Soil Mechanics Division, Vadodara

TESTING FACILITIES AVAILABLE

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
	Main Lab Soil Mechanics, Division, GERI, Vadodara. & Soil Testing Unit Soil Mechanics Division, GERI, Vadodara.	Soil	• Grain size Analysis Silt factor • Atterberg's limit • Specific Gravity • Relative Density • Shrinkage limits • Swelling pressure test • Swelling Index • Permeability • Direct Box shear test • Triaxial Compression Shear test • Consolidation test • Pin hole test • Standard Proctor / modified proctor • Unconfined Compressive test • F D D / FMC Field test • Collection of undisturbed samples by Shelby / core cutter • In situ density by Water Absorption replacement / Sand replacement method • Mass per unit area • Thickness test • Wide width tensile strength • Puncture resistance (index / CBR) • Trapezoidal tear strength • Crab tensile strength

Material Testing Division, Vadodara

TESTING FACILITIES AVAILABLE

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
1.	Material Testing lab, Vadodara Cement Concrete lab, Vadodara	Coarse Aggregate	• Grading or Mechanical Analysis • Impact • Soundness (5 cycles) • Los Angles Abrasion • Crushing value • Specific gravity and Water Absorption • Flakiness index • Elongation index • Bulk density
			Chemical Analysis of Coarse Aggregate • Alkali reactivity test of coarse aggregate
2.		Fine Aggregate	• Specific Gravity • Water Absorption • Bulk density • Gradation • Fineness Modulus • Silt content • Soundness
			Chemical Analysis of Fine Aggregate • Alkali reactivity test of fine aggregate

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
3.		Bricks	• Compressive Strength • Water Absorption • Efflorescence test • Dimension and tolerance (Modular)
4.		Building Stone	• Compressive strength • Weathering test • Durability test • Specific gravity (apparent) and Water Absorption • Specific gravity (true)
5.		Cement (Physical)	• Consistency test • Initial and final setting time • Soundness test by Le Chatelier • Compressive strength • Fineness test by Blaine's air permeability apparatus • Compressive strength of cement concrete cubes or cylinders • Compressive strength of cement mortar cubes • Determination of best proportion of cement mortar • Flexural strength of concrete beam • Complete chemical analysis of Cement
		Cement (Chemical)	Part Chemical analysis of Cement: • Percent loss • Percent silica • Mixed oxide • Percent Sulphate • Percent Calcium oxide • Percent Magnesium oxide

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
6		Water Absorptionter	• Complete chemical analysis of Water Absorptionter for construction Chemical analysis of Water Absorption for quality check: • Sulphate • Conductivity • pH value • Total Alkalinity • Total Hardness • Carbonate & Bi-carbonate • Chloride • Sodium • Potassium • Nitrate • Calcium • Fluoride • Magnesium • Chemical Oxygen Demand • Bacteriological Oxygen Demand • Total dissolved solids • Phosphate
		Soil	• Chemical analysis of soil extract • Chemical analysis of Soil

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
8		Concrete	▪ Concrete mix design with cubes only ▪ Concrete mix design with flexural strength test • Permeability of Cement Concrete • Flexural strength of given concrete mix • Non Destructive Testing by Ultrasonic concrete tester • Determination of Cement Content of Hardened Concrete & Mortar • Compressive strength of Concrete Concrete • Permeability of Cement Mortar
10		Fly ash etc.	Complete Chemical analysis of Engineering material like Lime/ Lime stone / Fly ash etc
11		Steel	• Tensile strength including Yield Stress & Elongation • Bend test for steel
12		Tiles	• Water Absorption • Transverse strength • Abrasion test • Dimension and tolerance • Flexural strength of canal lining block tiles • Flatness of the tiles surface (For 6 Nos. tiles) • Determination of perpendicularity (6 Nos. of tiles) • Determination of strength of cement concrete flooring tiles (For 6 nos. of tiles)

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
			•
13		Flush door and timber (Wood)	• End immersion test (Flush door) • Adhesion test (Flush door) • Moisture content (Wood) • Adhesion test (Dry & Wet of plywood) • Specific gravity of timber wood • Density of wood • Anatomy of wood
15		Low density polythene film	• Tensile test including elongation • Impact for LDPE • Measuring thickness of LDPE
17		Membrane curing compound	• Water Absorption retention test • Reflectance test • Drying time test
18		Epoxy mortar	• Flexural strength • Compressive strength • Tensile strength

