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IMPACT OF PREFABRICATION TECHNOLOGY & EQUIPMENT ON PROFITABILITY

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ABSTRACT

Prefabricated building & structural elements were also assembled from homogeneous pre - fabricated three-dimensional items, which provide strength, predetermined thermal assets of structure, dynamic consistency, & unlink ability of geometric aspects of a pre - fabricated components all through their fabrication, transportation, & setup under unique & challenging conditions. By term as their influence for environment preservation, prefabrication had being largely recognized like a sustainable building technique. A significant part of this approach is the impact of prefabrication just on decrease of development waste & the associated waste management operations, such as waste recycling, reusing, recycling, & disposal. Industry-improvement suggestions or a research of the cost-effectiveness in precast cement building.

This proposal proposes replacing non-structural components by prefabricated elements. The cost study would include the aspect of traditional construction prefabrication.

Keywords- Prefabricated elements, sustainable construction, environmental protection, profitability

1. INTRODUCTION

In term of its influence for environmental conservation, prefabrication had being largely recognized like a responsible building technique. The impact of prefabrication upon constructions waste reductions & subsequent resource management operations, such as waste sort, use, recycling, & disposing, is an essential part of this approach. Nonetheless, it seems that prior work into the issue had missed to account for inherent dynamic nature of the processes of building waste reduction; integrating all key waste management activities had not been accomplished too far. This research provides a dynamical method for quantifying the potential effects of prefabricated building technology upon development waste reductions & subsequent trash management operations.

1.1 What is Prefabricated Construction

Prefabricated building, sometimes known as "prefab," is a style of constructing which is gaining popularity across North America, particularly in cities such like Los Angeles & Arizona. The technique employs factory-made components that are brought to the construction site and assembled there.

There are a variety of popular prefab types, each with distinct advantages. Depending on the specifics on your building projects, you might choose to apply a few of these alternatives. To assist you decide, we've compiled knowledge on the many types of prefabricated and on the advantages of using this technique.

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1.2 A Brief History of How Prefabrication Started:

In such the effort to accommodate that demands, builders used prefab wall & flooring system to construct high-rise apartment buildings through response for the severe housing scarcity that followed World Wars II. However, the first jointing approach was incapable of concealing the massive connections among structural parts, which resulted in monotonous & unattractive developments, often accompanied by condensation. The number of flaws were so great that Housing Issues Act of 1984 is amended to recompense owners who unknowingly acquired properties with defects. An estimated 31,000 owners were reimbursed for the problems.

1.3 and modular construction is especially relevant if

a) The structure was comprised of several identical components (e.g., offices spaces) and/or having a sophisticated architecture which is tough to build on-site (e.g., specific facade features or steel frame).
b) The building sites is located in a rural or densely populated region.
c) Accessibility is available to a productive off-site manufacturing facility.
d) The constructing sites planning was challenging owing to factors such as a large number of stakeholders, limiting area or time.
e) A building location having a limited build seasons, for instance owing to climatic, or is located on very costly property.

1.4 Modular Vs. Prefab: What is The Difference?

Although modular construction and prefabrication are sometimes confused, they are not identical. Modular building is a subset of prefabricated construction. Similarly, to how all poodles were dogs yet not all dog are lap dogs, all modularity building is prefabricated yet not all prefabricated projects is modular.

Modular construction involves constructing full portions of just a project prior transporting them to the site. This comprises plumbing, electrical, & all other necessities for a functional unit. This technique involves the lowest quantity of on-site labour & is the best precise. It's indeed tough to reverse courses with any type of prefabricated, but it was extremely necessary to thoroughly plan up using a modularity project from advance. When one program is started, there is little wriggle space.

Prefabrication & modularity constructions are particularly applicable when

a. The building comprises of several identical components (e.g., offices room) and/or having a sophisticated architecture that makes on-site construction problematic (e.g., specific facade features or steel frame).
b. The building location is located in a rural or densely populated region.
c. There's really accessibility to a productive off-site manufacturing facility.
d. The designing of the building site is complicated owing to factors such as a large number of stakeholder, limited area or time.
e. The building site has a limited build season, for example as a result of the weather, or was located on very costly property.

1.5 Aim of study and Objectives of study

Aim:- The aim of the research is to study the cost comparison and time comparison on a case study after implementation of prefabricated elements.

Objectives:-

- To investigate the building procedure of prefabricated system.

