

Laboratory **Manglam Consultancy Services, 30, Prabhakunj Society, Godhra, Gujarat**

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

Certificate Number **TC-6508**

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Validity **15.11.2017 to 14.11.2019**

Last Amended on **05.11.2018**

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.	<b>BUILDING MATERIAL</b>			
1.	<b>Cement (OPC/PPC)</b>	Consistency	IS 4031 (Part 4) 1988, (RA 2014)	25% to 40%
		Initial Setting Time	IS 4031 (Part 5) 1988, (RA 2014)	30 minutes to 250 minutes
		Final Setting Time	IS 4031 (Part 5) 1988, (RA 2014)	100 minutes to 700 minutes
		Compressive Strength	IS 4031 (Part 6) 1988, (RA 2014)	01 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>
		Soundness by Le-Chatelier Method	IS 4031 (Part 3) 1988, (RA 2014)	0.5 mm to 10 mm
		Fineness by Blain's Method	IS 4031 (Part 2) 1999, (RA 2013)	100 m <sup>2</sup> /kg to 600 m <sup>2</sup> /kg
2.	<b>Concrete</b>	Compressive Strength	IS 516-1959, (RA 2013)	upto 44 N/mm <sup>2</sup>
3.	<b>Bricks/Fly Ash Bricks</b>	Compressive Strength	IS 3495-1992, (RA 2016)	2.5 N/mm <sup>2</sup> to 12.5 N/mm <sup>2</sup>
		Water Absorption	IS 3495 (Part 2)-1992, (RA 2016)	2% to 25%
		Dimension	IS 1077-1992, (RA 2016)	
		Length		4400 mm to 4800 mm
		Width		2000 mm to 2300 mm
		Height		1200 mm to 1500 mm
	Effloresce	IS 3495 (Part 3)-1992, (RA 2016)	Qualitative	
4.	<b>Aggregate Coarse</b>	Flakiness Index	IS 2386 (Part 1)-1963, (RA 2016)	5% to 40%
		Elongation Index	IS 2386 (Part 1)-1963, (RA 2016)	5% to 40%

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		Impact Value	IS 2386 (Part 4)-1963, (RA 2016)	5% to 50%
		Los Angeles Abrasion Value	IS 2386 (Part 4)-1963, (RA 2016)	5% to 60%
		Crushing Value	IS 2386 (Part 4)-1963, (RA 2016)	5% to 60%
		Sieve analysis of Aggregate	IS 2386 (Part 1)-1963, (RA 2016)	0 to 100% (90.0 mm to 4.75 mm)
		Specific Gravity	IS 2386 (Part 3)-1963, (RA 2016)	2.5 to 3.5
		Water Absorption	IS 2386 (Part 3)-1963, (RA 2016)	1% to 10%
5.	<b>Aggregate Fine</b>	Sieve analysis	IS 2386 (Part 1)-1963, (RA 2016)	0 to 100%
		Specific Gravity	IS 2386 (Part 3)-1963, (RA 2016)	2.5 to 3.5
		Water Absorption	IS 2386 (Part 3)-1963, (RA 2016)	1% to 10%
		Material Finer than 75 micron	IS 2386 (Part 1)-1963, (RA 2016)	0 to 5%
6.	<b>Paver Block</b>	Compressive Strength	IS 15658-2006, (RA 2017), Annex D	upto 44 N/mm <sup>2</sup>
		Water Absorption	IS 15658-RA 2006, (RA 2017) Annex C	0.5% to 20%
7.	<b>Bitumen</b>	Specific Gravity	IS 1202-1978 (RA 2013)	0.99 to 1.102
		Ductility	IS 1208-1978 (RA 2014)	0 to 100 cm
		Penetration	IS 1203-1978 (RA 2013)	50 to 100 (1/10) mm
		Softening Point	IS 1205-1978 (RA 2014)	20°C to 65°C
		Absolute Viscosity	IS 1206 (Part-2)-1978 (RA 2014)	800 Poise to 4800 Poise
		Kinematics Viscosity	IS 1206 (Part-3)-1978 (RA 2014)	250 cSt to 700 cSt

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8.	<b>Bituminous mix</b>	Binder Content	IRC SP-11 1984 Appendix 5 Clause C	1% to 10%
		Marshal Stability	ASTM D 6927:2015	6 kN to 25 kN
		Flow Test	ASTM D 6927:2015	1 mm to 10 mm
		Density	ASTM D 2726:2017	1.5 g/cm <sup>3</sup> to 3.5 g/cm <sup>3</sup>
II.	<b>SOIL &amp; ROCK</b>			
1.	<b>Soil</b>	California Bearing Ratio	IS 2720 (Part 16)-1987 (RA 2016)	1% to 60%
		Light Compaction Maximum Dry Density Optimum Moisture Content	IS 2720 (Part 7)-1980, (RA 2016)	1 g/cm <sup>3</sup> to 2.1 g/cm <sup>3</sup> 5% to 40%
		Heavy Compaction Maximum Dry Density Optimum Moisture Content	IS 2720 (Part 8)-1983, (RA 2015)	1.4 g/cm <sup>3</sup> to 2.6 g/cm <sup>3</sup> 5% to 40%
		Direct Shear Test	IS 2720 (Part 13)-1986, (RA 2016)	0 to 0.4 kg/cm <sup>2</sup> ø 5-50°
		Free Swell Index	IS 2720 (Part 40)-1977, (RA 2016)	1% to 400%
		Specific Gravity	IS 2720 (Part 3)-1980, (RA 2016)	2.4 to 3.0
		Shrinkage Limit	IS 2720 (Part 6)-1972, (RA 2016)	5.0% to 25%
		Liquid Limit	IS 2720 (Part 5)-1985, (RA 2015)	22% to 120%
		Plastic Limit	IS 2720 (Part 5)-1985, (RA 2015)	6% to 50%
		Grain Size analysis (Wet)	IS 2720 (Part 4)-1985, (RA 2015)	0 to 100%
		Consolidation	IS 2720 (Part 15)-1965, (RA 2016)	P <sub>c</sub> = 0.5 kg/cm <sup>2</sup> to 5.0 kg/cm <sup>2</sup> Cc=0.001 to 5.0