

A Review: Critical Study of Strength and Bonding Characteristics of Ready Mix Concrete

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Abstract— This thesis deals with the different method of mix design of the preparation of the concrete, mix design of M-30 and the preparation procedure followed at the ready mix plant. In this Dissertation laboratory based study and analysis has been consider to various conditions of RMC design and testing, Which have remitted in establishing the relationship compressive strength of RMC in both field and laboratory, The important factors have been considered which affect the strength of RMC.

Key words: RMC, Ready Mix Concrete

I. INTRODUCTION

Ready mix Concrete (RMC) is a specialized material in that the cement aggregates and different ingredients are weigh-batched at a plant in an exceedingly central mixer or truck mixer, before delivery to the development web site in an exceedingly condition prepared for inserting by the builder. Thus, 'fresh' concrete is factory-made in an exceedingly plant away from the development web site and transported among the requisite journey time. The RMC provider provides 2 services, foremost one in every of process the materials for creating recent concrete and second, of transporting a product among a brief time.

A. Construction Issues

Since the development of the prototype of Ready mix concrete in 1988, the use of Ready mix concrete in actual structures has gradually increased. The main reasons for the employment of Ready mix concrete can be summarized as follows:

- Construction period
- Compaction in the structure
- Noise due to vibration - effective especially at concrete products plants by employing Ready mix concrete.

B. Literature Review

Now day RMC can be classified as an advanced construction material. RMC offers many benefits and advantages over conventional concrete. These include an improved quality of concrete and reduction of on-site repairs, faster construction times, lower overall costs, facilitation of introduction of automation into concrete construction. An important improvement of health and safety is also achieved through elimination of handling of vibrators and a substantial reduction of environmental noise loading on and around a site.

1) Previous Research Work on Ready mix concrete

In the following, a summary of the articles and papers studies in the literature, about the Ready mix concrete and some of the projects carried out with this type of concrete, is presented.

2) Influence of Admixtures on RMC Properties

In the following are presented several papers, found in the literature, on the effects of mineral and chemical admixtures

on the fresh and hardened concrete. The chemical admixtures considered are high range water reducer or super plasticizer and viscosity-modifying agent. The mineral admixtures referred to are blast-furnace slag, fly ash, and silica fume.

Khayat et al (1997) were concluded that "After casting, no consolidation was used for the RMC mixtures, while the medium fluidity conventional concrete received thorough internal vibration. Several cores were obtained in order to evaluate the uniformity of compressive strength and modulus of elasticity along the height of each wall. However, compressive strength and modulus of elasticity were greater for RMC samples than those obtained from the medium fluidity conventional concrete."

Hajime Okamura et al (1996) were concluded that "A new type of concrete, which can be compacted into every corne of a formwork purely by means of its own weight. In his study has fixed the coarse aggregate content to 50% of the solid volume and the fine aggregate content to 40% of the mortar volume, so that self-compactability could be achieved easily by adjusting the water to cement ratio and super plasticizer dosage only."

Kazumasa Ozawa et al (1989) were concluded that "Completed the first prototype of Ready mix concrete using materials already on the market. Using different types of super plasticizers, he studied the workability of concrete and developed a concrete which was very workable. It was suitable for rapid placement and had a very good permeability. The viscosity of the concrete was measured using the V-funnel test."

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