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- Compare the costs, workload breakdown architecture, & viability of prefabricated building against traditional construction.
- The purpose of such lecture was to discover innovative constructions industry approaches.
- Determine a cost analyses of replacing RCC construction components with prefabricated components such as door & window frames, prefabricated wall, wc, & bath.

1.6 Scope of the Project

- Project focuses on a scientific equipment for classifying prefabrication for constructions.
- It discusses the parameters that govern the distribution of prefab project pieces.
- It additionally includes the findings from a survey about the deployment of prefab building techniques.

2. LITRATURE REVIEW

2.1 'A Study of Cost Comparison of Precast Concrete Vs Cast-In-Place Concrete' Vaishali Turai Volume – 2, Issue – 2, June – 2016

To fulfil future generations' requirements quickly and technologically, Indian construction will expand. The article contrasts precast and cast-in-place construction timeframes. How utilising precast concrete reduces total construction time. Every building's cost determines its lifespan. Steel binding, closure, and concreting would take 7 days, and curing would take 7 days. A Precast is made in a factory (i.e. a controlled environment), is easy to mix, and cures to the desired amount and strength. A plant produces precast concrete for building sites. High-tech, computer-controlled technology boosts precast cement mortar's endurance. For precast buildings, only assembly required labour. Using prefabricated members minimises rework due to defective work, incorrect construction procedures, inexperienced workers, poor material quality, and on-site environmental hazards.

A follows were the key conclusions of the preceding section:

- The article compares the construction times of pre - cast with cast-in-place (or conventional) concrete.
- To use a regulated, high-tech technique, the durability of prefabricated concrete are increased significantly.

2.2 'Impact of Prefabricated Technology & Equipment On The Profitability Using Primavera' T.Subramani1, M. Muhammad Ansar2, S.Priyanka3 Volume 6, Issue 3, May- June 2017 ISSN 2278-6856 Volume 6.

Pre-fabricated buildings & structures were also assembled from homogeneous pre-fabricated three-dimensional components, which provide strength, predetermined thermal characteristics of frameworks, dynamic steadiness, & unlink ability of sculptural measurements of pre-fabricated elements during fabrication, transportation, & installation under unique & challenging conditions. Prefabrication is a responsible building approach for the environment. The influence of prefab on building projects waste decreasing & subsequent trash managing duties, including waste sorting, reusing, recycle, & disposal proposals for company improvement & study on the cost efficiency of pre-cast concrete construction, is vital. Typically, prefabricated building begins with steel, concrete, and timber frames. The follows were the key conclusions from the preceding section:

- The effect of prefabrication upon constructions garbage reductions & subsequent material management operations, especially trash sorting, reusing, recycling, & disposing, is an essential part of this approach.
- They were constructed with sufficient adaptability to accommodate adjustments made by buildings owners.

2.3 Studies of Prefabricated Housing Construction Market In Poland. Radziszewska-Zielina, Elżbieta, and Monika Glen Selected Scientific Papers-Journal of Civil Engineering 9, no. 2 (2014): 13-26.

A Poland research comparing traditional construction procedures to prefabricated building systems found that the latter decreased site labour by 70% and construction expenses by 50%. These examples show how prefabrication reduces energy use, waste, GHG emissions, and overall environmental damage. Such a study begins with an appraisal of the building system, its features, and the problems they cause for the building industry, especially in metropolitan, fast-paced places like the UAE.

The follows are the key conclusions from the preceding section:

- Prefabrication reduces labour costs by fifty percent.
- It aids in lowering energy usage, wastage reduction, greenhouse gas emissions, & negative environment consequences in general.

2.4 Investigating waste reduction potential in the upstream processes of offshore prefabrication construction. Lu, W. and Yuan, H., 2013.

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Renewable and Sustainable Energy Reviews, *28*, pp.804-811.
Prefabrication is used to reduce waste and mitigate its negative impacts on the environment and society. Prefabrication can reduce waste in numerous economies, including Hong Kong, according to studies. These studies omit upstream prefabrication processes, such component manufacture and shipping, which contribute to construction waste. How construction garbage is made and measured is uncertain. This paper explains how onshore prefabrication reduces building waste.
A follows were the key conclusions of the preceding section:

- The waste production rates with in stream process for offshore prefabricated construction is approximately 2% in mass or less.
- Prefabrication in a manufacturing setting are more favourable to wastage reductions that conventional cast-in-place construction.

