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Concrete Pearson College Division Curing is one of those activities that every civil engineer and construction worker has heard of, but in reality does not worry about much. In practice, curing is often low on the list of priorities on the construction site, particularly when budgets and timelines are under pressure. Yet the increasing demands being placed on concrete mixtures also mean that they are less forgiving than in the past. Therefore, any activity that will help improve hydration and so performance, while reducing the risk of cracking, is becoming more important. Curing Concrete explains exactly why curing is so important and shows you how to best do it. The book covers: The fundamentals behind hydration How curing affects the properties of concrete, improving its long-term performance What curing technologies and techniques you can use for different

applications How to effectively specify, provide, and measure curing in a project The author also gives numerous examples of how curing—or a lack of it—has affected concrete performance in real-world situations. These include examples from hot and cold climates, as well as examples related to high-performance concrete, performance parameters, and specifications and testing. Written for construction professionals who want to ensure the quality and longevity of their concrete structures, this book demonstrates that curing is well worth the effort and cost. Techniques for Determination CRC Press Supplementary cementing materials (SCMs), such as fly ash, slag, silica fume, and natural pozzolans, make a significant difference to the properties of concrete but are rarely understood in any detail. SCMs can influence the mechanical properties of concrete and improve its durability in aggressive environments. Supplementary Cementing Materials in Concrete covers the chemical, physical, and mineralogical properties of SCMs; their chemical reactions; and the resulting changes in the microstructure of concrete. The author links the properties of the material at the microstructural level with its behavior in laboratory tests, and, in turn, to the performance of the material in

concrete structures under field exposure. He explains how SCMs influence the mechanical properties of concrete and improve its durability and also covers how various SCMs influence hydration reactions and the evolution of the pore structure and pore-solution composition. However, SCMs are not a panacea for concrete and improper use may be injurious to certain properties. Achieving the maximum benefit from SCMs requires an understanding of the materials and how they impact concrete properties under various conditions. Drawing on the author's 30 years of experience, this book helps engineers and practitioners to optimize the use of supplementary cementing materials to improve concrete performance.

Building the Bridge to Socially Just and Ecologically Sustainable Cities CRC Press

This research project investigated the effects of concentrated brines of magnesium chloride, calcium chloride, sodium chloride, and calcium magnesium acetate on portland cement concrete.

Springer Nature

This book presents a unified view of concrete behavior in light of a body of chemical and physical principles. It provides the most up-to-date information available on new concrete materials. The most up-to-date information on new concrete materials. SI units used as primary system, keeping readers current to the unit system being adopted in the United States. Latest ASTM specifications are included. Exercises at the end of each chapter. An excellent resource for professionals in this industry.

Workability of SCC CRC Press

Davies and Scott, directors of an international corrosion consulting company, cover all construction materials used in potable and freshwaters, seawater, and industrial water in

this reference for engineers, managers, plant operators, and inspectors involved in materials decisions, corrosion prevent

Effective and Safe Waste Management CRC Press

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Concrete Pavement Design, Construction, and Performance, Second Edition CRC Press

This second edition of *Concrete Pavement Design, Construction, and Performance* provides a solid foundation for pavement engineers seeking relevant and applicable design and construction instruction. It relies on general principles instead of specific ones, and incorporates illustrative case studies and prime design examples to highlight the material. It presents a thorough understanding of materials selection, mixture proportioning, design and detailing, drainage, construction techniques, and pavement performance. It also offers insight into the theoretical framework underlying commonly used design procedures as well as the limits of the applicability of the procedures. All chapters have been updated to reflect recent developments, including some alternative and emerging design technologies that improve sustainability. What's

New in the Second Edition: The second edition of this book contains a new chapter on sustainability, and coverage of mechanistic-empirical design and pervious concrete pavements. RCC pavements are now given a new chapter. The text also expands the industrial pavement design chapter. Outlines alternatives for concrete pavement solutions Identifies desired performance and behavior parameters Establishes appropriate materials and desired concrete proportions Presents steps for translating the design into a durable facility The book highlights significant innovations such as one is two-lift concrete pavements, precast concrete pavement systems, RCC pavement, interlocking concrete pavers, thin concrete pavement design, and pervious concrete. This text also addresses pavement management, maintenance, rehabilitation, and overlays.

