

Building Materials Lecture Notes Civil Engineering

This book presents select proceedings of the International Conference on Sustainable Construction and Building Materials (ICSCBM 2018), and examines a range of durable, energy-efficient, and next-generation construction and building materials produced from industrial wastes and byproducts. The topics covered include alternative, eco-friendly construction and building materials, next-generation concretes, energy efficiency in construction, and sustainability in construction project management. The book also discusses various properties and performance attributes of modern-age concretes including their durability, workability, and carbon footprint. As such, it offers a valuable reference for beginners, researchers, and professionals interested in sustainable construction and allied fields.

Advances in Civil Engineering and Building Materials presents the state-of-the-art development in: - Structural Engineering - Road & Bridge Engineering- Geotechnical Engineering- Architecture & Urban Planning- Transportation Engineering- Hydraulic Engineering - Engineering Management- Computational Mechanics- Construction Technology- Buildi

This book gathers the latest advances, innovations, and applications in the field of building design and construction, as presented by researchers and engineers at the International Conference BUILDINTECH BIT 2021, Innovations and Technologies in Construction, held in Belgorod, Russia, on March 9-10, 2021. It covers highly diverse topics, including building materials, industrial and civil construction, structural mechanics and theory of structures, computational methods and IT in construction, organization and technologies of construction production. The contributions, which were selected by means of a rigorous international peer-review process, highlight numerous exciting ideas that will spur novel research directions and foster multidisciplinary collaborations.

This volume comprises select peer reviewed papers presented at the international conference - Advanced Research and Innovations in Civil Engineering (ARICE 2019). It brings together a wide variety of innovative topics and current developments in various branches of civil engineering. Some of the major topics covered include structural engineering, water resources engineering, transportation engineering, geotechnical engineering, environmental engineering, and remote sensing. The book also looks at emerging topics such as green building technologies, zero-energy buildings, smart materials, and intelligent transportation systems. Given its contents, the book will prove useful to students, researchers, and professionals working in the field of civil engineering.

This book presents the select proceedings of the International Conference on Sustainable Building Materials and Construction (ICSBMC 2021), and examines a range of durable, energy-efficient, advance construction and building materials produced from industrial wastes and byproducts. The topics covered include advanced construction materials, durability of concrete structures, waste utilization, repair & rehabilitation of concrete structures, structural analysis & design, composites, nanomaterials and smart materials in seismic engineering. The book also discusses various properties and performance attributes of modern-age concretes including their strength, durability, workability, and carbon footprint. This book will be a precious reference for beginners, researchers, and professionals interested in sustainable construction and allied fields.

This book presents select proceedings of the National Conference on Advances in Sustainable Construction Materials (ASCM 2019) held at the National Institute of Technology, Warangal, India. The book includes contributions from academics and practitioners on low-energy cement technologies, innovative materials and structural technologies towards cost-effective, environment friendly, durable, energy-efficient, and sustainable construction. The topics covered emphasize on cutting-edge, economically viable, and sustainable solutions with an aim to increase profitability, and decrease construction time and overall impact on the built environment. The book will be useful for researchers and practitioners interested in sustainable construction and allied fields.

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 publication establishes a basic understanding of materials used in civil engineering construction as taught in tertiary institutions across South Africa. It uses the objectives of the NQF in promoting independent learning and is the only book pertaining to Civil Engineering that covers all the necessary topics under one roof.

This volume contains selected papers presented during the International Conference on Environmental Geotechnology, Recycled Waste Material and Sustainable Engineering (EGRWSE-2018). The multidisciplinary articles in this volume discuss environment-friendly technologies and the application of 'smart' solutions and initiatives to improve infrastructure and services, with a strong emphasis on sustainability and conservation of resources. This volume will be of interest to engineers, professionals, and researchers working on improving urban infrastructure and strengthen civic amenities in a sustainable manner.

This book comprises select papers presented at the International Conference on Trends and Recent Advances in Civil Engineering (TRACE 2018). The topics covered include the utilization of industrial by-products as construction materials, sustainable and green materials in construction applications, and latest measures adopted for stabilization techniques. The book also discusses recent advances and techniques related to geotechnical and concrete domain that can be used as a reference guide for various researchers and practitioners around the globe.

This book gathers the latest innovations and applications in the field of resource-saving technologies and advanced materials in civil and environmental engineering, as presented by leading international researchers and engineers at the 2nd International Scientific Conference EcoComfort and Current Issues of Civil Engineering, held in Lviv, Ukraine on September 16-18, 2020. It covers a diverse range of topics, including ecological and energy-saving technologies; renewable energy sources; heat, gas and water supply; microclimate provision systems;

innovative building materials and products; smart technologies in water purification and treatment; protection of water ecosystems; and architectural shaping and structural solutions. The contributions, which were selected using a rigorous international peer-review process, highlight exciting ideas that will spur novel research directions and foster multidisciplinary collaborations.