2.5 Study on the Trends & Usage of Prefabrication and Modularization: Increasing Productivity in the Construction Industry' Hamza Khan' ISSN 2278-3652 Volume 8, Number 2 (2017) Climate change has become a major environmental problem in recent years. Building adds to CO2 levels in numerous ways. Cement alone contributes 5% of global CO2 emissions. Production of cement, steel, and chemicals affects CO2 emissions. The building sector has used prefabrication techniques to address sustainability issues because they offer improved environmental performance. Prefabrication increased in the 1970s. In the previous 30 years, these technologies have improved. Effective quality controls and development were implemented with public sector help.

The follows were the key conclusions from the preceding section:

- Its results give a deeper knowledge of these best practises in implementing prefabrication & present opportunities for industry-wide improvements & adoption.

3. THEOROTICAL CONTENT

Prehistoric people built using leaves and branches. Clay, stone, and wood were employed later. Human hands and physical might built all dwellings and shelters. The employment of rule of thumbs and scale modelling in structures indicated a great progress in the building sector in the 17th century. Slowly, stronger building metals and more imaginative construction procedures were developed to improve architectural precision and construction efficiency. Massive technology advancements have moved the Building & Construction industries throughout the world toward sustainability & increased productivity. **Prefabrication** It's the process of building a structure's components at a firm or other manufacturing location and transferring them to the construction site. This name differentiates this procedure from delivering raw materials to the building site for assembly. It is not used to represent electric power or digital elements of a device, or structural sections like pumps, gear box, & compressors, which are normally sold as separate items, but rather machine body segments that were historically built only with device as a whole. Prefabricated machine parts may be called "sub-assemblies" to distinguish them from other elements.

4. METHODOLOGY

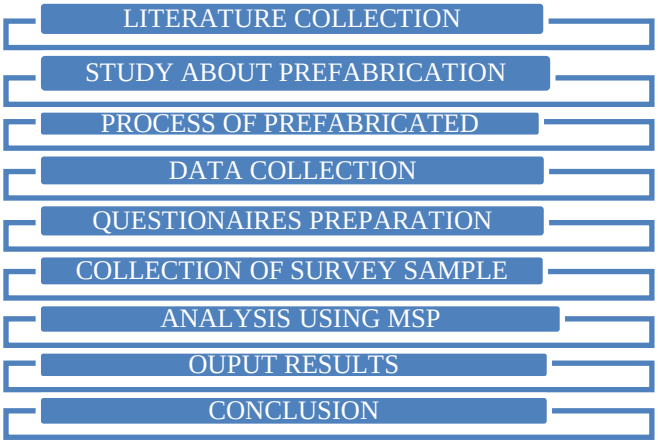

Fig.3.1 Methodology

Prefabrication in housing construction

Automation benefits company owners greatly. It gives them better capacity, superior quality, a wider product range, and a faster manufacturing pace. Automated prefabrication companies are happy. Generally, machine technology is lucrative. Transition planning is crucial. For the best results, experts should be involved early. Businesses are prepared by

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automating.

Fig 3.2 Prefabrication In Housing Construction

The above figure shows that house construction of prefabricated wall having the window and shelves which have already made means prefabricated. Advantages of Pre - fabricated Architecture 3.2.1 Eco-Friendly Module building projects is frequently praised for its electricity efficiency & commitment to sustainable building. Traditional building techniques need more material, which generate waste. Moreover, because prefab sub - assemblies were manufactured in factories, excess materials may be recycled on-site.

3.2.2 Financial Savings

Financial savings would be one of the main benefits of prefabricated building. For prefab or module constructions, that's not the situation, despite the common notion that custom-made items are costly. Modular building accommodates various budgets & pricing ranges, hence providing an economical alternative.

3.2.3 Flexibility

Modular structures may be dismantled & transported with relative ease. This considerably lowers the need for raw resources, minimizes power consumption, & reduces total production time.

3.2.4 Consistent Quality

Since prefabricated construction happens within a controlled manufactured setting & adheres to predetermined criteria, the structure's subassemblies will have consistent quality. The construction for buildings constructed on-site is contingent around the differing skill level & timetables of individual contractors. All of these elements contributes to the workmanship & overall grade of a specific construction.

3.2.5 Reduced Site Disruption

Due to a fact that many building components are built in a factory, there is substantially less trucks traffic, machinery, & materials providers so at final building site.

