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Special Issue Reprint

Development of Low-Carbon Coatings/Materials and Intelligent Construction Protection Technology

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This Reprint brings together recent advances in low-carbon coatings, sustainable construction materials, and intelligent protection technologies for civil engineering infrastructure. It focuses on innovative approaches that reduce carbon emissions, promote resource efficiency, and enhance the durability, resilience, and service performance of construction materials and structures. The contributions cover low-carbon and functional coatings, recycled and waste-derived materials, cementitious composites, surface and interface modification, durability improvement, environmental assessment, and sustainable material design. Particular attention is also given to intelligent construction and protection strategies, including structural health monitoring, sensing technologies, computer vision, artificial intelligence, machine learning, digital assessment, and data-driven maintenance. By integrating materials science, coating technology, civil engineering, and intelligent monitoring, this Reprint highlights interdisciplinary solutions for greener, safer, and more resilient infrastructure. It is expected to serve as a valuable reference for researchers, engineers, and practitioners working toward sustainable construction and next-generation infrastructure protection.

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