

Sustainable Civil Engineering

June 20-21, 2016 Cape Town, South Africa

Comparison of strength between high grade retempered [M40] and medium grade retempered concrete

A R Pethkar

Vidya Vikas Pratishthan Polytechnic, India

As the grade of concrete increases, the quantity of cement also increases which effects the properties of retempered concrete. For M20 concrete, we can retemper the concrete up to 120 min but for M40 concrete, retempering time is only 30 min. Adding water to a plastic mix to increase slump is an extremely common practice, even though it is not recommended because it increases the porosity of concrete. Concrete often arrives on site more than half an hour after initial mixing. Fresh concrete mixes stiffen with time, particularly if continuously mixed. This stiffening effect is reflected in a reduced slump. The most important problem is the slump loss in concrete. Retempering is defined as the addition of water and remixing of concrete or mortar which has lost enough workability to become unplaceable. Retempering inevitably results in some loss of strength compared to the original concrete. Concrete is a material obtained by mixing cement, fine aggregate, coarse aggregate and water in specific proportions. Water is added for chemical reaction and gives workability to fill in the form of shape and dimension for structure. The chemical interaction between cement and water bonds the aggregate into solid mass. Placement operations can take anywhere from 10 to 60 minutes, depending on the field conditions and the size of the load. When the slump decreases to an unacceptable level during the operations, water is added to the mix. Objective of this paper is to study the strength characteristics of retempered concrete M20 & M40 concrete. Usually the retempering process is used with normal concrete or with ready mixed concrete; an attempt is made to check the compressive and flexural strength of normal retempered concrete with an addition of retarder in three different percentages as 0.2%, 0.4% and 0.6% at retempering time of 15 min to 90 min. Many materials other than cement, aggregates and water, are being used in production process of concrete for economy and to improve the properties of concrete. The name of the admixture used is Reobuild 225 (RCM 225). The admixtures as “materials other than, water and hydraulic cements which are added to concrete mix immediately before or during mixing operation. Generally admixtures have been used for certain beneficial effects on fresh and hardened concrete. But with these desired effects, they can bring some other desirable and undesirable effects on concrete, so these additional effects should also be taken into account for the best performance at fresh and hardened concrete.

Biography

A R Pethkar completed ME (Structure) from Solapur University. He has published more than 8 papers in reputed journals and has been serving as an Editorial Board Member of reputed.

pethkar_rohini@rediffmail.com

Notes: