Tests carried out in our laboratories

1) Physical and Chemical tests of almost all the construction materials like Cement, Fly Ash, Concrete, Masonry Blocks, Bricks, Paving Blocks, Tiles, Wood, Door Shutter, Steel, Plywood, Soil, Rock, Water ,Admixture, Bitumen, Chamber cover etc

2) Non-Destructive testing of concrete like Schmidt Rebound Hammer, Ultra sonic Pulse Velocity test, Cover Meter Test, Half Cell Potentiometer Test, Carbonation Test

3) F-CAM Test to analyse fresh concrete for Cement content.

4) Coring of Concrete of any Diameter including cutting, dressing, capping, (For Compressive strength) & carrying out various tests on the same.

5) Mix Design of Concrete including use of various chemical admixture, fly ash, slag, micro silica etc.

6) Complete Geo-Technical / Soil Investigation including site exploration and recommendations

7) All Physical tests of Bituminous materials.

W e conduct following Tests :-				Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
1.	CEMENT				
	1.1	**Physical Tests**		**Min. 20 Kg**	
		(i)	Initial/Final setting time	Min. 10 Kg	IS 4031 (Part - V)
		(ii)	Compressive Strength (3,7, & 28 Days)	Min 4 Kg	IS 4031 (Part - VI)
		(iii)	Specific Gravity / Density	Min 500 gm	IS 4031 (Part - XI)
		(iv)	Soundness		
			a) Le- Chatelier's Method	Min 500 gm	IS 4031 (Part - III)
			b) Autoclave Method	Min 2 Kg	IS 4031 (Part - III)
		(v)	Fineness : a) By Dry Sieving	Min 500 gm	IS 4031 (Part - I)
			b) By Blaines Air Permeability Method / Specific Surface	Min 200 gm	IS 4031 (Part - II)
		(vi)	Compability (Cement with Plasticizer)	Min 5 Kg (Cement) & 0.50 Litre Plasticizer	Marsh Cone
		(vii)	Consistency	Min 2.5 Kg	IS 4031 (Part - IV)
	1.2		Heat of hydration	Min. 1 Kg	IS 4031 (Part - 9) - 1988
	1.3		Chemical Analysis	Min 1 Kg	
		(i)	Loss on Ignition - (L.O.I.)	Min. 100 gm	IS 4032:1985
		(ii)	Insoluble residue (I.R.)	Min. 100 gm	IS 4032:1985
		(iii)	SO3	Min. 100 gm	IS 4032:1985
		(iv)	Silica (SiO2)	Min. 100 gm	IS 4032:1985
		(v)	Alumina (Al2O3)	Min. 100 gm	IS 4032:1985
		(vi)	Iron (Fe2O3)	Min. 100 gm	IS 4032:1985
		(vii)	Lime (CaO)	Min. 100 gm	IS 4032:1985
		(viii)	Magnesia (MgO)	Min. 100 gm	IS 4032:1985
		(ix)	Chloride(Cl-)	Min. 100 gm	IS 4032:1985
		(x)	Total Alkalies (Na2O+K2O)	Min. 100 gm	IS 4032:1985

We conduct following Tests :-				Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
1.	CEMENT				
	1.3	Chemical Analysis			
		(xi)	Tri Calcium Aluminate (C_3A)	Min. 100 gm	IS 4032 :1985
		(xii)	Tetra Calcium Aluminate ferrite(C_4AF)	Min. 100 gm	IS 4032 :1986
		(xiii)	Tri Calcium Silicate (C_3S)	Min. 100 gm	IS 4032 :1987
		(xiv)	Di Calcium Silicate (C_2S)	Min. 100 gm	IS 4032 :1988
2.	AGGREGATES				
	2.1	Fine Aggregates (Sand) - Physical Tests		Min 20 Kg	
		(i)	Sieve Analysis/Fineness Modulus	Min 5 Kg	IS 2386 - (Part - I)
		(ii)	% silt by Weight	Min 2 Kg	IS 2386 - (Part - I)
		(iii)	% silt by Volume	Min 500 gm	CPWD Speci.Vol. I
		(iv)	Bulking	Min 500 gm	IS 2386 - (Part - III)
		(v)	Water Absorption	Min 2 Kg	IS 2386 - (Part - III)
		(vi)	Specific Gravity	Min 2 Kg	IS 2386 - (Part - III)
		(vii)	Bulk Density	Min 7 kg	IS 2386 - (Part - III)
	2.2 (a)	Coarse Aggregates - Physical Tests		Min 100 Kg	
		(i)	Sieve Analysis/Fineness Modulus	Min 25 Kg	IS 2386 - (Part - I)
		(ii)	Water Absorption	Min 5 Kg	IS 2386 - (Part - III)
		(iii)	Specific Gravity	Min 5 Kg	IS 2386 - (Part - III)
		(iv)	DLBD (Dry Loose Bulk Density)	Min 30 Kg	IS 2386 - (Part - III)
		(v)	Flakiness	Min 25 Kg	IS 2386 - (Part - I)
		(vi)	Elongation	Min 25 Kg	IS 2386 - (Part - I)
		(Vii)	Combined Flakiness and Elongation	Min 25 Kg	IS 2386 - (Part - I),MORTH
	2.2 (b)	Coarse Aggregates - Mechanical Tests		Min 60 Kg	
		(i)	Impact Value	Min 5 Kg	IS 2386 - (Part - IV)
		(ii)	Crushing Value	Min 20 Kg	IS 2386 - (Part - IV)
		(iii)	10 % Fine Value	Min 20 Kg	IS 2386 - (Part - IV)
		(iv)	Los Angeles Abrasion Value	Min 20 Kg	IS 2386 - (Part - IV)
	2.3	Fine/Coarse Aggregates - Chemical Tests		Min 15 Kg	
		(i)	Soundness after One cycles (Na2SO4 or MgSO4)	Min 10 Kg	IS 2386 - (Part - V)

