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Prefabrication Structure

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PREFABRICATION STRUCTURE

prefabrication is the practice of assembling mechanisms of a structure in a factory or other trade site, and transporting complete assemblies or sub-assemblies to the construction site where the structure is to be located. The term is used to differentiate this process from the more predictable construction practice of transporting the basic materials to the construction site where all assembly stands carried out. It is the easy way to work. It is also reducing the time with respect to RCC structure.

OBJECTIVE

1) **Prefabrication may be a development trade term want to represent assemblies that are fabricated under factory and transported to the construction site.**
2) **The goal of manufacture systems is to supply how to induce s well designed building.**

uses

The most commonly used form of prefabrication in building. It can be hard to constrict at site. It is manufacture at factory and assemble at site. Prefabricating MS steel sections reduces on the cutting and welding costs as well as the related dangers.

The technique is also used in office blocks, and plant buildings. Prefabricated steel and glass units are widely used for the exterior of huge buildings.

ADVANTAGE

- Affecting partial assemblies from a workshop frequently costs below moving pre-production capitals to each site
- Arranging incomes on-site can add costs; producing assemblies can save costs by dropping on-site work
- Workshop tools - jigs, cranes, etc. – easy to production earlier and more accurate
- Plant tools - shake tables, hydraulic testers, etc. - can proposal extra quality declaration.
- Dependable indoor environments of plants reject most impacts of climate on production
- Cranes and reusable factory supports can allow shapes and instructions without exclusive on-site false work
- Advanced-accuracy factory tools can aid more skillful movement of building heat and air, for lower energy feasting and improved buildings.

DISADVANTAGE

- Conveyance costs may be large prefabricated sections than for their essential materials, which can frequently be packed more closely.
- Huge prefabricated units may need durable cranes and accuracy measurement and conduct to place in location.

OFF SITE FABRICATION

Off-site fabrication is a procedure that includes prefabrication and pre-assembly. The procedure holds the design and production of units or MS section, generally remote from the work site, and the fixing at the site to

form the lasting works at the site. In its fullest sense, off-site fabrication requires a project policy that will change the direction of the project process from construction to production to connection.

USING MATERIAL ON SITE FOR PREFAB EXECUTION

1. ANCHOR BOLT
2. MS COLUMN
3. MS BEAM
4. MS JOIST
5. DECK SHEET
6. PUFF PANEL
7. LGSF WALL
8. ROCKWOOL

Short description of this using material;-

Anchor bolt :- **Anchor bolts** used to connect mechanical and non-structural foundations to concrete. using 25 mm thickness anchor bolt.

MS columns :-Ms column is also used for as a RCC column which are hold in the immovable anchor bolt through RCC column. **MS Columns** are intended for positive selection of lockups. .Using column thickness 20-25 mm.

MS beam:- **Ms beams** are used for engineering industries. Using beam thickness 20-25 mm

MS joist beam : - A **MS Beam Joist** is a line structural that carries load mainly in winding. Mild Steel **Beam Joist** deliver inexpensive floor and roof. Using joist beam thickness 20-25 mm.

Deck sheets:- Decking **sheets** are flat surfaces or stages skilled of supporting flooring and roofing **sheets** and these are related to the outer or inner part of building structure. Thickness of the deck sheet .5-.8 mm.

Puff panel:- Puff panel are extremely durable, tough and weather unaffected. They are erosion unaffected and can create an impermeable space. They are maintaining the temperature. Thickness of the using puff panel are 70 mm.

LGSF wall:- The LGS frames factory-made and assembled in to LGSF wall structures and then transported to the site and erected wall by wall on a pre-built concrete floor as per the floor plan of the building. Steel reinforced concrete panels factory-made and transported to site. These panels fixed both side of LGSFS wall using self drilling screws. Thickness of the wall 90 mm.

Rockwool:- Rockwool is a breathable material permitting moisture to outflow from the construction. This decreases the hazard of mould and bacterial evolution on the inside of the stuff. It founds a density-unaffected material that can be **used as** roofing boards.

