

**CONSULTANCY & MATERIAL TESTING  
SERVICES**

**(DEPARTMENT OF CIVIL ENGINEERING)**



**VNR VIGNANA JYOTHI INSTITUTE OF ENGINEERING & TECHNOLOGY**

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## STRUCTURAL DESIGN CONSULTANCY

- Structural Designs & Drawings of RC Structures including high rise buildings
- Industrial Steel structure designs including fabrication drawings
- Proof Checking of Structural designs
- Structural Health Monitoring using NDT (Non Destructive Testing)

## MATERIAL TESTING (CEMENT, CONCRETE, WOOD, TILES)

S.No.	Name of the Test
1	(i) Compressive Strength on Cement Concrete Cubes (ii) Hollow blocks, solid blocks
2	Test on Cement i) Fineness ii) Compressive Strength for 3,7& 28 days iii) Consistency iv) Initial and Final Setting time v) Soundness
3	Test on Coarse Aggregates i) Sieve Analysis ii) Fineness Modulus iii) Specific gravity iv) % of Voids v) Bulk Density
4	Tests on Fine Aggregate i) Specific gravity ii) Sieve Analysis iii) Bulk Density iv) Bulking of Sand v) Moisture content
5	Tests on Steel Specimens (Min of Three Samples) i) Weight per metre (3 nos) ii) Ultimate tensile strength iii) % Elongation iv) Bend & rebend Test v) Proof stress
6	Concrete Mix Design
7	(i) Brick Test (Min of 3 Samples) Compressive Strength + water absorption (ii) Dimensions
8	Torsion ( 3specimens Min)
9	Tiles
10	Tests on Wood (i) Compressive strength (ii) Moisture content

## SOIL TESTING

S.No.	Name of testing
1	Standard penetration test (Safe bearing capacity)
2	Dynamic cone penetration test
3	Plate load test (Safe bearing capacity)
4	Undisturbed and disturbed sampling of soil
5	In situ moisture content (Rapid moisture meter)
6	Safe Bearing Capacity test from $c$ , $\phi$ values
7	Core Cutter and Moisture Content test
8	Specific gravity test
9	Sieve Analysis test
10	Liquid limit
11	Plastic limit
12	Shrinkage limit
13	Proctor Compaction test
14	Permeability
15	Consolidation
16	Relative Density
17	CBR test Unsoaked
18	CBR test soaked
19	Unconfined compression test
20	Vane shear test
21	Triaxial test UU test CU test CD test
22	Free swelling Index
23	Swell pressure
24	Modified compaction
25	Consolidation
26	Hydrometer Analysis
27	Permeability clay soils
28	Permeability from consolidation

## WATER & AIR TESTING

S.No.	Name of the Test
1	Acidity test, Alkalinity
2	Total Hardness test
3	pH test i) Water ii) Soil
4	Conductivity test i) Water ii) Soil
5	Turbidity test

S.No.	Name of the Test
6	Total dissolved solids
7	Total Solids
8	Dissolved oxygen
9	Design of Water/Waste water treatment plants
10	Moisture Content i) Wood ii) Doors & windows
11	Measurement of i) Chlorides ii) Fluorides iii) Nitrates iv) Ammonia
12	Measurement of Heavy Metals Zinc, Cadmium, Lead, Chromium, Lithium, Calcium, Magnesium, Sodium, Selenium, Cobalt, Copper & Gold
13	Optimum coagulant measurement
14	Measurement of Phosphates
15	Soil organic content test

### HIGHWAY MATERIAL TESTING

S.No.	Test Characteristics / Properties & Parameters	Test Method	Sample Quantity
1.	Polished Stone Value-PSV	BS 812 P 114 IS 2386 P 04	60 Kg.
2.	Loss on heating-TFOT	IS:1212	3.0 Kg
3.	Short Term Ageing - RTFO	IS 9382 ASTM D 2872	4.0 Kg
4.	Resilient Modulus – Bituminous Mixes	ASTM D 7369	Each Mix of Three Marshal Samples (100 dia)
5.	Fatigue – Bituminous Mixes	ASTM D 7369	Each Mix of Three Marshal Samples (100 dia)
6.	Rutting & Stripping Characteristics for Bituminous Mixes	AASHTO-T324	15 Kg
7.	Non - Immersion Rutting Characteristics - Bituminous Mixes	AASHTO-T324	15 Kg
8.	Plate Load Test at site	IS 1888 1982	Field Test
9.	Pavement Evaluation – BBD Studies at site	IRC - 81	Field Test
10.	Axle load Survey at site	IRC SP 19	Field Test
11.	Classified Volume Count at site		Field Test
12.	Determination of Field CBR	IS:2720 P31	Field Test

## TRANSPORTATION ENGINEERING TESTS

S. No.	Test Characteristics / Properties & Parameters	Test Method	Sample Quantity
1.	Sieve Analysis, FM & Grad. Curve	IS:2386 P01	20 Kg
2.	Flakiness & Elongation Index	IS:2386 P01	15 Kg
3.	Angularity Number	IS:2386 P01	15 Kg
4.	Sp. Gr. & Water Absorption	IS:2386 P03	15 Kg
5.	Aggregate Impact Value-AIV	IS:2386 P04	15 Kg
6.	Aggregate Abrasion Value- (LA)	IS:2386 P04	15 Kg
7.	Aggregate Crushing Value-ACV	IS:2386 P04	15 Kg
8.	Ten Percent Fines Value-TFV	IS:2386 P04	15 Kg
9.	Soundness with Na <sub>2</sub> SO <sub>4</sub> / MgSO <sub>4</sub> (5 Cycles)	IS:2386 P04	50 Kg
10.	Absolute Viscosity at 60°C	IS: 1206 PO2	1.5 Kg
11.	Kinematic Viscosity at 135°C	IS: 1206 PO2	1.5 Kg
12.	Ductility of TFOT Residue	IS 1208	
13.	Penetration at 25°C	IS 1203	3.0 Kg
14.	Ductility at 27°C	IS 1208	3.0 Kg
15.	Softening Point- Ring & Ball	IS 1205	3.0 kg
16.	Flash Point - COC	IS: 1448 P-69	2.0 Kg
17.	Specific Gravity at 27°C	IS 1202	2.0 Kg
18.	Elastic Recovery of TFOT at 25°C	SP- 53	1.0 Kg
19.	Bitumen Mix Design – Marshal	MS-2	-
20.	In-Direct Tensile Test	ASTM D 6931	-
21.	Wet Mix Design	IS 9012 IRC 109	25 Kg
22.	Bitumen Extraction	IS 13826 P7	3.0 Kg
23.	Traffic Noise Measurement	IRC 104	Field Studies
24.	Speed Studies	IRC SP 19	Field Studies
25.	Audit Studies for road crash	IRC 088	Field Studies
26.	Traffic signal design – Evaluation through VISSIM	IRC - 93	Field Studies

## LAND SURVEYING

S.No	Name of the Test
1	Boundaries Location
2	Contouring
3	Plots & Roads layout
4	Total station hiring per day

### GIS

Digitization of maps

Editing, adding database, preparing layouts.

### Note: For Field visit

- i) Client has to arrange the Transport facility to the faculty member and accompanying supporting staff.
- ii) Client has to pay Rs.500/- per day to a Faculty member and Rs.300/- per day to accompanying supporting staff.
- iii) The payment should be done in the form of D.D. drawn in favor of "PRINCIPAL" VNRVJIET payable at Hyderabad or payment can be done in the form of cash at Institute Account section towards the consultancy charges.