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
19		Paint (Ready mix oil paints and emulsion)	• Drying time • Finish time • Resistant to heat • Spreading capacity • Weight per 10 liters • Consistency

Geo Mechanics Division, Vadodara
TESTING FACILITIES AVAILABLE

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
1	Rock Mechanics Laboratory	Rock	Physical properties: • True Sp. Gravity • Porosity • Density • Water Absorption • Slake Durability test Engineering properties: • Unconfined Compressive Strength Test • Triaxial Test • Brazilian test • Point load index Strength Test Field Test • In situ rock mass test • Plate load test for evaluating modulus of elasticity and bearing capacity of rock mass. • Shear test for evaluating shear parameters of rock mass • Anchor pull out test

Engineering Geology Division
Vadodara
TESTING FACILITIES AVAILABLE

Sr.No.	Name of Sub Dn./Unit	Material / Project Category	Test details /Name of test / Name of Theme Map
1	Petrological laboratory	Rocks	• Megascopic examination of rock. • Microscopic examination of rock
		Natural aggregates Coarse(Gravel) Fine (Sand) Crushed	Petrographic analysis of natural aggregate
		Stones	Polishing of stone

South Gujarat Research Institute,
Surat
TESTING FACILITIES AVAILABLE

Sr.No.	Name of Sub Dn	Material	Test details / Name of Test
1	Material testing Sub Dn. Surat	Coarse Aggregate	• Gradation • Impact • Flakiness • Specific Gravity./Water Absorption • Elongation • Bulk density • Abrasion
		Fine aggregate	• Bulk density • Silt content • Specific Gravity./Water Absorption • Gradation • F.M.
		C. Cubes/ C.M. Cubes	• Compressive Strength
		Bricks	• Comp. strength • Water Absorption • Efflorescence • Dimension • Tolerance
		Mix design	• Cement • Kapchi (dry rodded) • Sand (density) • Compressive Strength

Sr.No.	Name of Sub Dn	Material	Test details / Name of Test
		Rubble	• Cutting • Compressive strength(dry.wet) • Specific Gravity./Water Absorption • Weathering
		Steel	• Yield strength • Ultimate Tensile strength • Elongation • Bend Test
		Cement (Physical)	• Consistency • Initial & Final setting time • Soundness by Le Chatelier mould • Comp. strength • Fineness by Blainee permeability
		Wood	• Moisture content • Density • Anatomy
		Water Absorption	• 0.2Na_2 SO_4 required to neutralize 100 ml. of Water Absorption sample using mix indicator • Organic solid • Inorganic solid • SO_3 • Chloride • Suspended matter • pH value
		Core	• Compressive Strength • Density
		Tiles	• Water Absorption • Dimension

Sr.No.	Name of Sub Dn	Material	Test details / Name of Test
			• Transverse strength • Tolerance • Tiles Abrasion
		Flush Door	• End Immersion Test • Glue Adhesion Test
2	Road Research Sub Dn. 7, Surat	Aggregate	• Gradation • Flakiness • Impact • Specific Gravity./Water Absorption • Stripping • Elongation
		Mix design -Asphalt	• Mix Design & Compacted Density of Mould.
		Bitumen	• Penetration • Ductility • Specific Gravity. • Softening • Binder content test
		Marshall mould	• Stability & flow
		Soil	• S.A. • P.I. • Proctor • R.D. • CBR • Silt content • F.M.

Sr.No.	Name of Sub Dn	Material	Test details / Name of Test
			• FDD /FMC Field Test • Benkelman Beam Test • Crust Thickness by CBR
3	Soil Mechanics Dn, Surat	Soil	• M.A. • Unconfined • P.I. • Swell pressure • Box shear • Free Swell • Permeability • Shrinkage limit • Triaxial • Pinhole • Proctor • Large size box shear • Specific Gravity. • R.D. • Consolidation • FDD/FMC
4	Soil (R&B) Sub Dn, Surat	Soil (Field Test)	• SPT N Value Test • FDD / FMC Test • FDD by Core Cutter method

