

Concrete Technology For A Sustainable Development In The 21st Century

Nanomaterials can markedly improve the mechanical properties of concrete, as well as reduce the porosity and enhance the durability of concrete. The application of nanotechnology in concrete is still in its infancy. However, an ever-growing demand for ultra-high-performance concrete and recurring environmental pollution caused by ordinary Portland cement has encouraged engineers to exploit nanotechnology in the construction industry. Nanotechnology for Smart Concrete discusses the advantages and applications of nanomaterials in the concrete industry, including high-strength performance, microstructural improvement, self-healing, energy storage, and coatings. The book Analyses the linkage of concrete materials with nanomaterials and nanostructures Discusses the applications of nanomaterials in the concrete industry, including energy storage in green buildings, anti-corrosive coatings, and inhibiting pathogens and viruses Covers self-healing concrete Explores safety considerations, sustainability, and environmental impact of nanoconcrete Includes an appendix of solved questions This comprehensive and innovative text serves as a useful reference for upper-level undergraduate students, graduate students, and professionals in the fields of Civil and Construction Engineering, Materials Science and Engineering, and Nanomaterials. Dr. Ghasan Fahim Huseien is a research fellow at the Department of Building, School of Design and Environment, National University of Singapore, Singapore. He received his PhD degree from the University of Technology Malaysia in 2017. Dr. Huseien has over 5 years of Applied R&D and 10 years of experience in manufacturing smart materials for sustainable building and smart cities. He has expertise in Advanced Sustainable Construction Materials covering Civil Engineering, Environmental Sciences and Engineering. He has authored and co-authored 50+ publications and technical reports, 3 books, and 15 book chapters, and participated in 25 national and international conferences/workshops. He is a peer reviewer for several international journals as well as Master ' s and PhD students. He is a member of the Concrete Society of Malaysia and the American Concrete Institute. Dr. Nur Hafizah Abd Khalid is a Senior Lecturer at the School of Civil Engineering, Universiti Teknologi, Malaysia (UTM), and is a research member of the Construction Material Research Group (CMRG). She is currently a Council Member of the Concrete Society Malaysia (CSM). She earned her Master ' s degree on structure and materials in 2011 from the Universiti Teknologi Malaysia. She received a Young Women Scientist Award (representing Malaysia) in 2014 in South Korea by KWSE/APNN. She is currently appointed as an Inviting Researcher at Hunan University, China, funded under the Talented Young

Scientist Program (TYSP). Her research interests focus on concrete structural systems, advanced concrete technology (green concrete technology and fibre reinforced concrete), civil engineering materials, polymer composites, and bio-composites. Professor Dr. Jahangir Mirza has over 35 years of Applied Research and Development (R&D) as well as teaching experience. He has expertise in Advanced Sustainable Construction Materials covering Civil Engineering, Environmental Sciences and Engineering, Chemistry, Earth Sciences, Geology, and Architecture departments. He has been a Senior Scientist at the Research Institute of Hydro-Quebec (IREQ), Montreal, Canada since 1985. He has been a Visiting Research Professor for the Environmental Engineering program at the University of Guelph in Ontario, Canada since 2018.

Linking theory to practice, this book provides a better fundamental understanding of Portland cement and hydraulic binders which is necessary to make better concrete. It has been clearly demonstrated that concrete durability is closely linked to its water/binder ratio and proper curing during the first week after casting. In this rigorously presented work, Pierre-Claude Aïtcin explains the complexity of the hydration reaction and how to make, use and cure durable and sustainable concrete. This book also details the problems with Portland cement composition at present and outlines the concept of an ideal hydraulic binder which is technically and ecologically efficient, as well as being long-lasting and robust. Binders for Durable and Sustainable Concrete is a practical and innovative reference text which will be particularly relevant to engineers and chemists working in the Portland cement, concrete and admixture industries. This book will also be of interest to academics and graduate-level students in Civil Engineering departments who specialize in Portland cement and concrete technology.

