sep 27 2022 During the mid-20th century, with the rise of industrial prefabrication, precast concrete sandwich panels started being used as cladding for buildings. Since then, society and construction industry have become increasingly aware of energy efficiency in all fields, including affordability and sustainability consciousness, while maintaining the buildings' durability. As such, buildings have been subject to increasingly stringent requirements which has kept the technology of sandwich panels continually at the forefront of building envelope evolution. Nowadays, sandwich panels have reached the highest standards of functional performance and aesthetic appeal. In building construction, these sandwich panel attributes combine with the well-known advantages of prefabrication including structural efficiency, flexibility in use, speed of construction, quality consciousness, durability, and sustainability. Sandwich panels have gained more exposure, thus representing quite a significant application within the prefabrication industry and a vital component of the precast market. The fib Commission "Prefabrication" is eager to promote the development of all precast structural concrete products and to share the knowledge and experience gained, to aid with practical design and construction. By issuing this comprehensive overview, "Guide to Good Practice", a better understanding of design considerations, structural analysis, building physics, use of materials, manufacturing methods, equipment usage and field performance will be provided. This document contains the latest information currently available worldwide. The Commission is particularly proud that this document is a result of close cooperation with PCI and that it is published by both the fib and PCI. This cooperation started six years ago, first with comparing the different approaches to several issues, then progressively integrating and producing common documents, like this one, that hasn't yet been treated in a specific Guide by either body. This Guide is intended to be the reference document to all who are interested in utilising the advantages of Precast Sandwich wall panels. In conjunction with the previously published Planning and Design Handbook on Precast Building Structures, the designer will have significant resources to integrate sandwich wall panels into any applicable structure.

Comprehensive Nuclear Materials Oct 24 2019 Comprehensive Nuclear Materials discusses the major classes of materials suitable for usage in nuclear fission, fusion reactors and high power accelerators, and for diverse functions in fuels, cladding, moderator and control materials, structural, functional, and waste materials. The work addresses the full panorama of contemporary international research in nuclear materials, from Actinides to Zirconium alloys, from the worlds' leading scientists and engineers. Critically reviews the major classes and functions of materials, supporting the selection, assessment, validation and engineering of materials in extreme nuclear environment Fully integrated with F-elements.net, a proprietary database containing useful cross-referenced property data on the lanthanides and actinides Details contemporary developments in numerical simulation, modelling, experimentation, and computational analysis, for effective implementation in labs and plants

The Water Footprint Assessment Manual Apr 29 2020 People use lots of water for drinking, cooking and washing, but significantly more for producing things such as food, paper and cotton clothes. The water footprint is an indicator of water use that looks at both direct and indirect water use of a consumer or producer. Indirect use refers to the 'virtual water' embedded in tradable goods and commodities, such as cereals, sugar or cotton. The water footprint of an individual, community or business is defined as the total volume of freshwater that is used to produce the goods and services consumed by the individual or community or produced by the business. This book offers a complete and up-to-date overview of the global standard on water footprint assessment as developed by the Water Footprint Network. More specifically it:

- o Provides a comprehensive set of methods for water footprint assessment
- o Shows how water footprints can be calculated for individual processes and products, as well as for consumers, nations and businesses
- o Contains detailed worked examples of how to calculate green, blue and grey water footprints
- o Describes how to assess the sustainability of the aggregated water footprint within a river basin or the water footprint of a specific product
- o Includes an extensive library of possible measures that can contribute to water footprint reduction

Safety Professional's Reference and Study Guide Dec 06 2020 While there are numerous technical resources available, often you have to search through a plethora of them to find the information you use on a daily basis. And maintaining a library suitable for a comprehensive practice can become quite costly. The new edition of a bestseller, Safety Professional's Reference and Study Guide, Second Edition provides a single-source reference that contains all the information required to handle the day-to-day tasks of a practicing industrial hygienist. New Chapters in the Second Edition cover: Behavior-based safety programs Safety auditing procedures and techniques Environmental management Measuring health and safety performance OSHA's laboratory safety standard Process safety management standard BCSP's Code of Ethics The book provides a quick desk reference as well as a resource for preparations for the Associate Safety Professional (ASP), Certified Safety Professional (CSP), Occupational Health and Safety Technologist (OHST), and the Construction Health and Safety Technologist (CHST) examinations. A collection of information drawn from textbooks, journals, and the author's more than 25 years of experience, the reference provides, as the title implies, not just a study guide but a reference that has staying power on your library shelf.