USING PROCEDURE FOR WORK EXECUTION

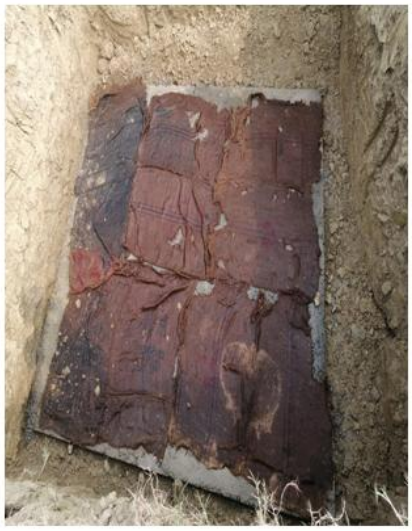
BUILDING 2 STOREY- 51.O5X11.64 M. COST OF THIS PROJECT-13.5 C

NUMBER OF BUILDING-3 NOS

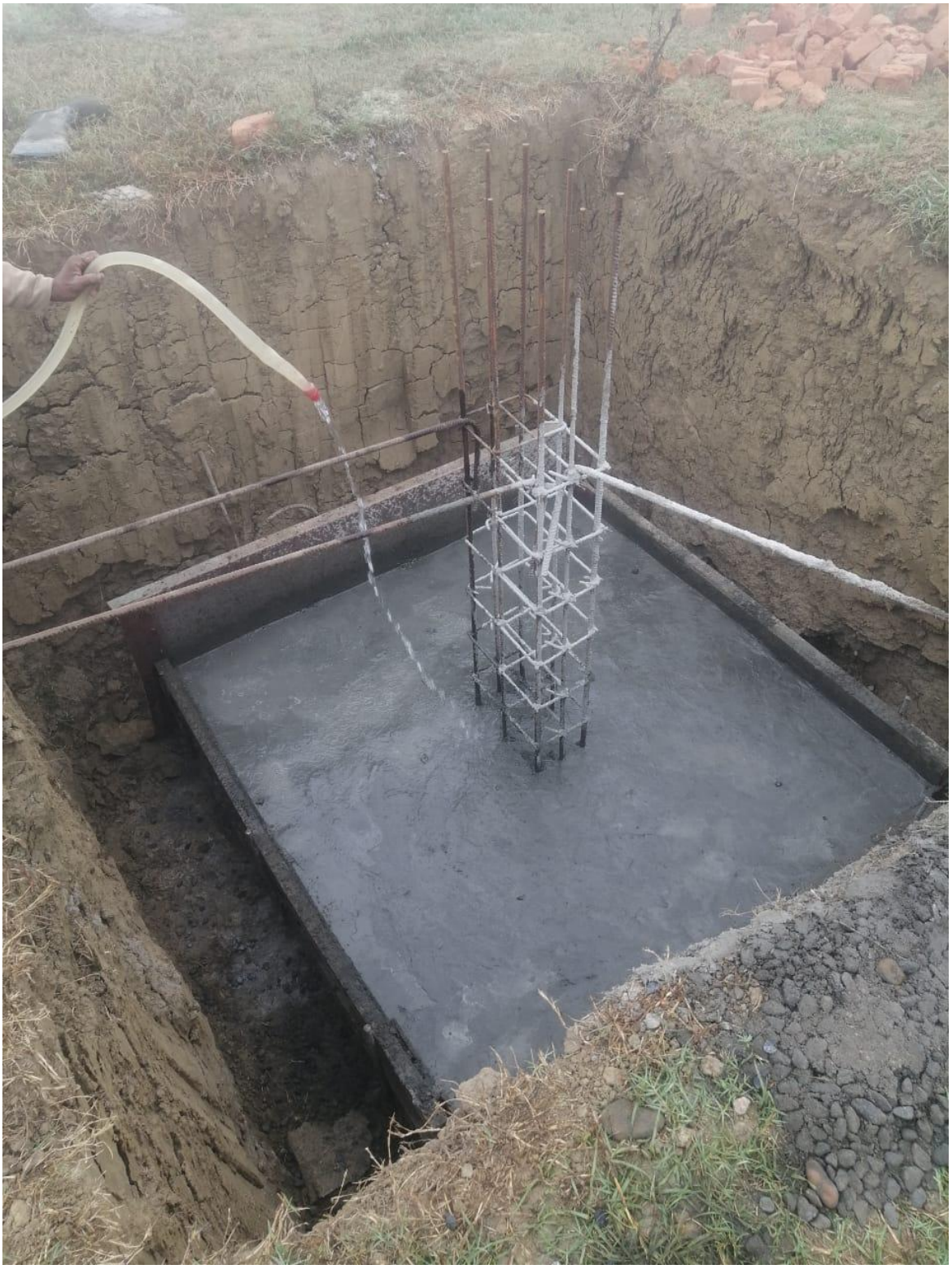
STAGE 1

PCC WORK-Using 100 mm thickness PCC work at footing area with M10 grade concrete.

