

# Problem Faced by Precast Industry to Implement in Residential Construction



Vaishali Rama Turai, Ajit R. Patil

**Abstract:** *The Precast industry is booming industry now a day, but then also the implementation ratio of precast member in residential construction work is not up to the mark. As we all know that precast having numerous advantages over the cast in situ construction method, for example it saves the total time of construction which indirectly reduces the cost of construction but still we are lagging behind in implementation of precast in it. In this research we have listed out some problem which can be cause of less implementation of precast in residential construction buildings. As discussed in paper, there are so many factors are affected on Implementation of Precast in Residential Construction Sector For example: Technical Issues and General Issues. In Technical Issues Joint stability problem during Erection, Standard size of precast element, Leakage Issues, Design change related problem, Requirement of Standard Rate per Panel, End user Profit, Additional Taxes, General Issues are: Transportation of Precast Element, Loading and Unloading problems, Transportation to sight, Storage Area, Skilled Labour Research has done and data is collected through Questionary survey, Field survey, and research survey.*

**Keywords:** *Precast industry is booming industry, numerous advantages, lagging behind in implementation of precast, less implementation.*

## I. INTRODUCTION

As India is rapidly growing country with minimum availability of affordable land which is not sufficient for the horizontal construction development, lead to vertical development. In India building are likely marked as tall for being built. But due to economic issues and political issues these construction slowdown causes time and cost overrun. To overcome or to compensate all these issues contractors or builders are moving towards emerging technologies. As construction industry transferring from traditional construction method to advanced technology.

Less availability of Housing is one of the major common problems in India. Approximately 14 million of people are identified as living in slums by the census 2011 report. This problem is increase with increasing urbanization. In urban area there is shortage over 20million homes at present.

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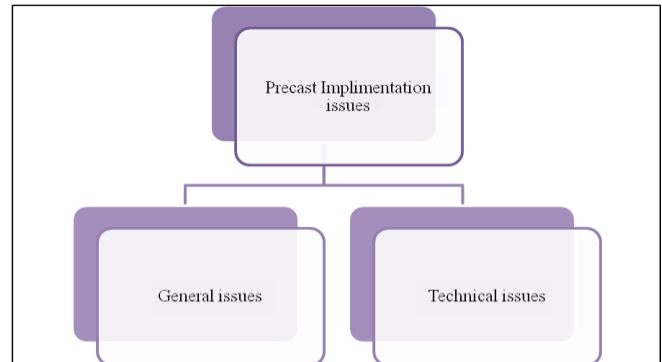


Fig 1–Types of Issues Regarding Precast Implementation

## II. GENERAL ISSUES

### A. Transportation of Precast Element

Transportation of members is not a easy work as sizes of panel is large it may causes traffic problem. Also transportation requires safe and efficient means of accessing the panels. Support Frame: Support frames are provided to panel to reduce vibration and shock from transportation.

### B. Loading and Unloading

Transportation of Precast members exposes the risk of labour falling from height while loading and unloading the precast panel.

### C. Transportation to Site

As members are having long span like slab column beam required long length vehicle which causes the traffic on road. In Pune length of road is not so wide. Transportation of all these members may cause some traffic problem. Precast panel Requires safe and efficient means of transportation.

### D. Storage Area

Member of precast are having long length required large area to store. Precast panel should be safely and carefully handled on sight without any brakeage.

### E. Lack of Knowledge and Awareness about Precast concrete construction

Precast technology is simulated up to Industry area not percolated up to residential building construction.

### F. High Transportation Cost

Sizes of precast panel restricted the smooth transportation of members. Required long deck span and heavy vehicle for transportation of precast members causes high Transportation cost.



**G. Requirement of Heavy Machinery**

Precast members are of long span with heavy weight for lifting it at proposed site and location heavy machinery is required.



