



Feasible and Experimental Study on Partial Replacement of Fine Aggregate using Construction Debris

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Abstract : Concrete is the most widely used construction material today. The constituents of concrete are coarse aggregate, fine aggregate, coarse aggregate and water. Concrete plays a major role in the construction industry and a large quantum of concrete is being utilized. River sand, which is one of the constituent used in the production of conventional concrete, has become expensive and also a scarce material. In view of this, the utilization of demolished aggregate which is a waste material has been accepted as building material in many countries for the past three decades. The demand of natural sand in the construction industry has increased a lot resulting in the reduction of sources and an increase in price. Thus an increased need to identify a suitable alternative material from industrial waste in place of river sand, that is eco-friendly and inexpensive construction debris i.e fresh concrete being extensively used as an alternative to the sand in the production of concrete. There is an increase in need to find new alternative materials to replace river sand so that excess river erosion is prevented and high strength concrete is obtained at lower cost. One such material is building construction debris: a by-product obtained during construction and demolition waste. An experimental investigation is carried out on M 25 concrete containing debris during construction in the different range of 20%, 30% & 40% by weight of sand. Material was produced, tested and compared with conventional concrete in terms of workability and strength. These tests were carried out on standard cube of 150×150×150 mm and beam of 700×150×150 mm for 28 days to determine the mechanical properties of concrete.

Keywords : Environment, Partial replacement, Construction Waste, Aggregate, Compressive strength, Split tensile strength, Flexural strength.

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