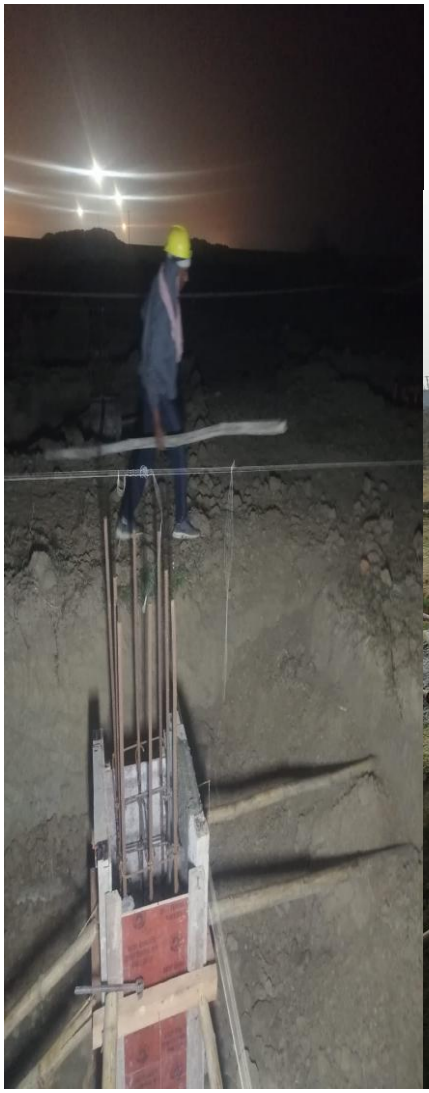
Before start the site execution work first we need to safety meeting (PPE) at site.

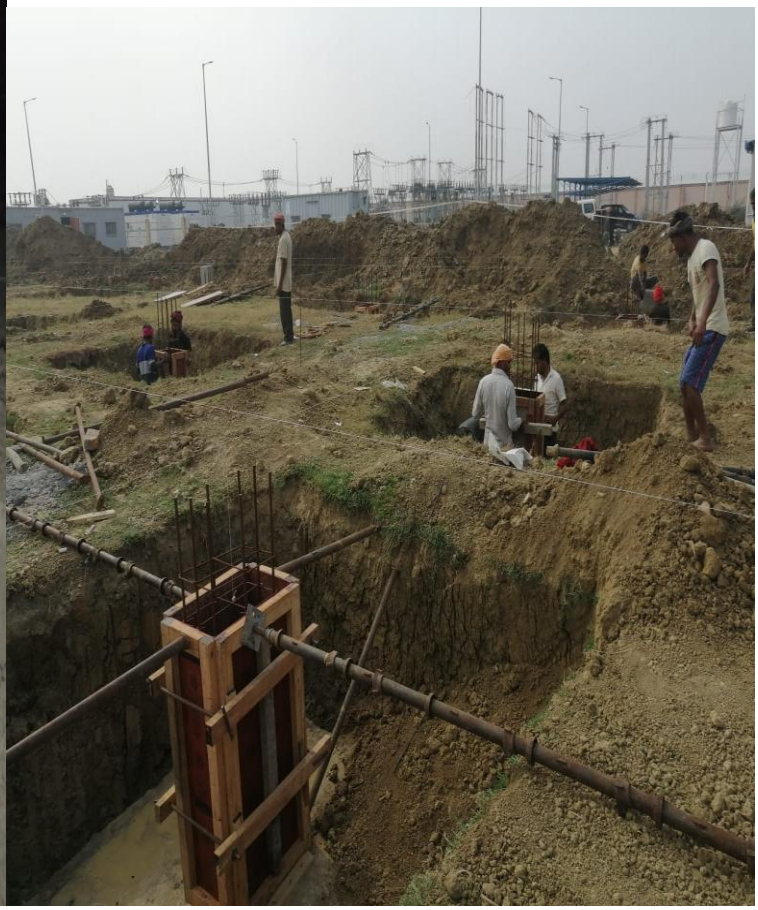


STAGE 2
FOOTING RCC WORK-After complete the base PCC work then we are casting the footing RCC 400 mm thickness with M20 grade of concrete. Using 10 mm Jindal TMT bar.