Sr.No.	Name of Sub Dn	Material	Test details / Name of Test
			• FDD by Water Absorption Replacement method • FDD by Sand replacement method
5	District Lab Valsad	Coarse Aggregate	• Gradation • Impact • Abrasion • Flakiness • Specific Gravity./Water Absorption • Elongation • Stripping
		Fine Aggregate	• Specific Gravity./Water Absorption • F.M. • Silt Content
		Bricks	• Compressive Strength • Water Absorption • Efflorescence • Dimensions & tolerance
		Tiles	• Water Absorption • Trans. strength • Dimension & tolerance • Resistance to wear
		Cement	• Consistency • Setting time • Soundness • Compressive Strength

Sr.No.	Name of Sub Dn	Material	Test details / Name of Test
			• Fineness
		Wood	• Moisture content • Anatomy • Density
		Steel	• Tensile strength • Elongation • Bend Test
		C. Cube	• Compressive Strength
		Soil	• S.A./M.A. • P.I. • Proctor • CBR • Density
		Rubble	• App. Specific Gravity • Water Absorption
		Bitumen	• Penetration • Softening point • Ductility • Specific Gravity.
6	District Lab Bharuch	Coarse Aggregate	• Gradation • Impact • Flakiness • Specific Gravity./Water Absorption • Elongation • Stripping
		Fine Aggregate	• Gradation • Bulk density • R.D.

Sr.No.	Name of Sub Dn	Material	Test details / Name of Test
			• F.M. • Silt content • Specific Gravity./Water Absorption
		Brick	• Compressive Strength • Water Absorption • Efflorescence • Dimensions • Tolerance
		Cement	• Consistency • Setting time • Soundness • Compressive Strength • Fineness
		Tiles	• Water Absorption • Abrasion • Trans. St. • Dimensions & Tolerance
		Wood	• Moisture content • Anatomy • Density
		Steel	• Tensile St. • Elongation • Yield Stress
		C. Cube	• Compressive Strength
		Soil	• S.A. • CBR • P.I. • Density

Sr.No.	Name of Sub Dn	Material	Test details / Name of Test
			• Proctor
		Bitumen	• Penetration • Softening • Ductility • Specific Gravity. • Binder Content
		Rubble	• Apparent Specific Gravity • Water Absorption
7	Sectional Laboratory, Navsari	Coarse Aggregate	• Gradation • Impact • Flakiness • Specific Gravity./Water Absorption • Elongation • Bulk density • Abrasion • Stripping Test
		Fine aggregate	• Silt content • Gradation • F.M.
		C.C. Cubes	• Compressive Strength • Surface Saturation Density
		Bricks	• Compressive Strength • Water Absorption • Efflorescence • Dimension • Tolerance
		Rubble	• Apparent Specific Gravity

Sr.No.	Name of Sub Dn	Material	Test details / Name of Test
		Soil	• Sieve Analysis • Plasticity Index • Proctor Test
		Asphalt	• Penetration • Ductility Test • Softening Point Test • Specific Gravity
		Timber	• Moisture content • Density • Anatomy
8	Sectional Laboratory , Rajpipla	Coarse Aggregate	• Gradation • Impact • Flakiness • Specific Gravity/Water Absorption • Elongation • Bulk density • Stripping Test
		Fine aggregate	• Silt content • Gradation • F.M
		C.C. Cubes	• Compressive Strength • Surface Saturation Density
		Bricks	• Compressive Strength • Water Absorption • Efflorescence • Dimension • Tolerance
		Soil	• Sieve Analysis

Sr.No.	Name of Sub Dn	Material	Test details / Name of Test
			• Plasticity Index • Proctor Test
		Asphalt	• Penetration • Ductility Test • Softening Point Test • Specific Gravity
		Timber	• Moisture Content • Density • Anatomy

Sr.No.	Name of Sub Dn./Unit	Material	Test details / Name of Test
1	Material testing Sub Dn. Rajkot	Coarse Aggregate	• Gradation • Impact • Specific Gravity / Water Absorption • Bulk Density • Flakiness.
		Fine aggregate	• Bulk density • Silt content • Specific Gravity / Water Absorption • Gradation • Fineness modulus
		C.M.Cubes	• Compressive strength Density
		C. Cubes	• Compressive strength Density
		Bricks	• Compressive strength • Water Absorption • Efflorescence • Dimension & tolerance
		Concrete Mix design	• As per I S
		Harden Concrete	• Drilling of Core sampling from Concrete and compressive strength
		PCC block	• Transverse strength
		Soil	• Chemical analysis of soil extract • Chemical analysis of Soil
		Tiles	• Water Absorption • Transverse strength • Dimension • Flatness • Perpendicularity • Abrasion test