Sustainable Construction Materials: Recycled Aggregate focuses on the massive systematic need that is necessary to encourage the uptake of recycled and secondary materials (RSM) in the construction industry. This book is the fifth and the last of the series on sustainable construction materials and like the previous four, it is also different to the norm. Its uniqueness lies in using the newly developed, Analytical Systemisation Method, in building the data-matrix sourced from 1413 publications, contributed by 2213 authors from 965 institutions in 67 countries, from 1977 to 2018, on the subject of recycled aggregate as a construction material, and systematically analysing, evaluating and modelling this information for use of the material as an aggregate concrete and mortar, geotechnics and road pavement applications. Environmental issues, case studies and standards are also discussed. The work establishes what is already known and can be used to further progress the use of sustainable construction materials. It can also help to avoid repetitive

research and save valuable resources. The book is structured in an incisive and easy to digest manner and is particularly suited for researchers, academics, design engineers, specifiers, contractors, and government bodies dealing with construction works. Provides an exhaustive and comprehensively organized list of globally-based published literature spanning 5000 references Offers an analysis, evaluation, repackaging and modeling of existing knowledge that encourages more responsible use of waste materials Provides a wealth of knowledge for use in many sectors relating to the construction profession, including academia, research, practice and adoption of RSM

Sustainable Construction Materials

Concrete Technology for a Sustainable Development in the 21st Century

Waste and Supplementary Cementitious Materials in Concrete

Sustainable Design and Construction, Second Edition

Characteristics, Properties, Performance, and Applications

Proceedings of Second International Symposium on Concrete Technology for Sustainable Development with Emphasis on Infrastructure

Based on fresh thinking and real world evidence, this book offers a rational method for accounting for the carbon impact of concrete in contemporary architecture. It sets out a series of case studies of different building types constructed in concrete. Based on new thinking and real world evidence, "Sustainable Concrete Architecture" offers a rational method for accounting for the carbon impact of concrete in contemporary architecture. Highly illustrated and detailed in scope, the book marries technical know-how with inspirational case studies. A technical front section looks at recent innovations in concrete technology with a comprehensive, balanced account of the material's embodied energy and impact-in-use. Often maligned as environmentally unfriendly, the technical evidence about concrete reveals its legitimate place in the current lexicon of low carbon building design. The second half of the book sets out a series of cutting-edge case studies of different building types constructed in concrete. The inspirational images and focused commentary conclude this refreshingly challenging reappraisal of concrete in the debate about sustainability.

The definitive guide for scientific entrepreneurs commercializing sustainable technologies in the chemical sector Lacking the considerable resources of multinational chemical companies, entrepreneurs face a unique set of risks and challenges. How to Commercialize Chemical Technologies for a Sustainable Future is targeted at innovators who are embarking on the entrepreneurial path with their sustainable chemical technology but are unsure of what steps to take. This first-of-its-kind resource features contributions from a diverse team of expert authors, including engineers, venture capitalists, marketing specialists, intellectual property professionals, regulatory experts, industry practitioners, and many others. Accessible and highly practical, this real-world

guide covers each step of the technology commercialization process, from market landscape analysis and financing to scale-up and strategic partnering. Throughout the book, effective tactics and strategies for growing a new venture are supported by case studies highlighting the economic and environmental impact of successful commercialization, and identifying the common mistakes that lead to lost opportunities. Filled with invaluable advice and actionable steps, this book: Uses valuation concepts, tools, and examples to demonstrate that for a chemical technology to be sustainable it must not only have market value but also confer benefits to human well-being and the environment Offers templates and tools for understanding what customers need, who the competition is and how to successfully differentiate your product to those customers Describes how to practically advance your technology from conception all the way to commercial demonstration Presents advantages and disadvantages of strategic partnering from the perspective of the start-up and the larger industrial partner, along with strategies to mitigate risks within a partnership Provides an overview of the legal regulatory requirements for bringing new chemicals to market in several key geographic regions, as well as the impact of public policy on commercialization Offers insights and practical strategies on intellectual property management, raising investment, and operationalizing a startup company How to Commercialize Chemical Technologies for a Sustainable Future is essential reading for budding entrepreneurs in chemistry, materials science, and chemical engineering looking to bring their sustainable technologies to market. It is also a valuable reference for investors, policymakers, regulators, and other professionals.