STAGE 3
COLUMN RCC WORK-After footing casting we are making the column shuttering and installed then casting the column with M20 grade of concrete .size of the column 625 mm x 400 mm and 330 mm x 400 mm. using Jindal 16 mm TMT bar. number of bar using 8 nos.





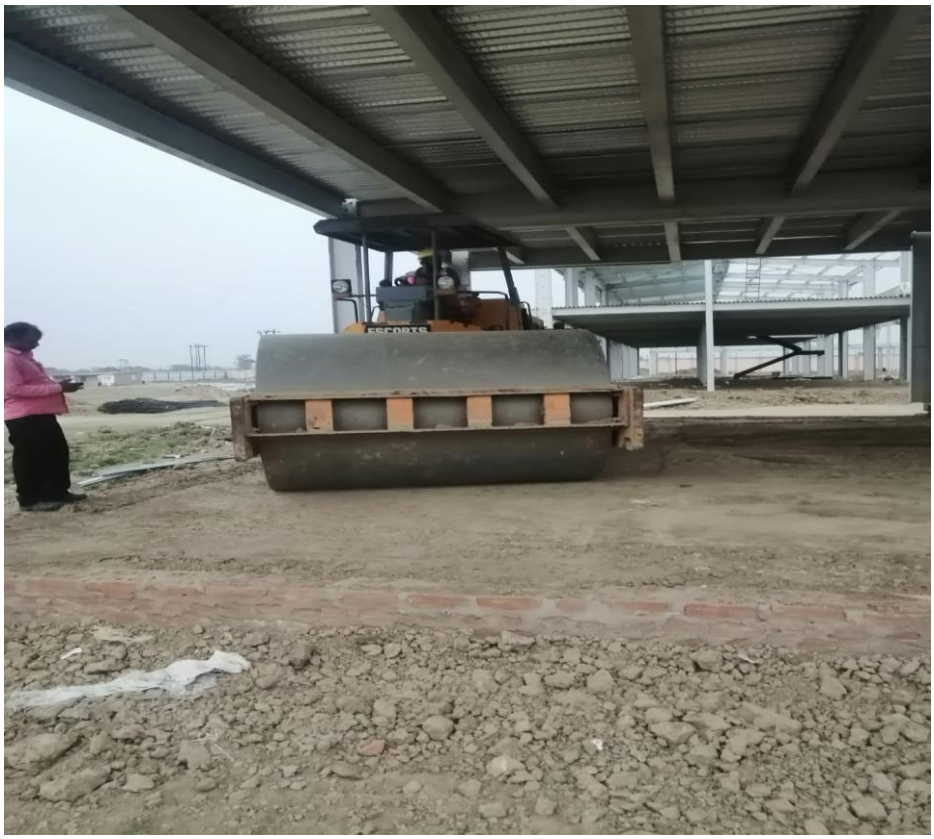
STAGE 4

BACKFILLING AND PLINTH BEAM WORK -After complete the column casting work then backfilling the footing area for making the surface of plinth beam Then provide 50 mm PCC below the plinth beam. After that casting the plinth beam with M20 grade of concrete. Using 16 mm Jindal TMT bar. Number of bar using 6 nos. Plinth beam size 230 x 300 mm.

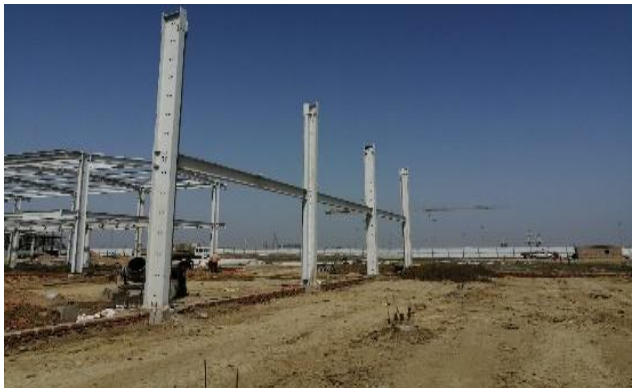
ANCHOR BOLT - Before casting the plinth beam first welding and fixing the anchor bolt with proper alignment. then casting the plinth beam.

