



G. M. VEDAK INSTITUTE OF TECHNOLOGY, TALA, RAIGAD

Educational-Industrial Site Visit At

**THAKUR INFRA-STRUCTURE PRIVATE
LIMITED, TALA-INDAPUR**

Visit Date : 2nd April 2019

All the students of Third Year Civil Engineering of G. M. Vedak Institute Of Technology Tala, Raigad, were very much thankful to our Principle Dr. D. N. Jaiswal & H.O.D. Of Civil Engineering Department Prof. Ajeet Kumar, & Subject Teacher Prof. P. P. Sathe respectively to support an Educational-Industrial Site Visit at Tala-Indapur Highway Construction Site, At Thakur Infra-Structure Private Limited, Tala Raigad.

Visit At Thakur Private Limited On 2nd April 2019 At 10:30 A.M. Along With Faculty members Prof. P.P. Sathe & Prof. Akash Lanke & Students Of Third Year Civil Engineering of G.M.V.I.T. Tala Raigad.



OBJECTIVE OF VISIT

Technical Exposure of Road Construction Equipment & its Operation Process & other engineering aspects of Subject – (CE-CDLO6061) Advanced Construction Equipment, Subject as per University of Mumbai Syllabus.

WHAT HAPPEN WHEN WE REACH AT CONSTRUCTION SITE?

First A Technical Explanation by Chief Quality Control; Site Engineer, Site Quality Control Engineer & Estimator. First, they explained us regarding the General Site Engineering Knowledge-Base things & After Different Types of Equipment & their use in Construction Project. They also shared some Experience of their Working Journey as a Civil Engineer regarding to Construction Equipment & Working Equipment on Construction Site.



Photo : At Pavement Quality Concrete Machine

DATA COLLECTION

1. BULLDOZER

To Build or Clear a foundation, an excavation is required & this operation is usually carried out by some type of Powered Excavation Equipment.

Here Thakur Infra. Private Ltd. Uses the Bulldozer for this purpose.

- Bulldozers are efficient excavating tools for short haul applications up to 100 meter.
- It is essentially a heavy steel blade which is mounted on the front of tractor. The heavy blade attached to tractor pushes the material from one place to another
- The size of Bulldozer indicated by Length & Height of Blade.



Photo : Bulldozer

There On-Site they used Wheel Type Bulldozer because Wheel Type of Bulldozer having following advantages:

1. Ability to travel on bitumen without damaging the surface.
2. Higher travel speeds on job or from one job to another.
3. Elimination of hauling equipment for transporting bulldozer to the site.
4. Greater output, especially when significant travelling is required.
5. Less operator fatigue.

In addition to excavating & hauling many other functions are also Performed by Bulldozers from start to completion of project like:

1. Clearing land of timber & vegetation
2. Opening up temporary roads through mountain & rocky areas
3. Moving earth for haul distances up to 100 meter
4. Pulling loaded tractor & scrappers
5. Levelling & Spreading earth fills
6. Backfilling trenches
7. Clearing construction sites for debris
8. Maintaining haul roads
9. Clearing the floors of borrows & quarry pits
10. Stripping top soil that is not usual

2. SMOOTH-WHEEL ROLLER

Compaction is the method of artificially densifying the soil by pressing soil particles together into close contact, resulting in expulsion of air &/or water from soil mass. Compaction is done to increase the strength of an earth fill on an embankment.

- Smooth-Wheel Rollers can be self-propelled or of the towed type smooth steel roll surfaces.
- These rollers may be classified by type or by weight.

- These rollers are effective in compacting granular soils, such as sand, gravel & crushed stone & they are also effective in smoothing surfaces of soils that have been compacted by tamping rollers.