Flawed Tax Arguments to Avoid, Form #08.004 Mar 29 2020 We didn't write this, but we agree with everything in it. Members are required by our Disclaimer to read and heed every part of this. Disclaimer: <https://sedm.org/disclaimer.htm> For reasons why NONE of our materials may legally be censored and violate NO Google policies, see: <https://sedm.org/why-our-materials-cannot-legally-be-censored/>

Partial factor methods for existing concrete structures Nov 29 2022 For a large part of the existing buildings and infrastructure the design life has been reached or will be reached in the near future. These structures might need to be reassessed in order to investigate whether the safety requirements are met. Current practice on the assessment of existing concrete structures however needs a thorough evaluation from a risk and reliability point of view, as they are mostly verified using simplified procedures based on the partial factor method commonly applied in design of new structures. Such assessments are often conservative and may lead to expensive upgrades. Although the last decades reliability-based assessment of existing concrete structures has gained wide attention in the research field, a consistent reliability-based assessment framework and a practically applicable codified approach which is compatible with the Eurocodes and accessible for common structural engineering problems in everyday practice is currently missing. Such an approach however allows

for a more uniform, more objective and probably more widely applied assessment approach for existing concrete structures. Hence, in this bulletin two different partial factor formats are elaborated, i.e. the Design Value Method (DVM) and the Adjusted Partial Factor Method (APFM), enabling the incorporation of specific reliability related aspects for existing structures. The DVM proposes a fundamental basis for evaluating partial factors whereas the APFM provides adjustment factors to be applied on the partial factors for new structures in EN 1990. In this bulletin both methods are elaborated and evaluated and a basis is provided for decision making regarding the target safety level of existing structures.

Shear and Punching Shear in RC and FRC Elements Feb 20 2022 fib Bulletin 57 is a collection of contributions from a workshop on "Recent developments on shear and punching shear in RC and FRC elements", held in Salò, Italy, in October 2010. Shear is one of a few areas of research into fundamentals of the behaviour of concrete structures where contention remains amongst researchers. There is a continuing debate between researchers from a structures perspective and those from a materials or fracture mechanics perspective about the mechanisms that enable the force flow through a concrete member and across cracks. In 2009, a Working Group was formed within fib Task Group 4.2 "Ultimate Limit State Models" to harmonise different ideas about design procedures for shear and punching. An important outcome of this work was the ensuing discussions between experts and practitioners regarding the shear and punching provisions of the draft fib Model Code, which led to the organization of the Salò workshop. Invited experts in the field of shear and FRC gave 18 lectures at the workshop that was attended by 72 participants from 12 countries in 3 different continents. The contributions from this conference as compiled in this bulletin are believed to represent the best of the current state of knowledge. They certainly are of general interest to fib members and especially helpful in the finalization of the 2010 fib Model Code. It is hoped that this publication will stimulate further research in the field, to refine and harmonize the available analytical models and tools for shear and punching design.

Grand Successes and Failures in IT: Public and Private Sectors Sep 22 2019 This book constitutes the refereed proceedings of the IFIP WG 8.6 International Working Conference on Transfer and Diffusion of IT, TDIT 2013, held in Bangalore, India, in June 2013. The 35 revised full papers presented together with an invited paper, 12 short papers and 3 poster papers were carefully reviewed and selected from 65 submissions. The full papers are organized in the following topical sections: IS success and failure; studies of IT adoption; software development; IT in the public sector; and theory and methods.

