

Replacement of Waste Rubber for COA RSE Aggregate in LEGO (Interlocking Blocks)

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Abstract: *This invention relates to the development of sustainable LEGO-type interlocking construction blocks inspired by toy LEGO bricks. These blocks are designed to provide fast, modular, and eco-friendly construction. In this study, crumb rubber obtained from waste tyres is used as a partial replacement for coarse aggregates to promote sustainability and reduce environmental pollution. The blocks are produced using cement, sand, aggregates, and crumb rubber in suitable proportions. Compressive strength and water absorption tests are conducted to compare the performance of rubber-modified blocks with conventional blocks. The results show that although strength slightly decreases, flexibility, impact resistance, and lightweight properties significantly improve. Thus LEGO-type interlocking blocks containing crumb rubber are ideal for non-load-bearing, temporary, or modular structures and contribute to eco-friendly construction.*

Keywords: Lego, Crumb rubber, Sustainable construction

