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Special Issue Reprint

Sustainable Concrete

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This Reprint presents research focused on the development of sustainable cement-based materials, the utilization of waste and secondary raw materials, and the optimization of performance properties. The publications explore a range of materials and technological approaches, including the use of wood and wood biomass ash in cement-based and alkali-activated materials; the effects of natural zeolite on concrete durability and surface quality; the use of waste metakaolin and recycled paper-derived cellulose fibers for concrete modification; the effects of ground waste glass on the resistance of mortar to alkali–silica reaction; and the use of waste steel fibers in roller-compacted concrete. The Reprint also includes a review of 3D concrete printing technologies, mix design, and material properties, as well as research on the interaction between organic and inorganic components in light-transmitting resin–cement composites. The published findings demonstrate that the development of sustainable construction materials requires not only the increased use of secondary raw materials but also careful optimization of their content, composition, processing technology, durability, and environmental impact.

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