STAGE 5
BRICKWORK -making full brickwork (230 mm) throughout the outer grid of the building at the height of 400-500 mm and also casting column at the height of 600 mm. after the brickwork backfilling the building at the height of 600 mm.

STAGE 6
COMPACTION WORK –After complete the outer brickwork and backfilling work then we are going to start compaction work with 3 layer. After that doing compaction test of the soil.
Before start the soil compaction we also complete the Anti- termite treatment in every layer of the soil.

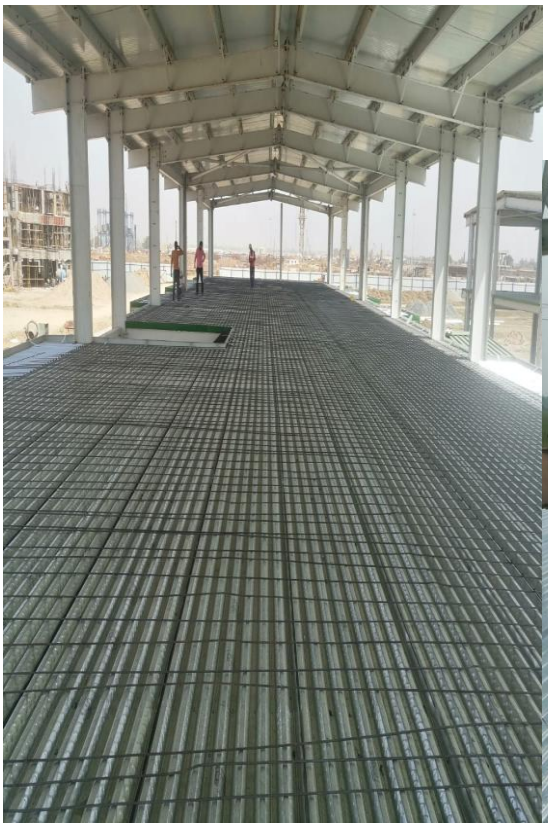


STAGE 7
MS COLUMN AND BEAM ERECTION WORK -After complete the soil compaction work then we start the column and beam erection work.



STAGE 8
ROOF BEAM ERECTION WORK-After complete the joist beam installation work then we start the roof beam erection work.

STAGE 9
DECK SHEET INSTALLATION WORK:-After complete the joist beam work then we start the deck sheets (0.5-0.8 mm) installation work throughout the joist beam with proper self drilling screw.
At the same time we are going to start the TMT bar laying work for deck slab casting work.



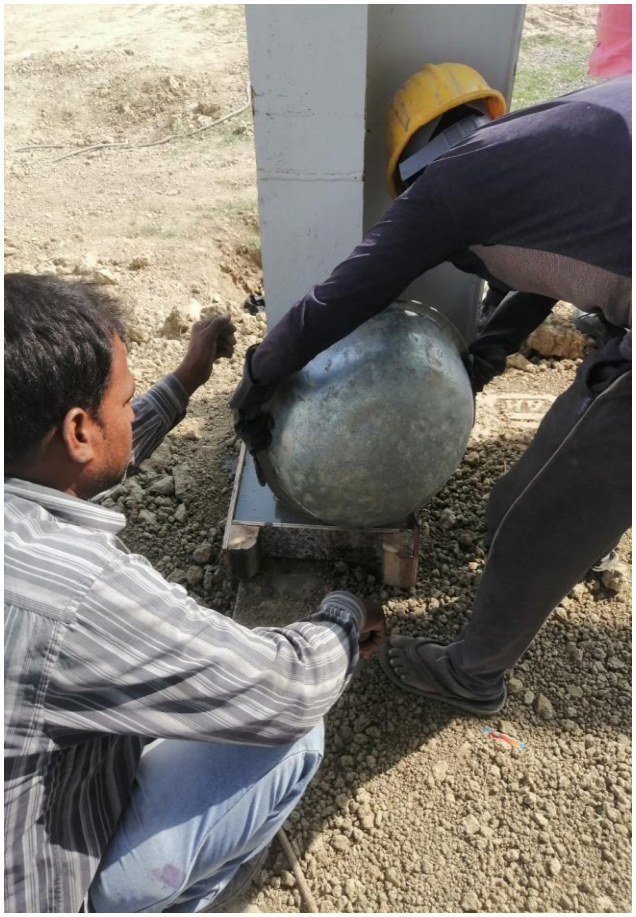
STAGE 10
PUF PANEL WORK:-After complete the deck sheet installation work then we start the puf panel installation work with proper safety due to height of the building.

