

Ceramic Ware Waste Potential as Co-Ballast in Dense Masonry Unit Production

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Abstract : Ceramic ware waste applicability as coarse aggregate was considered in this study for dense masonry unit production. The waste was crushed into 1.4 mm particle size and mixed with natural fine aggregate in the ratio 2:3. Portland ordinary cement, aggregate, and water mix ratio was 1:7:0.5. Masonry units produced were cured for 7, 21 and 28 days prior to compressive test. The result shows that curing age have a significant effect on all the compressive strength indices inspected except for Young's modulus. Crushing force and the compressive strength of the ceramic-natural fine aggregate blocks increased by 11.7 - 54.7% and 11.6 - 59.2% respectively. The highest ceramic-natural fine block compressive strength at yield and peak, 4.97 MPa, was obtained after 21 days curing age. Ceramic aggregate introduced into the dense blocks improved the suitability of the blocks for construction purposes.

Keywords : ceramic ware waste, co-ballast, dense masonry unit, compressive strength, curing time

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