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REVIEW ON PRECAST CONCRETE TECHNOLOGY VS. CAST-IN-PLACE CONCRETE

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ABSTRACT

The use of precast concrete is nowadays a booming Industry, which minimizes the total cost of construction. In India, specifically in Pune area which is becoming IT hub, result into increase in population, directly result into increasing demand for houses. Requirement of these huge houses can be achieved by adopting a new technique. Use of Precast Concrete Technology will be the good option to fulfill this requirement. Use of Conventional method of construction for small building is economic, but to fulfill future generation requirement, use of Precast is economic. Cast–in-place construction methodology is economic for India as availability of man force i.e. Loabour is high. In precast industry, requirement of man force for construction is less, as there is requirement of modern machineries with high load capacity. While going for Cast –in-place construction, there are limitations over the curing time that should be given to construction, but in case of Precast Concrete Technology, there is no need to wait for curing as well as gaining of strength. As Precast members are manufacture in factory away from construction site in control casting environment, with high quality, under supervision, with more specific design, at large amount of production with Industrial method. Precast having High Initial cost of Investment there for it is not economic for everyone to go for precast construction

KEYWORDS: *Precast Concrete; Fulfill this Requirement, Future Generation Requirement, Modern Machineries*

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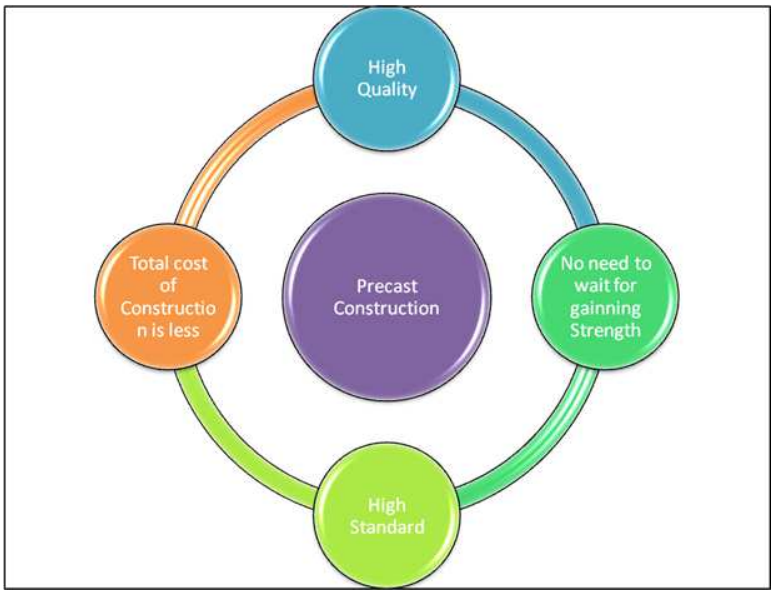
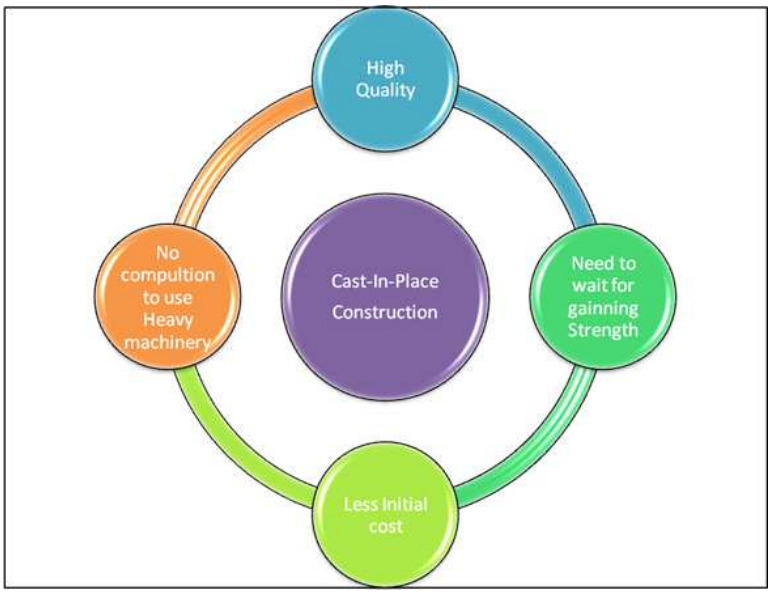
INTRODUCTION

In India, construction Industry is Booming Industry, High amount of jobs available from construction Industry. With increasing population, demand for affordable houses also increases and to fulfill this amount, use of new technology is necessary. Compression of Precast Technology and Convention technology is a big task, Here, we have studied all about Advantages, Disadvantages, Need of future, Availability of Material, Cost factor, High quality, Requirement of people, Initial cost Investment, long life plan, Time required for completion of construction, Indirect cost of construction, Direct cost of construction, problem faced in Implementation of new technique, Total cost of ownership, quality standards, High amount of production, requirement of skilled labour, cost of transportation to sight, connection problem in precast members, use of heavy equipment, Bulk production , manufactured in controlled casting environment.



Gragh 1: Precast Construction.



Gragh 2: Cast-in-Place Construction.

LITERATURE REVIEW

O. J. Koskisto (2015), every construction building has some stages like Planning stage, Designing, Manufacturing, Execution or construction, Utilization. All stages are equally important in each and every stage of construction.

Takim A. (2008), In Indonesia, use of precast concrete Technology increases resent in large amount. The Precast members are manufacture off-site and transferred to construction site for connection. To fulfill the requirement (nee) of houses, precast concrete construction is one of the best solutions.