Sustainable Construction Materials: Municipal Incinerated Bottom Ash discusses the global use of virgin aggregates and CO₂ polluter Portland cement. Given the global sustainability agenda, much of the demand for these two sets of materials can be substantially reduced through the appropriate use of waste materials, thereby conserving natural resources, energy and CO₂ emissions. Realistically, this change can only be realized and sustained through engineering ingenuity and new concepts in design. Although a great deal of research has been published over the last 50 years, it remains fragmented and ineffective. This book develops a single global knowledge-base, encouraging greater use of selected waste streams. The focus of massive systematic reviews is to encourage the uptake of recycled secondary materials (RSM) by the construction industry and guide researchers to recognize what is already known regarding waste. Provides an extensive source of valuable database information, supported by an exhaustive list of globally-based published literature over the last 40-50 years Offer an analysis, evaluation, repackaging and modeling of existing knowledge on sustainable construction practices Provides a wealth of knowledge for use in many sectors relating to the construction profession

Sustainable Development in Concrete Technology

Smart and Multifunctional Concrete Toward Sustainable Infrastructures

Materials, Properties and Applications

Recycled Ceramics in Sustainable Concrete

Recycled Aggregates

Production, Demolition and Recycling

This book highlights the current research, conceptual and practical utilization of waste in building materials. It examines the production of industrial and agricultural wastes that have been generated worldwide and have significant environmental impact. The book discusses how to incorporate these wastes effectively with greener technology and how to address its environmental impact in order to produce environmentally friendly and sustainable green products. This book also will capitalize on its practical application, properties, performance and economic advantages. The topics covered include the physical, mechanical and environmental properties, leaching behaviour, gas emissions and performance of sustainable construction materials. This book offers a valuable reference for researchers, industries and interested stakeholders in sustainable construction or any allied fields.

This book presents the latest research advances and findings in the field of smart/multifunctional concretes, focusing on the principles, design and fabrication, test and characterization, performance and mechanism, and their applications in infrastructures. It also discusses future challenges in the development and application of smart/multifunctional concretes, providing useful theory, ideas and principles, as well as insights and practical guidance for developing sustainable infrastructures. It is a valuable resource for researchers, scientists and engineers in the field of civil-engineering materials and infrastructures.

Concrete technology for a sustainable development in the 21st century focuses on the problems and challenges for the concrete industry today and in the future with particular emphasis on environmental consciousness. Primary topics include: the improvement of concretes service life to ease technical and economical problems and the waste of natural resources; environmentally friendly concrete production including new production methods and recycling materials; and actually using concrete to solve environmental problems, for example through the containment of hazardous waste. The book is the result of the international workshop held in Lofoton, Norway. With very select contributions from the

most distinguished international professional experts, this book provides a basic framework and guidelines for national and international bodies.

Proceedings of the International Workshop on Sustainable Development and Concrete Technology, Beijing, China, May 20–21, 2004

Concrete and Sustainability

Sustainability of Concrete With Synthetic and Recycled Aggregates

Sustainable Construction

Binders for Durable and Sustainable Concrete

Concrete for the Modern Age Developments in materials and processes

This book is the fourth, in the series of five, on sustainable construction materials and like the previous three, it is also different to the norm. Its uniqueness lies in using the newly developed, Analytical Systemisation Method, in building the data-matrix sourced from 751 publications, contributed by 1402 authors from 513 institutions in 51 countries, from 1970 to 2017, on the subject of processed waste glass (glass cullet) as a construction material, and systematically analysing, evaluating and modelling this information for use of glass cullet as cement, aggregate or filler in concrete, ceramics, geotechnics and road pavement applications. Environmental issues, case studies and standards are also discussed. The work establishes what is already known and can be used to further progress the use of sustainable construction materials. It can also help to avoid repetitive research and save valuable resources. The book is structured in an incisive and easy to digest manner and is particularly suited for researchers, academics, design engineers, specifiers, contractors, and government bodies dealing with construction works. Provides an extensive source of valuable database information, supported by an exhaustive list of globally-based published literature over the last 40-50 years Offer an analysis, evaluation, repackaging and modeling of existing knowledge on sustainable construction practices Provides a wealth of knowledge for use in many sectors relating to the construction profession