W e conduct following Tests :-				Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
		(ii)	Soundness after five cycles (Na2SO4 or MgSO4)	Min 10 Kg	IS 2386 - (Part - V)
		(iii)	Alkali Aggregate Reactivity	Min 1 Kg	IS 2386 - (Part - VII)
		(iv)	Organic Impurities	Min 1 Kg	IS 2386 - (Part - II)
		(v)	Deleterious Material	Min 1 Kg	IS 2386 - (Part - II)
		(vi)	pH	Min 1 Kg	IS 2720 - Part 26
		(vii)	Chloride	Min 1 Kg	IS 14959 - Part 2
		(viii)	Sulphate	Min 1 Kg	IS 2720 - Part 21
3.	**CONCRETE**				
	3.1		**Physical Tests (Concrete Masonry Blocks)**	**14 Nos**	
		(i)	Compressive Strength	8 Nos	IS 2185 (Part - I)
		(ii)	Water Absorption	3 Nos	IS 2185 (Part - I)
		(iii)	Drying Shrinkage	3 Nos	IS 2185 (Part - I)
		(iv)	Moisture Movement	3 Nos	IS 2185 (Part - I)
		(v)	Density	3 Nos	IS 2185 (Part - I)
		(vi)	Porosity	3 Nos	IS 2185 (Part - I)
	3.2		**Physical Tests (Autoclaved Aerated**	**14 Nos**	
			Concrete block)		
		(i)	Compressive Strength	3 Nos	IS 6441 (Part -V) - 1972
		(ii)	Moisture Content	3 Nos	IS 6441 (Part -V) - 1972
		(iii)	Density	3 Nos	IS 6441 (Part -V) - 1972
		(iv)	Drying Shrinkage	3 Nos	IS 6441 (Part -V) - 1972
		(v)	Sample Preparation charges (For Comp Strength or Density)	3 Nos	-----
	3.3		**Concrete-Chemical Analysis**	**Min 3 Kg**	
		(i)	pH	Min 1 Kg	IS 3025 - (Part 11)
		(ii)	Chloride	Min 1 Kg	IS 3025 - (Part - 32)
		(v)	Gradation of ingredients-Agg/ Cement Ratio	Min 500 gm	ASTM C 1084
		(vi)	Sulphur Trioxide	Min 1 Kg	IS 4032:1985
		(vii)	Calcium Oxide	Min 1 Kg	IS 4032:1985
		(viii)	Acid Soluble Chloride	Min 1 Kg	IS 14959 : Part 2
		(ix)	Sulphate	Min 1 Kg	IS 2720 : Part 21

