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Manufacturing Bricks using Construction and Demolition Waste

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Abstract: *Construction and Demolition (C&D) waste constitutes 30% of global solid waste, yet recycling rates remain critically low. This study investigates the feasibility of manufacturing load-bearing bricks using C&D waste (concrete rubble, ceramic tiles, and mortar) as partial replacements for traditional clay. A mix design incorporating 40% C&D waste by weight was developed, and bricks were tested for compressive strength (12.4 MPa), water absorption (9.8%), and thermal conductivity (0.48 W/mK). Results demonstrate compliance with ASTM C62 standards, highlighting the potential to reduce landfill dependency and CO□ emissions by 1.2 tons per 1,000 bricks. The paper concludes with scalability challenges and policy recommendations for wider adoption.*

Keywords: C&D waste, recycled bricks, sustainable construction, circular economy, compressive strength

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