		Cement (Physical Analysis)	• **Consistency** • **Initial & Final setting time** • **Soundness by Le Chatelier** • **Compressive strength** • **Fineness by Blainee's Air Permeability**
		Cement (chemical Analysis)	• **Ratio %** • **CaO-0.7 SO_3÷ 2.8 SiO_2** • **+1.2 Al_2 O_3 + 0.65 Fe_2O_3** • **Ratio of % of Alumina (C_3A) to that iron oxide** • **Insoluble residue % by mass** • **Magnesia % by mass** • **Total Sulpher content** • **calculated as Sulphate anhydride (SO_3)% by mass** • **Total loss on Ignition %**
		Timber	• **Identification, Moisture Content, Density.**
		Water Absorption	• **Chemical analysis test for Water Absorption for construction purpose only.**
2	**District Lab. Jamnagar**	**Coarse Aggregate**	• **Gradation** • **Impact** • **Flakiness** • **Specific Gravity / Water Absorption** • **Elongation** • **Stripping** • **Soundness**
		Fine Aggregate	• **Specific Gravity / Water Absorption** • **Fineness Modulus** • **Silt Content**

		Bricks	• **Compressive Strength** • **Specific Gravity / Water Absorption** • **Efflorescence** • **Dimensions & tolerance**
		Stone	• **Compressive Strength** • **Water Absorption**
		Tiles	• **Specific Gravity / Water Absorption** • **Flatness** • **Transverse strength** • **Dimension & tolerance**
		Cement	• **Consistency** • **Setting time** • **Soundness** • **Compressive Strength** • **Fineness**
		C. Cube	• **Compressive Strength**
		C. M. Cube **Bitumen**	• **Compressive Strength** • **Penetration** • **Softening point** • **Ductility**
		Soil	• **Sieve Analysis** • **Atterberg Limit** • **Max / Min density** • **Proctor** • **F.D.D./ F.M.C**

3.	**District Lab. Junagadh**	**Coarse Aggregate**	• **Gradation** • **Impact** • **Flakiness** • **Specific Gravity / Water Absorption** • **Elongation** • **Stripping** • **Soundness**
		Fine Aggregate	• **Gradation** • **Specific Gravity / Water Absorption** • **Fineness Modulus** • **Silt content**
		Brick	• **Compressive Strength** • **Efflorescence** • **Dimensions & Tolerance**
		Cement	• **Consistency** • **Setting time** • **Soundness** • **Compressive Strength** • **Fineness**
		Tiles	• **Water Absorption** • **Flatness** • **Transverse Strength** • **Dimensions & Tolerance** • **Perpendicularity**
		C. Cube	• **Compressive Strength**
		C.M. Cube	• **Compressive Strength**
		P C C Block	• **Transverse Strength**

		Soil	• **Sieve Analysis** • **Atterberg Limit** • **Proctor test** • **California Bearing ratio**
		Bitumen	• **Penetration** • **Softening Point Test** • **Ductility**
4.	**District Lab. Bhavnagar**	**Coarse Aggregate**	• **Gradation** • **Impact** • **Flakiness** • **Specific Gravity / Water Absorption test** • **Elongation** • **Stripping** • **Soundness**
		Fine Aggregate	• **Fineness Modulus** • **Silt Content** • **Specific Gravity / Water Absorption test** • **Gradation**
		Bricks	• **Compressive Strength** • **Specific Gravity / Water Absorption test** • **Efflorescence** • **Dimensions & Tolerance**
		Cement	• **Consistency** • **Setting time** • **Soundness** • **Compressive Strength** • **Fineness**

		Tiles	• **Specific Gravity / Water Absorption test** • **Transverse Strength** • **Flatness** • **Dimension & Tolerance**
		C. Cube	• **Compressive Strength**
		C.M.Cube	• **Compressive Strength**
		Soil	• **Sieve Analysis** • **Atterberg Limit Test**
		Bitumen	• **Penetration** • **Ductility** • **Softening Point**
5.	**District Lab. Amreli**	**Coarse Aggregate**	• **Gradation** • **Impact** • **Flakiness** • **Specific Gravity / Water Absorption test** • **Elongation** • **Stripping**
		Fine Aggregate	• **Fineness Modulus** • **Silt Content** • **Specific Gravity / Water Absorption test** • **Gradation**
		Bricks	• **Compressive Strength** • **Specific Gravity / Water Absorption test** • **Efflorescence** • **Dimensions & Tolerance**