Concrete is by far the most common building material— accounting for twice the volume of all other such materials combined. With such a huge global economic impact, the industry has a correspondingly considerable responsibility to use it sustainably. Written by experts who pioneered research into environmental issues and concrete, Concrete and Sustainability examines the sustainability issues of the world's main construction material and proposes attainable solutions. It provides a complete overview of the topic and tackles the complexity of the challenges from different angles. This book offers new data regarding the social and economic importance of concrete and proposes a discussion centered on a holistic approach in terms of resource availability, technical viability, economic feasibility, and environmental compatibility. The authors attribute a growing worldwide concern and understanding of sustainability

issues, and an increased focus on climate change as the catalyst in this process. Instead of offering detailed technical advice or recommendations on sustainable issues, they provide examples showcasing sustainability efforts taking place in the concrete environment worldwide. The book includes examples and ideas for solutions from a large number of countries from across the globe. It presents a holistic and more complete overview of the emission and absorption topic, takes a look at the challenges from a combined old and new world viewing platform and offers an exploration of issues from a social and economic perspective. Concrete and Sustainability details the various rules and regulations that the industry is facing, discusses the various environmental challenges, and explores its impact. As emission, absorptions, and recycling have been the most central elements of discussion in the cement and concrete environment so far, these topics each receive their own chapters. This book also discusses other issues of concern within the various platforms in the industry, as well as future developments, and provides a comprehensive reference list.

The book presents new technologies for easy and economical construction of light concrete structures saving materials and CO2. The new super-light technology allows a designer to place forces, where it is optimal, and save material everywhere else. The book also supports this "Direct Engineering" principle with a number of new details and structural principles. The new pearl-chain technology makes it possible to design optimal shapes such as arches, vaults, cupolas, floating tunnels, and shells etc. from inexpensive, and mass-produced components. The new super-light deck-elements presented in the book are now produced in six factories in Denmark, Finland, and USA, and the number is increasing. The book will be of interest for all structural engineers, who would like to save materials, CO2 and optimize their structures, for students learning about the new technologies, and for contractors and architects, who want to investigate new building technologies.

Microwave-Assisted Concrete Technology

Proceedings of the 6th International Symposium on Cement & Concrete, CANMET/ACI International Symposium on Concrete Technology for Sustainable Development, September 19 - 22, 2006, Xi'an China. ...

Towards a Sustainable Concrete Technology with the Use of Fly Ash

***Recycled and Artificial Aggregate, Innovative Eco-friendly Binders, and Life Cycle Assessment
February 27-March 3, 2005, Hyderabad, India***

Proceedings of the Sustainable Concrete Materials and Structures in Construction 2020

Until recently, much of the development of building materials has predominantly focused on producing cheaper, stronger and more durable construction materials. More recently attention has been given to the environmental issues in manufacturing, using, disposing and recycling of construction materials. Sustainability of construction materials brings together a wealth of recent research on the subject. The first part of the book gives a

comprehensive and detailed analysis of the sustainability of the following building materials: aggregates; timber, wood and bamboo; vegetable fibres; masonry; cement, concrete and cement replacement materials; metals and alloys; glass; and engineered wood products. A final group of chapters cover the use of waste tyre rubber in civil engineering works, the durability of sustainable construction materials and nanotechnologies for sustainable construction. With its distinguished editor and international team of contributors, Sustainability of construction materials is a standard reference for anyone involved in the construction and civil engineering industries with an interest in the highly important topic of sustainability. Provides a comprehensive and detailed analysis of the sustainability of a variety of construction materials ranging from wood and bamboo to cement and concrete Assesses the durability of sustainable construction materials including the utilisation of waste tyre rubber and vegetable fibres Collates a wealth of recent research including relevant case studies as well as an investigation into future trends