STAGE 11

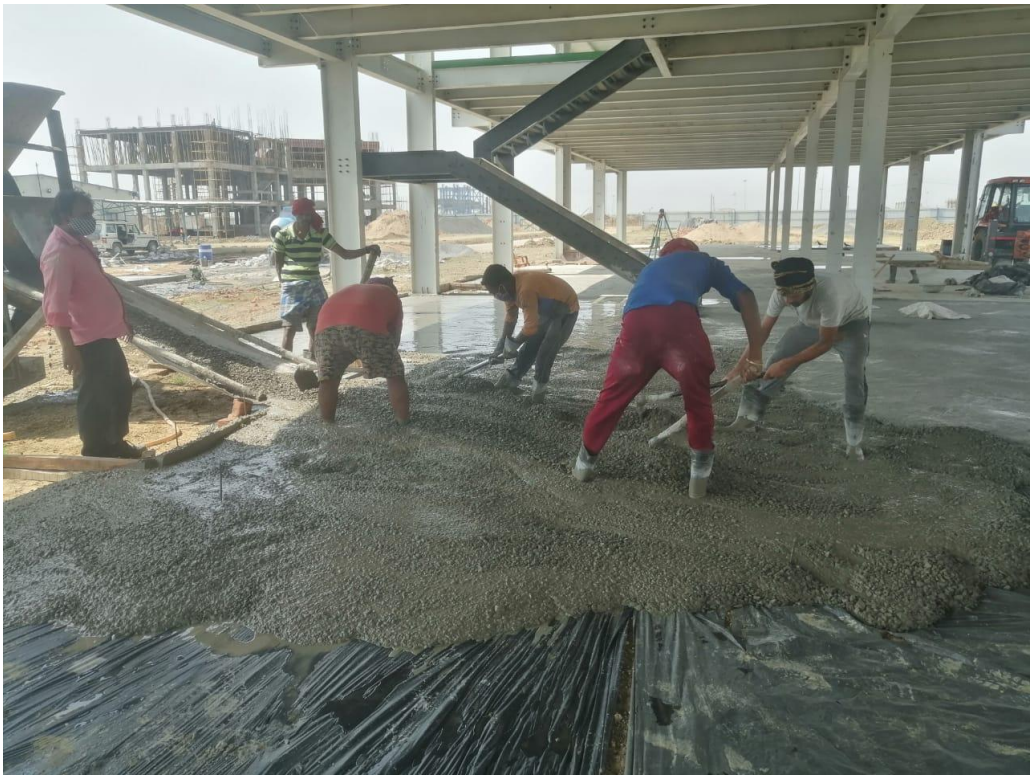
GP2 WORK - **GP2** is a mixture of Portland cement, classified fillers and chemical flavors which communicate controlled growth in the plastic state whilst minimising water. The low water claim guarantees high initial strength.

GP2 mixing:-25 kg GP2 mixing with 4.5 ltr of water as per actual. but at site we need water as per gp2 requirement.

We are using GP2 grouting between RCC column top and MS column base.GP2 work is very easy to handle because when gp2 use it will take place easily.



STAGE 12
GROUND PCC WORK:-After complete the GP2 work then we start the PCC work with M10 grade by ready mix concrete (RMC).



LGFS WALL:-After complete the PCC casting work then we start the LGSF making work as per drawing. After that we start the assemble work (position of the door ,window) at the same time we start the erection work of LGSF wall

PREFABRICATION VS PRECAST(MODULER BUILDING)

Prefabrication construction	precast construction
1) It is eco- friendlier.	1) It is not eco-friendlier.

2) It is easy to assemble.	2) it is not easy to assemble.
3) Require labour is less.	3) require labour is high.
4) project complete with given time period.	4) most probably not done with in time.
5) material damage chance less in transportation.	5) Damage chance is high.
6) project cost is less.	6) project cost is high.

OVERVIEW OF THIS ON GOING PROJECT- Compared with old-style reinforced concrete **structures**, the **prefabricated steel structure** has many rewards, including fast **construction**, negligeable weight, low labour strength, and high degree of mechanization; it is also a type of environmentally responsive "green" building.

IN prefabricated steel structure if we want then maximum time reduces. it is economical.

In prefabrication structure work completed with in the given time period as compared to concrete structure.

Require labour in this project is less.