		Cement	• **Consistency** • **Setting time** • **Soundness** • **Compressive Strength** • **Fineness**
		Tiles	• **Specific Gravity / Water Absorption test** • **Perpendicularity** • **Transverse Strength** • **Dimension & Tolerance**
		C. Cube	• **Compressive Strength**
		C.M.Cube	• **Compressive Strength**
		Stone	• **Compressive Strength** • **Water Absorption** • **Specific Gravity**
6	**Dist. Lab. Surendranagar**	**Coarse Aggregate**	• **Gradation** • **Impact** • **Flakiness** • **Specific Gravity./Water Absorption** • **Stripping**
		Fine Aggregate	• **F.M.** • **Silt Content** • **Specific Gravity./Water Absorption**
		Bricks	• **Compressive Strength** • **Water Absorption** • **Efflorescence** • **Dimensions** • **Tolerance**

		Cement	• **Consistency** • **Setting time** • **Soundness** • **Compressive Strength** • **Fineness**
		Tiles	• **Water Absorption** • **Abrasion** • **Transverse Strength** • **Dimension** • **Tolerance**
		C. Cube	• **Compressive Strength**
7.	**Field Lab for HighWater Absorptiony Research Sub Dn.. Rajkot**	**Aggregate**	• **Gradation** • **Flakiness** • **Impact** • **Specific Gravity./Water Absorption** • **Stripping** • **Elongation**
			Benkelman Beam test
		Mobile testing	• **Gradation** • **Binder content** • **Impact** • **Flakiness index.** • **Impact.** • **F.M./Density** • **Bitumen**

		Bitumen	• **Penetration** • **Ductility** • **Specific Gravity.** • **Softening** • **Binder content test**
		Marshall mould	• **Stability & flow**
		Soil	• **S.A.** • **P.I.** • **Proctor** • **R.D.** • **CBR** • **Silt content** • **F.M.**
		Bitumen Mix Design	• **Penetration** • **Design**
		Stone	• **Compressive Strength(wet,dry)** • **Specific Gravity** • **Water Absorption.** • **Durability** • **Weathering.**
		Steel	• **Ultimate Tensile strength** • **Yield stress** • **Elongation**

8.	**Soil Mechanics, Rajkot**	**Soil**	• **M.A.** • **Unconfined Compressive Strength** • **P.I.** • **Swell pressure** • **Box shear (small)** • **Free Swell** • **Permeability** • **Shrinkage limit** • **Triaxial** • **Proctor** • **Specific Gravity.** • **R.D.** • **Consolidation** • **FDD/FME**
9	**Porbandar Section Lab.**	**C. Cubes**	• **Compressive Strength** • **Density**
		C.M. Cubes	• **Compressive Strength** • **Density**
		Stone	• **Compressive Strength** • **Water Absorption** • **Specific Gravity**
		Brick	• **Compressive Strength** • **Water Absorption** • **Efflorescence** • **Dimension** • **Tolerance**

		Metal	• **Flakiness** • **Elongation** • **Gradation** • **Impact** • **Specific Gravity & Water Absorption** • **Stripping**
		Bitumen	• **Penetration** • **Ductility** • **Softening point.**
		Sand	• **F.M** • **Specific Gravity. & Water Absorption** • **Silt content**
		Murrum / Soil	• **P.I** • **S.A.** • **Gradation** • **Proctor** • **F.D.D./F.M.C**

Saurashtra Research Division,
Rajkot
TESTING FACILITIES AVAILABLE

North Gujarat Research Division, Gandhinagar
TESTING FACILITIES AVAILABLE

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
1	Soil Testing Sub Dn. No. 1, Gandhinagar	Soil investigation field work	• Collection of disturbed and undisturbed soil sample by Core cutter method and Auger • FDD/FMC
		SBC Reporting	• SBC reports prepared from tests, data and field observations
2	Soil testing sub dn. No. 2 Gandhinagar	Soil (lab) test	• Sieve analysis • Mech. Analysis (soil classification) • Box shear test • Procter test • permeability • Consolidation • Triaxial test • Swell pressure • Swelling Index • FDD/FMC • Sp. gravity • Relative density • Pin hole
3	Material Testing Sub Dn., Gandhinagar	Coarse aggregate	• Gradation • Flakiness index