Microwave Technology: A Powerful Technique The first book to combine microwave-assisted heating technology and concrete technology (covering production, demolition, and recycling), **Microwave-Assisted Concrete Technology: Production, Demolition and Recycling** explains the underlying concepts and fundamentals involved in the microwave-assisted heating of concrete. While most books on microwave heating focus on the behavior of microwaves, this text centers on the response of materials subjected to microwaves, and specifically concentrates on materials used in the concrete industry. A ready reference for the design of microwave-based equipment, the book describes how microwave-assisted heating technology may be harnessed in the production, demolition, and recycling of concrete. It covers microwave-assisted applications, the design concepts of microwave heating systems (generators and applicators) used in microwave-assisted concrete-processing methods, and process control techniques used to monitor the condition of concrete during the heating process. **Learn How to use the Microwave-Assisted Heating Process for Industry** The book is written from the perspective of modern practitioners in the construction industry, and addresses the technological, scientific, and environmental

issues involved in replacing conventional approaches with microwave heating. The authors categorize the applications of microwave heating in concrete technology into three areas: microwave-assisted accelerated curing of concrete, microwave-assisted selective demolition and drilling of concrete, and the microwave-assisted recycling of concrete. They discuss sustainability and the environmental impact of incorporating sustainable concrete production, demolition, and recycling using microwave-assisted heating technologies, and environmentally friendly microwave heating applications. This text covers: The basics of concrete-microwave field interactions Microwave-assisted concrete technologies for use in the production, demolition, and recycling of concrete as well as the control mechanisms required to ensure the efficiency of these methods The design of microwave heating applicators Microwave-Assisted Concrete Technology: Production, Demolition and Recycling does not require a familiarity with electromagnetism science and can be easily understood by civil engineers as well as by readers with little or no engineering background.

This volume presents a wide-ranging review of the latest developments in concrete technology that have been largely missing from the global conference circuit. It the first major international event under the auspices of the Institute of Concrete Technology (ICT) and is appropriately located in the Middle East at the heart of a construction boom. Themes covered include admixture technology, durability, mix design, special cements and supplementary materials, reinforced concrete and sustainability. The 39 papers provide interesting theory and applicable practice blended with research findings - from the application of 3D printing to performance-based specifications and the role of concrete in the development of Oman - to produce a volume of value to many engineers and technologists. Founded in 1972, The Institute of Concrete Technology (ICT)'s mission is to preserve and promote concrete technology as a recognised engineering discipline and consolidate the professional status of practising concrete technologists worldwide. It is the concrete sector's professional development body, operating internationally, with some 500 members in more than 30 countries. It is an awarding body for qualifications in concrete technology and a facilitator of continuing

professional development (CPD) and networking opportunities. Our partner in this conference, The Military Technical College in Muscat, Oman, was established with the intent of becoming a Center of Excellence in engineering education. Located in one purpose-built, state-of-the-art, well-resourced center, the intent is that MTC will be amongst the world's best in the field of military and applied non-military technological education and training providers in the world.

Handbook of Sustainable Concrete and Industrial Waste Management

Properties and Performance

Municipal Incinerated Bottom Ash

Green Building with Concrete

Supplementary Papers

Sustainable Waste Utilization in Bricks, Concrete, and Cementitious Materials

Cement-based concrete has excellent properties as a construction material, and the raw materials of cement rocks, and limestone and clay are bountiful. Yet its production generates high quantities of CO₂, making it a potentially unsustainable material. However, there are no alternatives to concrete and steel as basic methods for development of soci

Waste and Supplementary Cementitious Materials in Concrete: Characterisation, Properties and Applications provides a state-of-the-art review of the effective and efficient use of these materials in construction. Chapters focus on a specific type of material, addressing their characterization, strength, durability and structural applications. Sections include discussions of the properties of materials, including their physical, chemical and characterization, their strength and durability, modern engineering applications, case studies, the state of codes and standards of implementation, cost considerations, and the role of materials in green and sustainable construction. The book concludes with a discussion of research needs. Focuses on material properties and applications (as well as 'sustainability' aspects) of cementitious materials Assembles leading researchers from diverse areas of study Ideas for use as a 'one stop' reference for advanced postgraduate courses focusing on sustainable construction materials