This book gathers peer-reviewed contributions presented at the International Conference on Structural Engineering and Construction Management (SECON'21), held on 12-15 May 2021. The meeting served as a fertile platform for discussion, sharing sound knowledge and introducing novel ideas on issues related to sustainable construction and design for the future. The respective contributions address various aspects of numerical modeling and simulation in structural engineering, structural dynamics and earthquake engineering, advanced analysis and design of foundations, BIM, building energy management, and technical project management. Accordingly, the book offers a valuable, up-to-date tool and essential overview of the subject for scientists and practitioners alike, and will inspire further investigations and research.

This book gathers the latest advances, innovations, and applications in the field of energy, environmental and construction engineering, as presented by international researchers and engineers at the International Scientific Conference Energy, Environmental and Construction Engineering, held in St. Petersburg, Russia on November 19-20, 2019. It covers highly diverse topics, including BIM; bridges, roads and tunnels; building materials; energy efficient and green buildings; structural mechanics; fluid mechanics; measuring technologies; environmental management; power consumption management; renewable energy; smart cities; and waste management. The contributions, which were selected by means of a rigorous international peer-review process, highlight numerous exciting ideas that will spur novel research directions and foster multidisciplinary collaborations. This book presents select proceedings of National Conference on Advances in Sustainable Construction Materials (ASCM 2020) and examines a range of durable, energy-efficient, and next-generation construction materials produced from industrial wastes and by-products. The topics covered include sustainable materials and construction, innovations in recycling concrete, green buildings and innovative structures, utilization of waste materials in construction, geopolymer concrete, self-compacting concrete by using industrial waste materials, nanotechnology and sustainability of concrete, environmental sustainability and development, recycling solid wastes as road construction materials, emerging sustainable practices in highway pavements construction, plastic roads, pavement analysis and design, application of geosynthetics for ground improvement, sustainability in offshore geotechnics, green tunnel construction technology and application, ground improvement techniques and municipal solid waste landfill. Given the scope of contents, the book will be useful for researchers and professionals working in the field of civil engineering and especially sustainable structures and green buildings.

This book gathers the latest advances, innovations, and applications in the field of energy, environmental and construction engineering, as presented by international researchers and engineers at the International Scientific Conference Energy, Environmental and Construction Engineering, held in St. Petersburg, Russia on November 19-20, 2020. It covers highly diverse topics, including BIM; bridges, roads and tunnels; building materials; energy efficient and green buildings; structural mechanics; fluid mechanics; measuring technologies; environmental management; power consumption management; renewable energy; smart cities; and waste management. The contributions, which were selected by means of a rigorous international peer-review process, highlight numerous exciting ideas that will spur novel research directions and foster multidisciplinary collaborations. This book describes the latest advances, innovations, and applications in the field of building design, environmental engineering and sustainability as presented by leading international researchers, engineers, architects and urban planners at the 3rd International Sustainable Buildings Symposium (ISBS), held in Dubai, UAE from 15 to 17 March 2017. It covers highly diverse topics, including smart cities, sustainable building and construction design, sustainable urban planning, infrastructure development, structural resilience under natural hazards, water and waste management, energy efficiency, climate change impacts, life cycle assessment, environmental policies, and strengthening and rehabilitation of structures. The contributions amply demonstrate that sustainable building design is key to protecting and preserving natural resources, economic growth, cultural heritage and public health. The contributions were selected by means of a rigorous peer-review process and highlight many exciting ideas that will spur novel research directions and foster multidisciplinary collaboration among different specialists.

This book comprises select proceedings of the First International Conference on Urban Science and Engineering. The focus of the conference was on the milieu of urban planning while applying technology which ensures better urban life, coupled with sensitivity to depleting natural resources and focus on sustainable development. The contents focus on sustainable infrastructure, mobility and planning, urban water and sanitization, green construction materials, optimization and innovation in structural design, and more. This book aims to provide up-to-date and authoritative knowledge from both industrial and academic worlds, sharing best practice in the field of urban science and engineering. This book is beneficial to students, researchers, and professionals working in the field of smart materials and sustainable development. ^

Construction is a multibillion dollar industry in the United States, yet building research is highly fragmented. This new book is a complete compilation of building research institutions. It contains profiles of the institutions and gives their addresses and phone numbers, the mission and focus of their research, their distinctive attributes, and their publications. A comprehensive index identifies all institutions conducting research on specific topics.

This book gathers the latest advances, innovations, and applications in the field of information technology in civil and building engineering, presented at the 18th International Conference on Computing in Civil and Building Engineering (ICCCBE), São Paulo, Brazil, August 18-20, 2020. It covers highly diverse topics such as BIM, construction information modeling, knowledge management, GIS, GPS, laser scanning, sensors, monitoring, VR/AR, computer-aided construction, product and process modeling, big data and IoT, cooperative design, mobile computing, simulation, structural health monitoring, computer-aided structural control and analysis, ICT in geotechnical engineering, computational mechanics, asset management, maintenance, urban planning, facility management, and smart cities. Written by leading researchers and engineers, and selected by means of a rigorous international peer-review process, the contributions highlight numerous exciting ideas that will spur novel research directions and foster multidisciplinary collaborations.

