

GEOPOLYMER BRICK

T. Sai Krishna Teja¹, P. Anurag², G.Siva Vignan³, D. Sonu⁴, K. Venkatesh⁵

¹Assistant Professor, Department of Civil Engineering, St. Martin's Engineering College,
Secundrabad-500100, Telangana state, India.

^{2,3,4,5}Students, Department of Civil Engineering, St. Martin's Engineering College,
Secundrabad-500100, Telangana state, India.

krishna.tej919@gmail.com¹, anuragporandla@gmail.com², vignan2007@gmail.com³,
dundisonu001@gmail.com⁴, venkatesh.kummari05@gmail.com⁵

Abstract:

The objective of this experiment study is to construct an energy saving building material which is economically good and eco-friendly. The fly ash which is a coal combustion product, is made of fine particles of burnt fuels and fuel gas emitted from coal. This brick is prepared using waste reusable materials such as fly ash, GGBS which is iron waste and waste brick powder. Clay as main ingredient and addition of chemical solution along with the above materials gives geopolymer nature to the prepared new brick. The brick has less weight compared to the standard brick as the brick is made of using waste reusable materials such as fly ash, GGBS, waste brick powder and chemical solution mix of sodium silicate and sodium hydroxide in a fixed ratio. The brick is cured in an oven in order to avoid the pollution created by burning of brick at a brick kiln. The compressive strength and water absorption tests are conducted and results are obtained. The best Geopolymer brick sample is obtained by adding clay and fly ash in the ratio 2:1 and chemical solution ($\text{Na}_2\text{SiO}_3 + \text{NaOH}$) with a ratio to clay as 0.27. For a sample of brick GGBS is taken 0.25 times of fly ash and waste brick power is approximately taken as 0.1kg. The results of experiment are compared with the standard brick.



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