**Image 1: Heavy machine lifting precast panel**



**Image 2: Heavy machine lifting precast member**

**H. Access to Heavy Machinery**

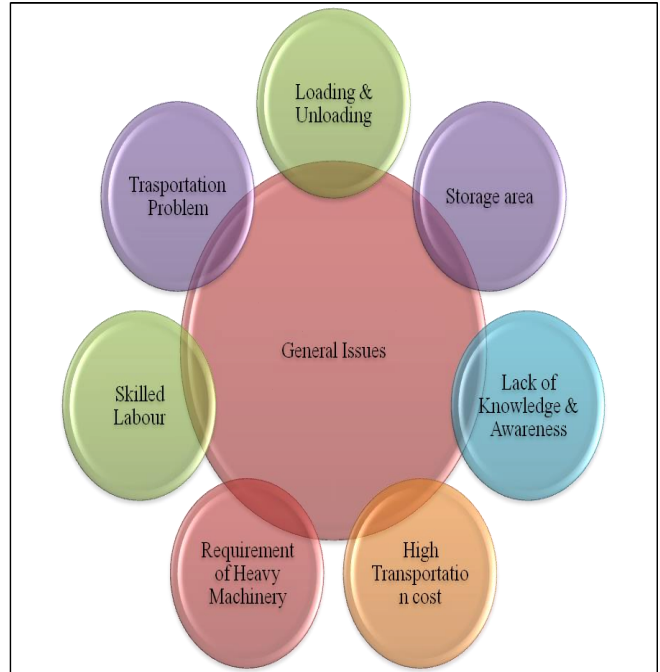
At construction site access for laying machine and for smooth operation of construction activity should be adequate. As the machinery require for precast panel lifting are very large size which is required more space for operation.



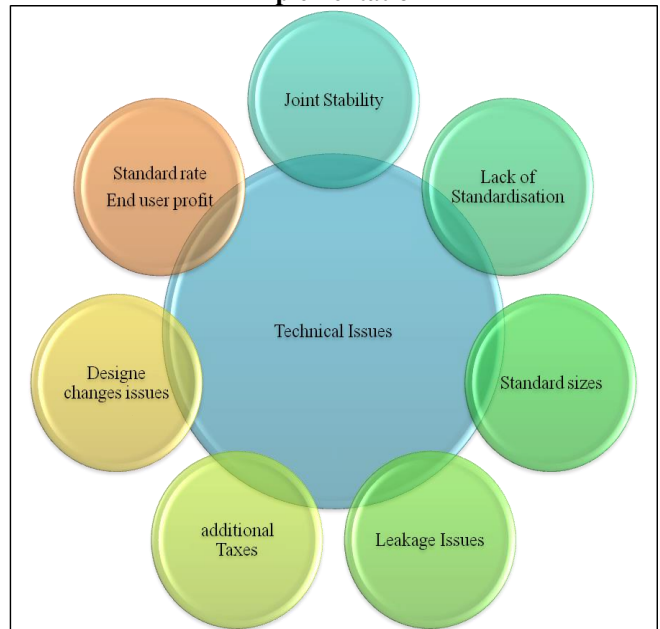
**Image 3: Heavy machine on site**

**I. Skilled Labour**

For erection of panel skilled labours are required.



**Fig No 2–General Issues Regarding Precast Implementation**



**Fig No 3–Technical Issues Regarding Precast Implementation**

**III. TECHNICAL ISSUES**

**A. Joint Stability Issues during Erection**

As we are joining these element after casting at construction site it may causes some joint problems like leakage problems, stability problems.

**B. Standard Size of Precast Element**

Precast members are manufactured in control casting environment by industrial method. The large amount of members is casted at a time uniform size, which results into the limitation over the sizes of members.



### C. Leakage Issues

After casting at factory members are then transported to site for erection. Members are connected which causes the leakage at joint.

### D. Design change related Issues

Change in design after casting of precast panel is very difficult. There for change in design may causes the increase in cost of construction as well increases in erection cost.

### E. Need of Standard rate per Panel

Rate of panel are going to vary with manufacturing company requirement and their need. There is no any standard rate with standard size of panel.

### F. End user Profit

End user who is getting advantage of this should be in profit because the initial cost of construction is very high as compare with other.

### G. Additional Taxes

Additional taxes may lead to increase the indirect cost of construction.

## IV. RESULT AND DISCUSSION

The study of "Problem faced by Precast Industry to Implement in Residential Construction" through various papers, site visit and personnel interview results into that precast having huge area of improvement to implement in Residential building sector. Technical and General issues are listed out through several studies. Precast concrete Technology is need of future generation, as it has advantages to get high quality construction at lower price than other type of construction methodology.

## V. CONCLUSION

From the study of research work I come to conclusion, that the Precast is having good properties with high quality and more economical when use in bulk and similar construction work but, Implementation of precast in Residential may increase by minimizing the problem arises in Implementation.

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