

# **Impact of Prefabrication on profitability Over Traditional construction**

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## **Abstract**

The main objective of the current work is to review the current situation of the formed industry in Bharat. Suggestions for improvement of the trade and study on price effectiveness of formed concrete construction for single and multi-story residential buildings area unit to be. A literature survey was done so as to get the comparison between the conventional buildings with formed concrete buildings in India and a few field visits area unit conducted to gather information to investigate the present state of affairs relating to formed trade in India. so as to check the price of formed and unchanged construction, double construction residential buildings is taken into account.

**Keywords:** the comparison between the conventional buildings with precast concrete buildings in India.

## **Introduction**

The construction boom in Republic of India is developing at a quick rate of growth. It provides wide chance in Republic of India for a replacement entrant in prefabricated sector. At the present formed concrete buildings square measure the advanced construction techniques available over worldwide. Being its wide pertinence, the total formed concrete buildings systems are getting a popular selection for several constructions. Formed concrete available in several form, sizes, as well as structural elements and unreinforced items. The prefabricated trade is the backbone for the event of latest concepts in construction business of any country; mill buildings, residential buildings and therefore the industrial territorial division square measure needed much by all the sectors, either to support the manufacturing or services of any trade.

## **Data Collection**

This chapter describes the information collected from the survey. Knowledge assortment ought to be tired totally different companies to induce the speed details regarding the formed construction

and in addition as typical construction. In the data assortment we will conjointly apprehend the procedures of the construction work and conjointly conclude the difficulties of the work. This assortment is useful to seek out the price of the project for the each construction. we tend to conjointly realize the project duration of the development by victimization these enquiries.

Questionnaire survey is created from completely different companies. From this we have a tendency to have renowned concerning the benefits and disadvantages of each standard and manufacture construction. And conjointly from this we have a tendency to have renowned the present standing and scope of the formed techniques. Survey respondents used a five purpose Likert scale to quantify their impact and ranking the score. the typical quantity of construction expertise for all the respondents is eighteen years. The low is six and therefore the high is sixty. Most of the respondents have centered on business and Residential construction in their careers. This chapter explores the information provided by the surveys in Associate in Nursing in-depth manner. every question is broken down and analyzed severally of the others. Then for every topic, the cluster of corresponding queries and their analyses are summarized. As a reminder, a blank survey for reference is provided in Appendix A.

### Methodology of the Study

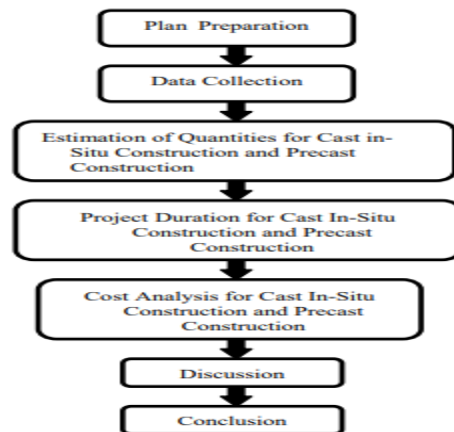


Fig 3.1 Flow Chart of Work Methodology

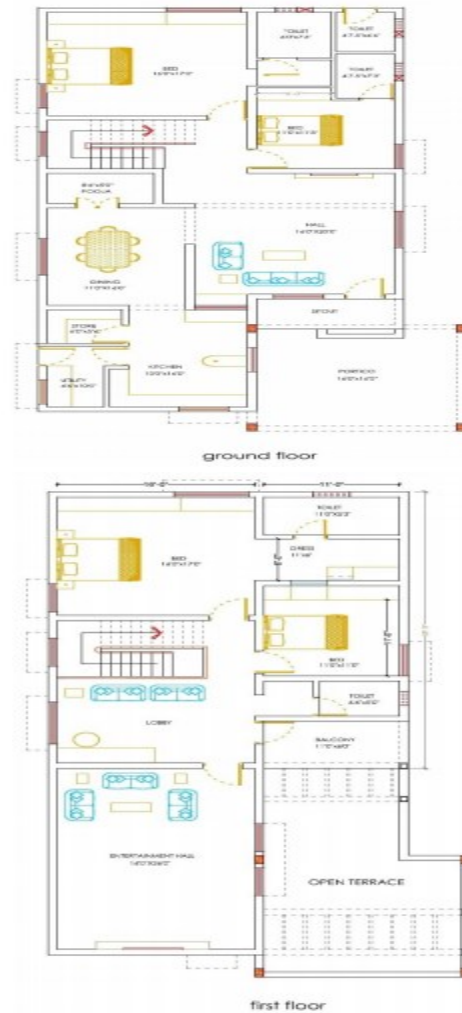


Fig 3.2 Plan of Double Storey Building

## Results and Discussion

Table 4.1 Total Duration for Prefabrication Construction

S. No	DESCRIPTION	DURATION
1.	Sub Structure - (Site cleaning, Earthwork, Foundation, Basement, Soil filling& Consolidation.)	22 Days
2.	Super Structure – (Wall panels framing and Roofing slabs.)	12 Days
3.	Finishing Works – (Electrical, Plumbing, Painting, Tiling, and Windows, Extra items.)	31 Days

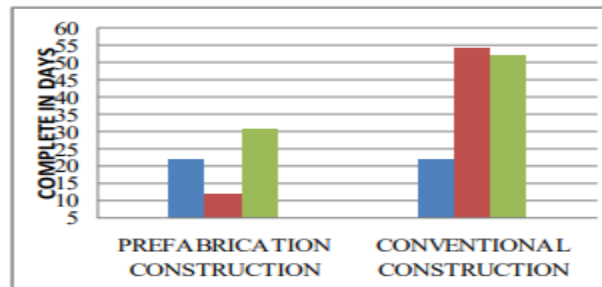
The duration of the prefab construction was calculated through the data collected from precast company, which help to find the duration of erection for the super structure of prefabrication

construction. The duration of the project is shown in three different stages. The duration of substructure was the same as conventional construction because of same method is used to construct in the prefabricated. But the super-structures in the prefabricated were completed earlier when compared to conventional construction. The project duration of super-structure has a huge variation and it's an advantage of prefabricated construction. The walls and slabs are manufactured in factory and installed in site, which reduces the duration of the super-structure. The prefabricated construction takes less time duration in finishing works when compared to conventional construction, because of the electrical piping work was fitted already in precast walls and slabs. The plastering work is no need for precast elements, which is good in appearance and finishing. The total duration of the double storey residential building for prefabricated construction is 65 days which is shown in table 4.1.

