Special Issue

Waste-to-Resource Paradigm: Creating Value-Added Eco-Efficient Building Products from Solid Waste Feedstocks

Message from the Guest Editor

The global construction industry faces mounting pressure to reduce its carbon footprint while meeting urbanization demands. This Special Issue aims to explore the waste-to-resource paradigm by investigating innovative methods of transforming solid waste feedstocks into value-added eco-efficient building products. Through advanced material engineering and circular economy principles, we demonstrate the technical feasibility of converting diverse waste streams—including construction debris, plastic polymers, and industrial byproducts—into functional building components. The developed products are expected to exhibit comparable performance characteristics to conventional materials while significantly reducing embodied carbon emissions and resource consumption. The synergistic benefits of waste valorization and sustainable construction offer a two-part solution to waste management challenges and material supply constraints. This paradigm shift not only mitigates landfill burdens but also creates circular economic opportunities through resource recovery and value chain extension.

Guest Editor

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