Production of Portland cement is responsible for about seven percent of the world's greenhouse gas emissions. The pressure to make the production of concrete more sustainable, or "greener", is considerable and increasing. This requires a wholesale shift in processes, materials and methods in the concrete industry. Pure Portland cement will need to be replaced by more complex binary, tertiary or even quaternary binders, including other types of cementitious materials. We can expect an increasing use of high performance concrete, primarily because of its high sustainability and durability. Much more attention will have to be paid to the proper curing of the concrete if we want to improve its life expectancy. Presenting the latest advances in the science of concrete this book focuses particularly on sustainability, durability, and economy. It explores the potential for increased sustainability in concrete from the initial mixing right through to its behaviour in

complex structures exposed to different types of loads and aggressive environments.

Sustainable Light Concrete Structures

Cement & Concrete, Contributing to Global Sustainability

Recycled Concrete

Reuse of Concrete for Sustainable Development

Technologies and Performance

Sustainability of Construction Materials

Document from the year 2015 in the subject Environmental Sciences, grade: 8.44, , course: M.Tech., language: English, abstract: Concrete is the most widely used construction material for infrastructure needs in the Asian region and in the world. Unfortunately, the concrete industry is one of the largest consumers of natural resources and energy, and is responsible for large emissions of carbon dioxide that is one of the greenhouse gases responsible for global warming. It is imperative that the concrete industry must be in an active role of balancing the infrastructure needs and the protection of environment. This work presents a summary of some recent research closely associated with the sustainable development of concrete technology. The research projects include study and analysis of: - Causes of deterioration of concrete structures, problems at construction sites that causes early deterioration of concrete structures. In addition to above this book also presents some environmentally-friendly and sustainable concrete technology including the use of supplementary cementing materials (SCM), recycling concrete and other materials, enhancement of service life of concrete structures. Emerging technologies that have the potential to significantly contribute to sustainable concrete industry and barriers against reuse are presented at the end of book.

The Handbook of Sustainable Concrete and Industrial Waste Management summarizes key research trends in recycling and reusing concrete and industrial waste to reduce their environmental impact. This volume also includes important contributions in collaboration with the CRI-TEST Innovation Lab, Naples - Acerra. Part one discusses eco-friendly innovative cement and concrete and reviews key substitute materials. Part two analyzes the use of industrial waste as aggregates and the mechanical properties of concrete containing waste materials. Part three discusses differences between innovative binders, focusing on alkali-activated and geopolymer concrete. Part four provides a thorough overview of the life cycle assessment (LCA) of concrete containing industrial wastes and the impacts related to the logistics of wastes, the production of the concrete, and the management of industrial wastes. By providing research examples, case studies, and practical strategies, this book is a state-of-the-art reference for researchers working in construction materials, civil or structural engineering, and engineers working in the industry. Offers a systematic and comprehensive source of information on the latest developments in sustainable concrete; Analyzes different types of sustainable concrete and innovative binders from

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chemical, physical, and mechanical points of view; Includes real case studies showing application of the LCA methodology.

Concrete Technology for a Sustainable Development in the 21st Century CRC Press

Characterisation, Properties and Applications

Towards Sustainable Green Concrete

Proceedings of the 7th International Symposium on Cement & Concrete (ISCC 2010), the 11th International Conference on Advance in Concrete Technology & Sustainable Development. ...

Sustainability of Concrete

Sustainable Concrete Made with Ashes and Dust from Different Sources

Glass Cullet

The proceedings of this major international symposium held in November 1998, provide an overview of developments in the use of concrete aggregate in the construction industry. The current disposal of wastes and industrial residues to landfill is no longer considered sustainable. More governments throughout the world are implementing policies actively promoting the recycling of these materials, indeed, recycling of concrete as an aggregate offers an environmentally responsible and economically viable route to convert this waste to a valuable resource.