Concrete International CRC Press

This book considers the properties and behaviour of cement-based materials from the point of view of composite science and technology. It deals particularly with newer forms of cement-based materials and also with a composite approach to conventional materials and their special properties. Emphasis is put on non-conventional reinforcement and design

Supplementary Cementing Materials in Concrete FIB - Féd. Int. du Béton

Effective and safe waste management is dependent on the collaborative interaction of engineers, computer modeling specialists, toxicologists, risk assessment experts, soil scientists, biologists, geologists, chemists and professionals in many other disciplines. To meet the needs of this diverse group, this book covers effective and safe waste management topics in a holistic sense, including air monitoring as well as soil and water monitoring, site-specific evaluation and monitoring as well as generic management, and scientific and regulatory compliance issues as well as

public interactions. It is an essential reference for all professionals involved in waste management, monitoring, and risk analysis.

Cement-based Composites: Materials, Mechanical Properties and Performance Wiley

Concrete text with a materials science orientation. Presents a unified view of concrete behavior in light of underlying chemical and physical principles.

The Deleterious Chemical Effects of Concentrated Deicing Solutions on Portland Cement Concrete CRC Press

The Concrete Solutions series of International Conferences on Concrete Repair began in 2003 with a conference held in St. Malo, France in association with INSA Rennes. Subsequent conferences have seen us partnering with the University of Padua in 2009 and with TU Dresden in 2011. This conference is being held for the first time in the UK, in association with

Concrete Solutions 2014 Woodhead Publishing

Corrosion of reinforcing steel is now recognized as the major cause of degradation of concrete structures in many parts of the world. Despite this, infrastructure expenditure is being unreasonably decreased by sequestration and the incredible shrinking discretionary budget. All components of our infrastructure including highways, airports, water supply, waste treatment, energy supply, and power generation require significant investment and are subjected to degradation by corrosion, which significantly reduces the service life, reliability, functionality of structures and equipment, and safety. Corrosion of Steel in Concrete Structures provides a comprehensive review of the subject, in addition to recent advances in research and technological developments, from reinforcing materials to measurement

techniques and modelling. This book contains not only all the important aspects in the field of corrosion of steel reinforced concrete but also discusses new topics and future trends. Part One of the book tackles theoretical concepts of corrosion of steel in concrete structures. The second part moves on to analyse the variety of reinforcing materials and concrete, including stainless steel and galvanized steel. Part Three covers measurements and evaluations, such as electrochemical techniques and acoustic emission. Part Four reviews protection and maintenance methods, whilst the final section analyses modelling, latest developments and future trends in the field. The book is essential reading for researchers, practitioners and engineers who are involved in materials characterisation and corrosion of steel in concrete structures. Provides comprehensive coverage on a broad range of topics related to the corrosion of steel bars in concrete. Discusses the latest measuring methods and advanced modeling techniques. Reviews the range of reinforcing materials and types of concrete.

Design of Prestressed Concrete CRC Press

Lea's *Chemistry of Cement and Concrete*, Fifth Edition, examines the suitability and durability of different types of cements and concretes, their manufacturing techniques and the role that aggregates and additives play in achieving concrete's full potential of delivering a high-quality, long-lasting, competitive and sustainable product. Provides a 60% revision over the fourth edition last published in 2004. Includes updated chapters that represent the latest technological advances in the industry, including, but not exclusive to the production of low-energy cements, cement admixtures and concrete aggregates. Presents expanded coverage of the suitability and durability of materials, aggregates and additives.