3.2.6 Shorter Construction Time

Construction of a portable structure requires much less time than on-site development. For many circumstances, prefabrication requires much less times than conventional building. This is a result of improved up-front planning, the removal of on-site weather variables, subcontractor schedule delay, & the concurrent construction of many sections.

3.2.7 Safety

Due to the fact that subassemblies are built in such a factory-controlled climate using dry material, there's also a reduced chance of humidity, environment risks, & dirt-related issues. This reduces the likelihood that development workers and a building's future occupants would be exposure by weather-related health concerns.

3.3 Problems of the Construction Industry

Construction as an ecologically unfavorable industry is perhaps no longer relevant. The volume of pollution caused by building alone is staggering and has increased internationally as a result of growing urbanization. The difficulties faced by & imposed by construction sector industry just on surrounding & living thing life were being recognised as contractor waste, greenhouse gas (GHG) & carbon carbon pollution, high energy production and energy consumption levels, or a level of technical of technological development in comparison to certain other major industries.

5. CASE STUDY IN PREFABRICATION

PRIDE PURPLE SQUARE

In 1999, we set out to revolutionise the premium and luxury housing experience in Pune. We wanted to design ultramodern structures in Pune that followed emerging styles and standards. We're also developing unique ways to provide Pride Purple members a sense of community. With roots in flats, row houses, bungalows, commercial plazas, conference centres, and hotels, we're today identified with luxury & better lifestyle. Pride Purple Groups built Pride Purple Square. Through Pune's Wakad. Well-designed Shops,

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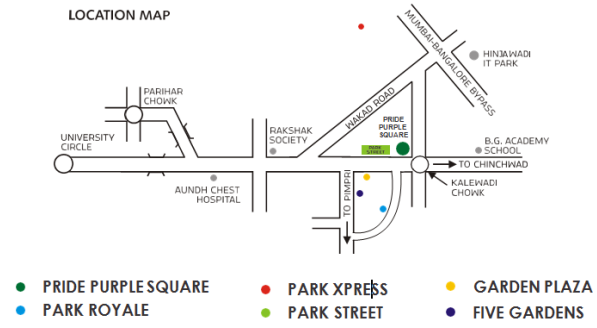
Showrooms, & Office. This project has all the amenities firm owners need.

Fig 3d view of case study site

The above image show the ground and first floor of shopping mall or a showroom shop which have the good aesthetic view and having parking area.



The growth of a business depends a lot on its location. And the prime location of Pride Purple commercial spaces gives your business exactly what it needs. Offices here will enjoy easy connectivity to prime destinations, while the shops will enjoy a lot of customer attention!

Project Specific Prefabrication (PSP)

Using off-site prefabrication of critical building elements, the design/construction managerial group anticipated achieving considerable cost savings. After a series more brainstorm sessions between the owners, designers, & construction teams, important subcontractors were hired in a design-assist capacity to give the benefits of their knowledge and aid in the creation of prototypes for end-user input. Utilizing the knowledge of every of those project stakeholder, our team decided that MEP corridors rack, patient bathroom "pods," & patient header/footer wall offered the most prefabrication options.

Fig 5.2 Bathroom "pods"

The above figure shows bathroom "pods" image which is fully fitted and plumbed. They include fixtures commonly found within a bathroom.

5.3 Benefits of Prefabrication

- higher productions rate
- lower labor's costs
- substantial reduction of wastage
- Safety
- Prefabrication Warehouse
- Quality control
- Inspection of work
- Cleanliness

Lessons Learned

- Early communication amongst all construction group personnel, especially design-assist subcontractor, were essential for a successful planning approach.
- Using BIM is essential for a successful prefabrication procedure. To evaluate the design & detect possible incompatibilities & other concerns, prefabricated elements were created inside the models.

5. RESULTS AND DISCUSSIONS

Table 5.1 DETAIL QUANTITY ESTIMATION OF CONVENTIONAL BUILDING

Sr. no.	Description	Quantity in cum	Cement in bag	sand in brass	Aggregate in brass
I.		18	63	3	6

