

# AN ALTERNATIVE SOLUTION TO TRADITIONAL BRICKWORK

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**Abstract**— *This paper aims to point out the alternative possible solution to traditional brickwork. To minimize the cost as well as duration of construction project by using alternative material. Concrewall can be considered as an alternative material to traditional brickwork resulting in the success of a construction project in terms of speed, quality cost and safety of work. The aim of this paper is to compare structure erected using concrewall and with brickwork is to see whether it is feasible to use concrewall or not. Nowadays, clients look for gaining more and more profit from the project and it is only possible when time and cost of the project is reduced.*

**Keywords**— *Brickwork, Duration, Quality, Concrewall.*

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## I. INTRODUCTION

There are two major factors that affect the success of any construction project i.e. Time and Cost. Third major factor is quality. The success or failure of any project depends on these two major factors. If any of them gets increases then project cant be termed as a successful project. They are vital, still they are neglected. India is the seventh largest country in the World and yet her record of implementing major projects has not been satisfactory. It has been observed very frequently that most of the projects in India ends with extra involvement of time, money and resources. On very rare occasion it can be seen in construction industry, that a project is completed well within the estimated budget and time and with desired quality.

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**Objective of study :** To compare the structure erected using traditional bricks and using concrewall in below parameters.

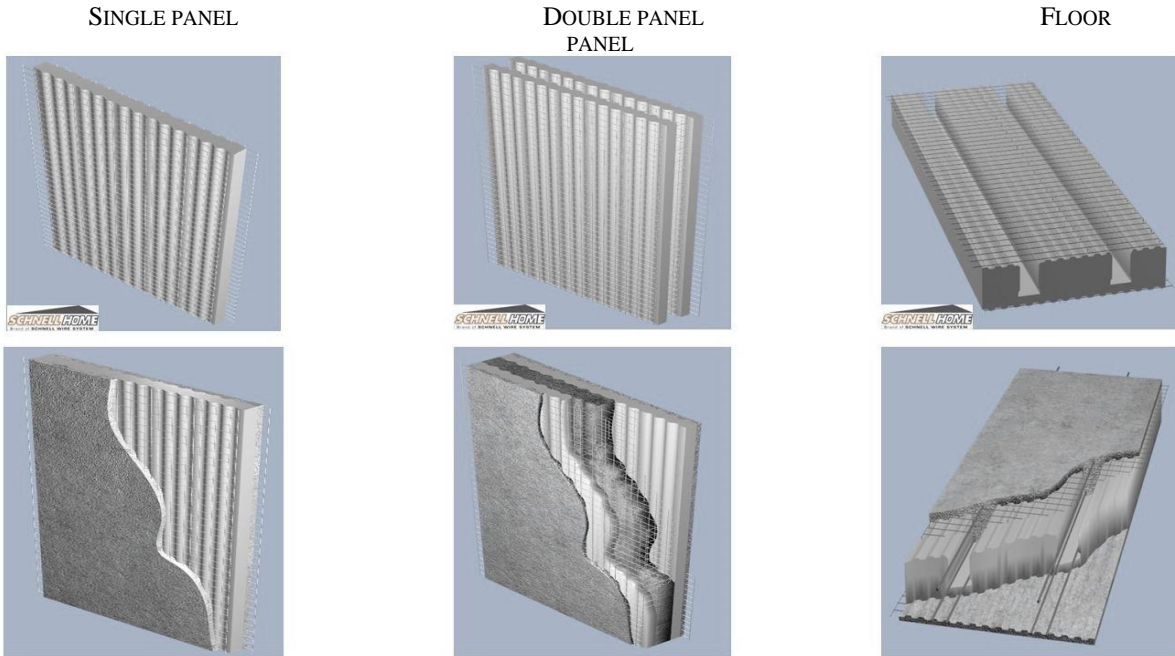
- 1) Cost Parameter
- 2) Time parameter
- 3) Quality Parameter

## II. RELEVANCE OF STUDY

Using bricks in construction work since long time ago. now different types of brick available in market in various properties. brick it is a construction material about 10%-15% are used in construction work. Concrewall is an industrial system for the construction of structural walls of reinforced concrete for buildings in single panel up to four storeys, g+3, and theoretically unlimited storeys in double panel. The system is composed of factory produced panels of undulated (wave shaped) polystyrene covered on both the sides by an electro welded zinc coated square mesh, which in turn are connected by 40 connectors per metre sq. realising a 3 dimensional hyper static reinforcement steel. The panels are assembled on site and in situ poured concrete (double panel, floors, stairs) and shotcreted concrete (single panel) to realize the different elements of the system.

Concrewall construction system is based on modular elements made of shaped polystyrene panels that are contained between two sheets of galvanised welded meshes. The vertical mesh wires are set along the polystyrene 'waves' thus creating reinforced concrete micro pillars once the panel is coated with concrete. The wires are bound to each other by the mesh' horizontal wires and joined orthogonally by the links which keep the two meshes together. Joint twisting is prevented by welding; in other words, as these joints are all welded, all transversal and longitudinal motion is prevented resulting in absolute in deformable panels.

### III. PANELS AND MESHES



*Fig1. PANELS AND MESHES*

### IV. COMPARISON OF SOME CHARACTERISTICS OF BRICKS AND CONCREWALL

TABLE – COMPARISON BETWEEN BRICKS AND CONCREWALL

TYPE	BRICKS	CONCREWALL
Moisture absorption	5% to 20%	5% to 10%
Dimensional stability	Vary considerably according to size and shape	It is true in size and texture
Thermal conductivity	Brick have lover heat transfer better insulation than concewall	Higher heat transfer but once they embedded in cement mortar the difference is negligible.

V. COST COMPARISON OF A WALL CONSTRUCTION OF 10mX10mX0.1m

TABLE NO 2 – COST ANALYSIS

DESCRIPTION	BY USING BRICKWORK	BY USING CONCREWALL
Wall volume (10mX10mX0.1m=10m <sup>3</sup> ) Total volume of wall=10m <sup>3</sup>	Total number of brick required = 5000 Nos.	Total no. of panels required = 5 to 6 sheets as per required size
Cost of material	5000x7= Rs. 35000 ( brick only)	Rs. 120 per m2 for 100mm thick sheet. 100 x 120 = Rs. 12000.
Cost of material (Mortar)	Approximately 9800	Approximately 9800
Cost of labour	Rs. 25000	Rs. 22000
Total Cost Of Construction	Rs. 69800	Rs. 43800
% Cost Saved	-	38%

IV. CONCLUSIONS

From the present study we can certainly draw some conclusions. The use of Concrewall instead of traditional brickwork in the Construction of building is very economical. Due to speedy construction activities we can save lot more construction time. Also by adopting this new technology, cost of construction can be saved up to 20-30%. While constructing houses, the poor people or people having lower income, this technology will be very affordable. At present government is keen on providing houses to all poor people. Recently they have introduced the Pradhan mantri Aawas Yojana. For such projects use of these type of alternative materials will not only make the house in less time but also it will be affordable to both, i.e. government and people. To make such government schemes successful this method of construction will be the boon.

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