



Vel Tech

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(Deemed to be University Etd. u/s 3 of UGC Act, 1956)



VEL TECH - IPR CELL
Technology Transfer

Industrial By-Products Based Interlocking Blocks Composition

Seeking parties interested in licensing and Commercializing of Technology.

Problem Statement

The construction cost of concrete houses is higher. The main reason is the increase in demand for raw materials and the shortage of production of construction materials. As the production of raw materials increases, it harms the environment. Depending on the location, construction time and the environmental conditions, a construction system may require brick or stone, or concrete. In the present practice, interlocking blocks are used in many places for rapid construction for housing projects. Construction of these interlocking blocks can reduce construction time and cost. As the connection between the adjoining blocks is done by interlocking mechanism in interlock block masonry, the wholesome masonry structure becomes stronger than brick masonry structure. A prototype of interlocking block has been developed in this work using gypsum and fly ash and glass fiber. The blocks produced using these materials are eco-friendly and cost-effective.

Technology Category/ Market

Building Blocks / Building materials market such as Bricks, Solid blocks, Hollow blocks, Fly ash bricks and Aerocon blocks

Technology

Gypsum is formed as an evaporate mineral and a hydration product of anhydrite. It is a crucial eco-friendly component used in the construction industry. Based on different studies, seven trial mixes are selected and tried with laboratory tests on hardened samples. Partial replacement of cement by gypsum and Flyash with the constant amount of glass fiber in all mixes are tried. The constant water-cement ratio is fixed as 0.67. The projection and groove part of the blocks arrest lateral movements. The size of each blocks defined as 270 x 115 x 100 in mm, including top projection and bottom groove. Its structure is equal to the total length of two ordinary bricks covered by a mortar. Interlock blocks designed with the projected areas so as to exactly match the

blocks placed above, such that they automatically align in both the directions. The volume of one block is 0.00265m³. Interlocking blocks are cast by using the proposed mix ratio and the de-moulded blocks after the curing process.

Images of the Technology



Features/ Value Proposition

The manufacturing process is a simple one, production facilities can be easily set up at convenient geographical locations. The construction cost is less as it doesn't require any skilled labors. As mortar is not required both construction cost and time are saved. It has interlocks between both horizontal and vertical layers. Structural stability and durability of interlocking block masonry construction greater than the normal construction

Intellectual Property

Patent Number: 492264
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TRL Level

TRL- 3/4, Proof of Concept & validated

Research Lab

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