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	PCC (M10) 1:03:06				
II.	Footing (M20) 1:01:05 AM	122	996	18	37
III.	Plinth beam	3.459	28	1	1
IV.	Columns				
1	Footing to plinth column	230	1879	35	69
2	Plinth to first column	67	555	10	20
3	First to second column	67	555	10	20
4	Second to third column	67	555	10	20
5	Third to fourth column	67	555	10	20
6	Fourth to fifth column	67	555	10	20
7	Terrace to O.H.W.T.	2.1	18	1	1
V.	Beam				
1	1sr	31	182	7	7
2	2nd	31	182	7	7
3	3rd	31	182	7	7
4	4rth	31	182	7	7
5	5th	31	182	7	7
6	O.H.W.T	9	75	2	3
VI.	Slab				
1	1st	54	442	8	16
2	2nd	54	442	8	16
3	3rd	54	442	8	16
4	4rth	54	442	8	16
5	5th	54	442	8	16

WORK BREAKDOWN STRUCTURE OF CONVENTIONAL CONSTRUCTION

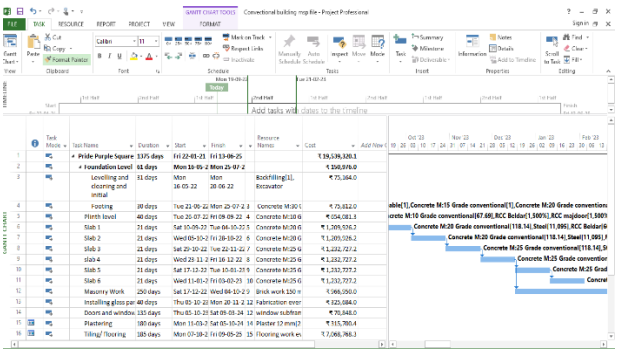

Image 5.7 WBS Of Conventional Construction

The above image is Convectional Pride Purple Work breakdown structure, it shows detail of all conventional construction task which are been done on the site and also shows the material which are been required at different stages of the activities.

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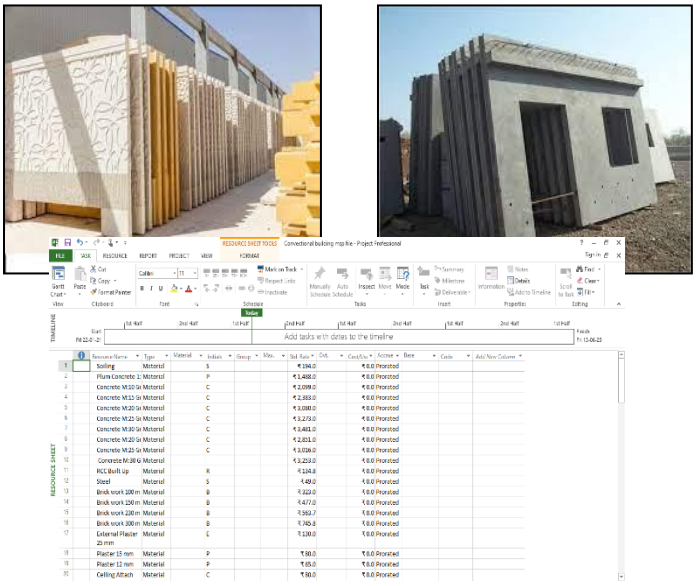

Image 5.8 Costing Of Conventional Construction

The above image is a screenshot of the reseourse sheet , this sheet shows us all the resourses that are been allotted in construction site. It also shows us the standard rate of the material and labour per hour and per day.

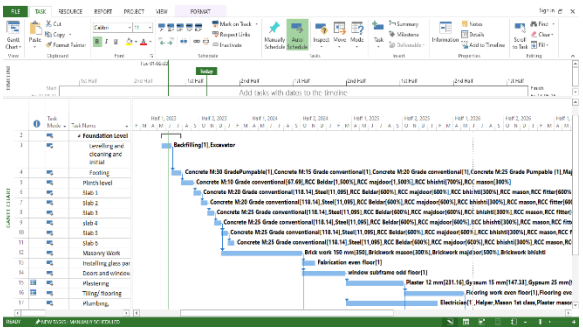

Image 5.9 Work Flow Of Conventional Construction

The above image shows the detailed Foundation level , Plinth level, slabs etc of a convectional building and the materials which are alloted on the site.

Result from WBS of Conventional Construction from MSP is:

- No. of day – 1375 days
- Cost with material + labour & Machinery- **₹ 19,539,320.1**

No. of days	1375
Cost	**19,539,320.1**

WORK BREAKDOWN STRUCTURE OF PREFABRICATED CONSTRUCTION

Prefabricated Wall ₹ 90/ Square Feet

(Source Indiamart.com)

The image shows construction of prefabricated wall made of concrete and plywood with detail dimension of window and the wooden wall has made with different designs and attractive color.

