**Behavior of M60 Grade concrete with full and partial replacement of Fine Aggregate (River sand) with GBFS in OPC**

**Abstract**

Growing environmental restrictions to the exploitation of sand from river beds leads to search for alternatives particularly near metropolitan areas and also leads to so many environmental consequences, It result in the depletion of natural resources. The construction industry is force to look for replacement of fine aggregate. We can balance the ecology on the earth by using replacement of fine aggregate by industrial by-product. It further reduces the pollution effect on the environment by increasing the usage of industrial by-products in our construction industry. In this context we conduct a study to check feasibility of use of GBFS (Granulated Blast Furnace Slag) as alternate to River sand in OPC cement concrete.

This experimental study focus on investigating behavior of M60 grade of concrete by full and partial replacement of fine aggregate by Granulated blast furnace slag (GBFS). Cubes, cylinders and beams are tested for compressive and flexural strength after 7 and 28days of curing. Cubes and cylinders are used to find the compressive strength on Compressive testing machine. Beams are used to determine the flexural strength on flexural testing machine. In this study replacement percentage of fine aggregate by GBFS is 30,50,80 and 100 percentages were considered and tests were performed. From the test results it is recommended that 100%GBFS can be replaced with fine aggregate in M60 grade OPC concrete ,as test results are reaching above the target mean strength . It is observed that workability is decreasing with the increase of GBFS and requirement of Admixture (PCE) is also increased to reached the desired workability of 100mm slump.