Model Code 2010 - Final draft Mar 21 2022 The objectives of MC2010 are to (a) serve as a basis for future codes for concrete structures, and (b) present new developments with regard to concrete structures, structural materials and new ideas in order to achieve optimum behaviour. MC2010 includes the whole life cycle of a concrete structure, from design and construction to conservation (assessment, maintenance, strengthening) and dismantlement, in one code for buildings, bridges and other civil engineering structures. Design is largely based on performance requirements. The chapter on materials is extended with new types of concrete and reinforcement (such as fibres and non-metallic reinforcements). The fib Model Code 2010 also gives corresponding explanations in a separate column of the document. Additionally, MC2010 is supported by background documents that have already been (or will soon be) published in fib bulletins and journal articles. MC2010 is now the most comprehensive code on concrete structures, including their complete life cycle: conceptual design, dimensioning, construction, conservation and dismantlement.

Design of precast concrete structures against accidental actions Oct 16 2021 Since the 1980's, several buildings throughout the world have been subject to gas explosions, impact by cars or airplanes, or car bomb attacks. In many cases the effect of the impact or explosion has been the failure of a critical structural member at the perimeter of the building. After the failure, the load supported by that member could not be redistributed and part or all of the structure has collapsed in a progressive manner. The phenomenon that occurs when local failure is not confined to the area of initial distress, and spreads horizontally and/or vertically through the structure, is termed progressive collapse. Progressive collapse is a relatively rare event, as it requires both an accidental action to cause local damage and a structure that lacks adequate continuity, ductility, and redundancy to prevent the spread of damage. It is technically very difficult and economically prohibitive to design buildings for absolute safety. However it is possible to construct precast concrete buildings that afford an acceptable degree of safety with regard to accidental actions. A structure is normally designed to respond properly, without damage, under normal load conditions, but local and/or global damages cannot be avoided under the effect of an unexpected, but moderate degree of accidental overload. Properly designed and constructed structures usually possess reasonable probability not to collapse catastrophically under such loads, depending on different factors, for example: the type of loading; the degree and the location of accidental loading in regard to the structure and its structural members; the type of structural system, the construction technology, and the spans between structural vertical members, etc. No structure can be expected to be totally resistant to actions arising from an unexpected and extreme cause, but it should not be damaged to an extent that is disproportionate to the original cause. The aim of fib Bulletin 63 is to summarize the present knowledge on the subject and to provide guidance for the design of precast structures against progressive collapse. This is addressed in terms of (a) the classification of the actions, (b) their effect on the structural types, (c) the strategies to cope with such actions, (d) the design methods and (e) some typical detailing, all supplemented with illustrations from around the world, and some model calculations.

Structural Concrete, Volume 2 Apr 10 2021 The second 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 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.

The Practice and Politics of Reading, 650-1500 Nov 05 2020 A new look at how reading was practised and represented in England from the seventh century to the beginnings of the print era, finding many kinships between reading cultures across the medieval *longue durée*. Mergent Municipal & Government Manual Dec 30 2022

Collector's Originality Guide Porsche 911 Jul 25 2022

Precast tunnel segments in fibre-reinforced concrete Aug 26 2022 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 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.

Benchmarking of deemed-to-satisfy provisions in standards Dec 18 2021 Standards for specifying and ensuring the durability of new concrete structures are commonly of the prescriptive kind. fib Bulletin 76: Benchmarking of deemed-to-satisfy provisions in standards - Durability of reinforced concrete structures exposed to chlorides presents the benchmarking of a number of rules for chloride-induced corrosion as given in national codes such as European, US and Australian standards. This new benchmark determines the reliability ranges in the chloride-induced depassivation of rebar if the deemed-to-satisfy rules of different countries are taken into consideration. It does not only involve (probabilistic) calculations using input mainly based on short-term and rapid laboratory-test data but also involves input based on an independent assessment of existing structures. The reliability analyses are carried out using the probabilistic design approach for chloride-induced corrosion presented in fib Bulletin 34: Model Code for Service Life Design (2006), fib Model Code for Concrete Structures 2010 and ISO 16204:2012. The work compares the calculated reliability ranges thus determined with the target reliabilities proposed by current specifications and, based on the comparison, offers a proposal for the improvement of deemed-to-satisfy rules and specifications. fib Bulletin 76 presents and discusses in detail the input data for the examined model parameters and offers an extensive annexe documenting the values of the individual parameters used in the analyses. It thus provides a reliable database for the performance-based probabilistic service-life design of concrete structures exposed to chlorides, be they in the form of salt fog, sea water or de-icing salts.