We conduct following Tests :-			Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
3.4	**Compression Testing of Cubes / Cylinders**			
	(i)	Cubes	Min 3 Nos (or as per IS456)	IS 516 :1969
	(ii)	Cylinders	Min 3 Nos	IS 516 :2004
	(iii)	Flexural Strength of Beam	Min 2 Nos	IS 516 :2004
	(iv)	Capping of Cylinders / Cores	As per Actual	IS 516 :2004
	(v)	Modulus of Elasticity	Cylinder 6 Nos , 150 Dia and Ht 300 mm	ASTM C469-2014
	(vi)	Initial Surface Absorption (Per set)	Cube 150 mm X 150 mm X 150 mm size - 3 Nos	BIS 18811 PART 208
	(vii)	Rapid Chloride Penetration test (Per set)	Cube 150 mm X 150 mm X 150 mm size - 3 Nos	ASTM 1202-2019
	(viii)	Water Absorption (Per set)	Cube 150 mm X 150 mm X 150 mm size - 3 Nos	ASTM 18811 PART 122
	(ix) Permeability of Concrete as per IS/DIN Standard		Min 3 Nos of Cubes (Size - 150 x150x 150mm)	DIN 1048
	(x) Compressive Strength of Concrete cubes by Accelerated Curing Method		Min 3 Cubes	IS 9013 :1978
	(xi) Compressive Strength of Concrete core/Cylinder including dressing & capping		Min 3 Cores	IS 516
	(xii) Density Concrete core/Cylinder		Min 3 Cores	IS 516
	5. Mix Design of Concrete Pumpable or Conventional Concrete from Grade M -10 to M-50 including Physical properties of Cement , Coarse Aggregates and Fine Aggregates			IS 10262 ,IS 456
	(a) Cement		1 Bag	
	(b) Sand		Min 100 Kg	
	(c) Metal - I		Min 75 Kg	
	(d) Metal - II		Min 75 Kg	
	(e) Admixture (If required)		Min 2 Lits	
	3.6 Mix Design of Concrete Self Compaction Concrete from Grade M -10 to M-50 including		As mentioned Above	IS 10262 ,IS 456 EFNARC Guidelines

	We conduct following Tests :-			**Quantity of Materials Required / Specified No. of Specimen per sample / Test**	**Reference For Test method**
	Physical properties of Cement , Coarse Aggregates and Fine Aggregates				
	3.7 Mix Design of Concrete on the basis of Flexural Strength from Grade M -10 to M-50 including Physical properties of Cement , Coarse Aggregates and Fine Aggregates			As mentioned Above	IS 10262 ,IS 456
	3.8 Abrasion resistance of concrete			3 Nos (Size - 100 x100x 100mm)	IS 9284
	3.9		**F-CAM Test for Cement content in fresh concrete**	Fresh Concrete	
	3.10		**Non-destructive Testing (NDT)**		
		(i)	Schmidt Rebound Hammer	As Actual	IS 13311 (Part - 2)
		(ii)	Ultrasonic Pulse Velocity	As Actual	IS 13311 (Part - 1)
		(iii)	Cover Meter	As Actual	BS 1881 PART 204
		(iv)	Extraction and testing of Concrete Cores (from75 mm. to 150 mm. dia)	As Actual	IS 456 :2000, IS 516
		(v)	Half cell potentiometer	As Actual	ASTM C 876-2015
		(vi)	Bond test of epoxy or other bonding materials.	As Actual	IS 9162
		(vii)	Endoscopic Inspection	As Actual	-----
		(viii)	Slab Load Test	As Actual	IS 456 :2000
		(ix)	Strain Gauge	As Actual	-----
		(x)	Carbonation Test	As Actual	BS / EN 14630 - 2006
		(xi)	Vibration Meter	As Actual	-----
4.	**BRICKS**			**Min 40 Nos**	
		(i)	Water Absorption	Min 5 Nos	IS 3495 (Part-II)
		(ii)	Compressive strength	Min 5 Nos	IS 3495 (Part-I)
		(iii)	Density	Min 5 Nos	
		(iv)	Efflorescence	Min 5 Nos	IS 3495 (Part-III)
		(v)	Dimension & Tolerance	Min 20 Nos	IS 1077
5.	**PAVING BLOCK**			**Min 35 Nos**	
		(i)	Water Absorption	3 Nos	IS 15658:2006
		(ii)	Abrasion Resistance / Value	8 Nos	IS 15658:2006

