

Laboratory Ahmedabad Engineering Research Institute, G-4, Newyork Tower,  
Thaltej Cross Road, Ahmedabad, Gujarat

Accreditation Standard ISO/IEC 17025: 2017

Certificate Number TC-6629

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Validity 06.12.2017 to 05.12.2019

Last Amended on 27.01.2019

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 MATERIAL			
1.	Coarse Aggregate	Sieve Analysis	IS 2386 (Part 1): 1963 (RA 2016)	4.75 micron to 125 mm (0 to 100%)
		Elongation Index	IS 2386 (Part 1) : 1963 (RA 2016)	1 % to 70 %
		Flakiness Index	IS 2386 (Part 1) : 1963 (RA 2016)	1 % to 70 %
		Impact value	IS 2386 (Part 4) : 1963 (RA 2016)	1% to 50%
		Specific Gravity	IS 2386 (Part 3) : 1963 (RA 2016)	1.2 to 3.20
		Los Angeles Abrasion Value	IS 2386 (Part 4) : 1963 (RA 2016)	1.0 % to 50 %
		Water Absorption	IS 2386 (Part 3) : 1963 (RA 2016)	0.1 % to 30 %
2.	Fine Aggregate	Sieve Analysis	IS 2386 (Part 1) : 1963 (RA 2016)	10 mm to 150 µm (0 to 100%)
		Material Finer Than 75 micron	IS 2386 (Part 1) : 1963 (RA 2016) Clause No 3	1% to 30 %
		Specific gravity	IS 2386 (Part 3) : 1963 (RA 2016)	1.2 to 3.0
		Water absorption	IS 2386 (Part 3) : 1963 (RA 2016)	0.1 % to 30 %
3.	Cement	Final Setting Times	IS 4031 (Part 5) : 1988	30 minutes to 600

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			(RA 2014)	minutes
		Initial setting times	IS 4031 (Part 5) : 1988 (RA 2014)	30 minutes to 300 minutes
		Consistency	IS 4031 (Part 4) : 1988 (RA 2014)	15% to 40%
		Compressive Strength	IS 4031 (Part 6) : 1988 (RA 2014)	1 N/mm <sup>2</sup> to 85 N/mm <sup>2</sup>
		Fineness By Blaine Air Permeability	IS 4031 (Part 2) : 1988 (RA 2014)	150 m <sup>2</sup> /kg to 600 m <sup>2</sup> /kg
		Soundness by Le-chatelier method	IS 4031 (Part 3) : 1988 (RA 2014)	0.5 mm to 10 mm
4.	Bricks	Dimension - Length	IS 1077: 1992 (RA 2016)	3000 mm to 5000 mm
		Dimension - Width	IS 1077: 1992 (RA 2016)	1500 mm to 2500 mm
		Dimension - Height	IS 1077: 1992 (RA 2016)	800 mm to 1800 mm
		Water Absorption	IS 3495 (Part 2) : 1992 (RA 2016)	1% to 30%
		Compressive strength	IS 3495 (Part 1) : 1992 (RA 2016)	1 N/mm <sup>2</sup> to 35 N/mm <sup>2</sup>
		Efflorescence	IS 3495 (Part 3) : 1992 (RA 2016)	Qualitative
5.	Cement Concrete Cube	Compressive strength	IS 516: 1959 (RA 2013)	1 N/mm <sup>2</sup> to 85 N/mm <sup>2</sup>
6.	Bitumen	Loss in Mass	IS 9382: 1979 (RA 2014)	0.01 % to 10 %
		Penetration at 25°C 0.1 mm	IS 1203: 1978 (RA 2014)	35 div. to 400 div.
		Softening Point	IS 1205: 1978 (RA 2014)	20 °C to 150 °C