From Theory to Field Applications Concrete Solutions 2014

This book presents a selection of the best papers submitted to the International Ecocity World Summit held in Vancouver, October 7-11, 2019. The objective is to accelerate knowledge dissemination about the development of ecocities through attention to what constitutes an ecocity, what cities around the world are doing, what Vancouver as an emerging ecocity is doing, and how education can play a role in preparing the next generation of ecocity practitioners. The book uses the Summit's overarching theme and sub-themes as an organizing framework and aligns with the International Ecocity Standards that serve as a diagnostic tool to help cities assess their progress on the path to becoming ecocities. The Ecocity Standards are also proving useful to communities in developing locally relevant pathways to achieving the UN Sustainable Development Goals. The book is presented in four parts that align with the Summit overarching theme of i) building a bridge to socially just and ecologically sustainable cities, supported by sub-themes of ii) climate action, iii) circular economy, and iv) informal solutions for sustainable development. Chapters comprising each part in the book are introduced by a brief precis that orients the reader to the relevant Ecocity Standards that are being addressed and other important contextual considerations that open the potential application of the chapters to an international audience. Arguments presented in the selected papers provide an orientation to the importance of engaging people, where they live, in ecocity transformations as well as emerging opportunities for affordable and accessible technologies that help cities build capacity for implementation of ecocity initiatives.

Guide to the Use of Materials in Waters

Prentice Hall

Manual of integrated material and construction practices for concrete pavements.

Concrete Construction Engineering Handbook
Woodhead Publishing

Developments in the Formulation and Reinforcement of Concrete, Second Edition, presents the latest developments on topics covered in the first edition. In addition, it includes new chapters on supplementary cementitious materials,

mass concrete, the sustainability of concrete, service life prediction, limestone cements, the corrosion of steel in concrete, alkali-aggregate reactions, and concrete as a multiscale material. The book's chapters introduce the reader to some of the most important issues facing today's concrete industry. With its distinguished editor and international team of contributors, users will find this to be a must-have reference for civil and structural engineers. Summarizes a wealth of recent research on structural concrete, including material microstructure, concrete types, and variation and construction techniques. Emphasizes concrete mixture design and applications in civil and structural engineering. Reviews modern concrete materials and novel construction systems, such as the precast industry and structures requiring high-performance concrete.

Corrosion of Steel in Concrete Structures

Butterworth-Heinemann

Over the past two decades concrete has enjoyed a renewed level of research and testing, resulting in the development of many new types of concrete. Through the use of various additives, production techniques and chemical processes, there is now a great degree of control over the properties of specific concretes for a wide range of applications. New theories, models and testing techniques have also been developed to push the envelope of concrete as a building material. There is no current textbook which brings all of these advancements together in a single volume. This book aims to bridge the gap between the traditional concrete technologies and the emerging state-of-the-art technologies which are gaining wider use.

Water Transport in Brick, Stone and Concrete CRC Press

Durability and service life design of concrete constructions have considerable socio-economic and environmental consequences, in which the permeability of

concrete to aggressive intruders plays a vital role. *Concrete Permeability and Durability Performance* provides deep insight into the permeability of concrete, moving from theory to practice, and presents over 20 real cases, such as Tokyo's Museum of Western Art, Port of Miami Tunnel and Hong Kong-Zhuhai-Macao sea-link, including field tests in the Antarctic and Atacama Desert. It stresses the importance of site testing for a realistic durability assessment and details the "Torrent Method" for non-destructive measurement of air-permeability. It also delivers answers for some vexing questions: Should the coefficient of permeability be expressed in m^2 or m/s ? How to get a "mean" pore radius of concrete from gas-permeability tests? Why should permeability preferably be measured on site? How can service life of reinforced concrete structures be predicted by site testing of gas-permeability and cover thickness? Practitioners will find stimulating examples on how to predict the coming service life of new structures and the remaining life of existing structures, based on site testing of air-permeability and cover thickness. Researchers will value theoretical principles, testing methods, as well as how test results reflect the influence of concrete mix composition and processing.

Interfacing Sciences and Engineering with Monitoring and Risk Analysis National Assn of Corrosion

Concrete Solutions 2014 CRC Press

Final Report John Wiley & Sons

This book provides a unified description of transport processes involving saturated and unsaturated flow in inorganic building materials and structures. It emphasizes fundamental physics and materials science, mathematical description, and experimental measurement as a basis for engineering design and construction practice.

Water Transport in Brick, Stone and Concrete brings together in a unified manner current information and guidance on a complex subject. Durability of much of the built infrastructure depends on how water reacts with the construction material concerned, yet the underlying science of deterioration processes is not yet well understood. This book, by the two leading researchers in the field, will provide a central point of reference for the future. The second edition includes many references to new publications and gives new analyses of important topics in water transport, notably on the evaporation-driven moisture dynamics of built structures.