We conduct following Tests :-				Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
		(iii)	Flexural Strength	8 Nos	IS 15658:2006
		(iv)	Compressive Strength	8 Nos	IS 15658:2006
		(v)	Dimension / Area	8 Nos	IS 15658:2006
	(vi) Splitting Tensile Strength			8 Nos	IS 15658:2006
6.	**TILES**				
	6.1	**CONC.FLOORING TILES (IS 1237)/ MOSAIC TILES (IS 1237) / CHEQUERED**		**Min 18 Nos**	
		(i)	Abrasion / Resistance to wear	6 Nos	IS 1237 / IS 13801
		(ii)	Water Absorption	6 Nos	IS 1237 / IS 13801
		(iii)	Wet Transverse Strength	6 Nos	IS 1237 / IS 13801
	6.2	**CERAMIC TILES**		**Min 30 Nos**	
		(i)	Scratch Hardness	3 Nos	IS 13630 (Part - 13)
		(ii)	Water Absorption	5 Nos	IS 13630 (Part - 2)
		(iii)	Modulus of Rupture	7 Nos	IS 13630 (Part-6)
		(iv)	Dimension / Surface Quality	10 Nos	IS 13630 (Part-1)
		(v)	Crazing Resistance	5 Nos	IS 13630 (Part -9)
		(vi)	Straightness	10 Nos	IS 13630 (Part-1)
		(vii)	Rectangularity	10 Nos	IS 13630 (Part-1)
		(viii)	Surface Flatness and Surface Quality	10 Nos	IS 13630 (Part-1)
	6.3	**Chemical Resistance Test on Ceramic Glazed Tiles Test Ceramic Tiles**		**Min 25 Nos**	
		(i)	Stain Test	5 Nos	IS 13630 (Part - 8)
		(ii)	Household Chemicals	5 Nos	IS 13630 (Part - 8)
		(iii)	Swimming Pool Salts	5 Nos	IS 13630 (Part - 8)
		(iv)	Acid Resistance	5 Nos	IS 13630 (Part - 8)
		(v)	Alkali Resistance	5 Nos	IS 13630 (Part - 8)
7.	**WOOD**				
		(i)	Moisture Content	1 No (Size 5 X 5 X 2.5 cm)	IS 1708 (Part - 1)

We conduct following Tests :-				Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
		(ii)	Sp. Gravity	1 No (Size 5 X 5 X 15 cm)	IS 1708 (Part - 2)
	7.1	**Timber**			
		(i)	Nail & Screw Holding Power Test	1 No (Size 5 X 5 X 15 cm)	IS 1708 (Part - 15)
		(ii)	Specific Gravity	1 No (Size 5 X 5 X 15 cm)	IS 1708 (Part - 2)
		(iii)	Moisture content	1 No (Size 5 X 5 X 2.5 cm)	IS 1708 (Part - 1)
8.	**DOOR SHUTTER (Flush, PVC, FRP, Steel, Aluminium, Wooden)**				
	8.1	**Physical Tests**		**Min 1 No of Door Shutter**	
		(i)	Dimension & Defects of squareness	1 No	IS 4020 - (Part-2)
		(ii)	Measurement & defects of General flatness		IS 4020 - (Part-3)
		(iii)	Local planeness test		IS 4020 - (Part-4)
		(iv)	Impact Indentation test		IS 4020 - (Part-5)
		(v)	Edge loading test		IS 4020 - (Part-7)
		(vi)	Shock resistance test		IS 4020 - (Part-8)
		(vii)	Buckling test		IS 4020 - (Part-9)
		(viii)	Misuse test		IS 4020 - (Part-11)
		(ix)	Slamming test		IS 4020 - (Part-10)
		(x)	Screw holding power test		IS 4020 - (Part-16)
		(xi)	Knife test		IS 4020 - (Part-14)
		(xii)	Glue Adhesion test		IS 4020 - (Part-15)
		(xiii)	End Immersion test		IS 4020 - (Part-13)
9.	**PLY WOOD**				
		(i)	Density & moisture content	3 Nos (Size - 150 X 75 mm)	IS 1734 - (Part - 1)

W e conduct following Tests :-				Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
		(ii)	Water resistance	4 Nos (Size - 250 X 250 cm)	IS 1734 - (Part - 6)
		(iii)	Test for Adhesion of Plies	3 Nos (Size - 250 X 250 cm)	IS 1734 - (Part - 5)
		(iv)	Resistance to dry heat	3 Nos (Size - 225 X 100 mm)	IS 1734 - (Part - 2)
		(v)	Nail & Screw Holding power	3 Nos (Size - 250 X 50 mm)	IS 1734 - (Part - 19)
		(vi)	Moisture content	3 Nos (Size - 150 X 75 mm)	IS 1734 - (Part - 1)
		(vii)	pH value	Any Size	IS 1734 - (Part - 8)
		Wood Particle Board			
		(i)	Moisture content & Density	3 Nos (Size - 150 X 75 mm)	IS 2380 (Part - 3)
		(ii)	Screw & Nail Withdrawal Test	3 Nos (Size - 300 X 50 mm)	IS 2380 (Part - 14)
		(iii)	Water Absorption	3 Nos (Size - 300 X 300 mm)	IS 2380 (Part - 16)
10.	**STEEL**				
	Note- Rates mentioned below is for One Bar				
	10.1	**Physical Tests (For Bar up 12 mm Dia.)**		**Min 1 No of 1 m length**	
		(i)	Tensile Strength & % Elongation	Min 600 mm	IS 1608 : 2005
		(ii)	Bend	Min 200 mm	IS 1599 :1985
		(iii)	Rebend	Min 200mm	IS 1786 : 2008
		(iv)	Weight per Mt.	Min 1000 mm	IS 1786 : 2008
	Note- Rates mentioned below is for One Bar				
	10.2	**Physical Tests (For Bar 16 mm to 25 mm Dia.)**		**Min 1 No of 1.50 m length**	
		(i)	Tensile Strength & % Elongation	Min 900 mm	IS 1608 : 2005

