

EXPERIMENTAL STUDY ON STRENGTH AND DURABILITY OF CONCRETE WITH MARBLE AND GRANITE POWDER

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ABSTRACT

The waste generated from the industries cause environmental problems. Hence the reuse of this waste material can be emphasized. To produce low cost concrete by replacing fine aggregate with stone waste(marble and granite) and to reduce disposal and pollution problems due to the use of stone waste. It is most essential to develop low cost building materials from stone waste. The innovative use of stone waste in concrete by replacing fine aggregate with this material was the other alternative of the traditional concrete. Concrete mixtures were produced, tested and compared in terms of durability and strength to the conventional concrete. These tests were carried out to evaluate the mechanical properties for 7 and 28 days and durability properties. As a result, the compressive strength, flexural strength and split tensile strength is similar to that of control concrete by replacing of stonewaste (marble and granite) and permeability (12 hours) of concrete with granite is similar to control concrete, but concrete with marble is lower than (10%) of control concrete, permeability (3 hours) of concrete with waste (marble and granite) is lower (15%) than of control concrete. Keeping all this in view, the aim of the investigation is to study the behavior of concrete while replacing fine aggregate with waste and cement as a binder material in time and replacing of cement by fly ash (20%) as a binder material in another time for two water to binder ratio 0.61 and 0.5.

KEYWORDS: Compressive Strength, Flexural Strength, Split Tensile Strength, Permeability, Replacement of Fine Aggregate, Replacement of Cement