Manual of Tests and Criteria Oct 04 2020 The Manual of Tests and Criteria contains criteria, test methods and procedures to be used for classification of dangerous goods according to the provisions of Parts 2 and 3 of the United Nations Recommendations on the Transport of Dangerous Goods, Model Regulations, as well as of chemicals presenting physical hazards according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). As a consequence, it supplements also national or international regulations which are derived from the United Nations Recommendations on the Transport of Dangerous Goods or the GHS. At its ninth session (7 December 2018), the Committee adopted a set of amendments to the sixth revised edition of the Manual as amended by Amendment 1. This seventh revised edition takes account of these amendments. In addition, noting that the work to facilitate the use of the Manual in the context of the GHS had been completed, the Committee considered that the reference to the "Recommendations on the Transport of Dangerous Goods" in the title of the Manual was no longer appropriate, and decided that from now on, the Manual should be entitled "Manual of Tests and Criteria".

EU Justice and Home Affairs Law Aug 02 2020 Steve Peers examines the institutions of justice and home affairs policy formulation and implementation within the EU. The author discusses the ways in which these institutions have intervened in cases of crime, corruption and immigration.

Code-type models for concrete behaviour Jun 12 2021 fib Model Code 2010 represents the state-of-the-art of code-type models for structural behaviour of concrete. It comprises constitutive relations and material models together with the most important explanatory notes. However the underlying normative work, i.e. the fundamental data as well as the considerations and discussions behind the formulas could not be given within the Model Code text. Based on various experiences gained after the publication of Model Code 1990 this lacking background information will lead in the following to numerous questions arising from Model Code users. Consequently the

present bulletin claims to conquer this general weakness of codes in a way to guard against any future misunderstandings of the Model Code 2010 related to its chapter 5.1 (Concrete). It discusses the given formulas in connection with experimental data and the most important international literature. The constitutive relations or material models, being included in MC1990 and forming the basis and point of origin of the Task Group's work, were critically evaluated, if necessary and possible adjusted, or replaced by completely new approaches. Major criteria have been the physical and thermodynamical soundness as well as practical considerations like simplicity and operability. This state-of-the-art report is intended for practicing engineers as well as for researchers and represents a comprehensible summary of the relevant knowledge available to the members of the fib Task Group 8.7 at the time of its drafting. Besides the fact that the bulletin is a background document for Chapter 5.1 of MC2010, it will provide an important foundation for the development of future generations of code-type models related to the characteristics and the behaviour of structural concrete. Further it will offer insights into the complexity of the normative work related to concrete modelling, leading to a better understanding and adequate appreciation of MC2010.

Manual of Romance Morphosyntax and Syntax Jul 13 2021 This volume offers theoretically informed surveys of topics that have figured prominently in morphosyntactic and syntactic research into Romance languages and dialects. We define syntax as being the linguistic component that assembles linguistic units, such as roots or functional morphemes, into grammatical sentences, and morphosyntax as being an umbrella term for all morphological relations between these linguistic units, which either trigger morphological marking (e.g. explicit case morphemes) or are related to ordering issues (e.g. subjects precede finite verbs whenever there is number agreement between them). All 24 chapters adopt a comparative perspective on these two fields of research, highlighting cross-linguistic grammatical similarities and differences within the Romance language family. In addition, many chapters address issues related to variation observable within individual Romance languages, and grammatical change from Latin to Romance.