We conduct following Tests :-				Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
		(ii)	Bend	Min 300 mm	IS 1599 :1985
		(iii)	Rebend	Min 300mm	IS 1786 : 2008
		(iv)	Weight per Mt.	Min 1000 mm	IS 1786 : 2008
	Note- Rates mentioned below is for One Bar				
	10.3	**Physical Tests (For Bar above 25 mm Dia.)**		**Min 1 No of 1.50 m length**	
		(i)	Tensile Strength & % Elongation	Min 900 mm	IS 1608 : 2005
		(ii)	Bend	Min 300 mm	IS 1599 :1985
		(iii)	Rebend	Min 300mm	IS 1786 : 2008
		(iv)	Weight per Mt.	Min 1000 mm	IS 1786 : 2008
	10.4	**(i)**	**Pullout Test**		
			dia<12 mm	Min . 3 Bars of 1.5 m length	IS 2770 (Part 1) : 1967
			12mm<25mm	-----"-------	IS 2770 (Part 1) : 1967
			dia>25 mm	-----"-------	IS 2770 (Part 1) : 1967
	Note- Rates mentioned below is for One Bar				
	10.5	**Chemical Analysis**		Min 1 No of 300 mm	
		(i)	Carbon	Min 1 No of 300 mm	IS 228 (Part 1) : 1987
		(ii)	Sulphur	Min 1 No of 300 mm	IS 228 (Part 9) : 1989
		(iii)	Phosphorus	Min 1 No of 300 mm	IS 228 (Part 3) : 1987
		(iv)	Manganese	Min 1 No of 300 mm	IS 228 (Part 2) : 1987
	Note- Rates mentioned below is Per No of section				
	10.6	**Structural Steel**		Min 1 No of 300 mm	
		(i)	Carbon	Min 1 No of 300 mm	IS 228 (Part 1) : 1987
		(ii)	Sulphur	Min 1 No of 300 mm	IS 228 (Part 9) : 1989
		(iii)	Phosphorus	Min 1 No of 300 mm	IS 228 (Part 3) : 1987
		(iv)	Manganese	Min 1 No of 300 mm	IS 228 (Part 2) : 1987
	10.7	**Structural Steel**			
		(M.S. Plate /Angle/ I Section/Channel/Pipe etc)			
	Note- Rates mentioned below is Per No of section				
		(i)	Tensile Strength & % Elongation	Min 1 No of 300 mm	IS 1608 : 2005
		(ii)	Bend	Min 1 No of 300 mm	IS 1599 :1985
11.	**SOIL**				
	11.1	**Physical Tests**			
		(i)	Bulk Density		
		(ii)	Moisture Content	Min 1 Kg	IS 2720 (Part - 2) : 1973

W e conduct following Tests :-				Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
		(iii)	Specific Gravity	Min 500 gms	IS 2720 (Part - 3) : 1980
		(iv)	Sieve Analysis	Min 7 Kg	IS 2720 (Part - 4) : 1985
		(v)	Hydrometer Analysis	Min 200 gm (Finer than 75 µ)	IS 2720 (Part - 4) : 1985
		(vi)	Liquid Limit / Plastic Limit	Min 500 gm (Finer than 425 µ)	IS 2720 (Part - 5) : 1985
		(vii)	Shrinkage Limit	Min 200 gm (Finer than 425 µ)	IS 2720 (Part - 6) : 1972
		(viii)	Standard Proctor	Min 30 Kg	IS 2720 (Part - 7) : 1980
		(ix)	Modified Proctor & AASHTO	Min 35 Kg	IS 2720 (Part - 8) : 1983
		(x)	California Bearing Ratio (Unsoaked)	Min 35 Kg	IS 2720 (Part - 16) : 1987
		(xi)	California Bearing Ratio (Soaked)	Min 35 Kg	IS 2720 (Part - 16) : 1987
		(xii)	Direct Shear (Undrained)	Min 1 Kg (Finer than 4.75 mm)	IS 2720 (Part - 13) : 1986
		(xiii)	Direct Shear (Drained)	Min 1 Kg (Finer than 4.75 mm)	IS 2720 (Part - 13) : 1986
		(xiv)	Free Swell Index	Min 1 Kg (Min 20 gm Finer than 425 µ)	IS 2720 (Part - 40) : 1977
		(xv)	Uniformity co efficient including sieve analysis	Min 7 Kg	IS 1498 : 1970
		(xvi)	Co efficient of Curvature including sieve analysis	Min 7 Kg	IS 1498 : 1970
		(xvii)	Permeability Test Constant Head Method	Min 50 Kg	IS 2720 (Part - 36) : 1987
		(xviii)	Permeability Test Variable Head Method	Min 50 Kg	IS 2720 (Part - 17) : 1986
		(xvix)	Mix Design of GSB or WMM	Min. 50 Kg each of Coarse and Fine Aggregate which are to be used	MORTH Specification (Fifth Revision)
11.	**SOIL**				
	11.2	**Chemical Analysis**		**Min 1 Kg**	
		(i)	pH	Min 500 gm	IS 2720 (Part - 26) : 1987
		(ii)	Sulphate	Min 500 gm	IS 2720 (Part - 27) : 1977

