Experimental Study On Light Weight Interlocking Blocks

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Abstract- *The aim of our project is to compare the strength, durability of conventional clay bricks with light weight interlocking bricks. In comparison of clay bricks with light weight interlocking bricks has some advantages such as high compressive strength, durability and low cost. It is eco-friendly. After the several researches project involving the strengthening and reducing the weight of interlocking bricks by using wet ash and synthetic vegetable protein as a admixtures in the interlocking bricks. The brick is mould with dimension of 12x6x5 inch with curing continuously for 28 days. Finally the brick tested by using Compression Testing Machine by using two point loading by hydraulic pressure.*

Keywords- Interlocking block, Wet ash, Synthetic Vegetable protein, Clay brick

I. INTRODUCTION

Interlocking block masonry is one of the building system which almost full fills all the requirements of being a sustainable masonry. Interlocking blocks are made with locally available light weight material. This light weight & higher compressive strength it is possible to use this blocks in multistoried building compare to normal brick masonry. Light weight material like flyash cannot be easily disposable so it can be used as light weight material by replacing and reducing use of cement. And also for reducing price and increasing the strength many natural and manmade reinforcing material like, sisal, bamboo, coconut fibre, jute, used in the production of light weight blocks. Light weight concrete block having density less than 1800 Kg/$m^3$and greater than 400 kg/m^3 which is much less than regular concrete block. Light weight concrete block having low weight, less amount of dead load and easy to place. So the overall cost of construction work with interlocking and light weight blocksreduces.The interlocking blocks are different from other normal bricks as it requires less mortar or cement for masonry work.Theseblocksinterlockedwitheachotherbymeansofpositives and negative frogs on the top and bottom of the blockswhichdisallowthehorizontalcompressivestressandlateral movementofblocks.Theprojectionofoneblockfits into the depression of the next so that they always align perfectly. The specifications and the characteristics of this block depend on the machine used to manufacture it

II. OBJECTIVES

- To reduce the weight of Interlocking blocks by using wet ash & Synthetic vegetable protein as admixture.
- To determine the Compressive Strength of the block.
- To compare the Compressive strength of Ordinary Interlocking Blocks &Light Weight Interlocking Blocks.
- To estimate the cost of ordinary interlocking block and light weight interlocking block.

III. LITERATURE REVIEW

R. K. Watile, S. K. Deshmukh , H.C.Muley *had done an research on* **" INTERLOCKING BRICK FOR SUSTANABLE HOUSING DEVELOPMENT"** Based on the experimental investigation 1. Strength of interlocking bricks with increasing fly ash increases with the age reported in this paper, following conclusions are drawn. All mix proportions gives satisfactory higher values of compressive strength. At some without GFRP mix ratio 1:11 gives the higher compressive strength greater than 10 N/mm2 Interlocking bricks with economically available fly ash in large proportion have sufficient strength for their use in low cost housing, non-load bearing construction and in regions where good quality burnt clay bricks are not available . Water absorption of interlocking bricks without GFRP is found to be in the range of 6.42 to 12.4 percent, whereas the waterabsorption for ordinary burnt clay bricks should not be more than 20 percent. The water absorption of interlocking bricks increases with the increased fly ash content . The density of interlocking bricks was found to be 7.5 to 25 percent higher than that of the ordinary burnt clay bricks . Interlocking brick with reinforcing agent GFRP increases the compressive strength at maximum utilization of fly ash with the age .The water absorption and density increase with increase in fly ash in GFRP interlocking brick. As density concern the difference between ordinary clay brick and interlocking brick should be minimize with reinforcing agent.

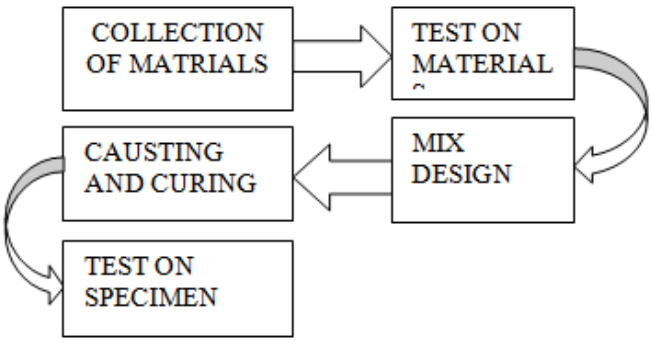
Interlocking bricks require no skilled labour and can be moulded in any shape and size depending on the requirements. A number of other benefits also be ascribed for the prospect of interlocking bricks which includes no consumption of mortars, better efficiency in laying and low cost of finishing.

Adnan Bin, Abdul Lateef, Syed Muqeed, Ashmi Mohd had done an research an **"Interlocking of Bricks"** an experimental investigation in which the compressive strength, water absorption and density were investigated by using varying percentage of fly ash, stone dust, and sand with different mix proportion. A manmade fibre, glass fibre reinforce polymer (GFRC) /Steel / Bamboo utilize as reinforcing material to produce the interlocking blocks which gives appreciable results discuss in detail. The basic idea was to build a wall without cement and to bind the bricks together by their interlocking properties attained by the reinforcement (GFRC Bar, Steel bar, and Bamboo).The dimensions of the brick were 12x8x4mm. The composition of the bricks was 75% of fly ash, 20% of cement, 3% of gypsum and 2% of lime. Two rods penetrate inside the standard fly ash bricks from the top and two holes are made adjacent to the rods at the bottom forming a wall with the rods of one brick interconnecting with the holes of the other brick. The bricks can be juxtaposed one over the other. The wall can be assembled and dissembled at any point of time leading to simple and plain sailing construction. The bond used for the wall was stretcher running bond. Compressive strength of interlock bricks are having ranges between 1.2 N/mm^2 to 2.0 N/mm^2

IV. MATERIALS USED

1. Cement
2. Coarse aggregate
3. Wet ash
4. Synthetic vegetable protein
5. Water

V. METHODOLOGY



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