BMW X3 (E83) Service Manual: 2004, 2005, 2006, 2007, 2008, 2009, 2010: 2.5i, 3.0i, 3.0si, Xdrive 30i Jan 07 2021 The BMW X3 (E83) Service Manual: 2004-2010 contains in-depth maintenance, service and repair information for the BMW X3 from 2004 to 2010. The aim throughout has been simplicity and clarity, with practical explanations, step-by-step procedures and accurate specifications. Whether you're a professional or a do-it-yourself BMW owner, this manual helps you understand, care for and repair your BMW. Engines covered: M54 engine: 2.5i, 3.0i (2004-2006) N52 engine: 3.0si, xDrive 30i (2007-2010) Transmissions covered: Manual: ZF GS6-37BZ (6-speed) Automatic: GM A5S390R (5-speed) Automatic: GM GA6L45R (6-speed)

Spatial Variability in Environmental Science Jan 27 2020 Spatial Variability in Environmental Science - Patterns, Processes, and Analyses includes eight studies that examine the issue of spatial variability in four areas of the environmental sciences – atmospheric science, geological science, biological science, and landscape science. The topics range from monitoring of wind, the urban heat island, and atmospheric pollution, to coastal geomorphology, landscape planning and forest ecology, the problem of introduced species to regional ecologies, and a technique to improve the identification of human constructions in semi-natural landscapes. A small volume can only offer a small glimpse at the activities of scientists and insights into environmental science, but the array of papers herein offers a unique view of the current scholarship.

The Role of Regional Organizations in Disaster Risk Management Feb 26 2020 The use of regional organizations to mitigate and respond to disasters has become a global trend. This book examines the role regional organizations play in managing disaster risk through a comparative study of ten regional organizations, demonstrating their current limitations and future potential.

How Sex Got Screwed Up: The Ghosts that Haunt Our Sexual Pleasure - Book Two Dec 26 2019 The ghosts that haunt our sexual pleasure were born in the Stone Age. Sex and gender taboos were used by tribes to differentiate themselves from one another. These taboos filtered into the lives of Bronze and Iron Age men and women who lived in city-states and empires. For the early Christians, all sex play was turned into sin, instilled with guilt, and punished severely. With the invention of sin came the construction of women as subordinate beings to men. Despite the birth of romance in the late middle ages, Renaissance churches held inquisitions to seek out and destroy sex sinners, all of whom it saw as heretics. The Age of Reason saw the demise of these inquisitions. But, it was doctors who would take over the roles of priests and ministers as sex became defined by discourses of crime, degeneracy, and sickness. The middle of the 20th century saw these medical and religious teachings challenged for the first time as activists, such as Alfred Kinsey and Margaret Sanger, sought to carve out a place for sexual freedom in society. However, strong opposition to their beliefs and the growing exploitation of sex by the media at the close of the century would ultimately shape 21st century sexual ambivalence. Book Two of this two-part publication traces the history of sex from the Victorian Era to present day. Interspersed with 'personal hauntings' from his own life and the lives of friends and relatives, Knowles reveals how historical discourses of sex continue to haunt us today. This book is a page-turner in simple and plain language about 'how sex got screwed up' for millennia. For Knowles, if we know the history of sex, we can get over it.

Precast-concrete buildings in seismic areas May 23 2022 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.

Probabilistic performance-based seismic design Apr 22 2022 In the last ten to fifteen years a vast amount of research has been undertaken to improve on earlier methods for analysing the seismic reliability of structures. These efforts focused on identifying aspects of prominent relevance and disregarding the inessential ones, with the goal of producing methods that are both more efficient and easier to use in practice. Today this goal can be said to be substantially achieved. During these years scientific activity covered all of the many aspects involved in such a multi-disciplinary problem, ranging from seismology, to geotechnics, to structural analysis and economy, all of them to be consistently organised into a probabilistic framework. As the output of this research was dispersed into a multitude of technical papers, fib Commission 7 thought it worthwhile to select the essential aspects of this large body of knowledge and to present them into a coherent and accessible document for structural engineers. To this end a task group of specialists was formed, whose qualifications come from their personal involvement in the above-mentioned developments throughout this period of time. From its inception the group decided that the bulletin should have had a distinct educational character and provide a clear overview of the methods available. The outcome is a compact volume that starts by introducing the concepts and definitions of performance-based engineering, continues with two chapters on assessment and design, respectively, presenting the methods in detail accompanied by illustrative examples, and concludes with an appendix with sample programming excerpts for their implementation. It is believed that at present fib Bulletin 68 represents a unique compendium on probabilistic performance-based seismic design.