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
			• Impact • Specific Gravity. and Water Absorption • Elongation • Bulk density • Alkali reactivity
		Fine aggregate	• Gradation • Bulk density • Specific Gravity. and Water Absorption • Silt context • Fineness modulus
		C. Cubes	• Density • Compressive Strength
		Bricks	• Compressive strength • Water Absorption • Efflorescence • Dimension property
		Concrete mix design	• Physical properties of cement, aggregate fine aggregate (Dry density) • Compressive strength
		Stone	• Cutting • Compressive Strength • Specific Gravity and Water absorption • Weathering
		Cement (Physical)	• Consistency • Initial & final setting • Soundness by Le Chatelier • Compressive strength, 3 days, 7 days, and 28 days • Fineness by Blaine air permeability

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
		Cement (Chemical)	• Ratio % CaO-0.7 SO_2+2.88SO_2+1.2Al_2O_3+0.65 FE_2O_3 • Ratio of percentage alumina (Al_2O_3) to that Iron oxide • Calculated as Sulphate hydride (SO_3) percentage by mass • Total loss on Ignition %
		Wood (Timber)	• Moisture content • Density • Anatomy
		Tiles	• Water Absorption • Dimension • Transverse strength • Tile Abrasion test
		CM cube	• Compressive Strength
		Core	• Collection of sample from cement product • Compressive Strength • Density
		Steel	• Yield Strength Ultimate Strength • Bend test
		Water	• pH value • Chlorides • Organic matter • Inorganic matter • Sulphate • Suspended matter • Neutralization of Alkalinity • Neutralization of acidity
		Flush door	• Dimension and tolerance • Immersion • Adhesion

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
		Deflection of slab	• Plate load test
4	Road Research Sub Dn. No. 8, Gandhinagar	Aggregate coarse	• Gradation • Flakiness index • Impact • Specific Gravity. Water Absorption • Abrasion test • Stripping value • Elongation
		Aggregate Fine	• Gradation • Specific Gravity
		Mix Design Asphalt	• Marshall method
		Bitumen	• Penetration • Ductility • Softening point • Specific Gravity
		Soil	• Sieve analysis • Atterberg limit • Proctor test • Relative density • CBR • Fineness modulus
		Field Test	• FDD/FMC • Benkelman beam test
		Binder content	• Percentage Binder content

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
		from Bituminious mix material	
5	District lab. Ahmedabad	Coarse aggregate for Road building and NH specification	• Gradation • Flakiness index • Elongation • Impact • Abrasion • Specific Gravity. & Water Absorption • Stripping value
		Fine aggregate (Road Bldg.)	• Gradation • Specific Gravity. and Water Absorption • Fineness modulus • Silt content
		C. Cube	• Compressive strength
		Cement (Physical)	• Constancy • Initial and final setting • Soundness by Le Chatelier mould • Compressive Strength • Fineness by Blaine air permeability
		Brick	• Dimension tolerance • Compressive strength • Water Absorption • Efflorescence
		Tiles	• Water Absorption • Transverse strength • Dimension and tolerance • Abrasion test

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
		C.M Cube	• Compressive strength
		Steel	• Yield strength • Ultimate strength • Bend test • Elongation
		Soil	• Sieve analysis • Atterberg limit • Proctor test • Density
6	District lab. Nadiad	C. Cube	• Compressive Strength
		Brick	• Dimension tolerance • Compressive strength • Water Absorption • Efflorescence
		Cement (Physical)	• Consistency • Initial and final setting time • Soundness by Le Chatelier mould • Compressive strength • Fineness by Blaine air permeability
		C.M.Cube	• Compressive strength
		Coarse aggregate for Bldg. road, and as per NH specification	• Gradation • Flakiness index • Elongation • Water absorption & Specific Gravity • Shipping • Impact

