

PRECAST IN INDIA – LATEST THINKING

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INDIAN REALTY – CURRENT SCENARIO

- The face of realty market in India has changed rapidly over the past few years. The large projects comprising of Townships, Mass Housings, IT/ITES parks and SEZs' are of common occurrence these days and will only grow exponentially in the near future.
- Majority of such projects are still being constructed using the conventional methods. Thus the inherent advantage that these projects offer in terms of **repetitions and huge volume turnover remain unexploited.**
- In addition, these large scale projects constructed using **conventional methods complicates the Project Management** in terms of speed and quality of the construction.

WHY PRECAST?

- ✓ Precast Concrete Technology, the so called unconventional method in an Indian Space **can facilitate both speed and quality** of the construction and at the same time **exploits the advantages** that these large scale projects offer in terms **of volume turnover and the repetitions.**
- ✓ With the changing face of realty sector in Indian market, the change of construction methodology is **inevitable.**
- ✓ This paper aims at demonstrating how the Precast Concrete Technology can be **efficiently and effectively used** on various **Indian Projects** in the light of Projects **under execution.**



LOW COST / AFFORDABLE HOUSING PROJECTS

- The Advantages that Precast Concrete Technology has to offer can be exploited to the fullest for Mass Housing Projects comprising of small, compact size apartments in large volumes.
- This Technology can be implemented on such Projects in two ways,
 1. Site based precast Plant
 2. Dedicated precast Plant



SITE BASED VS DEDICATED PRECAST PLANT

- The Site based precast plants form a lucrative option for Indian Market as the excise duty which otherwise gets attracted from Factory made precast components is saved.
- Anyhow for adopting site based plant, there has to be sufficient volume of construction to justify the initial cost of setting up.
- Also, such plants have lesser efficiency than state of the art plants for obvious reasons.



STRUCTURAL FRAMING

- The Structural Frame for such buildings using precast concrete technology is essentially a **Load-Bearing** type of construction (cross-wall frame) eliminating the ugly column & beam offsets inside the compact rooms.
- The flooring slab can be in the form of solid reinforced precast units of room size (for site based plant) resting on the load bearing walls on all fours thus eliminating the requirement of structural topping.
- In case of dedicated precast plants, the flooring units have to be in the form of precast planks of not more than 2.4m width from transportation constraint. For monolithic action, these planks need to be topped with cast in place structural screed.



EXAMPLES: AFFORDABLE HOUSING

Santushti Homes at Bhiwadi

250 affordable homes

G+3 Storied 3 Blocks

Load bearing Precast walls

Precast Solid Slabs (room size)

Site Based Precast Plant

Design Approved by IIT Delhi







SRA scheme at Bhoiwada, Mumbai

2500 apartment scheme

Slum Rehab Project

G+23 Storied 6 Blocks

Load bearing Precast walls

Precast Solid Slabs (room size)

Precast WC & Bath Pods

Dedicated Precast Plant

Design Approved by VJTI, Mumbai









MEDIUM / HIGH END CONDOS

- The medium / large size apartments can be conveniently constructed using precast concrete technology by adopting precast pre-stressed hollow-core planks as flooring which have a large load / span carrying capacity thereby eliminating the need for load bearing walls between the rooms or even the apartments.
- By minimizing the need for load bearing walls, the interior layout of the apartment becomes more flexible; which is a strong sales point for such apartments. The elevation treatment of these buildings can be made interesting by adopting decorative precast walls / spandrels on exterior.



EXAMPLES: MEDIUM / HIGH CONDOS

“Lakeside” at Chennai

300 apartment scheme
Stilt + 4 Storied 6 Blocks
Load bearing Precast walls
Precast Hollow-core slabs
Dedicated Precast Plant
Design Approved by IIT Delhi







“Commune-1” at Bangalore

550 apartment scheme

Basement +G+13

Load bearing Precast walls

Precast Solid slabs

Site based Precast Plant





ommune 1 - Commune Properties India Pvt Ltd.

“Tata Peenya” at Bangalore

1892 Apartments scheme

Basement +G+14

Load bearing Precast walls

Precast Solid slabs

Site based Precast Plant







HOSPITALITY BUILDINGS

- Generally, the hospitability buildings like hostel, hotel or hospital are plaza type structures needing large column free space to house amenities like dining halls, restaurants, OPD's, operation theatres etc. at ground floor while modular rooms in superstructure.
- This requirement can be effectively catered for by adopting precast portal frames at ground floor supporting the precast load bearing walls of superstructure. The requirement of modular rooms in superstructure makes the precast concrete technology effective due to repetitions and volume.



EXAMPLES: HOSPITALITY BUILDINGS

Hostel Building at Trichi

210 hostel rooms

Dining Hall at Ground floor

G+10 Storied 2 Blocks

Load bearing Precast walls

Precast hollow-core slabs

Precast Portal Frames at GF

Dedicated Precast Plant





COMMERCIAL BUILDINGS

- The commercial buildings are essentially the column-beam framed structure requiring large column free areas requiring large span / load carrying capacity of floors.
- The precast pre-stressed hollow-core slab units is obviously the best solution for such projects.
- The Columns & Beams in such structure can also be in precast & the structural stability can be achieved by adopting precast / cast in place concrete walls at core areas.



EXAMPLES: COMMERCIAL BUILDINGS

“Marvel Sangria” at Pune

Commercial Building of 250,000 sqft

Shops at Ground & Mezzanine floor

B+G+3 Storied 3 Blocks

Load bearing Precast walls

Precast hollow-core slabs

Precast Portal Frames at all floors

Precast Retaining Walls at Basement

Precast Plant located at Pune











SWOT ANALYSIS – PRECAST TECHNOLOGY

Strengths

- Speed, Quality, Economy
- Low Maintenance
- Seismic Resistant
- Quick Turnover of Money
- Universal Application

Opportunities

- Huge Requirement of Affordable Houses
- Shortage of Skilled Labor
- Large Size Projects
- Exposure to Global Market
- Demand for Quality Construction

Weakness

- Lack of awareness, acceptability & availability
- Resistance to Change
- Fear of Unknown
- Unfamiliarity of Architects and Engineers
- Lack of Exposure to the technology in Technical Institutes

Threats

- Govt. Tax Policy, Lack of Govt. Support & Encouragement
- Bad Past Experience with Substandard Technology & execution
- Vested Interests
- Lack of Standardization
- Imaginary Problems



CONCLUSION

The Precast Concrete technology has already arrived in India due to large size projects, need for quality construction with speed & reduced labour force. All these advantages can be exploited to the maximum by careful planning & designing.





THANK YOU

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