

CO₂ Neutrality of Sustainable Concrete Materials

Guest Editors:

Prof. Dr. Xiaoyong Wang

Department of Architectural
Engineering, Kangwon National
University, Chuncheon-si 24341,
Republic of Korea

Dr. Run-Sheng Lin

Department of Architectural
Engineering, Kangwon National
University, Chuncheon-si 24341,
Republic of Korea

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Message from the Guest Editors

A large amount of CO₂ will be emitted during the production and transportation of concrete, causing environmental pollution and deterioration of people's health. Carbon neutrality is one of the goals that the concrete industry needs to achieve. How to reduce or even eliminate CO₂ emissions while meeting the construction performance is an urgent problem for academic institutions, concrete construction companies, and government departments to solve. The purpose of this research is to provide an exchange platform for concrete carbon neutrality in various industries, to discover practical and feasible methods for the carbon neutralization of the concrete industry, and to promote the sustainable development of the construction industry. The research topics of this special issue include but are not limited to the following:

- Carbonation curing of concrete;
- Carbon capture;
- Carbon sequestration;
- Low-carbon cement and concrete;
- Material design considering CO₂ emission;
- Recycled aggregate concrete;
- Durability and sustainability.
- Magnesia-based cement;
- Alkali activated cement and concrete;
- Mineral admixtures;
- Energy-saving and emission reduction in cement production



Editor-in-Chief

Prof. Dr. David Arditi

Construction Engineering and
Management Program,
Department of Civil,
Architectural, and Environmental
Engineering, Illinois Institute of
Technology, 3201 South
Dearborn Street, Chicago, IL
60616, USA

Message from the Editor-in-Chief

Current urban environments are home to multi-modal transit systems, extensive energy grids, a building stock, and integrated services. Sprawling neighborhoods are composed of buildings that accommodate living and working quarters. However, it is expected that the cities and communities of the future will face complex and enormous challenges, including maintenance, interconnectivity, resilience, energy efficiency, and sustainability issues, to name but a few. A smart city uses advanced technologies and a digital infrastructure to improve the outcomes in every aspect of a city's operations. A smart building optimizes the experience of occupants, staff, and management by using a modern and connected environment. Innovations in technology that can bring dramatic improvements to design, planning, and policy are critical in developing the cities and buildings of the future.

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Buildings Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

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