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
		Fine aggregate	• Gradation • Flakiness index • F.M. • Silt content
		Soil testing	• Sieve analysis • Atterberg limit • proctor test
		Binder content form Asphalt mix	• Percentage bitumen content
7	District lab. Mehsana	C. Cubes	• Compressive strength
		C.M.Cube	• Compressive strength
		Cement (Physical)	• Consistency • Initial and final setting time • Soundness • Compressive strength • Fineness by Blaine air permeability
		Brick	• Water Absorption • Compressive strength • Efflorescence • Dimension and tolerance
		Coarse aggregate for Bldg. road, and as per NH	• Gradation • Flakiness index • Elongation

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
		specification	• Water Absorption & Specific Gravity • Striping • Impact
		Tiles	• Water Absorption • Transverse strength • Dimension tolerance
		Binder content from asphalt mix material	• Percentage bitumen content
8	District Lab. Palanpur	C. Cube	• Compressive strength
		C. Mortar	• Compressive strength
		Brick	• Water Absorption • Compressive strength • Efflorescence • Dimension
		Cement (Physical)	• Consistency • Initial and final setting time • Compressive strength • Fineness by Blaine and permeability
		Aggregate coarse (Road, bldg NH specification)	• Gradation • Flakiness index • Elongation • Water Absorption & Specific Gravity.

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
			• Impact value • Stripping value • Specific Gravity and Water Absorption
		Fine aggregate	• Gradation • Flakiness index • Silt content
		Binder content from mix material	• Percentage Binder content
9	District Lab. Himatnagar	C. Cubes	• Compressive strength
		C.M.Cube	• Compressive strength
		Brick	• Water Absorption • Compressive strength • Effloresce • Dimension tolerance
		Cement (Physical)	• Consistency • Initial and final setting time • Compressive strength • Soundness • Fineness by Blaine air permeability
		Aggregate (Road, bldg and as per	• Gradation • Flakiness index

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
		MOST)	• Stripping value • Impact • Specific Gravity. and Water Absorption • Elongation
		Aggregate fine	• Gradation • Fineness modulus • Silt content
		Soil	• Sieve analysis • Procter test • Atterberg limit
		Bitumen content from bituminous mix material	• Percentage binder content
10	District Lab. Bhuj	C. Cube	• Compressive strength
		C.M.Cube	• Compressive strength
		Brick	• Water Absorption • Compressive strength • Efflorescence • Dimension tolerance
		Cement (Physical)	• Consistency • Initial and final setting time • Compressive strength • Fineness by Blaine air permeability

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
			• Soundness
		Coarse Aggregate (Road, bldg and as per MOST)	• Gradation • Flakiness index • Elongation • Impact • Stripping value • Specific Gravity. & Water Absorption
		Fine Aggregate	• Gradation • Silt content • Fineness modulus
		Stone	• Water Absorption • Compressive strength
		Soil	• Sieve analysis • Atterberg limit
11	Dist. Lab. , Godhara	Coarse Aggregate	• Gradation • Impact • Flakiness • Specific Gravity / Water Absorption • Elongation • Stripping
		Fine Aggregate	• F.M. • Silt Content • Specific Gravity/Water Absorption
		Bricks	• Compressive strength • Water Absorption • Efflorescence

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
			• Dimensions • Tolerance
		Cement	• Consistency • Setting time • Soundness • Compressive strength • Fineness
		Tiles	• Water Absorption • Abrasion • Trans. St. • Dimension • Tolerance
		C.C. Cube Soil	• Compressive strength • S.A. • P. I. • Proctor • CBR • Density
		R.D. Rubble	• Specific Gravity • Water Absorption • Weathering Strength • Compressive Strength
		Bitumen	• Penetration • Softening • Ductility • Specific Gravity • Viscosity
12	Sectional Lab. Anand	Coarse Aggregate	• Gradation • Impact • Flakiness • Specific Gravity /Water Absorption

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
			• Elongation • Stripping
		Fine Aggregate	• F.M. • Silt Content • Specific Gravity. / Water Absorption
		Bricks	• Compressive strength • Water Absorption • Efflorescence • Dimensions • Tolerance
		C.C. Cube	• Compressive strength
		Soil	• S.A. • P.I. • Proctor • CBR • Density
		Bitumen	• Penetration • Softening • Ductility • Specific Gravity • Viscosity
13	Sectional Lab, Patan	Coarse Aggregate	• Gradation • Impact • Flakiness • Specific Gravity / Water Absorption • Elongation • Stripping
		Fine Aggregate	• F.M. • Silt Content

