

DETAIL OF MATERIAL TESTING

I. Fine and coarse aggregates

- Gradation Analysis of fine & coarse aggregate
- Soil Classification (Atterberg Limits and Grain Size Distribution)
- Hydrometer Test
- Moisture Content
- Specific Gravity
- Bulk density & Dry density
- Relative density
- Sand Equivalent Test
- Porosity/Void Ratio
- Permeability Test
- Unit weight of fine & coarse aggregate
- Soil pH, TDS, CL₂, SO₄, Ca & ect
- Organic Content
- Natural Density and Moisture Content
- Moisture-Density Relations
- (Standard and Modified)
- Density (Granular Soils)
- Crushing Value Test
- Impact Value Test
- California Bearing Ratio (CBR) Test
- Unconfined Compression Test
- Point Load Strength Test
- Triaxial Shear Test
- Direct Shear Test
- Consolidation Test
- Los Angeles Abrasion
- Sodium & Magnesium Sulfate Soundness
- Clay Lumps and Friable Particles
- Flat and Elongated Particles

II. Concrete testing

- Concrete Cylinders
- Concrete Cubes
- Block Testing
- Paver Testing
- Concrete and Rock Cores
- Grout Prisms, Grout Cubes and Mortar Cubes

- Concrete Masonry Units
- Flexural Strength Testing - Concrete Beams
- Concrete Beam Shrinkage

III. Cement testing

- Setting Time (initial & final)
- Consistency
- Fineness
- Le-Chatelier's Soundness Expansion
- Compressive Strength of Cement Mortars/Other Materials Present of 9 Cubes (With Preparation)
- Tensile Strength of Cement Mortars/Other Materials Per set of 3 Brackets (with Preparation) Briquette Test
- Chemical Testing
- Flexural Strength of Hydraulic Cement Mortars
- Strength activity Test
- Bulk Density
- Autoclave Expansion
- Water requirement
- Sieve Analysis

IV. Asphalt Bitumen testing

- Flash & Fire point of bitumen
- Penetration test
- Ductility test
- Specific Gravity of Bitumen
- Extraction of Asphalt
- Viscosity at 60 Degree
- Gradation
- Density
- Absorption
- Marshall Stability and Flow

V. Steel testing

- Tensile Testing of Wires/ Rope
- Tensile Testing of Steel bar / Plate
- Elongation Testing
- Bending Testing
- Unit Weight Of Steel Rebrs
- Stress/Stroke/Time Graphs
- Spectroscopy Test of Metal

VI. Concrete mix design

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We have specialized facility to carry out Concrete mix design in our lab. Concrete Mix Design is performed to ensure all the constituents of concrete are mixed in proper proportions to give a desired result. The main constituents of concrete are:

- Cement
- Water
- Aggregates
- Admixtures

The mix design is carried out using ACI method. The constituents are prepared according to the specifications given by the client. After mixing the contents accordingly for usually three trials, slump test is carried out after each of the trial to ensure that required workability has been achieved. The concrete is then poured into the cylindrical or cubical molds and is allowed to cure in normal drinking water tank. The compressive specimen for each trial is tested after 7 days which is later confirmed at 28 days. The report also provides the details of proportion of sand, crush, cement by volume and weight; water-cement ratio and quantity of admixture.

VII. Asphalt mix design

We perform asphalt mix design test in our full equipped lab with latest technology and instruments. Asphalt mix Design consists of two basic ingredients: aggregate and asphalt binder. It is the process of determining what aggregate to use, what asphalt binder to use and what the optimum combination of these two ingredients ought to be.

VIII. Coring of concrete and pavement

• Coring Of Concrete Structures

Our highly qualified professionals correct concrete constructions. The 6"dia Coring Machine is used to complete the coring. To guarantee that the removal of the cores doesn't pose any risks or cause structural issues, our staff follows all accepted safety and preventive procedures. We bring the cores back to our lab to measure their compressive strength.

• Coring Of Asphaltic Pavement

We have a facility and specialized technical team to take out pavement cores. The Asphaltic cake is then tested for asphalt extraction, gradation and Marshall Stability in our laboratory.