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Convener

Venugopal C  
Program Manager

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		Specific Gravity	IS 1202: 1978 (RA 2014)	0.99 to 1.1
		Ductility	IS 1208: 1978 (RA 2014)	25 cm to 100 cm
7.	<b>Bitumen Mix</b>	Density	ASTM D 2726: 2017	0.1 g/cc to 4 g/cc
		Specific Gravity	ASTM D 2041: 2011	2 to 3
8.	<b>Paver Blocks</b>	Dimensions – Length	IS 15658: 2006 (RA 2017)	30 mm to 300 mm
		Dimensions – Width		
		Dimensions – Height		
		Water Absorption	IS 15658: 2006 (RA 2017)	1% to 50 %
		Compressive Strength	IS 15658: 2006 (RA 2017)	10 N/mm <sup>2</sup> to 100 N/mm <sup>2</sup>
9.	<b>AAC Block</b>	Compressive Strength	IS 6441 (Part 5) : 1972 (RA 2017)	1 N/mm <sup>2</sup> to 10 N/mm <sup>2</sup>
		Dimensions – Length	IS 2185 (Part 3) : 1984 (RA 2015)	80mm to 800 mm
		Dimensions – Width		
		Dimensions – Height		
		Density	IS 6441 (Part 1) : 1972 (RA 2017)	350 kg/m <sup>3</sup> to 1500kg/m <sup>3</sup>
10.	<b>Ceramic</b>	Dimension – Length		10mm to 1000 mm
		Dimension – Width	IS 13630 (Part 1) : 2006 (RA 2017)	
		Dimension – Height		
		Water Absorption	IS 13630 (Part 2) : 2006 (RA 2017)	0.01% to 15 %
<b>II.</b>	<b>MECHANICAL PROPERTIES OF METALS</b>			
1.	<b>Reinforcement Steel</b>	Bend test	IS 1786 : 2008 & IS 1599 : 2012	Mandrel Dia. of : (16, 22, 24, 30, 32, 36, 40, 48, 50, 60, 64, 72,

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				84, 96, 100, 112, 125, and 150) mm
		Re-bend Test	IS 1786: 2008	Mandrel Dia. Of: (16, 22, 24, 30, 32, 36, 40, 48, 50, 60, 64, 72, 84, 96, 100, 112, 125 and 150) mm
		Ultimate Tensile Strength	IS 1608: 2005	20 kN to 600 kN Load
		Mass per meter	IS 1786: 2008	0.4 kg/m to 9.86 kg/m
		Elongation	IS 1608: 2005	5% to 80 %
		Yield Stress	IS 1786: 2008	20 kN to 600 kN Load
II.	SOIL AND ROCK			
1.	SOIL	Moisture Content	IS 2720 (Part 2): 1973 (RA 2015)	1% to 50 %
		Direct shear test Angle	IS 2720 (Part 13) : 1986 (RA 2016)	0.1° to 60 °
		CBR (Soaked)	IS 2720 (Part 16) : 1987 (RA 2016)	0.1% to 50 %
		Liquid Limit	IS 2720 (Part 5) : 1985 (RA 2015)	1 % to 300 %
		Grain Size Analysis - Gravel	IS 2720 (Part 4) : 1985 (RA 2015)	20 mm to 4.75 mm
		Grain Size Analysis - Sand		4.75 mm to 0.075 mm
		Grain Size Analysis – Silt + Clay		< 0.075 mm (wet - analysis)
		Plastic limit	IS 2720 (Part 5) : 1985 (RA 2015)	1 to 250
		Light Compaction OMC	IS 2720 (Part 7) : 1980 (RA 2016)	1 % to 30 %

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		Light Compaction MDD	IS 2720 (Part 7) : 1980 (RA 2016)	1 g/cc to 2.50 g/cc
		Heavy Compaction MDD	IS 2720 (Part 8) : 1983 (RA 2015)	1 g/cc to 2.50 g/cc
		Heavy Compaction OMC	IS 2720 (Part 8) : 1983 (RA 2015)	1 % to 30 %
		Free Swell Index	IS 2720 (Part 40) : 1977 (RA 2016)	0.1 % to 100 %
		Specific Gravity	IS 2720 (Part 3) : 1980 (RA 2016)	1.2 to 2.8
		Consolidation Test	IS 2720 (Part 15) : 1965 (RA 2016)	0.1 kg/cm <sup>2</sup> to 2.5 kg/cm <sup>2</sup>
		Direct shear test Cohesion	IS 2720 (Part 13) : 1986 (RA 2016)	0.1 kg/cm <sup>2</sup> to 4 kg/cm <sup>2</sup>
2.	<b>Soil Field Test</b>	Standard Penetration Test	IS 2131: 1981 (RA 2016)	1 blow to 100 blow
		Dynamic Cone Penetration Test	IS 4968 (Part 1) : 1976 (RA 2016)	Using 50 mm Cone 0.5 m to 10 m in overburden 1 blows to 35 blows for 100 mm

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**NON-DESTRUCTIVE TESTING**

I.	BUILDINGS MATERIALS			
1.	Reinforced Concrete Structures	Ultrasonic Pulse Velocity	IS 1331 (Part 1): 1992	1 km/sec to 6 km/sec
		Rebound Hammer	IS 1331 (Part 2): 1992	10 RN to 100 RN
		Cover Meter Test	BS 1881 204: 1986	10 mm to 60 mm