Moody's Bank and Finance Manual Feb 08 2021

Fibre-reinforced concrete: From design to structural applications Oct 28 2022 The FRC-2014 Workshop Fibre Reinforced Concrete: from Design to Structural Applications was the first ACI-fib joint technical event. The Workshop, held at Polytechnique Montreal (Canada) on July 24th and 25th 2014, was attended by 116 participants from 25 countries and 4 continents. The first international FRC workshop was held in Bergamo (Italy) in 2004. At that time, the lack of specific building codes and standards was identified as the main inhibitor to the application of this technology in engineering practice. Ten years after Bergamo, many of the objectives identified at that time have been achieved. The use of fibre reinforced concrete (FRC) for designing structural members in bending and shear has recently been addressed in the fib Model Code 2010. Steel fibre reinforced concrete (SFRC) has also been used structurally in several building and bridge projects in Europe and North-America. SFRC has been widely used in segmental tunnel linings all over the world. Members of ACI544 and fib TG-4.1 have been involved in writing code based specifications for the design of FRC structural members. More than fifty papers were presented at the Workshop from which forty-four were selected for this joint ACI/fib publication. The papers are organised in the document under six themes: Design guidelines and specifications, Material properties for design, Behaviour and design of beams and columns, Behaviour and design of slabs and other structures, Behaviour and design of foundations and underground components, and finally, Applications in structure and underground construction projects.

View Full-Size Image Corrugated-steel-web bridges Jun 24 2022 To date, very little has been published on the topic of corrugated-steel-web bridges. fib Bulletin 77 offers the global engineering community a first complete overview of this fascinating technology. The shear capacity of corrugated-steel web began to be studied in Japan in 1965 and resulted in the use of corrugated steel in steel-girder webs as a replacement for web stiffeners. After Japan laid the groundwork for the technology, France built the first composite bridge with corrugated-steel webs and upper and lower concrete slabs in the 1980s. Composite bridges had already been popular in France but engineers found that concrete slab creep meant that prestressing force spread into the steel plates, causing high losses. Corrugated-steel web, which reduces axial stiffness, was welcomed as a solution to this problem and several bridges were designed and built with this technology. Building on France's composite technology, Japan began developing corrugated-web precast box-girder bridges in the 1990s and today has over 140 corrugated-web bridges, by far the largest number for any country in the world. Japanese engineers have come a long way in solving issues such as fatigue and ultimate load behaviour and have made good use of corrugated-steel web's advantages for bridge building, which include reduced self weight (of approximately 15% compared with the weight of an ordinary concrete box-girder bridge), economy and improved construction processes. fib Bulletin 77: Corrugated-steel-web bridges covers numerous examples of bridges in Japan and France as well as an in-depth case study and analysis of a large corrugated-steel-web bridge in Germany. This publication offers designers, proprietors, contractors and architects alike relevant technical and theoretical information on construction processes along with ideas for future development.

Model Code 2010 - First complete draft - Volume 2 May 11 2021 The Model Code for Concrete Structures is intended to serve as a basis for future codes. It takes into account new developments with respect to concrete structures, the structural material concrete and new ideas for the requirements to be formulated for structures in order to achieve optimum behaviour according to new insights and ideas. It is also intended as a source of information for updating existing codes or developing new codes for concrete structures. At the same time, the Model Code is intended as an operational document for normal design situations and structures.

Structural Concrete Textbook, Volume 5 Jan 19 2022 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.

