International Journal of Engineering and Technical Research (IJETR)
ISSN: 2321-0869, Volume-2, Issue-12, December 2014

Earth quake Proof and Economical Structures

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***Abstract*— The Building Earth quake proof structures was a challenge over centuries. Many attempts made and tested several times. It was successful to some extent but, at the Extra cost. Most of the failure of the collapse of the structures happens due to shearing of building blocks over one another, which results in total collapse of the structures. So, the proposed plan is to restrict the above drawback by giving iron rods which is inserted and baked in to the building blocks.ie., bricks, which in turn gets fitted in to the holes of the above corresponding bricks. The total structure right from the foundation becomes like honey comb, which resists any shear failure, resulting in Earth quake proof structures. It is also economical because it avoids using cement as binding material for structural blocks, As it already gets fitted into the holes and rods of adjacent building blocks and if coatings also made in the individual building blocks both outside and inside the blocks. It avoids plastering and coating both outside and inside the building structures and only simple binding material is used to close the joining gaps to avoid water leakage during rainy seasons. We can also use plastering, If required. or we can use Rhombus type Bricks to avoid plastering. If screws are fitted on the roof top bricks, where concrete cement slabs gets fitted in the corresponding holes and fastened with nut, which makes foundation permanent and remaining part dismantle and portable to other place.**

***Index Terms*— Earth quake proof structures, Bricks with rods and holes, shearing failure**

I. INTRODUCTION

One of the basic necessity of Human being is shelter. Ancient people used initially cave as their basic shelter. As human advanced he started using stones and hay to built rooms and next he started bifurcating each rooms as per his requirement. Later, he learned to built strong buildings .Now, we try learn how to built Earth quake proof structures economically.

II. HISTORY

In modern times, Human being uses cement as binding and plastering material along with bricks as building block. Here, one of the drawbacks is each block is independent, which prone to shear effect when there is slight shaking due to Earth quake or due to any other natural disaster. So, let us see how to arrest this shearing effect of bricks, which makes it more resistant to Earth quake.

III. PROPOSED METHOD FOR BUILDING STRUCTURES

Proposed method involves same as existing method, except some changes. In the foundation itself, rods are inserted, as shown in fig 1and in this rods, the building blocks such as bricks , which has holes corresponding to the rods projection in the foundation, gets fitted as shown in fig 2.finally at the top, the projecting rods made to have threads, where cemented slabs , which has holes gets fitted in to the rod, which makes ceiling as shown in fig 3.Here, building blocks such as brick, will have both hole and rods fitted inside the block itself as shown in fig 4.So,structure as whole it behaves like honey comb, making it strong structure economically. Other method is to bake the brick in such a way that by itself has Rhombus shape projections upside as well as hallow side down, where it fits with the lower one as shown in fig 5.This will be helpful during rainy seasons, where water will not get inside the structure due to the shape of the Brick. Hence, no need for binding material at the joint gaps.

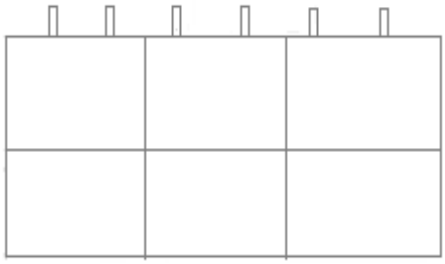

Fig 1

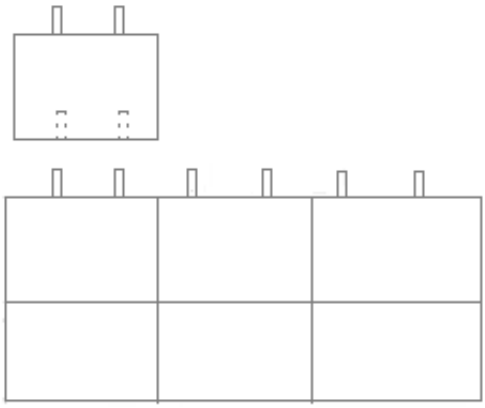

Fig2

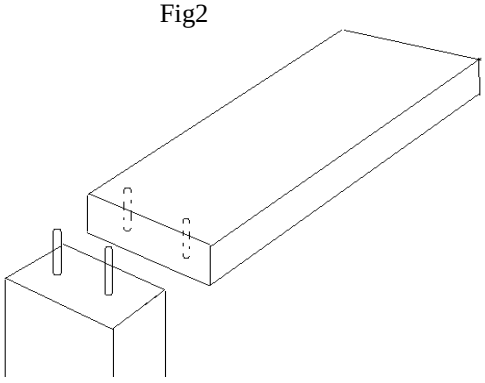

Fig 3

Manuscript received December 23, 2014.

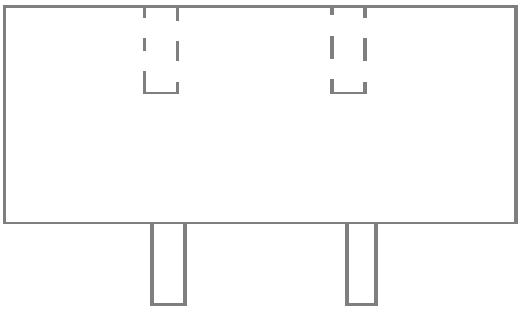

Fig 4

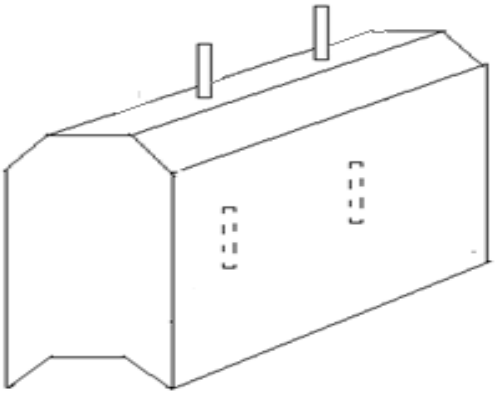

Fig 5

IV. Advantages of New Building Method

Using the above method to build structures, we can make it Earth quake resistant structures economically, as it avoids failure by shear and also it avoids more usage of cement for binding of bricks one another. It makes buildings portable leaving behind only foundation, as remaining other blocks can be easily dismantled and relocated to some other place easily. Any Building structure can be built in a short period of time, as no need to wait for curing, as it will be already pre-cured, while making bricks as well as slab.

V. Conclusion

The reasons for failure of Building structure is mainly due to the shear.ie., failure of one brick makes the whole structure slide one over the other resulting in total collapse of the whole building. Here, we reduce the above chance, making it more strong structure.

Authors Profile:

Prabhakar C B.E.,(Mech) DCA is a Mechanical Engineer having work experience of more than 14 Years in Diverse Fields Like CAD, Telecommunication, Fabrication, Assembly, Stores and in Teaching, Now, working independently on various topics of science and technology. Published three articles in the online International journal

Interested Activities : To Bring innovative and creative Ideas in All the Branches of Science and Technology