Sayali A. More (2017), with increasing population of India, requirement of houses is also increasing, to complete these requirement, only use of Cast-In-Place construction methodology is not sufficient. Modern construction methods should be used. Use of Precast may be one of the best options to this.

R. Barak (2009), According to author, the building information modeling tools is manufactured for structural steel and Precast Concrete construction. For Cast-In-Place Construction, functional requirement should be given. On construction site, practices are based on two dimensional drawing.

Ajit Dhumal (2015), Utilization of Precast concrete increases in India. As we know that precast concrete members are manufactured in factory away from construction site, and then transfer to site for assemble it. Then, connection is done as per drawing. The connection joint in precast are playing most important role, without proper connection, precast concrete member may get failed or problem of leakages, instability in structure may occurs.

PRECAST CONCRETE

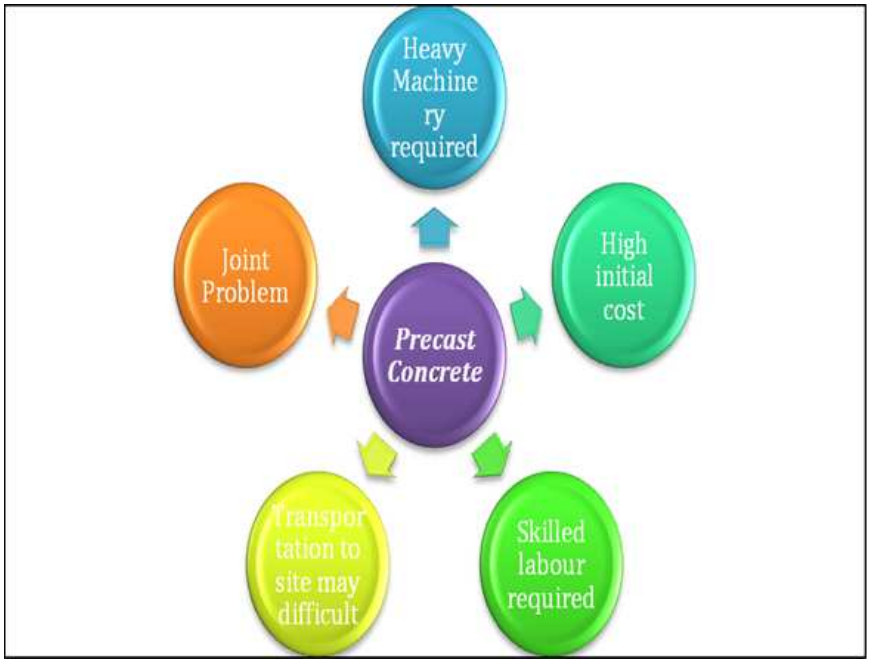
Advantages of Precast Concrete

- Manufacture in controlled casting Environment
- High quality member
- Large number of production
- Total cost of ownership is less
- Time required for completion of construction is less
- No need to wait for gaining strength to member
- Uniform size and shape
- Less requirement of labour

Gragh 3: Advantages of Precast Construction.

Disadvantages of Precast Concrete

- High initial cost
- Heavy Machinery required
- Skilled labour required
- Transportation to site may difficult
- Joint Problem



Gragh 4: Disadvantages of Precast Construction.

CAST-IN-PLACE CONCRETE

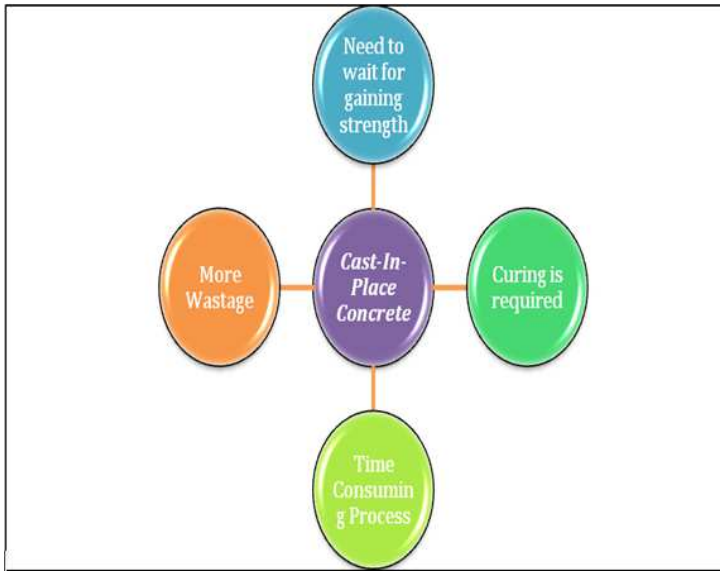
Advantages of Cast-in-Place Concrete

- Low initial cost
- Ne need of Skilled Labour
- No extra Transportation Cost
- Economic for small construction projects
- No need of Heavy Equipment
- Design can be change easily in stage of construction

Gragh 5: Advantages of Cast-in-Place Construction.

Disadvantages of Cast-in-Place Concrete

- Need to wait for gaining strength
- Curing is required
- Time Consuming Process
- More Wastage



Gragh 6: Disadvantages of Precast Construction.

RESULTS

This study on Precast Construction and Cast-In-Place Concrete was done through review of various studies. It has resulted into the finding that precast have advantages over Cast-In-Place concrete construction method. The total cost of ownership is less in precast construction method.

CONCLUSIONS

From the study of "Review on Precast Concrete and Cast-In-Place Construction" research work, it is concluded that the Precast is having more properties over Cast-In-Place Construction. Precast is high quality and more economical when used in bulk and Repetitive construction work but, use of precast in Residential may be increased by reducing the problems coming in Transportation, Leakages, Heavy Equipment use, Skilled labour, High Initial cost.

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