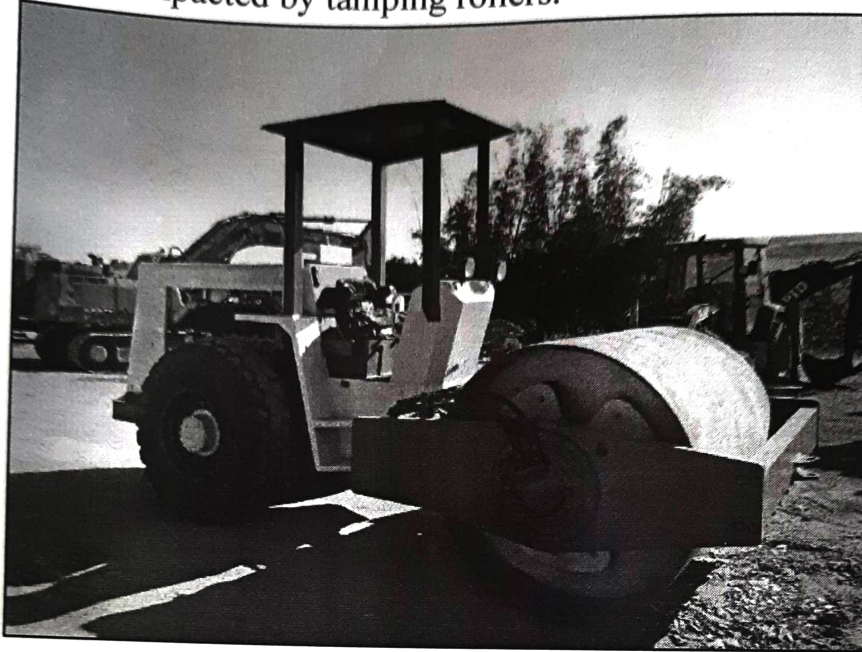


Photo : Smooth Wheel Roller

3. PAVEMENT QUALITY CONCRETE MACHINE

A Paver (Paver Finisher, asphalt finisher, paving machine) is a piece of construction equipment used to lay asphalt on roads, bridges, parking lots & other such places. It lay asphalt flat & provides minor compaction by a roller.

COMPONENTS OF PQC MACHINE

1. Spreading Plough to spread concrete
2. Auto-Level
3. Dowel Bar Inserter
4. Tie Bar Inserter
5. Vibrators
6. Floater
7. Slip-form Plate
8. Mason Trolley
9. Iron Brush of Texturing