We conduct following Tests :-				Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
		(iii)	Calcium Carbonate	Min 500 gm	IS 2720 (Part - 23) : 1976
		(iv)	Total Soluble Solids	Min 500 gm	IS 2720 (Part - 21) : 1977
		(v)	Organic Matter	Min 500 gm	IS 2720 (Part - 22) : 1972
		(vi)	Chloride	Min 500 gm	IS 14959 : Part 2
	11.3	**FIELD TESTS**			
		(i)	Field Density by Core Cutter (In PMC Limit) For First Point including Site visit	As Actual on site (Min 1 Point)	IS 2720 (Part - 29) : 1975
		(ii)	Field Density by Core Cutter (In PMC Limit) For Extra Point.	As Actual on site	IS 2720 (Part - 29) : 1975
		(iii)	Field Density by Sand Replacement Method (In PMC Limit) For First Point.	As Actual on site (Min 1 Point)	IS 2720 (Part - 28) : 1974
		(iv)	Field Density by Sand Replacement Method (In PMC Limit) For Extra Point.	As Actual on site	IS 2720 (Part - 28) : 1974
		(v)	Standard Penetration Test in Pit	As Actual on site	IS 2131 : 1981
		(vi)	Plate Load Test excluding excavation, transport & report	As Actual on site	IS 1888:1982
		(vii)	Exploratory Boring with undisturbed samples, Standard Penetration Tests, Water samples & Geotechnical report	As Actual on site	IS 1892 :1979
		(viii)	Field CBR	As Actual on site	IS 2720 (Part - 31) : 1990
12.	**ROCK**				
	12.1	**Physical Tests**			
		(i)	Dry Density	5 Nos of Cubical Specimen of size 50 X 50 X 50 mm or Cylidrical Specimen of Dia. 50 mm and depth up to 150 mm length	IS 1124 :1974
		(ii)	Specific Gravity	do	IS 1124 :1974

W e conduct following Tests :-				Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
		(iii)	Water Absorption	_____do _____	IS 1124 :1974
		(iv)	Unconfined Crushing Strength	_____do _____	IS 9143 : 1979
		(v)	Porosity	do	IS 1124 :1974
		(vi)	Petrographic examination of Rock	Boulder of size at least 80 -100 mm	
		(vii)	Rock Cutting Charges (For Unconfined Crushing strength or density test)	Applicable if received sample is not as per above mentioned size.	NA
	12.2	**Chemical Tests**			
		(i)	Sulphate	Sample of any size & Shape	IS 2720 : Part 27
		(ii)	Chloride	_____do _____	IS 14959 Part 2
		(iii)	pH Value	_____do _____	IS 2720 Part 26
13.	**HYDRATED LIME (NEERU/ QUICK LIME) Chem. Tests**			**Min 1 Kg**	
		(i)	Insoluble residue	Min 250 gm	IS 6932 (Part- 1) : 1973
		(ii)	Silica	Min 250 gm	IS 6932 (Part- 1) : 1973
		(iii)	Combined Alumina & Ferric Oxide	Min 250 gm	IS 6932 (Part- 1) : 1973
		(iv)	Calcium Oxide (CaO)	Min 250 gm	IS 6932 (Part- 1) : 1973
		(v)	Magnesia (MgO)	Min 250 gm	IS 6932 (Part- 1) : 1973
		(vi)	Loss on Ignition (LOI)	Min 250 gm	IS 6932 (Part- 1) : 1973
14.	**CONSTRUCTION CHEMICALS**				
		(i)	pH	Min 1 Lit.	IS 9103 : 1999
		(ii)	Chlorides	Min 1 Lit.	IS 6925:1973
15	**ADMIXTURE- Chemical Analysis**			**Min 1 Ltr**	
		(i)	pH	Min 1 Ltr	IS 9103 : 1999
		(ii)	Chlorides	Min 1 Ltr	IS 6925:1973
		(iv)	Dry Material Content	Min 1 Ltr	IS 9103 : 1999
		(v)	Relative Density	Min 1 Ltr	IS 9103 : 1999
		(vi)	Ash Content	Min 1 Ltr	IS 9103 : 1999
16	**WATER**			**Min 5 Ltrs**	
		(i)	Chlorides	Min 1 Ltr.	IS 3025 (Part -32):1988
		(ii)	Sulphates	Min 1 Ltr.	IS 3025 (Part -24):1986
		(iii)	pH	Min 1 Ltr.	IS 3025 (Part -11):1983

