

# CONSULTANCY & MATERIAL TESTING FACILITY

(CIVIL ENGINEERING DEPARTMENT)



## JAYPEE UNIVERSITY OF ENGINEERING & TECHNOLOGY

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# **CONSULTANCY SERVICES**

## **Geotechnical Engineering**

1. Various Ground Improvement Techniques.
2. Soil Nailing Technique for Stabilization of Slopes, Excavations etc.
3. Numerical Analysis of Geotechnical Structures Using FEM Tool "PLAXIS 2D".
4. Soil Investigation and Soil Testing for Obtaining the Strength and Stiffness Properties of Subsoil.
5. Compaction Quality Control.

## **Structural Engineering**

1. Proof Checking of Designs.
2. Feasibility Studies.
3. Health Monitoring, Repair and Rehabilitation Schemes.
4. Design of Underground & Tall Structures.
5. Design of Soil & Water Retaining Structures.

## **Transportation Engineering**

1. Flexible & Rigid Pavement Design.
2. Geometric Design of Pavement.
3. Road Network Planning & Design for Small & Medium Towns.
4. Overlays Design of Pavement.
5. Bituminous Mix Design.

## **Water Resource Engineering**

1. Design of River Training Works.
2. Design of Water Supply System;
  - a) Intake and desilting chambers.
  - b) Ground water studies.

## **Software Available**

1. PRIMA-VERA Contactor (Project Design).
2. STAAD-PRO
3. MATLAB 7.5
4. Auto-CAD
5. SAP
6. ANSYS
7. PLAXIS
8. ROAD MX SUITE.

# MATERIAL TESTING FACILITY

## Soil Testing

1. Natural Moisture Content
2. Specific Gravity
3. Compaction Test (MDD & OMC)
  - a. Light Compaction
  - b. Heavy Compaction
4. Atterberg's Limits
  - a. Liquid Limit
  - b. Plastic Limit
  - c. Shrinkage Limit
5. Grain Size Analysis
  - a. Sieve Analysis
  - b. Hydrometer Analysis
6. Field Density Test
  - a. Core Cutter
  - b. Sand Replacement Method
7. Laboratory Permeability Test
  - a. Fine Grained Soil
  - b. Coarse Grained Soil
8. Laboratory C.B.R. Test
  - a. Light Compaction      I). Soaked      II). Un-Soaked
  - b. Heavy Compaction      I). Soaked      II). Un-Soaked
9. Unconfined Compressive Strength Test
10. Tri-Axial Test :- Unconfined Un-Drained (UU)
11. Direct Shear Test
12. Consolidation Test
13. Free Swell Index
14. Swelling Pressure Test
15. Differential Swell Test

## **Fine and Coarse Aggregate Testing**

1. Gradation Test (Size Analysis) And Fineness Modulus
2. Specific Gravity
3. Water Absorption
4. Bulk Density & Voids
5. Crushing Value Test
6. Los Angeles Abrasion Test
7. Impact Test
8. Flakiness Index
9. Elongation Index
10. % Silt And Clay Content

## **Cement Testing**

1. Normal Consistency Test
2. Initial Setting Time
3. Final Setting Time
4. Fineness Test
5. Soundness Le-Chatelier Expansion
6. Tensile Strength Test
7. Compressive Strength
8. Specific Gravity/Density Test

## **Concrete Testing**

1. Compressive Strength Test
2. Flexure Strength Test
3. Split Tensile Strength
4. Concrete Mix Design
5. Water Absorption
6. Sorptivity Test
7. Non Destructive Test (NDT) By;
  - a) Rebound Hammer,
  - b) Ultrasonic Pulse Velocity (UPV) Test
8. Rapid Chloride Ion Permeability Test (RCPT).

## **Steel Testing**

1. Tensile Strength (Elongation) Test of Tor & M.S.
2. Angle Section and Flats
3. Bend and Rebend Test

## **Brick Testing**

1. Physical Test (Colour, Soundness, Hardness, Size & Shape)
2. Crushing Strength Test
3. Water Absorption Test
4. Efflorescence Test

## **Bitumen Testing**

1. Penetration Test
2. Softening Point
3. Ductility Test
4. Solubility Test
5. Flash and Fire Point

## **Bituminous Mixes Testing**

1. Bitumen Content
2. Gradation of Aggregate From Bituminous Sample
3. Benkelman Beam Test
4. Marshall Stability Test

# TESTING PROJECTS UNDERTAKEN FOR THE FOLLOWING

## DEPARTMENTS/COMPANIES

- ❖ Water Resource Department, Raghogarh (M.P.)
- ❖ Water Resource Department, Guna (M.P.)
- ❖ Water Resource Department, Rajgarh (Biaora)
- ❖ Sanjay Sagar Dam Head Works, Raghogarh, Guna (M.P.)
- ❖ Water Resource Department, Ashoknagar (M.P.)
- ❖ GAIL (India) Ltd., Vijaipur, Guna (M.P.)
- ❖ Nagar Panchayat Isagarh, Ashoknagar (M.P.)
- ❖ RKS Construction Pvt. Ltd., Ranchi (Site: NFL Vijaipur)
- ❖ GVR INFRA PROJECTS LIMITED, ISAGARH, ASHOKNAGAR
- ❖ TECHNIMONT ICB Pvt Ltd, NFL VIJAIPUR GUNA (M.P.)
- ❖ Aravali GAI Tollway Pvt. Ltd. Site: Guna (M.P.)
- ❖ KNR Constructions Limited, Site: Guna, (NH-3)
- ❖ Engineer Dileep Thakur, Site: Guna, (NH-3)
- ❖ Anurag Enterprise, FDDI Guna (M.P.)
- ❖ THERMAX LIMITED MIDC Chinchwad, Pune, Site: Vijaipur Guna (M.P.)
- ❖ D.N. Rathi Const. Co., Udasi Ahram, Guna (M.P.)