

# Handbook Of Recycled Concrete And Demolition Waste Woodhead Publishing Series In Civil And Structural Engineering

Design, Durability and Performance  
 Thermal Cracking of Massive Concrete Structures  
 Proceedings of the 2017 fib Symposium, held in Maastricht, The Netherlands, June 12-14, 2017  
 Concrete Recycling  
 Science and Technology of Concrete Admixtures  
 Proceedings of the 2nd American University in the Emirates International Research Conference, AUEIRC'18 - Dubai, UAE 2018  
 New Trends in Eco-efficient and Recycled Concrete  
 Sustainable Construction Materials  
 Handbook of Recycled Aggregate in Construction and Concrete  
 An Integrated and Sustainable Approach  
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 Handbook of Recycling  
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 The Civil Engineering Handbook  
 Marine Concrete Structures  
 Proceedings of ConcreteLife'20  
 Waste and Byproducts in Cement-Based Materials  
 Sustainable Development and Social Responsibility—Volume 1  
 Handbook of Sustainable Concrete and Industrial Waste Management  
 Systematic Approach of Characterisation and Behaviour of Recycled Aggregate Concrete

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## LOPEZ LEBLANC

### Design, Durability and Performance Routledge

New Trends in Eco-efficient and Recycled Concrete describes different recycled materials that have been used in eco-efficient concrete, reviewing previous publications to identify the most effective recycled materials to be applied in concrete manufacture. New trends on eco-efficient concrete are presented, filling a gap in the market. Sections cover various recycled materials applied in concrete production, present the latest on the lifecycle analysis of recycled aggregate concrete, detail new trends in recycled aggregate concrete research, and finally, present updates on upscaling the use of recycled aggregate concrete and structural reliability. Focuses on new trends in recycled aggregate concrete and its applications (rather than the more subjective 'sustainability' aspects) Contains very important contributions from researchers in eco-efficient concrete, including Chi Sun Poon, Jorge de Brito, Valeria Corinaldesi, Francisco Agrela, etc. Presents a 'one stop' reference for a graduate course on sustainable construction

### Thermal Cracking of Massive Concrete Structures Springer

Thorough and detailed, The Carbon Footprint Handbook encompasses all areas of carbon footprint, including the scientific elements, methodological and technological aspects, standards, industrial case studies, and communication of carbon footprint results. Written and edited by an international group of experts, the far-ranging topics on carbon footprinting are divided into three sections comprising chapters focused on methodology, modeling, and case studies. The concepts of carbon footprint and climate change are no longer new to the world. As a result, there is increasing interest in quantifying and reducing the carbon footprint around the world, from industrial to individual levels. This book describes modeling aspects and calculations of carbon footprint in organizations and production. It emphasizes the importance of locating non-polluting energy sources as well as sustainability. The book also provides case studies offering a wealth of information on practices and methods in detecting and addressing carbon footprint. The Carbon Footprint Handbook is an important reference that discusses, in depth, the essential details of carbon footprint assessment. It uses research and case studies on methods and practices from locations around the world including China, India, Spain, and Latin America. It demonstrates that the problems of carbon footprint are indeed worldwide while showing how they can be addressed in myriad areas of life, from industrial to personal action.

### Proceedings of the 2017 fib Symposium, held in Maastricht, The Netherlands, June 12-14, 2017 Woodhead Publishing

The concrete industry consumes thirty billion tons of aggregate annually, almost all from non-renewable natural sources. Demolition produces a growing amount of materials which are legally usable and readily available. If not used locally they must be transported and landfilled. Also, demolition generally takes place close to new construction sites: recycling promotes shorter transportation distances, a must for improving the overall environmental footprint of the construction world. This book encompasses all aspects of this current trend: How recycled aggregates are obtained and their properties. Improving their quality through phase selection or separation. Incorporating concrete from demolition into the cement production process and the properties of the product obtained. What are the properties of concrete incorporating recycled concrete aggregates at various replacement levels, throughout the lifecycle of the material, from the fresh state to the long-term, including durability and fire. How recycled concrete can be optimised for various uses. How this new structural material can be managed in reinforced concrete

construction. Solid experience from a series of experimental sites, and drawing on the Recybéton project, which lasted more than 5 years and gathered about 50 partners (from both academia and industry). Specific issues in recycled concrete quality control. National practices in the most advanced countries, and the main national and European standards. Achieving a sustainable process.

