

CATEGORY

PROVEN TECHNOLOGY CATEGORY : GHTC-INDIA



PRODUCT / TECHNOLOGY



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Technology Detail

3D MONOLITHIC VOLUMETRIC MODULAR PRECAST
CONCRETE CONSTRUCTION

*Alternate to conventional RCC framed structure with
bricks/blocks as infill walling material*



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Video

CONTACT DETAILS

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BRIEF

In this system, 3D monolithic modular precast building modules are produced using steel mould and high performance concrete in factory/ casting yard. These modules are transported to the construction site & assembled.

It is a modern method of building by which solid precast concrete structural modules like room, toilet, kitchen, bathroom, stairs etc. & any combination of these are cast monolithically in Plant or Casting yard in a controlled condition. These Modules are transported, erected & installed using cranes, push-pull jacks and are integrated together in the form of complete building unit. Subject to the hoisting capacity, building of any height can be constructed using the technology.

The Agency is providing the technology in association with hoMMission India.

Construction & Installation process

Sequential construction in the project here begins with keeping the designed foundation of the building ready, while manufacturing of precast concrete structural modules are taking place at the factory. Factory finished building units/modules are then installed at the site with the help of tower cranes/ suitable equipments. Consecutive floors are built in similar manner to complete the building structure.



SALIENT FEATURES

- Upto 90% of the building work including finishing is complete in plant/casting yard leading to significant reduction in construction & occupancy time
- The controlled factory environment brings resource optimization, improved quality, precision & finish
- The required concrete can be designed using industrial by-products such as Fly Ash, Ground granulated blast furnace slag (GGBS), Micro silica etc. resulting in improved workability & durability, while also conserving natural resources.
- With smooth surface it eliminates use of plaster
- The monolithic casting of walls & floor of a building module reduces the chances of leakage
- The system has minimal material wastage (saving in material cost), helps in keeping neat & clean construction site and dust free environment
- Use of Optimum quantity of water through recycling
- Use of shuttering & scaffolding materials is minimal
- All weather construction & better site organization
- Can embed Thermal Insulation
- Can come with provision for solar power, Rain water harvesting & IOT.

ECONOMIC ASPECTS

- Faster construction reduces project duration & related project overheads.
- Achieved near conventional cost of construction with superior quality & reduced time duration
- Cost further depends on economies of scale
- Manpower requirement is reduced



SUSTAINABILITY ASPECT

- Upto 90% industrialization ensures reduction in wastages in all raw materials as it is manufactured in controlled conditions
- Use of industrial by-products such as Fly Ash, Ground granulated blast furnace slag (GGBS), Micro silica etc. results in improved durability of structure , while also conserving natural resources (Limestone)
- Use of Optimum quantity of water through recycling
- Use of plastering is avoided

SUITABILITY AND AVAILABILITY

- Suited for all weather conditions.
- Technology is available across the country



LIMITATIONS, IF ANY

- Space for casting yard is required in addition to site for actual construction. The project is not viable if the factory is located far away. Setting up of casting yard requires time in month/(s) depending on project size & delivery schedule
- Requires approach road to site for movement of high capacity trailers, Cranes etc.
- Site should have space for proper leveraging & functioning of cranes
- Requires skilled labor & strict supervision
- Plumbing & electrical services need to be pre-planned
- Requires certain minimum number of houses to be economical



MARKET LINKAGES

- Available Pan India.

MAJOR PROJECT

- 5 Storied building with 20 apartments, cast & assembled in 33 days, Tata Housing at Boisar, Mumbai

CERTIFICATION/INDIAN STANDARD/ENDORSEMENT

- Recommended technology under GHTC-India.

