

Experimental Study of Mechanical Properties of Interlocking Blocks Made Using GFRG with Fly Ash

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ABSTRACT

Concrete is considered as the second largest material consumed after water. Sustainable design and construction of structures using green material is an alternative to the depletion of aggregates and increase in the price of cement. To find an efficient and cost-effective solution, a new concept of construction is investigated with innovative self-interlocking blocks. Each blocks will have two interlocks as projection 'tongue' part and depression 'groove' part. This helps to resist the lateral movements and horizontal compressive stresses. The projection of one block fits in to the depression of the next so that they always align perfectly. It was observed that the horizontal and vertical groves helped in maintaining the stability of the wall. In addition, assembly and disassembly of wall are assisted by the groves, and it helped in maintaining the vertical plumb of the wall. A partial replacement of fly ash and gypsum, to cement is attempted here. Gypsum and Fly Ash are green products, which can be used as a replacement product of cement. They are more economical than other conventional materials and glass fiber increases the crack control and resistance against alkali attack. Our main aim of this work is to create a new self-interlocking block made using glass fiber reinforced gypsum and fly ash and to study the properties of interlocking blocks. The building constructed using Interlocking blocks will be rapid in construction, economic, light in weight, fire resistant, etc. In general, conventional wall requires high cost and its strength is less when compared with glass fiber reinforced gypsum and fly ash interlocking blocks.

Keywords: *Self-Interlocking blocks, Stability, Glass fiber reinforced gypsum, Fly Ash, Non-conventional materials.*

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