We conduct following Tests :-				Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
		(iv)	Alkalinity	Min 1 Ltr.	IS 3025 (Part -23):1986
		(v)	Total Hardness	Min 1 Ltr.	IS 3025 (Part -21):1983
		(vi)	Suspended solids	Min 1 Ltr.	IS 3025 (Part -15):1984
		(vii)	Organic Impurities	Min 1 Ltr.	IS 3025 (Part -18):1984
		(viii)	Inorganic Impurities	Min 1 Ltr.	IS 3025 (Part -18):1984
		(ix)	Total Dissolved Solids	Min 1 Ltr.	IS 3025 (Part -17):1984
		(x)	Acidity	Min 1 Ltr.	IS 3025 (Part -22):1984
17	**FLY ASH**				
	17.1	**Physical Tests**		**Min 7 Kg**	
		(i)	Fineness by wet sieving	Min 500 gm	IS 1727 :1967
		(ii)	Soundness	Min 500 gm	IS 1727 :1967
		(iii)	Setting time	Min 2 Kg	IS 1727 :1967
		(iv)	Lime reactivity	Min 1 Kg	IS 1727 :1967
		(v)	Compressive Strength	Min 2 Kg	IS 1727 :1967
		(vi)	Sp. Gravity	Min 500 gm	IS 1727 :1967
		(vii)	Sp. Surface	Min 200 gm	IS 1727 :1967
17	**FLY ASH**				
	17.2	**Chemical Analysis**		**Min 1 Kg**	
		(i)	Loss on Ignition - (L.O.I.)	Min. 100 gm	IS 1727 :1967
		(ii)	Silicon dioxide SiO_2	Min 500 gms	IS 1727 :1967
		(iii)	Combined Alumina & Ferric Oxide	Min 250 gm	IS 6932 (Part- 1) : 1973
		(iv)	Calcium Oxide CaO	Min 500 gms	IS 1727 :1967
		(v)	Magnesia	Min 500 gms	IS 1727 :1967
		(vi)	Sulphuric Anhydride SO3	Min 500 gms	IS 1727 :1967
		(vii)	Chloride(Cl^-)	Min. 100 gm	IS 4032:1985
		(viii)	Total Available Alkalies	Min. 100 gm	IS 3812 Part 1 & 2
18		**Stone / Marble Tiles/Marble Slabs**			
		(i)	Water Absorption	300 X 300 mm - 3 Nos	IS 1130:1969
		(ii)	Hardness on Moh's Scale	300 X 300 mm - 3 Nos	IS 13630 (Part - 13)
		(iii)	Specific gravity	300 X 300 mm - 3 Nos	IS 1122 :1974
19	**BITUMEN / TAR**				
		Physical Test			
		(i)	Softening Point	Min 500 gms	IS 1205 : 1978
		(ii)	Penetration Test	Min 500 gms	IS 1203 : 1978
		(iii)	Flash & Fire Point	Min 500 gms	IS 1209 : 1978
		(iv)	Specific Gravity	Min 500 gms	IS 1202 : 1978

