

# COMPARATIVE ANALYSIS WITH CONCREWALL & BRICKWALL STRUCTURE

Rohan D More<sup>1</sup>

<sup>1</sup>Civil Department,  
SSJCET, asangaon.

Dr. Y.S Patil<sup>2</sup>

<sup>2</sup>Civil Department,  
SSJCET, asangaon.

---

**Abstract—** This paper aims to point out the various aspects of construction of structure using brickwork or various type of brick & using concrewall reduce the cost of construction and making low cost houses it is basic need of middle class people in our India. One of the most important factors in determine the success of a construction project in terms of speed, quality cost and safety of work . the aim of this paper is concrewall is best method or technology constructions of affordable small houses and G+3 structure. Nowadays, most projects are required by the client to complete in the shortest time possible as a means to minimize costs.

**Keywords—** Brickwork, Duration, cost, quality, concrewall.

---

## I. INTRODUCTION

Time and cost are the lifelines of any and every project. The success or failure of any project depends largely on these two factors apart from its quality. They are vital, still they are neglected. India is the tenth largest country in the World and yet her record of implementing major projects has been far from satisfactory. It has been observed very frequently that most of the projects in India ended with extra involvement of time, money and resources. It's a rare scene in construction industry, that a project is completed well within the estimated budget and time and with desired quality.

Technological advances are fast making their inroads into construction as a result of the process of global sharing of experience and wider networking.

**Objective of study** To compare the brickwork structure & concrewall structure.

- 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

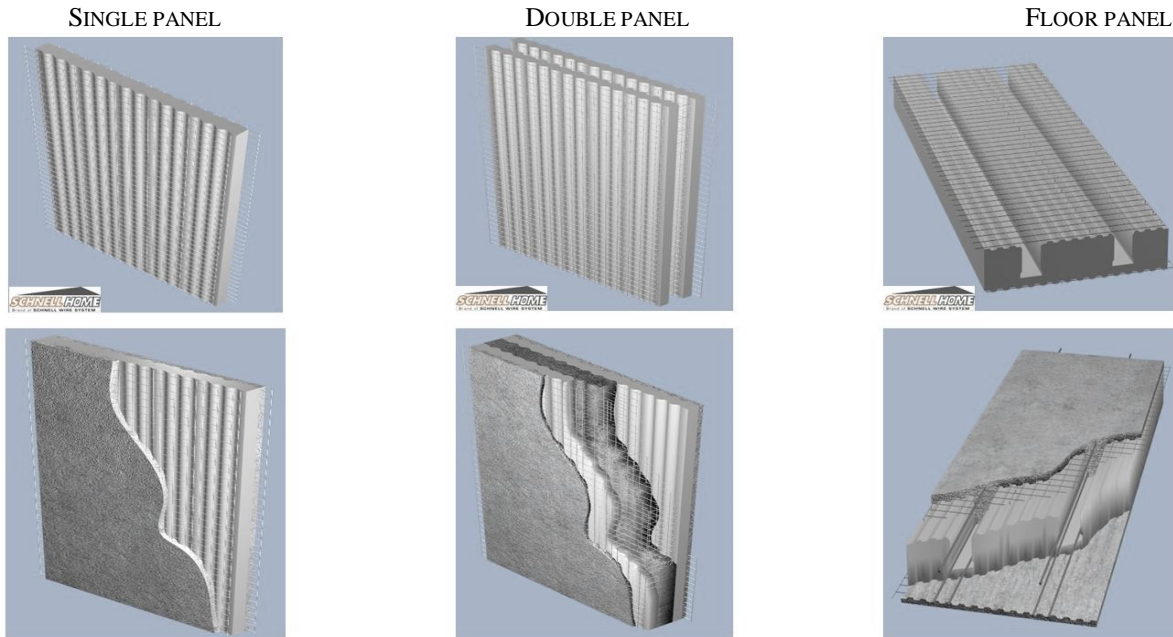


Fig1. PANELS AND MESHES

TABLE NO 1 – COMPARISION CONCREWALL VS BRICK

IV. COMPARISON OF SOME CHARACTERISTICS OF CONCREWALL & BRICK.		
TYPE	CONCREWALL	BRICK
Moisture absorbtion	5% to 20%	5% to 10%
Thermal conductivity	Brick have lover heat transfer better insulation than concewall.	Higher heat transfer but once they ambedded in cement mortar the difference is minimum
Dimensional stability	It can be vary considerably size shape and texture	Concrewall are true in size and texture

TABLE NO 2 – COST ANALYSIS

#### V. RELATIVE COST COMPARISON CONSTRUCTION OF SMALL CABIN 1.5M X 1.5M ROOM.

DESCRIPTION	BY USING BRICKS	BY USING CONCREWALL
Wall volume (1.5x2.5x0.30=1.125m <sup>3</sup> ) Total volume of wall=4.5m <sup>3</sup> Deduction door and window D=(2x.8x.30)+W=(.5x.5x.30) Total volume=4.5-0.555=3.945m <sup>3</sup>	Total number of brick required=3.945x500=1973nos	Total number of panels required = 4 to 5 panels required as per measurement and order given by company
Cost of material	1973x8=15784rs ( brick only)	5x2500=12500rs
Quantity of mortar require for construction	3.945-(0.19x0.09x0.09x1973)=0.895m <sup>3</sup>	Nil
Quantity of plaster required for wall	(1.5x2.5)x4=15m <sup>3</sup>	15m <sup>3</sup>
Stell wire mesh required for work	Nil	3500rs (150rs /m <sup>2</sup> )
Time required for construction	Approx. 2-3 weeks include curing	1 week include curing
Cost of labour work	15000rs	18000rs
Cost of material Per m <sup>3</sup>	3500x3.945=13807 approx 14000rs	Approx. 10000rs
Total cost of construction of cabin	Approx. 80000-85000rs (include T&P material .water charges for curing)	Approx. up to 55000-65000rs
% of saving in construction cost	-	10-15%



#### IV. CONCLUSIONS

Following conclusions can be drawn from the present study. The use of Concrewall sheets or different panels in the Construction of building it is very economical. by adopting this methodology the construction work is fast and save in construction time. Also by adopting this new technology up to 30-40% cost of construction save also provide affordable houses to the poor people or lower economical people. The india's largest new problem is that common people does not afford high prices of house. now a days cost of construction are very high and this method is adopted by government agencies to solve that high rise cost problem and result of concrewall construction building was really good so there is no problem to adopt this technology.

#### V. REFERENCES

- [1]. "Building Formwork". Building construction By B.C.Punmia (2008 edition).
- [2]. Comparative analysis of formwork. IJRET (sandip Pawar)
- [3]. Cost effectiveness of using Low cost housing technology in construction. Procedia engineering 14 (2011) (Vivian W.Y.Tam)
- [4]. Emerging Trends in formwork. (IOSR-JMCE) Miss patil Dhanashree
- [5]. Low cost housing ACSGE-2009 (Rinku Taur and Vidyan Devi)
- [6]. Low cost urban housing in India and habitat for humanity. (Abhijit v)
- [7]. Ketan Shah, " Modular formwork for faster, economical and quality construction", Indian Concrete Journal, July 2005, Volume 79, Pg. 6-23.
- [8]. Clay vs concrete by UNIPRO company.
- [9]. Shweta A. Wagh et al Int. Journal of Engineering Research and Applications ISSN : 2248-9622, Vol. 4, Issue 4( Version 1), April 2014, pp.369-376
- [10]. Hand book masonry design and construction revised.