Table 4.2 Total Duration for Conventional Construction

Sl. NO	Description	Duration
1.	Sub Structure - (Site cleaning, Earth work, Foundation, Basement, Soilfilling & Consolidation.)	22 Days
2.	Super Structure (Columns, Lintel & sunshade, Beams, Roof slabs, Brick work, Plastering.)	52 Days
3.	Finishing Works - (Electrical, Plumbing Painting, Tiling, and Installation of doors & Windows, Extra items.)	54 Days

The duration of the conventional construction was calculated through the data collected from conventional company and CPWD engineering data, which help to find the duration for the conventional construction. The duration of the project is shown in three different stages. The duration of sub-structure was same for both constructions which used same method to construct. But the super-structures in the conventional takes long time to complete when compared to prefabricated construction. The project duration of super-structure has a huge variation and it is a main delay to the project in conventional construction. And finishing work also the conventional construction takes more time duration when compared to prefabricated construction, because of the electrical and plastering work is done only in site condition. The total duration of the double storey residential building for conventional construction is 128 days which is shown in table 4.2. In this analysis, we had known about the total project duration of both prefabricated and conventional constructions. The figure (5.1) shows the comparison of project duration for the both prefabricated and conventional construction in three different stages. As in the figure the sub-structure has taken the same duration for complete the project for both construction of double storey residential building, because of the sub-structure was done by the traditional method.



The cost of the conventional construction was calculated through the data collected from conventional construction company, which help to find the cost of the total project. The sub-structure and finishing work cost was taken to the prefabrication construction from the conventional. So there are no cost variations in both constructions for these stages. But the cost variation was in the super-structure and which is low when compared to the prefabrication construction for double storey residential building. Total cost of the double storey residential building for conventional construction is 60,19,000.00 (Sixty lacs and nineteen thousand rupees only).

Table 4.4 Total cost for conventional construction  
Material and labor cost for total project

SI NO	DESCRIPTION	COSTS
1.	Sub Structure – (Site cleaning, Earth work, Foundation, Basement, Soil filling & Consolidation.)	5,26,000.00
2.	Super Structure – (Columns, Lintel & sunshade, Beams, Roof slabs, Brick work, Plastering.)	1024000.00
3.	Finishing Works – (Electrical, Plumbing, Painting, Tiling, and Installation of doors & Windows, Stair case, Extra items.)	44,69,000.00

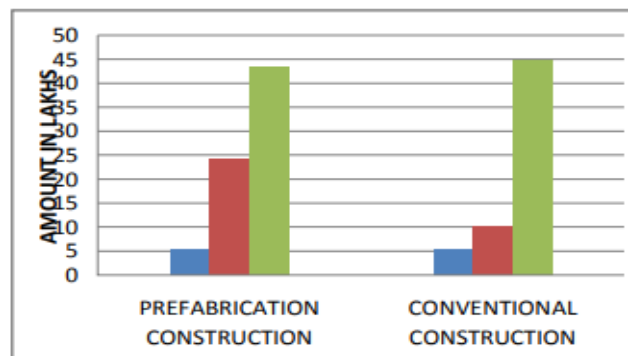


Figure 4.3 Comparison cost for prefabrication and conventional construction in three different stages

In this analysis, we had known about the cost of both prefabrication and conventional constructions. And also the comparison cost for different stages as sub-structure, super-structure and finishing works. The figure (5.3) shows the cost difference for the both prefabrication and conventional construction in three different stages. As in the figure the sub-structure and finishing works have similar cost for both construction of double storey residential building, because of the sub-structure and

the finishing works was done by the traditional method. But the category of super-structure has more variations, which the prefabrication construction is very high cost compared to the conventional construction, because of the superstructure was done in two different methods as prefabricated and conventional. The total project cost were calculated for both construction and shown in the Figure (5.4). The figure represents the cost of the prefabrication construction is higher than the conventional construction. The cost difference is 12, 91,000.00 rupees between the prefabrication and conventional construction.

### **Conclusion**

The main goals of the work have been achieved. The total cost and total duration for the double storey residential building have been determined for both prefabricated and conventional construction. And also we had known about the advantages and disadvantages of both prefabrication and conventional construction by the survey conducted in similar companies. The comparison showed there is enormous cost difference between the methods, which the prefabricated is very high when compared to conventional on this type of individual houses. The prefabricated construction for individual double storey residential building cost is 13% more than the conventional construction. This is main drawback for prefabricated construction which is not economical to construct in this case. At the same time the prefabricated construction is easy to work and reduces the project duration, is reduced by 63 days when compared to the conventional. It's the main advantages for prefabricated construction and also it helps when there is labour shortage. As a result of survey we had known that the prefabricated construction have more advantages and procurement in industrialized, heavy infrastructures. But in individual houses there are lot of constraints and lack of knowledge its get struggling to implement in our country. At this stage conventional construction is economical and comfortable when compared to the prefabrication construction.

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