

SUITABILITY OF DEMOLISHED CONCRETE WASTE IN MODERN CONSTRUCTION & ITS 28TH DAY STRENGTH PREDICTION

JAYANT DAMODAR SUPE¹ & M. K. GUPTA²

¹Associate Professor, Department of Civil Engineering, SSIET, Durg, Chhattisgarh, India

²Professor & Head, Department of Civil Engineering. BIT, Durg, Chhattisgarh, India

ABSTRACT

Normally coarse aggregate is the fractured stone obtained from rocks in hills or pebbles from river bed. Because of depletion of good conventional aggregate in certain regions, the need to find out substitute materials for coarse aggregate has become imperative for environment protection. Use of recycled demolished waste is one of the solutions because waste disposal problem is a growing problem. Also saving of energy requirement in construction industry with use of locally available aggregates is of prime importance, reducing environmental pollution. Demolished concrete waste is crushed to required size, depending upon the place of its application and crushed material is screened to appropriate sizes. An aggregate produced by demolished buildings is known as Recyclable Coarse Aggregates (RCA). Most of the research work in concrete technology is based with use of limestone as main Coarse aggregate. In this paper study is carried out to replace lime stone with locally available waste debris of dilapidated buildings for economical reasons and tried as replacement of lime stone with demolished concrete waste and green concrete is made, under the provision of 3 R's: Reduce, Recycle and Reuse. The amount of construction waste has been dramatically increased in the last decade, and consequently recycling of waste has become mandatory. Waste concrete is particularly crucial among the construction wastes. In this rapid industrialized world, recycling construction material plays an important role to preserve the natural resources. In this research, concrete waste of demolished structure (Durg-Bhilai township old buildings) has been collected and crushed, cleaned washed before use to prepare fresh concrete. Many researchers state that recycled aggregates are only suitable for non-structural concrete application. However, findings of this research shows that the recycled aggregates from demolished concrete makes good quality concrete. Researchers have found that the slump of recycled aggregate concrete is more than the slump of concrete made of limestone coarse aggregate. Therefore use of demolished concrete waste as recyclable aggregate is tried in experimental study in this paper. Finally it is concluded that the demolished concrete of old structure serves as good quality coarse aggregate in making fresh concrete for new construction.

KEYWORDS: Recycle Construction Aggregate, Demolished Structure, Compressive Strength, Models, Waste Concrete