### Concrete Recycling Newnes

The book presents high-quality research papers presented at the 2nd American University in the Emirates International research conference, AUEIRC'18, organized by the American University in the Emirates, Dubai, held on November 13th-15th, 2018. The book is broadly divided into four sections: Sustainability and Smart Technology, Sustainability and Social Responsibility, Sustainability, Human Security and Legislation, Sustainability and Education. The topics covered under these sections are sustainable smart technology such as developing green curriculum for information technology, use ultrasonic velocity to predict quality of wheat, improve security features for visa system, factors affecting the cost of production of electricity and desalination plants, impact of smart traffic sensing in smart cities, smart healthcare system, simulation of Grey wolf optimization algorithm in painting digital forensics. The topics covered for sustainability and creative industries such as sustainable concrete production, multimedia applications in digital transformation art, integrating biomimicry principles in sustainable architecture. Sustainability, human security and legislation covered topics of urban performance and sustainable environment, Eco-certification as response on climate change, the criminal offence of tax evasion in law: case study, skills engineering in sustainable counter defense against Cyber extremism, the international law and challenges of trans-boundary water resources governance, the legal status of nuclear energy: case study, sustainable energy development and nuclear energy legislation in UAE, corruption specific safety challenge, environmental management and sustainability, sustainable farming models for desert agro-ecosystems, future directions of climate change, earth and built environment towards new concept of sustainability, institution building from emotional intelligence perspective, virtue ethics, technology and sustainability, the role of humor in a sustainable education, HEIs practices and strategic decisions toward planning for sustainable education programs, TQM in higher education for sustainable future. The papers in this book present high-quality original research work, findings and practical development experiences.

### Science and Technology of Concrete Admixtures Woodhead Publishing

This book is the result of a Special Issue published in Applied Sciences, entitled "New Trends in Recycled Aggregate Concrete". It identifies emerging research areas within the field of recycled aggregate concrete and contributes to the increased use of this eco-efficient material. Its contents are organised in the following sections: Upscaling the use of recycled aggregate concrete in structural design; Large scale applications of recycled aggregate concrete; Long-term behaviour of recycled aggregate concrete; Performance of recycled aggregate concrete in very aggressive environments; Reliability of recycled aggregate concrete structures; Life cycle assessment of recycled aggregate concrete; New applications of recycled aggregate concrete.

### Proceedings of the 2nd American University in the Emirates International Research Conference, AUEIRC'18 - Dubai, UAE 2018 Elsevier

The civil engineering sector accounts for a significant percentage of global material and energy consumption and is a major contributor of waste material. The ability to recycle and reuse concrete and demolition waste is critical to reducing environmental impacts in meeting national, regional and global environmental targets. Handbook of recycled concrete and demolition waste summarises key recent research in achieving these goals. Part one considers techniques for managing construction and demolition waste, including waste management plans, ways of estimating levels of waste, the



types and optimal location of waste recycling plants and the economics of managing construction and demolition waste. Part two reviews key steps in handling construction and demolition waste. It begins with a comparison between conventional demolition and construction techniques before going on to discuss the preparation, refinement and quality control of concrete aggregates produced from waste. It concludes by assessing the mechanical properties, strength and durability of concrete made using recycled aggregates. Part three includes examples of the use of recycled aggregates in applications such as roads, pavements, high-performance concrete and alkali-activated or geopolymer cements. Finally, the book discusses environmental and safety issues such as the removal of gypsum, asbestos and alkali-silica reaction (ASR) concrete, as well as life-cycle analysis of concrete with recycled aggregates. Handbook of recycled concrete and demolition waste is a standard reference for all those involved in the civil engineering sector, as well as academic researchers in the field. Summarises key recent research in recycling and reusing concrete and demolition waste to reduce environmental impacts and meet national, regional and global environmental targets Considers techniques for managing construction and demolition waste, including waste management plans, ways of estimating levels of waste, the types and optimal location of waste recycling plants Reviews key steps in handling construction and demolition waste [New Trends in Eco-efficient and Recycled Concrete](#) Handbook of Recycled Concrete and Demolition Waste

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.

**Sustainable Construction Materials** Springer Nature

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

**Handbook of Recycled Aggregate in Construction and Concrete** Woodhead Publishing

The protection of clean water, air, and land for the habitation of humans and other organisms has become a pressing concern amid the intensification of industrial activities and the rapidly growing world population. The integration of environmental science with engineering principles has been introduced as a means of long-term sustainable development. The Handbook of Research on Advancements in Environmental Engineering creates awareness of the role engineering plays in protecting and improving the natural environment. Providing the latest empirical research findings, this book is an essential reference source for executives, educators, and other experts who seek to improve their project's environmental costs.

