

Laboratory **Bureau Veritas (India) Private Limited - Construction Services**
Laboratory, Shed No. C-27, Industrial Estate Yeyyadi, Mangaluru,
Karnataka

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-6370**

Page 1 of 5

Validity **06.10.2017 to 05.10.2019**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>MECHANICAL TESTING</u>				
I.	BUILDING MATERIALS			
1.	Aggregate (Coarse)	Sieve Analysis	IS 2386 (Part I)	0.1 % to 100% (4.75 mm to 40 mm)
		Flakiness Index	IS 2386 (Part I)	1% to 70%
		Elongation Index	IS 2386 (Part I)	1% to 70%
		Water Absorption	IS 2386 (Part III)	0.1% to 5%
		Specific Gravity	IS 2386(Part III)	2 to 4
		Aggregate Impact Value	IS 2386(Part IV)	1% to 50%
		Aggregate Crushing Value	IS 2386(Part IV)	1% to 50%
		Bulk Density (Loose & Rodded)	IS 2386(Part III)	0.5 kg/L to 3.0 kg/L
		10% Fines Value	IS 2386 (Part IV)	3 T to 100 T
		Particle Finer Than 75 Micron	IS 2386(Part I)	0.1% to 20%
2.	Aggregate Fine	Sieve Analysis	IS 2386 (Part I)	0.1 % to 100% (75 μ to 4.75 mm)
		Water Absorption	IS 2386 (Part III)	1% to 10%
		Specific Gravity	IS 2386 (Part III)	2 to 4
		Bulk Density (Loose & Rodded)	IS 2386 (Part III)	0.5 kg/L to 3.0 kg/L

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Page 2 of 5

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		Particle Finer Than 75 Micron	IS 2386 (Part I)	0.1% to 20%
3.	Bricks	Water Absorption	IS 3495 (Part 2)	0.1% to 25%
		Compressive Strength	IS 3495 (Part 1)	1 MPa to 20 MPa
		Efflorescence	IS 3495 (Part 3)	Qualitative
4.	Concrete Blocks (Hollow & Solid)	Water Absorption	IS 2185 (Part 1) Annex-E	1% to 10%
		Compressive Strength	IS 2185 (Part -1) Annex-D	1 MPa to 25 MPa
		Block Density	IS 2185 (Part -1) Annex-C	1000 kg/m ³ to 2200 kg/m ³
5.	Hardened concrete	Compressive Strength	IS 516	5 N/mm ² to 80 N/mm ²
6.	Paver Blocks	Water Absorption	IS-15658 (Annex C)	1% to 20%
		Compressive strength	IS-15658 (Annex D)	10 N/mm ² to 80 N/mm ²
		Split Tensile Strength	IS-15658 (Annex F)	0.1N/mm ² to 10 N/mm ²
		Flexural Strength	IS-15658 (Annex G)	0.1N/mm ² to 15 N/mm ²
7	Tiles-Ceramic	Water Absorption	IS:13630 (Part 2)	0.1% to 20%

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Page 3 of 5

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II.	MECHANICAL PROPERTIES OF METALS			
1.	Reinforcing HYSD bars/ Structural Steel	Weight / meter run	IS 1786 IS 808	0.1 kg/m to 55 kg/m
		0.2% Proof Stress/ Yield stress	IS 1608	100 N/mm ² to 700 N/mm ²
		Ultimate Tensile Strength	IS 1608	100 N/mm ² to 900 N/mm ²
		Elongation	IS 1608	1% to 50%
		Bend	IS 1599	Qualitative (Mandrel Diameter in mm: 16, 20, 24, 30, 32, 36, 40, 48, 50, 60, 64, 75, 80, 84, 96, 100, 108, 112, 125, 128, 140, 144, 150, 160, 168, 180, 192, 216)
		Rebend test	IS 1786	Qualitative (Mandrel Diameter in mm: 16, 20, 24, 30, 32, 36, 40, 48, 50, 60, 64, 75, 80, 84, 96, 100, 108, 112, 125, 128, 140, 144, 150, 160, 168, 180, 192, 216)
III.	SOIL & ROCK			
1.	Soil	Particle size Sieve Analysis Wet Sieve Analysis Hydrometer	IS 2720 (Part 4) Cl. 3.0 Cl. 4.3 Cl. 5.2	0 to 100% (75 µ to 4.75 mm) 0 to 100% (2 µ to 75 µ) 0 to 100% (< 2µ)
		Specific gravity	IS 2720 (Part 3)	2.0 to 2.8

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Page 4 of 5

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		Specific gravity	IS 2720 (Part 3)	2.0 to 2.8
		Liquid limit	IS 2720 (Part 5)	15% to 600%
		Plastic limit	IS 2720 (Part 5)	10% to 60%
		Moisture Content	IS 2720 (Part 2)	0.1% to 80%
		Light Compaction (Standard Proctor) Optimum Moisture Content Maximum Dry Density	IS 2720 (Part 7)	6% to 45% 1.3 g/cm ³ to 2.3 g/cm ³
		Heavy Compaction (Modified proctor) Optimum Moisture Content Maximum Dry Density	IS 2720 (Part 8)	6% to 40% 1.3g/cc to 3.0g/cc
		Direct Shear	IS 2720 (Part 13)	C=0 kg/cm ² to 1.0 kg/cm ² Angle of friction $\phi=15^{\circ}-45^{\circ}$
		Triaxial Strength without Pore Pressure	IS 2720 (Part 11)	C= 0kg/cm ² to 1.0 kg/cm ² Angle of friction $\phi=0^{\circ}-45^{\circ}$
		Consolidation test	IS 2720 (Part 15)	Cc: 0.01 to 0.05
		Free Swell Index	IS 2720 (Part 40)	0 to 800%
		California Bearing Ratio	IS 2720 (Part 16)	1% to 80%

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Page 5 of 5

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<u>NON-DESTRUCTIVE TESTING</u>				
I.	BUILDING MATERIAL			
1.	Reinforced Concrete	Rebound Hammer test	IS 13311(Part 2)	10 to 50 (Rebound Number)
		Ultrasonic Pulse Velocity Test	IS 13311(Part 1)	0.1 km/sec to 5 km/sec
		Cover meter Test	BS 1881 (Part 204)	5 mm to 90 mm