- ❖ Installation of Prefabricated walls

For Masonry work of Pride Purple total no. of days required are 250, therefore for one floor the masonry work is calculated to be

- Total no. of days / No. of floors = 250/6 = 42 days

But,

In prefabricated we use the ready to use ready to install walls and masonry work is skipped. It takes on an average 5 days for installation of walls at one floor with this we can calculate it as

- No. of days required for one floor X total no. of floors = 5x6 = 30days

Therefore, we can find the difference of days by

No. of days for convectional structure – no. of days for prefabricated

250 – 30 = 220 days are saved

- Area of first floor plan 38.08 sq m carpet area.

Therefore, it is 409.88971 Sq.ft. Equivalent to 410 sq ft

Prefabricated Walls ₹ 90/ Square Feet

= 409.88971 Sq.ft. x 90 = 36900 Rs for one floor

36900 x 6 = **221400 Rs**

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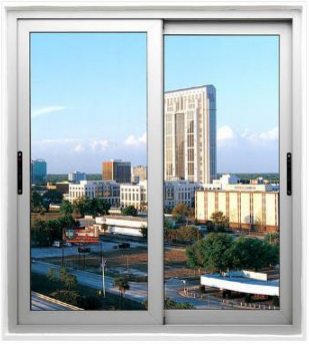


The above window is made up of aluminum prefabricated frame and fiberglass.

Prefabricated Windows.

Due to our specialists & extensive industry expertise, we are able to introduce Pre - fabricated Windows with great success.

Cost per window is Rs 8000/-

Cost per door frame is Rs 12000/-

Prefabricated Door-windows frames.

The above image shows the door-window frames this prefabricated window and door are easy for the installation in wall construction.

- ❖ Installation of Prefabricated Doors and windows

For Doors and windows installation of Pride Purple total no. of days conventionally required are 135, therefore for one floor the masonry work is calculated to be

- Total no. of days / No. of floors = 135/6 = 23 days

But,

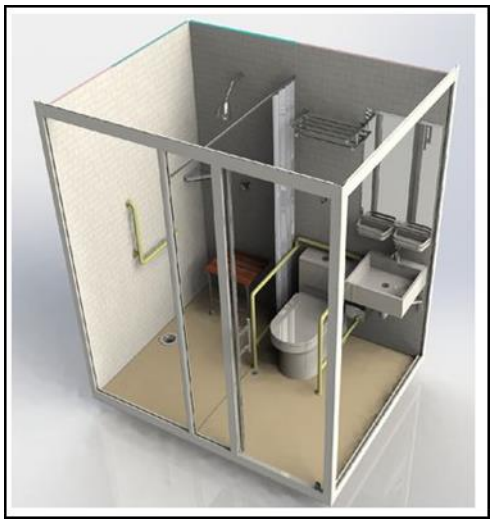
In prefabricated we use the ready to use ready to install Prefabricated doors and windows so the, door window framing, masonry work and paint work is skipped. It takes on an average 3 days for installation of doors and windows at one floor with this we can calculate it as

- No. of days required for one floor X total no. of floors = 3x6 = 18 days

Therefore, we can find the difference of days by

No. of days for convectional structure – no. of days for prefabricated

135 – 18 = 116 days are saved



Prefabricated Bathroom Unit With Toilet

This picture depicts a prefabricated bathroom module with completed sanitary goods, hidden piping, ceilings, & washroom cabinet prior to installation on-site.

Each pre-fabricated unit of Bathroom & toilet cost

- ❖ Installation of Prefabricated Wc.

For construction convectional WC of Pride Purple total no. of days required are 285, therefore for one floor the masonry work is calculated to be

- Total no. of days / No. of floors = 285/6 = 48 days But,

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In prefabricated we use the ready to use ready to install wc bath which is already plastered, textured and plumbing fixed. So the plumbing and sanitary work is skipped. It takes on an average 4 days for installation of these prefabricated component at one floor with this we can calculate it as

- No. of days required for one floor X total no. of floors = 4x6 = 24days

Therefore, we can find the difference of days by

No. of days for convectional structure – no. of days for prefabricated

285 – 24 = 261 days are saved

- As it is a commercial building it has 2 common sides for washrooms;-

  Each has prefabricated units of wc 20 on either side therefore each floor has 40 w.c

  = 40x6

  = 120 wc

  Cost of 1 Prefabricated Wc is

  =120x 9800 (Cost from aajjio.com)

  = 1176000 Rs.