Carbohydrate Chemistry May 31 2020 In this volume, glycochemistry and glycobiology have been combined to demonstrate the contribution of organic chemistry, modern analytics, biological and biochemical expertise to the increasingly important field of glycomics. A polysaccharide immunomodulator with therapeutic implications, carbohydrate vaccines, new findings emphasizing the influence of carbohydrate decoration on the regulation of inflammatory response and new therapeutic approaches in the treatment of acute and chronic inflammatory diseases, recent progress on glycoengineering based on a glycosylation strategy to optimize protein drugs, congenital disorders of glycosylation, and key aspects of the glycosylation changes associated with bladder cancer are amongst the subjects presented in this volume. The contribution of glycochemistry to innovation in glycosciences is shown with chapters covering highly functionalized exo-glycals for the generation of molecular diversity in a chemoselective manner, imino sugar glycosidase inhibitors, carbasugars, multivalent glycoconjugates, including glycodendrimers, glyconanotubes, and glyconanoparticles, and their uses in medicinal chemistry, as well as artificial saccharide-based and saccharide-functionalized gene delivery systems. Siderophores based on monosaccharides (which have proven effective for Gram-negative bacteria and mycobacteria), and the so-called smart materials, (which can modulate and control cell behaviour), complete the volume. Volume 39 of *Carbohydrate Chemistry - Chemical and Biological Approaches* contains contributions ranging from glycochemistry to glycobiology. This collection demonstrates in a meaningful way how the interdisciplinary approach of an international glyconetwork can advance the field of carbohydrate research in Europe and worldwide.

Integrated life cycle assessment of concrete structures Sep 15 2021 Concrete is after water the second most used material. The production of concrete in the industrialized countries annually amounts to 1.5-3 tonne per capita and is still increasing. This has significant impact on the environment. Thus there is an urgent need for more effective use of concrete in structures and their assessment. The scope of activities of the fib Task Group 3.7 was to define the methodology for integrated life-cycle assessment of concrete structures considering main essential aspects of sustainability such as: environmental, economic and social aspects throughout the whole life of the concrete structure. The aim was to set up basic methodology to be helpful in development of design and assessment tools focused on sustainability of concrete structure within the whole life cycle. *Integrated Life Cycle Assessment (ILCA)* represents an advanced approach integrating different aspects of sustainability in one complex assessment procedure. The integrated approach is necessary to insure that the structure will serve during the whole expected service life with a maximum functional quality and safety, while environmental and economic loads will be kept at a low level. The effective application and quality of results are dependent on the availability of relevant input data obtained using a detailed inventory analysis, based on specific regional conditions. The evaluation of the real level of total quality of concrete structure should be based on a detailed ILCA analysis using regionally or locally relevant data sets.

Application of Imaging Techniques to Mechanics of Materials and Structures, Volume 4 Sep 03 2020 This the fourth volume of six from the *Annual Conference of the Society for Experimental Mechanics, 2010*, brings together 58 chapters on *Application of Imaging Techniques to Mechanics of Materials and Structure*. It presents findings from experimental and computational investigations involving a range of imaging techniques including *Recovery of 3D Stress Intensity Factors From Surface Full-field Measurements*, *Identification of Cohesive-zone Laws From Crack-tip Deformation Fields*, *Application of High Speed Digital Image Correlation for Vibration Mode Shape Analysis*, *Characterization of Aluminum Alloys Using a 3D Full Field Measurement*, and *Low Strain Rate Measurements on Explosives Using DIC*.

Clinical Manual of Youth Addictive Disorders Jul 01 2020 This long-awaited follow-up to the classic text *Clinical Manual of Adolescent Substance Abuse Treatment* presents the latest research on substance use and substance use disorders (SUDs) in adolescents 12--18 and emerging adults 18--25 years of age. This new manual offers a substantive update of the previous manual's 16 chapters, offering 7 additional chapters devoted to important new topics, such as pediatric primary care assessment and intervention, electronic tools, specific substances (e.g., cannabis, opioids, alcohol), and much more. Psychiatrists, psychologists, social workers, and substance abuse specialists, as well as applied researchers and public health professionals, will find this new manual a research-rich and clinically compelling resource for understanding disease course, prevention, diagnosis, substance-specific interventions, co-occurring disorders, and issues related to special populations. The strengths of this text, edited by two of the foremost experts on addiction among youth, are many: Because youth are not simply "miniature adults," the book uses a developmentally informed approach to understand the onset of substance use and the trajectory to SUD and behavioral addictive disorders. An extensive section of the book is devoted to epidemiology, diagnosis, and interventions for specific substances of abuse, including alcohol, tobacco, cannabis, and opioids. The full range of interventions are described for each, including pharmacotherapy, cognitive-behavior therapy, motivational enhancement, and psychosocial strategies. An introduction on the nature of the association between co-occurring disorders is followed by chapters on internalizing disorders (such as depression), suicidal behavior, psychotic disorders, externalizing disorders (such as attention-deficit/hyperactivity), and behavioral addictions. Special chapters are devoted to the management of youth with SUDs in the juvenile justice system and the consequences, for the child, of maternal substance use during pregnancy. Advances in research and clinical strategies make both topics timely. Three appendixes complete the book. The first offers resources for screening and assessment tools, the second provides a select list of websites for parents who are seeking advice and resources about drug prevention and intervention, and the third lists websites containing general information about self-help, including how to find local AA or NA meetings. Emerging research