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
			• Specific Gravity / Water Absorption
		Bricks	• Compressive strength • Water Absorption • Efflorescence • Dimensions • Tolerance
14	Water Quality Testing Sub Dn (GERI), Hydrology Project, Gandhinagar	Surface Water	• Electrical conductivity by EC meter • pH by pH meter • TDS • TSS • TS • Sodium by FPM • Potassium by FPM • Calcium by Titration • Magnesium by titration • Carbonate by titration' • Bi-carbonate by titration • Chloride by titration • Sulphate by UV/VIS • Nitrate by UV/VIS • Turbidity by Nephelometer
		Heavy metals by AAS	• Zinc, Cadmium, Mercury, Lead, Copper, Barium, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Arsenic etc.
		Pesticides	• By Gas Chromatograph

Road Research Division- 1
Vadodara
Testing facilities available with laboratories.

Sr.No.	Name of Sub Division	Material	Test details / Name of Test

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
1	Road Research Sub dn. 1 (Soil Sub Unit)		• Sieve Analysis • Atterberg's limit • Light Compaction • Heavy Compaction. • Remoulded CBR • Remoulded CBR -Heavy Compaction. • Relative Density
2	Road Research Sub Dn. 2	Aggregate Metal Kapachi Grit Stone dust [for Road work]	• Gradation • Flakiness index & elongation index • Impact test • Specific gravity and Water Absorption • Stripping.
		Bitumen	• Penetration • Softening • Ductility • Specific gravity • Retained penetration after T.F.O.Test • Loss on heating • Matter Solubility in Trichloroethylene

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
		Modified Bitumen	• **Penetration** • **Softening point** • **Elastic recovery test at 15oC** • **T.F.O. tests** • **Increase in softening point** • **Reduction in Penetration** • **Loss in mass** • **Elastic recovery test at 25oC**

		Bitumen emulsion	• **Residue on 600 micron sieve**
			• **Viscosity by SFV**
			• **Particle charge**
			• **Miscibility with Water Absorption**
			  ◦ **Storage stability**
			  ◦ **Stability to mixing with cement**
			• **Tests on residue**
			• **Residue by Evaporation**
			• **Penetration at 25oC**
			• **Ductility at 27oC**
			• **Solubility in Trichloroethylene.**

		Bituminous Mix Design	• **Semi Dense Bituminous Concrete (S.D.B.C).** • **Bituminous Concrete (B.C.)** • **Dense bituminous Macadam (D.B.M.)**
		Bituminous Mix	**Binder content test**

Consultancy work

Sr.No.	Name of Sub dn.	Type of Consultancy work with brief detail
1	Road Research sub Dn 1	Crust thickness for flexible pavements for new roads-widening portion of roads in view of IRC-37 for NIH, SH, ODR & SP-20 for rural roads-village roads
2	Road Research sub Dn. 2	1. Benkelman beam deflection test 2. Distress of road surface (By measurement) 3. Causes of failure of road & its remedial measures 4. Overall performance study / observation of road

Road Research Division No.4,
Vadodara
Testing facilities available with laboratories

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
1	HighWater Absorptiony Testing Laboratory,	Aggregate	• Gradation • Combined flakiness and Elongation • Impact Value • Specific gravity & Water Absorption • Stripping value
2		Soil a) Soil	• Sieve Analysis • Atterberg's Limit • Light/standard compaction • Heavy/Modified compaction • Remoulded CBR • FDD/FMC • Crust thickness
		b) Murrum	• Sieve Analysis • Atterberg's Limit • Light/standard compaction • Heavy/Modified compaction
		c) Sand, Quarry spall & GSB	• Gradation • Max./Min. density • Remolded CBR • FDD/FMC

Sr.No.	Name of Sub Division	Material	Test details / Name of Test
3		Bitumen	• Penetration • Softening point • Ductility • Specific gravity
4		Asphaltic Mix	1) Compacted Density of Mix
5		Binder content	• % by weight • % by volume
6		Wet Mix Macadam(WMM)	• Gradation • Flakiness • Elongation • Impact • Heavy compaction

CONSULTANCY WORK

Sr.No.	Name of Sub. Dn.	Type of consultancy with brief details
1	Road Research sub Dn.No.10	Junction design
2		Road roughness Index
3		Traffic management and accident studies
4		Retro reflectometer test