W e conduct following Tests :-				Quantity of Materials Required / Specified No. of Specimen per sample / Test	Reference For Test method
		(v)	Ductility	Min 500 gms	IS 1208 : 1978
		(vi)	Viscosity (Kinematic)	Min 500 gms	IS 1206 (Part-1) : 1978
		(vii)	Viscosity (Absolute)	Min 500 gms	IS 1206 (Part-1) : 1978
		(viii)	Marshal Stability Test	Marshall Moulded specimen 3 Nos	MS II,ASTM D 1559-62T
		(ix)	Marshal Stability Test (Involving preparation of moulds)	Min 5 kg Bit. Mix	MS II,ASTM D 1559-62T
		(x)	Test on materials for Mix Design of BM,DBM ,SDBC or AC	Min 50 Kg of each Aggregates and 3Kg of Bitumen in Metal Container	MORTH 2001 , MS II
		(xi)	Bituminous Concrete/Macadam Mix Design/ Job Mix Formula (including materials testing.)	Min 50 Kg of each Aggregates and 3Kg of Bitumen in Metal Container	MORTH 2001, MS II
		(xii)	Bitumen Binder Content	Min 2 Kg Bit. Mix	ASTM D 2172 (Part II)
		(xiii)	Gradation of Aggregate mix	Min 2 Kg Bit. Mix	MORTH 2001
		(xiv)	Stripping Value	5 kg (Agg)+ 1 Kg(Bit)	IS 6241 : 1971
		(xv)	Bitumen Core Extraction	As Actual on site	NA
20	**GYPSUM PLASTER**				
			Physical Tests	**Min 20 Kg**	
		(i)	Compressive Strength	Min 5 Kg	IS 2542 (Part I) -1978
		(ii)	Consistency	min 2.5 Kg	IS 2542 (Part I) -1978
		(iii)	Dry Bulk Density	20 Kg	IS 2542 (Part I) -1978
		(iv)	Dry Set Density	Min 5 Kg	IS 2542 (Part I) -1978
		(v)	Setting Time	Min 1 Kg	IS 2542 (Part I) -1978
		(vi)	Sieve Analysis on 150 Micron Sieve	Min 0.50 Kg	IS 2547 (Part I) -1976
			Chemical Tests	**Min 1 Kg**	
		(i)	Sulphur Trioxide	Min 100 gm	IS 1288-1982
		(ii)	Calcium Oxide	Min 100 gm	IS 1288-1982
		(iii)	Magnesium Oxide	Min 100 gm	IS 1288-1982
		(iv)	Loss on Ignition	Min 100 gm	IS 1288-1982
		(v)	Free Lime	Min 100 gm	IS 1288-1982

W e conduct following Tests :-				**Quantity of Materials Required / Specified No. of Specimen per sample / Test**	**Reference For Test method**
21	**CHAMBER COVER**				
	(i)	Load Test		1 No	IS 12592-2002
22	**GGBS**				
	Physical Tests			**Min 10 Kg**	
	(1) Standard Consistency			Min 2 Kg	BS 6699-1992
	(2) Soundness			Min 1 Kg	
	(3) Initial and Final Setting time			Min 1 Kg	
	(4) Compressive Strength (7 & 28 days)			Min 2 Kg	
	(5) Moisture Content			Min 500 Gm	
	(6) Sp Surface			Min 500 Gm	
	Chemical Analysis				
	(1) Silicon dioxide SiO_2			Min 100 gm	IS 4032:1985 ,IS 12089:1987 IS 16714:2018
	(2)Aluminium Oxide Al_2O_3			Min 100 gm	
	(3) Iron Oxide Fe_2O_3			Min 100 gm	
	(4) Calcium Oxide CaO			Min 100 gm	
	(5) Magnesium Oxide MgO			Min 100 gm	
	(6) Total Sulphur as Sulphur-trioxide SO_3			Min 100 gm	
	(7) Available alkalies as Sodium Oxide			Min 100 gm	
	(8) Loss on Ignition			Min 100 gm	
	(9)Titanium Oxide			Min 100 gm	
23		**Physical Tests (CLC Concrete block)**			
		(i)	Compressive Strength	12 Nos	IS 6441 (Part 5):1972
		(ii)	Moisture content	3 Nos	IS 6441 (Part 5):1972
		(iii)	Density	3 Nos	IS 6441 (Part 1):1972
		(iv)	Drying Shrinkage	3 Nos	IS 6441 (Part 2):1972
		(v)	Sample Preparation charges (For Comp Strength or Density)	3 Nos	IS 6441 (Part 5):1972 or IS 6441 (Part 1):1972
24	**MINERAL PLASTER**				
		Chemical Analysis		**Min 2 Kg**	
		(i)	Free Water (%)	Min 500 gm	IS 1288 :1982
		(ii)	Combined Water (%)	Min 500 gm	IS 1288 :1982
		(iii)	Silica and other insolubles (%)	Min 100 gm	IS 1288 :1982

W e conduct following Tests :-				**Quantity of Materials Required / Specified No. of Specimen per sample / Test**	**Reference For Test method**
		(iv)	Iron & Aluminium Oxide	Min 100 gm	IS 1288 :1982
		(v)	Magenesium Oxide (MgO)	Min 100 gm	IS 1288 :1982
		(vi)	Sulphur Trioxide	Min 100 gm	IS 1288 :1982
		(vii)	Calcium Suplphate Dihydrate	Min 100 gm	IS 1288 :1982
		(viii)	Calcium Oxide (%)	Min 100 gm	IS 1288 :1982