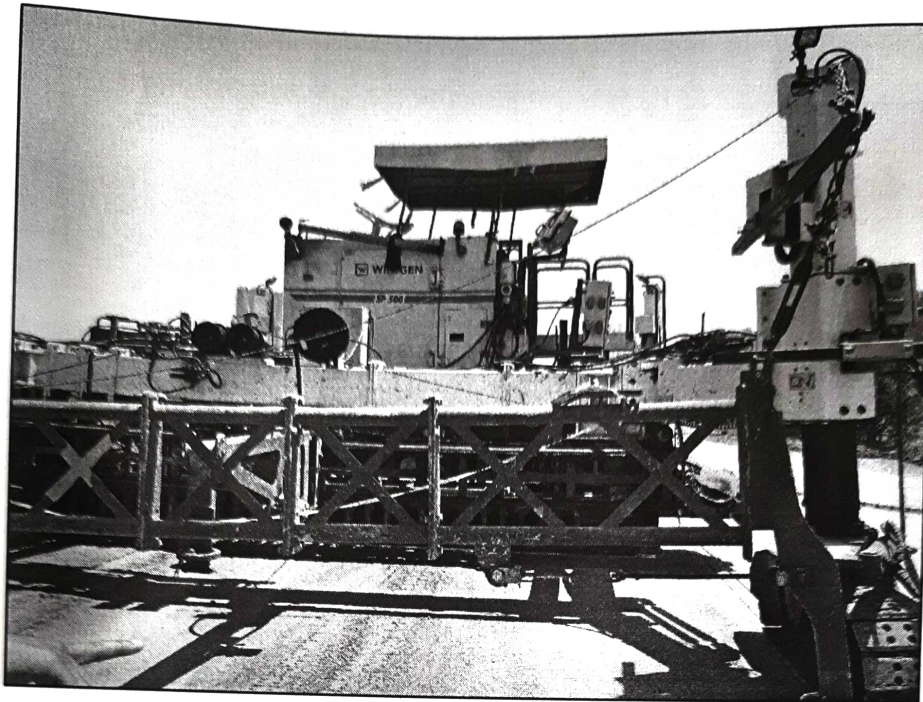


Figure : Pavement Quality Concrete Machine

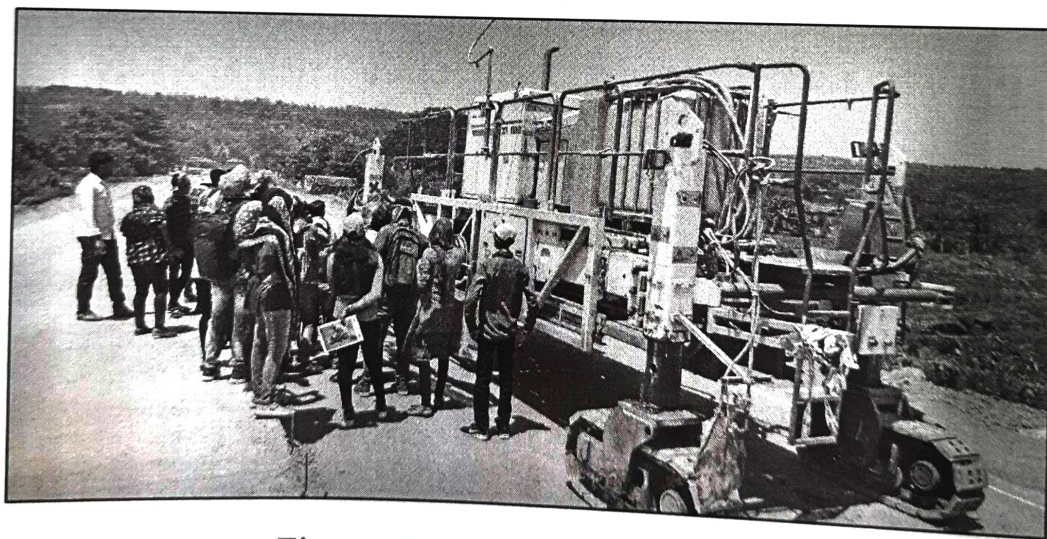


Figure : Texture Curing Machine

OPERATION OF P.Q.C. MACHINE:

1. The surface is clean & should have moisture (by spreading water) because afterward below layer should not absorb the water from concrete.
2. Dowel bars are inserted at Dowel Bar Inserter; Tie Bars are inserted at Tie Bar Inserter & set the other specifications from control unit of PQC.
3. Concrete is added from agitator truck or material transfer unit into the paver's hopper.
4. Conveyor then carries the concrete from hopper to upper auger.
5. Screed takes the stockpiles of materials & spread it over the width of road provide initial compaction
6. In order to provide a smooth surface, the paver should proceed at a constant speed & have consistent stockpiles of material in front of screed.
7. For level the undulations TCM (Texture Curing Machine) is used.
8. Texturing concrete – for friction, by Iron brush of 3 mm to 4 mm depth depends spacing nearly 12mm to 13 mm

Curing is done by gunny bags method for surface of the concrete pavement.



GROUP PHOTO

CONCLUSION

Students have learned how actual working of the different construction equipment like Bulldozer, Smooth-Wheel Roller, & P.Q.C. Machine. The process of Road Construction along with proper Equipment is properly get to know after Visiting this Site. Which types of Materials used in Construction of Road is also get to know; with this kind of Educational-Industrial Site Visit we gain much more knowledge on Construction Equipment Applications aside from theoretical aspect learned from classroom.