

COMPRESSIVE STRENGTH MEASUREMENT OF SOLID BLOCK MADE BY WASTE CONCRETE CRUSHED STONE AND WASTE PLASTERING CHIPS MATERIALS

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As the world population grows, waste of various types is being generated. Waste materials are gathered from industrial, commercial, construction and demolition activity. Recycling and reuse of these waste materials are quite necessary in the waste management system. This study seeks to utilize concrete block from demolition waste as an alternative material to fine aggregate in concrete. The fine aggregate was replaced with waste concrete crushed stone and waste plastering chips in various percentages. The mix proportion of the cement, sand and crushed concrete stone or plastering chips of 1:4:8, 1:3:6, 1:2:4 and 1:1.5:3 were used respectively for 300×150×75 mm size of blocks. The compressive strength of each prepared block was analyzed at the age of 3, 7, 14 and 28 days using a compressive test machine by applying a crushing load. The British Standard (BS 6073) requires the minimum compressive strength of concrete block with the thickness from 60 mm to 250 mm is 2.8 N/mm² and the minimum compressive strength obtained for the blocks made with waste concrete crushed stone and waste plastering chips are above the standard value. Replacement of waste plastering chips rather than waste concrete stone gains more strength. The mix ratio of 1:4:8 achieves higher strength value. The study revealed that waste crushed concrete stone and waste plastering chips can be reused to prepare concrete blocks instead of formal aggregate content in construction systems.

Keywords: Waste Crushed Concrete Stone, Waste Plastering Chips, Compressive Strength and Aggregate