Delivery details:
about 25 days after receiving the deposit
1.Punctual delivery time:

We put your order into our tight production schedule, ensure your punctual delivery time.

Production / inspection report before your order packed.

Shipping notice/ insurance to you as soon as yur order is shipped.

2.After sales service:

We respect your feed back after receiving the goods.

We provide 12-24 months warranty after goods arrive.

We promise all spare parts available in lifetime use.

We respond your complaints within 48 hours.

3.Professional sales:

We value every inquiry sent to us, ensure quick competitive offer.

We cooperate with our customers to bid tenders, providing all the necessary docs.

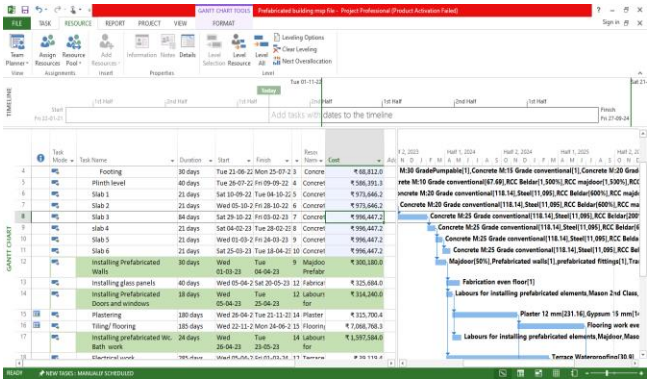

Image 5.8 Costing Of Prefabricated Construction

Result from WBS of Prefabricated Construction from MSP is:

- No. of days – 1090 days
- Cost with material+labour and Machinery- ₹ **17,336,034.1**

No. of days	1090 days
Cost	₹ **17,336,034.1**

5.7 Challenge faced by prefabricated technology

Adoption of prefab technologies is hampered by several obstacles just at project & industrial levels.

Recognizing the obstacles, it is necessary to solve these issues with the use of prefabricated technologies at

the industry level. Consequently, the difficulties are divided into four subgroups:

- Standardisation, Acquisition, & Technological Features
- Aspects of Documentation & Designs
- Capability Building & Human Capital
- End-user viewpoint (acceptability & social dimensioning).

A question was created and sent to all parties involved in the implementation of precast technologies, including as designers, consultants, & engineers. 20 replies are evaluated for their respective findings.

Google form link:-

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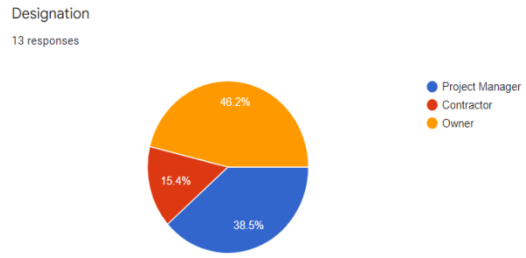
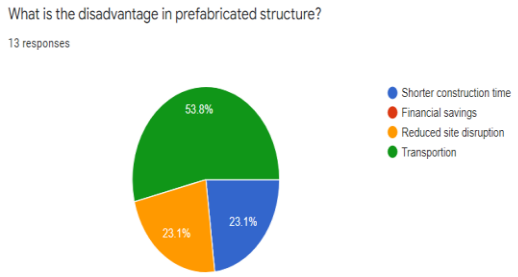
https://docs.google.com/forms/d/e/1FAIpQLScoHDgy0r_MkHayHXVMH5PEH9utDsu7rGSZofDpzZc2XbfQkw/viewform?usp=pp_url

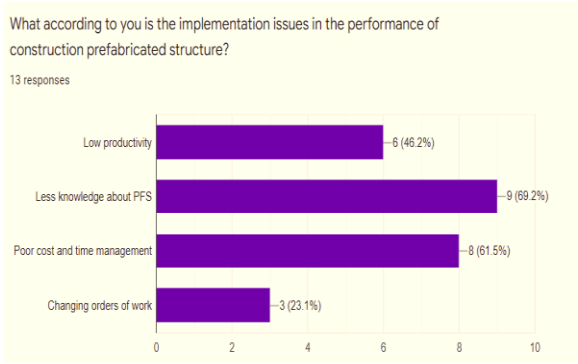
We received 13 responses from the stakeholders such as project managers, contractor and owner the responses Graphs are as follows:



The above pie chart shows that maximum responces of ownwr (46.2%). As well as project manager responses from the stakeholders about (38.5%). Minimum responses of contractor (15.4%).



