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EXPERIMENTAL STUDY ON STRENGTH AND DURABILITY PROPERTIES OF GEOGRID GEOPOLYMER CONCRETE MEMBERS

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ABSTRACT: The major problem we are facing today is the environment pollution. In construction industry mainly the production of Portland cement will cause the emission of pollutants results environmental pollution. Geo polymer concrete is an alternative material for conventional concrete to produce the geo-polymer concrete the Portland cement is fully replaced with GGBS (Ground Granulated blast furnace slag) and alkaline activator solution. The alkaline liquids used for the polymerization are the solutions of Sodium Hydroxide (NaOH) and Sodium Silicate (Na₂SiO₃) in ratio 1:2.5. Geo grid is a geo synthetic material made from polymers such as polypropylene or polyester and used as reinforcement in construction works and commonly used to reinforce retaining walls as well as subsoil below roads or structures. Geo grids are strong in tension. Compressive strength, flexural strength and split tensile strength of conventional M20 Concrete and Geo grid Geo polymer concrete members are tested and compared. Geo grid GPC beams are compared with conventional reinforced concrete beam of M20 grade of beam size 1000mm x150mm x 150mm. The flexural test is done on loading frame and the ultimate load, cracking load and maximum deflection are determined. The experimental study gives clear conclusion on the flexural behavior of conventional reinforced concrete beam and Geo grid Geo polymer concrete beam and compared.

Keywords: Industrial By-Products , Geo Grid Geo Polymer Concrete, GGBS, Alkaline Liquids

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