Sustainable construction technologies are not new, but there is still minimal use of recycled aggregate in higher amounts in structural concrete projects. One major reason is the consistent high quality of recycled aggregate conforming to the regulated specification standards. Recycled Concrete: Technologies and Performance presents the latest technologies which can be applied to produce high and consistent quality recycled aggregate as well as its utilization in structural concrete and in alternative binders like Geopolymer and other types of concrete. The book also discusses the lifecycle assessment of implementing sustainable construction technologies and evaluates the environmental impact of recycled concrete for construction applications. The combination of the production of different types of cements, their use in production of durable recycled concrete, their reduced environmental impact, quality improvement techniques of recycled aggregate, effect of deterioration factors on the durability of recycled concrete together with the use of recycled aggregate in Geopolymer concrete and in other

alternative binders makes this new book very valuable and relevant for civil and structural engineers, recycle industry managers, ready-mix and precast concrete producers, and researchers. Discusses alternative binding materials with recycled aggregate Features how to use concrete with recycled aggregates and the main advantages and disadvantages Provides guidance on using recycled concrete aggregates, designing mixtures, and how to best produce RCAs

This book gathers a selection of peer-reviewed papers presented at the Sustainable Concrete Materials and Structures in Construction 2020, held at Universiti Tun Hussein Onn Malaysia, Malaysia, on 24th August 2020. The contributions, prepared by international scientists and engineers, cover the latest advances in and innovative applications with the theme Towards Sustainable Green Concrete The articles in this book cater to academics, graduate students, researchers, as well as industrial practitioners working in the areas of concrete materials and building construction.

Twelfth International Conference on Recent Advances in Concrete Technology and Sustainability Issues

Focus on Sustainable Development

Concrete Technology Forum

Sustainable Concrete Architecture

Use of Recycled Concrete Aggregate : Proceedings of the International Symposium Organised by the Concrete Technology Unit, University of Dundee and Held at the Department of Trade and Industry Conference Centre, London, UK on 11-12 November 1998

The Sustainable Use of Concrete

Concrete is a material used widely in building and construction applications worldwide; hence, it plays a significant role in the global construction sector. Cement is a major component of concrete and is used in construction applications, either on its own or as a composite with other materials, to improve workability, durability, strength, weight, and shrinkage. However, cement and concrete production and use have adverse environmental effects. Thus, great efforts have been made to produce eco-friendly concrete. This book examines several aspects of sustainable concrete technologies, including new forms of concrete as well as different approaches for creating sustainable cement.

Illustrates the Global Relevance of SustainabilityApplicable to roads, bridges, and other elements of

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the infrastructure, Green Building with Concrete: Sustainable Design and Construction, Second Edition provides an overview of all available information on the role of concrete in green building. A handbook offering viewpoints from worldwide experts

Recycled Ceramics in Sustainable Concrete: Properties and Performance explores the use of novel waste materials in the construction industry as sustainable and environmentally friendly alternatives to traditional cement production technologies. It specifically focuses on using waste ceramics as a binder and aggregate replacement for concrete. Includes a lifecycle assessment Describes recycling of ceramic tile waste as fine and coarse aggregate replacement Discusses microstructure performance of sustainable concrete Evaluates performance of sustainable concrete exposed to elevated temperatures and corrosives Written for materials, chemical, and civil engineers as well as others who develop construction materials, this book provides readers with a thorough understanding of the merits of using waste ceramics to produce sustainable concrete. .

Nanotechnology for Smart Concrete

How to Commercialize Chemical Technologies for a Sustainable Future

Proceeding of the Seventh International Conference on Concrete Technology in Developing Countries

Sustainable Concrete Made with Ashes and Dust from Different Sources: Materials, Properties and Applications focuses on individual materials, addressing material characterization, their role in the strength and durability of construction materials, and structural applications. Each chapter reflects the current state-of-the-art in terms of the effective and efficient use of the material. Types of ashes covered are Coal Fly Ash, Coal Bottom Ash, Bagasse Ash, MSW Ash, Red Mud, Waste Marble Dust, Sewage Sludge Ash, and Cement Kiln Dust. This book is useful for civil engineers in the design and development of sustainable concrete by utilizing such types of ashes and researchers involved in the design and formulation of new cementitious materials. Focuses on different types of ashes derived from various sources for use in the development of sustainable concrete Discusses the economic and environmental impacts, normative restrictions, and implementation in codes and standards related to the use of these by-products/wastes in concretes Includes coverage of the impact of dust from construction and demolition wastes