This book comprises select and peer-reviewed proceedings of the International Conference on Recent Trends in Construction Materials and Structures (ICON 2019). The contents cover various latest developments and emerging technologies in sustainable construction materials, utilization of waste materials in concrete, special concrete, maintenance of heritage structures, earthquake engineering, and structural dynamics. The book also provides effective

and feasible solutions to current problems in sustainable construction materials and structures. This book is useful for students, researchers, and industry professionals interested in concrete technology and structures.

This book gathers peer-reviewed contributions presented at the 1st International Conference on Structural Engineering and Construction Management (SECON'20), held in Angamaly, Kerala, India, on 14-15 May 2020. The meeting served as a fertile platform for discussion, sharing sound knowledge and introducing novel ideas on issues related to sustainable construction and design for the future. The respective contributions address various aspects of numerical modeling and simulation in structural engineering, structural dynamics and earthquake engineering, advanced analysis and design of foundations, BIM, building energy management, and technical project management. Accordingly, the book offers a valuable, up-to-date tool and essential overview of the subject for scientists and practitioners alike, and will inspire further investigations and research.

Innovations and Technologies in Construction Selected Papers of BUILDINTECH BIT 2021 Springer

This book presents articles from The Australasian Conference on the Mechanics of Structures and Materials (ACMSM25 held in Brisbane, December 2018), celebrating the 50th anniversary of the conference. First held in Sydney in 1967, it is one of the longest running conferences of its kind, taking place every 2–3 years in Australia or New Zealand. Bringing together international experts and leaders to disseminate recent research findings in the fields of structural mechanics, civil engineering and materials, it offers a forum for participants from around the world to review, discuss and present the latest developments in the broad discipline of mechanics and materials in civil engineering.

This book presents the select proceedings of the International Conference on Sustainable Practices and Innovations in Civil Engineering (SPICE 2019). The chapters discuss emerging and current research in sustainability in different areas of civil engineering, which aim to provide solutions to sustainable development. The contents are broadly divided into the following six categories: (i) structural systems, (ii) environment and water resource systems, (iii) construction technologies, (iv) geotechnical systems, (v) innovative building materials, and (vi) transportation. This book will be of potential interest for students, researchers, and practitioners working in sustainable civil engineering related fields.

This book comprises select peer-reviewed proceedings of the International Conference Trending Moments and Steer Forces – Civil Engineering Today (TMSF 2019). It presents latest research in different domains of civil engineering like structural and concrete engineering, geotechnical engineering, transportation engineering, environmental engineering, and construction technology and management. The contents also include miscellaneous applications of civil engineering in a wide range of technical and societal problems making use of engineering principles and relational data structures involving measurement sciences. Given the range of topics covered, this book can be useful for students, researchers as well as practitioners working in the field of civil engineering.

This book presents papers from the International Conference on Sustainable Civil Engineering and Architecture 2019, which was held in Ho Chi Minh City, Vietnam, from 24–26 October 2019. The conference brought together international experts from both academia and industry to share their knowledge and experiences, and to facilitate collaboration and improve cooperation in the field. The book highlights the latest advances in sustainable architecture and civil engineering, covering topics such as offshore structures, structural engineering, construction materials, and architecture.

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.

This book gathers the latest advances, innovations, and applications in the field of construction engineering, as presented by researchers and engineers at the International Conference Environmental and Construction Engineering: Reality and the Future, held in Belgorod, Russia, on May 18-19, 2021. It covers highly diverse topics, including industrial and civil construction, building materials; environmental engineering and sustainability; machines, aggregates and processes in construction. The contributions, which were selected by means of a rigorous international peer-review process, highlight numerous exciting ideas that will spur novel research directions and foster multidisciplinary collaborations.

This book gathers selected contributions in the field of civil and construction engineering, as presented by international researchers and engineers at the 2nd International Scientific Conference on Socio-Technical Construction and Civil Engineering (STCCE), held in Kazan, Russia on April 21-28 2021. The book covers a wide range of topics including building constructions and structures, bridges, roads and tunnels, building materials and products, construction management, energy efficiency and thermal protection of buildings, ventilation, air conditioning, gas supply and lighting in buildings, innovative and smart technologies in construction, sustainable development, transport system development. The contributions, which were selected by means of a rigorous international peer-review process, highlight numerous exciting ideas that will spur novel research directions and foster multidisciplinary collaborations.

This book presents selected articles from the 3rd International Conference on Architecture and Civil Engineering 2019, held in Kuala Lumpur, Malaysia. Written by leading researchers and industry professionals, the papers highlight recent advances and addresses current issues in the fields of civil engineering and architecture.

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