

Laboratory **Manglam Consultancy Services, Block B, Flate No. 1 & 2, Safal Apartment-2, Collage Road, Dahod, Gujarat**

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

Certificate Number **TC-8090**

Page 1 of 3

Validity **19.11.2018 to 18.11.2020**

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
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MECHANICAL TESTING

I.	BUILDING MATERIALS			
1.	Cement (OPC/PPC)	Consistency	IS 4031 (Part 4)	25 % to 40 %
		Initial Setting Time	IS 4031 (Part 5)	30 minute to 250 minute
		Final Setting Time	IS 4031 (Part 5)	100 minute to 600 minute
		Compressive Strength	IS 4031 (Part 6)	10 N/mm ² to 80 N/mm ²
		Soundness by Le-Chatilier Method	IS 4031 (Part 3)	0.5 mm to 10 mm
		Fineness by Blain's Method	IS 4031 (Part 2)	100 m ² /kg to 500 m ² /kg
2.	Concrete	Compressive Strength	IS 516	10 N/mm ² to 80 N/mm ²
		Flexural Strength	IS 516	1 N/mm ² to 10 N/mm ²
3.	Burnt Clay Building Bricks / Fly Ash Brick	Water Absorption	IS 3495 (Part 2)	2 % to 25 %
		Efflorescence	IS 3495 (Part 3)	Qualitative
		Compressive Strength	IS 3495 (Part 1)	1 N/mm ² to 30 N/mm ²
		Dimension	IS 1077 IS 12894	L: 4500 mm to 4700 mm W: 2100 mm to 2300 mm H: 1300 mm to 1500 mm
4.	Coarse Aggregate	Sieve Analysis	IS 2386 (Part 1)	4.75 mm to 125 mm (0 % to 100 %)
		Bulk Density	IS 2386 (Part 3)	1.2 kg/L to 3.0 kg/L
		Flakiness Index	IS 2386 (Part 1)	5 % to 60 %
		Elongation Index	IS 2386 (Part 1)	5 % to 60 %
		Impact value	IS 2386 (Part 4)	5 % to 60 %
		Crushing Value	IS 2386 (Part 4)	5 % to 60 %
		Loss Angles Abrasion	IS 2386 (Part 4)	5 % to 60 %
		Specific Gravity	IS 2386 (Part 3)	2 to 3
5.	Fine Aggregate	Sieve Analysis	IS 2386 (Part 1)	150 μm to 10 mm (0 % to 100 %)
		Bulk Density	IS 2386 (Part 3)	1.2 kg/L to 3 kg/L
		Specific Gravity	IS 2386 (Part 3)	2 to 3

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Page 2 of 3

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6.	Concrete Paver Blocks	Compressive Strength	IS 15658 (Annexure D)	10 N/mm ² to 80 N/mm ²
		Water Absorption	IS 15658 (Annexure C)	0.5 % to 20 %
7.	Bitumen	Specific Gravity	IS 1202	0.99 to 1.102
		Ductility	IS 1208	75 cm to 100 cm
		Penetration	IS 1203	1 Division to 400 Division
		Softening Point	IS 1205	40 °C to 55 °C
		Absolute Viscosity@60 °C	IS 1206 (Part 2)	2000 Poise to 6000 Poise
		Kinematic Viscosity @ 135 °C	IS 1206 (Part 3)	300 cSt to 600 cSt
8.	Bitumen Mix	Binder Content	IRC SP 11 (Appendix 5, Clause C)	1 % to 10 %
		Marshal Stability	ASTM D 6927	600 kg to 1500 kg
		Flow Test	ASTM D 6927	1 mm to 10 mm
		Density	ASTM D 2726	1.5 g/cc to 3.5 g/cc
II.	SOIL & ROCK			
1.	Soil	Grain Size Analysis (Wet Analysis)	IS 2720 (Part 4)	75 µm to 4.75 mm (0 % to 100 %)
		California Bearing Ratio (Soaked)	IS 2720 (Part 16)	1 % to 60 %
		Light Compaction	IS 2720 (Part 7)	MDD: 1 g/cc to 2.1 g/cc OMC: 5 % to 30 %
		Heavy Compaction	IS 2720 (Part 8)	MDD: 1.4 g/cc to 2.6 g/cc OMC: 5 % to 30 %
		Direct Shear Test	IS 2720 (Part 13)	0 kg/cm ² to 0.4 kg/cm ² Φ: 5° to 50°
		Free Swell Index	IS 2720 (Part 40)	10 % to 150 %
		Specific Gravity	IS 2720 (Part 3)	2.4 to 3.0
		Shrinkage Limit	IS 2720 (Part 6)	7 % to 25 %
		Liquid Limit	IS 2720 (Part 5)	25 % to 80 %
Plastic Limit	IS 2720 (Part 5)	5 % to 50 %		

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III.	MECHANICAL PROPERTIES OF METALS			
1.	High Strength Deformed Steel Bars and Concrete Reinforcement Bars	Mass per meter	IS 1786	0.1 kg/m to 9.5 kg/m
		Tensile Strength	IS 1608	100 N/mm ² to 800 N/mm ²
		Yield Stress	IS 1608	100 N/mm ² to 800 N/mm ²
		Elongation (%)	IS 1608	10 % to 40 %
		Bend Test	IS 1599	Qualitative (Mandrel Diameter: 24 mm, 30 mm, 32 mm, 36 mm, 40 mm, 48 mm, 64 mm, 66 mm, 80 mm, 100 mm, 125 mm, 128 mm and 160 mm)
		Re-bend Test	IS 1786	Qualitative (Mandrel Diameter: 40 mm, 50 mm, 84 mm, 112 mm, 140 mm, 175 mm and 224 mm)