[An Integrated and Sustainable Approach](#) IGI Global

"This book will be the official reference guide to Sustainable Sites Initiative Rating System, the first national rating system for sustainable landscapes"--

[A Design Handbook for Reuse and Recycling](#) MDPI

Winner of the International Solid Waste Association's 2014 Publication Award, Handbook of Recycling is an authoritative review of the current state-of-the-art of recycling, reuse and reclamation processes commonly implemented today and how they interact with one another. The book addresses several material flows, including iron, steel, aluminum and other metals, pulp and paper, plastics, glass, construction materials, industrial by-products, and more. It also details various recycling technologies as well as recovery and collection techniques. To completely round out the picture of recycling, the book considers policy and economic implications, including the impact of recycling on energy use, sustainable development, and the environment. With contemporary recycling literature scattered across disparate, unconnected articles, this book is a crucial aid to students and researchers in a range of disciplines, from materials and environmental science to public policy studies. Portrays recent and emerging technologies in metal recycling, by-product utilization and management of post-consumer waste Uses life cycle analysis to show how to reclaim valuable resources from mineral and metallurgical wastes Uses examples from current professional and industrial practice, with policy and economic implications

[Handbook of Recycling](#) IGI Global

This volume gathers the proceedings of the 3rd International RILEM Workshop on Concrete Durability and Service Life Planning (ConcreteLife'20), held in Haifa, Israel in January 2020. The papers cover a range of topics in concrete curing, cracking in concrete structures, corrosion of steel in concrete, thermal and hygral effects, concrete in cold climates and under high temperatures, recycling, alkali-silica reactions, chloride and sulfate attacks, marine structures, transport phenomena, durability design, microstructure of concrete and volume changes, and life cycle assessment. The book also explores future trends in research, development, and practical engineering applications related to durable concrete construction, and focuses on the design and construction of concrete structures exposed to various environmental conditions and mechanical loading. Given its scope, it offers a valuable asset for all researchers and graduate students in the areas of cement chemistry, cement production, and concrete design.

Woodhead Publishing

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

**Corrosion of Steel in Concrete Structures** Woodhead Publishing

Handbook of Low Carbon Concrete brings together the latest breakthroughs in the design, production, and application of low carbon concrete. In this handbook, the editors and contributors have paid extra attention to the emissions generated by coarse aggregates, emissions due to fine aggregates, and emissions due to cement, fly ash, GGBFS, and admixtures. In addition, the book provides expert coverage on emissions due to concrete batching, transport and placement, and emissions generated by typical commercially produced concretes. Includes the tools and methods for reducing the emissions of greenhouse gases Explores technologies, such as carbon capture, storage, and substitute cements Provides essential data that helps determine the unique factors involved in designing large, new green cement plants

[Handbook of Environmental Engineering](#) CRC Press

The need to establish material cycles in the building industry is undisputed. Knowledge on this topic is available in many places: In this book it is summarised and systematized. After a general overview of the quantities generated, recovery rates and areas of application of recycled building materials, the current processing steps on which recycling is based and the possibilities for influencing the product properties are discussed. Furthermore, recycling building materials are characterized and their fields of application are presented. The starting point is always the original building material, which is later found in the construction waste. The focus is on the structural properties. The environmental aspects, which have determined the discussion for years, are shown to the necessary extent. The book concludes with a chapter that presents new developments in processing technologies and analyses the potential of construction waste as a source of raw materials.

[The Carbon Footprint Handbook](#) CRC Press

Proponents of globalization argue that it protects the global environment from degradation and promotes worldwide sustainable economic growth while opponents argue the exact opposite. Examining the local, national, and international impacts of globalization, the Handbook of Globalization and the Environment explores strategies and solutions that support healthy economic growth, protect the environment, and create a more equitable world. The book sets the stage with coverage of global environmental issues and policies. It explores international sustainable development, the evolution of global warming policy, transborder air pollution, desertification, space and the global environment, and human right to water. Building on this foundation, the editors discuss global environmental organizations and institutions with coverage of the UN's role in globalization, the trade-environment nexus, the emergence of NGOs, and an analysis of the state of global environmental knowledge and awareness from an international and comparative perspective. Emphasizing the effects of increasingly integrated global economy on the environment and society, the book examines environmental management and accountability. It addresses green procurement, provides an overview of U.S. environmental regulation and the current range of voluntary and mandatory pollution prevention mechanisms in use, explores a two-pronged approach to establishing a sustainable procurement model, and examines a collaborative community-based approach to environmental regulatory compliance. The book concludes with an analysis of controversial issues, such as eco-terrorism, North-South disputes, environmental justice, the promotion of economic growth through globalization in less developed countries, and the ability of scientists to communicate ideas so that policy makers can use science in decision making.

