Comparative Analysis of Geopanel System and MIVAN Formwork System

Akshay Ganar[1], Prof. Ashish Waghmare[2], Prof. Shreedhar Patil[3]
[1, 2, 3] Department of Civil Engineering
[1, 2, 3] Dr.D.Y.Patil SOET

Abstract- *In recent times due to globalization, the construction industry has started focusing on new innovative ways of working and reducing deforestation. The construction industry has started adopting new technologies and approaches in order to increase the overall efficiency of the project. This paper is about the modern methods of construction and smart materials that can be used to improve the overall construction process. This paper describe the comparative analysis of Geopanel and Mivan formwork system comparison include cost, quality and time. To understand this topic clearly data collected from various construction site where this modern formworks are used.*

Keywords- Geopanel, MIVAN formwork, Morden method, smart material.

I. INTRODUCTION

The construction industry is one of the biggest industries in the whole world. The contribution of this industry towards the global GDP is enormous. In recent years due to globalization and advancement in technologies there has been a tremendous development in the construction industry. However despite of the boom in construction activities the scenario on the housing front remains far from satisfactory. In the countries like India and China the situation on the housing front is even worst. Due to ever increasing population in these countries there is an overgrowing demand for housing. Now keeping in view the gigantic task of providing affordable shelter to masses, adoption of modern and cost effective technology assumes greater significance.[6]

Mivan is basically an aluminium formwork system developed by the Mivan Company Ltd from Malaysia in the year 1990. The technology has been used extensively in other countries such as Europe, Gulf Countries, Asia and all other parts of the world. MIVAN technology is suitable for constructing large number of houses within short time using room size forms. In this system of formwork construction, cast - in - situ concrete wall and floor slabs are casted monolithically in one continuous pour. Large room sized forms for walls and floors slabs are erected at site. [7]

Geopanel is reusable formwork made of high strength ABS to form reinforcement concrete square and rectangular columns. The panels are joined with the standard nylone handels in order to form a any type of shape. Geopanel is an extremely light Formwork system, fast and easy to assemble for square and rectangular columns with side from 20 to 100cm, pile caps and various sizes.

II. IDENTIFY, RESEARCH AND COLLECT IDEA

- The methodology will be adopted such as collecting the data from site visits, interviews, questionnaires, literature reviews and case studies, books. The methodology also includes following point.
- The data needed for a project, interaction with builders, engineers and interviews with some of the selected respondents regarding the main objective of the topic were conducted for the data analysis stage.
- Data collected from internet and by attending various conferences.
- By visiting the sites where this formworks are actually using

III. OBJECTIVES

- To compare the cost of Geopanel formwork technique & MIVAN formwork technique.
- To compare the Duration of Geopanel formwork technique & MIVAN formwork technique.
- To carry out which formwork is best for construction of building.
- To understand the concept of MIVAN formwork.
- To understand the concept of Geopanel formwork.

IV. RESULT & DISCUSSION

A. Details about the Formworks

Comparision between geopanel and MIVAN formwork are as follows:-

Sr. No.	Characteristics	Geopanel	MIVAN formwork
1	Weight	Light	Heavy
2.	Plumbing	Fast, does not require specific props	Fast require specific props
3.	Storage	No special storage conditions required	Must be stored in dry environment
4.	Number of uses	100	250
5.	Material	Acrilonitrile butadiene stirene (ABS)	Aluminium
6	Adherence to concrete	No adherence because concrete does not stick to plastic	Yes
7	Time for deshuttering	Less	More

B. The Result calculation are as follows:-

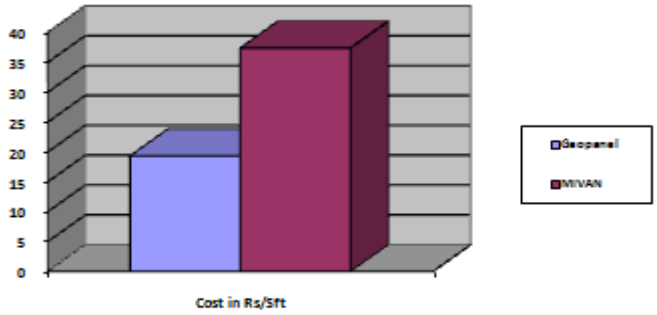
(a) Geopanel

Material cost per Sft =17.34 Rs/Sft
Labour rate for shuttering = 2.00 Rs/Sft
Total cost = 19.34 Rs/sft

(b) MIVAN formwork

Material cost per Sft=21.13Rs/Sft
Labour rate for shuttering = 6.00Rs/Sft
Total cost = 27.13Rs/sft

C. Result Comparison



VI. CONCLUSION

Cost of Geopanel is 40.27 percent cheaper than the MIVAN Formwork system. The construction can be done faster BY Geopanle than MIVAN formwork. From the results of the case study it can be concluded that quality and speed must be given precisely consideration with regards to economy.

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