on developmental psychopathology and adolescent development has implications for how we view current prevention, intervention, and treatment paradigms, and *Clinical Manual of Youth Addictive Disorders* is indispensable in helping the reader understand and implement effective strategies for these patients and their families.

Acceptance of cable systems using prestressing steels Aug 22 2019 Cable-stayed structures have become increasingly popular over the last 30 years and have been used in all parts of the world. Modern cable-stayed bridges have a history of over 50-years and have been constructed with span lengths ranging from 15 m to over 1000 m. Many long span cable-stayed bridges have been built for railway and highway traffic applications. Stay cables have also been used on pedestrian structures, many of which are architecturally striking and have become landmark structures. There is growing use in building structures, particularly for cable-supported roofs. Most of the cable supported structures have been in the form of cable-stayed bridges; but in recent years, extradosed bridges have seen increased popularity among the designers. Led by the experience in Japan, more than 200 extradosed bridges have been constructed worldwide in the past 15 years. The first edition of these fib recommendations was published as fib Bulletin 30 in 2005 and was the first specification published by fib for stay cable systems. This new bulletin has been updated based on Bulletin 30 with the aim to reflect the current state of the art and encompass the latest knowledge in cable systems. In addition, it has been the aspiration of Commission 5 and Task Group 5.5 to harmonize the guidance in this updated bulletin with other stay cable recommendations from around the world, including those from Europe, Japan and the USA. This new bulletin is intended to supersede and replace fib Bulletin 30. It is recommended that it be used in lieu of fib Bulletin 30 for all future cable supported applications. The updated bulletin introduces several significant enhancements to the specifications: These recommendations are applicable to both stay cable and extradosed cable applications. In the past, there has been some debate over the boundary between cable-stayed and extradosed bridges. This bulletin presents a new continuous approach valid for both. A completely new testing requirement to assess the performance of cable systems under bending fatigue, including both anchorages and saddles, if applicable, has been added. Testing requirements for saddle systems have been reformulated. In addition to the bending fatigue test noted above, new testing procedures for stay cable saddles with isolated tensile elements are introduced. This includes tests for saddle axial fatigue, friction and tensile testing, and determination of the effective saddle friction coefficient. Expanded system qualification, including requirements for both stay cable and extradosed applications. Includes new provisions for MTE qualification and additional load transferring connection devices. Minimum number of tests is specified for each. A new in-situ damping measurement test has been added to verify the actual damping ratio of the damping devices installed. By testing on site, selected cables may be excited to vibrate without and with the damping devices so that the observed v vibration behaviour can be compared to the specified value. Other revisions have been made to reflect the current state of practice: Expanded quality control testing requirements Inclusion of epoxy-coated prestressing steel as a protection layer. Previous recommendations only considered zinc coatings. Specifications for epoxy coating material are given. Requirements for stainless steel components such as pipes, caps and plates Updated guidance for designing lightning protection systems Detailed recommendations for different levels of inspection of cable systems, including: initial, routine, detailed and exceptional inspections An updated list of references, relevant standards, and extended literature

Structural Concrete Textbook, Volume 4 Nov 17 2021 The second 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.

Moody's International Manual Aug 14 2021