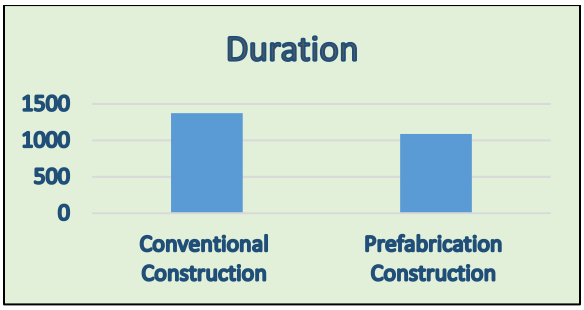
The above pie chart shows that maximum responces of the disadvantage in prefabricated structure (53.8%). As well as shorter constructin time responses from the disadvantage about (23.1%). Minimum responses of contractor (23.1%).



The above graph shows that maximum responces of the implementation issues in performance of construction prefabricated structure for less knowing about PFS (69.2%). As well as for poor cost and time management responses about (61.5%). Minimum responses for changing orders of work (23.1%).

COMPARISON OF CONVENTIONAL CONSTRUCTION TO PREFABRICATION CONSTRUCTION

Type	Duration	Cost
Conventional Construction	1375	₹19,539,320.1
Prefabrication Construction	1090	₹1,73,36,034.10



Graph 1- Comparison for Duration for Conventional Construction to Prefabrication Construction

The above graph shows the comparison between conventional construction and prefabrication construction for duration respectively as1390 and 1090.

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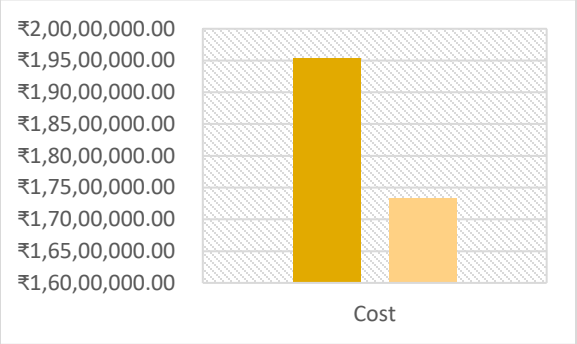

Graph 2- Comparisons of Cost for Conventional Construction to Prefabrication Construction

The above graph shows the comparison for cost in between conventional construction and prefabrication construction respectively as 1,95,40,000.00/- and 1,73,36,034.10 /- Which means we are saving 22,03,286/- Rs from the convectional structure by making it a prefabricated one.

The cost of Prefabrication construction is reduced as the duration of days is reduced and it reduces the activities on site and cost of the labors and the material cost is also saved on site, though the prefabricated structures are ready to install it reduces material on site for the particular items. Also the transportation and fitting charges are included.

6. CONCLUSION AND RECOMMENDATIONS

Conclusions

- Prefabrication technique reduces repetitive body motions, ergonomic impediments, and ergonomic challenges. Prefabrication pre-assembly reduces risks connected with resource handling on sites, and reducing scaffoldings by using pre-fabricated or pre-cast concrete pieces may reduce site falls.
- A comparison of conventional and prefabricated construction revealed that traditional structure necessitates 1,95 Cr rupee & 1,375 day to accomplish, whereas prefabrication structure requires 1,73 Cr rupee & 1090 days, indicating that its prefab process decrease the time & cost needed to accomplish building.
- In this approach, we discovered that prefabricated materials minimise both the time & money necessary to complete a project.
- By replacing portions of an RCC building to prefabrication such as pre - fabricated wall, w/c, shower, doors, & window frames, we conclude that prefabricated construction decreases the amount of time and concrete needed to complete a project, & can be successfully implemented on the construction area.

Recommendations

- Whether this technology is used for repeated tasks, a higher level of product control might well be attained. One may infer from the research that the prefabrication approach is more cost-effective than the standard cast-in-place method, yet there are still number of considerations to keep in mind while using this method. The characteristics of sustainability like as Social, economic, & environment factors may make prefabrication a viable option in the building sector. Due of the multiple benefits listed above, prefabrication technology is recommended for use in urban building.

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