[Handbook of Recycled Concrete and Demolition Waste](#) Woodhead Publishing

Construction and Demolition Waste (CDW), from the construction, maintenance, renovation and demolition of buildings and structures, represents a large proportion of the waste in industrialized societies. Compared to other forms, such as household waste, more than 90% of CDW can be used as a resource and a substitute for construction materials, especially for primary, natural raw materials. Reuse, recovery and recycling depends on the quality and market for the materials, and the environmental impact of the processes for conversion of CDW from old structures to its use in new structures. However, the utilization today of CDW products as secondary resources is marginal. Most CDW is deposited or used as fill material, and the opportunities of high quality recycling are generally neglected. This book presents the opportunities for the sustainable and resource efficient utilisation of CDW, focusing on recycling of concrete and masonry as the major forms of CDW. The recycling of gypsum, timber, mineral wool, asphalt and other types are also described. Its aim is to present a chain of value and material streams in the transformation of obsolete buildings and structures into new buildings and structures. It takes a holistic view, focusing on the lifecycle economy (the circular economy) and integrated management aspects of various scenarios ranging from high industrial urban renewal to debris removal and management after disasters and conflicts. It is based on the author's 35 years of research and development combined with practical international experience within the demolition and recycling area. It addresses students, architects, civil engineers, building owners, public authorities and others working in urban planning, demolition and resource management in the building and construction sector and in the reconstruction of damaged buildings after disasters and wars.

**Building with Reclaimed Components and Materials** Woodhead Publishing

A comprehensive guide for both fundamentals and real-world applications of environmental engineering Written by noted experts, Handbook of Environmental Engineering offers a comprehensive guide to environmental engineers who desire to contribute to mitigating problems, such as flooding, caused by extreme weather events, protecting populations in coastal areas threatened by rising sea levels, reducing illnesses caused by polluted air, soil, and water from improperly regulated industrial and transportation activities, promoting the safety of the food supply. Contributors not only cover such timely environmental topics related to soils, water, and air, minimizing pollution created by industrial plants and processes, and managing wastewater, hazardous, solid, and other industrial wastes, but also treat such vital topics as porous pavement design, aerosol measurements, noise pollution control, and industrial waste auditing. This important handbook: Enables environmental engineers to treat problems in systematic ways Discusses climate issues in ways useful for environmental engineers Covers up-to-date measurement techniques important in environmental engineering Reviews current developments in environmental law for environmental engineers Includes information on water quality and wastewater engineering Informs environmental engineers about methods of dealing with industrial and municipal waste, including

hazardous waste Designed for use by practitioners, students, and researchers, Handbook of Environmental Engineering contains the most recent information to enable a clear understanding of major environmental issues.

OCM 2015 - Optical Characterization of Materials - conference proceedings Woodhead Publishing First published in 1995, the award-winning Civil Engineering Handbook soon became known as the field's definitive reference. To retain its standing as a complete, authoritative resource, the editors have incorporated into this edition the many changes in techniques, tools, and materials that over the last seven years have found their way into civil engineering research and practice. The Civil Engineering Handbook, Second Edition is more comprehensive than ever. You'll find new, updated, and expanded coverage in every section. In fact, more than 1/3 of the handbook is new or substantially revised. In particular you'll find increased focus on computing reflecting the rapid advances in computer technology that has revolutionized many aspects of civil engineering. You'll use it as a survey of the field, you'll use it to explore a particular subject, but most of all you'll use The Civil Engineering Handbook to answer the problems, questions, and conundrums you encounter in practice.

State of the Art Report of the RILEM Technical Committee 254-CMS CRC Press

Waste and By-Products in Cement-Based Materials: Innovative Sustainable Materials for a Circular Economy covers various recycled materials, by-products and wastes that are suitable for the manufacture of materials within the spectrum of so-called cement-based materials (CBM). Sections cover wastes for replacement of aggregates in CBM, focus on the application of wastes for the replacement of clinker and mineral additions in the manufacture of binders, discuss the optimization process surrounding the manufacture of recycled concrete and mortars, multi-recycling, advanced radiological studies, optimization of self-compacting concrete, rheology properties, corrosion prevention, and more. Final sections includes a review of real-scale applications that have been made in recent years of cement-based materials in roads, railway superstructures, buildings and civil works, among others, as well as a proposal of new regulations to promote the use of waste in the manufacture of CBM. Favors the institution of the circular economy in the construction industry by eliminating the barriers that currently prevent industrial waste from being valorized by its inclusion in CBM design Features an in-depth exploration of the strengths and weaknesses of new raw materials and their application to CBMs Features real-scale applications that have been made in recent years of cement-based materials in roads, railway superstructures, buildings and civil works, among others Presents current, state-of-the-art, and future-prospects for the use of industrial waste in CBMs

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