

Laboratory **M. K. Soil Testing Laboratory, Off. S. G. Highway, Bodakdev, Ahmedabad, Gujarat**

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

Certificate Number **TC-6865 (in lieu of T-2856)**

Page 1 of 7

Validity **07.02.2018 to 06.02.2020**

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.	SOIL & ROCKS			
1.	Soil	Grain size analysis	IS 2720 (Part 4):1985 (RA 2015)	upto 100% (4.75 mm to 0.075 mm)
		Liquid Limit	IS 2720 (Part 5):1985 (RA 2015)	20% to 80%
		Plastic limit	IS 2720 (Part 5):1985 (RA 2015)	12% to 45%
		Specific gravity	IS 2720 (Part 3):1980 (RA 2011)	0.50 to 3.0
		Shrinkage Limit	IS 2720 (Part 6):1972 (RA 2011)	5% to 20%
		Direct Shear	IS 2720 (Part 13):1986 (RA 2015)	c:0 to 2.0 kg/cm ² , Φ = 0 to 50 °
		Moisture content	IS 2720 (Part 2):1963 (RA 2015)	0.1% to 50.0%
		Dry density	IS 2720 (Part 29):1975 (RA 2015)	1.0 g/cm ³ to 2.5 g/cm ³
		Free Swell Index	IS 2720 (Part 40):1977 (RA 2011)	10% to 200%
		Proctor test (by Light compaction)		
		MDD	IS 2720 (Part 7):1980 (RA 2011)	1.00 g/cc to 3.00 g/cc
		OMC	IS 2720 (Part 7):1980 (RA 2011)	3.00% to 30.0%
		Proctor test (by Heavy compaction)		
		MDD	IS 2720 (Part 8):1983 (RA 2015)	1.00 g/cc to 3.00 g/cc
		OMC	IS 2720 (Part 8):1983 (RA 2015)	3.00% to 30.0%

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Certificate Number **TC-6865 (in lieu of T-2856)**

Page 2 of 7

Validity **07.02.2018 to 06.02.2020**

Last Amended on --

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		California Bearing Ratio	IS 2720 (Part 16):1987 (RA 2011)	1% to 70%
	Soil	Swelling pressure	IS 2720 (Part 41):1977 (RA 2011)	0.1 kg/cm ² to 3.0 kg/cm ²
		Permeability test:Falling head and constant head	IS 2720 (Part 17):1986 (RA 2011)	10 ⁻² cm/sec to 10 ⁻⁷ cm/sec
		Consolidation test	IS 2720 (Part 15):1965 (RA 2011)	0.05 to 0.20
		Unconfined compression shear test	IS 2720 (Part 10):1991 (RA 2010)	0.2 kg/cm ² to 6.0 kg/cm ²
		Tri-axial shear test	IS 2720 (Part 11):1993 (RA 2011)	C:0.01 kg/cm ² to 3.5 kg/cm ² , $\Phi = 5$ to 30°
2.	Rock	Water content	IS 13030:1991 (RA 2011)	0.1% to 50.0%
		Porosity	IS 13030:1991 (RA 2011)	0.01% to 10.0%
		Unit weight	IS 13030:1991 (RA 2011)	1.5 g/cm ³ to 5.0 g/cm ³
		Compressive strength	IS 9143:1979 (RA 2011)	15 N/mm ² to 500 N/mm ²
		Point load index	IS 8764:1998 (RA 2014)	1 kg/cm ² to 1200 kg/cm ²
II.	BUILDING MATERIALS			
1.	Aggregates (Coarse)	Sieve analysis / gradation	IS 2386 (Part 1):1963 (RA 2016)	0 to 100% (63 mm to 0.15 mm)
		Flakiness index	IS 2386 (Part 1):1963 (RA 2016)	1% to 50%
		Elongation index	IS 2386 (Part 1):1963 (RA 2016)	1% to 50%
		Crushing value	IS 2386 (Part 4):1963 (RA 2016)	1% to 50%
		Impact value	IS 2386 (Part 4):1963 (RA 2016)	1% to 50%

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Accreditation Standard ISO/IEC 17025:2005

Certificate Number TC-6865 (in lieu of T-2856)

Page 3 of 7

Validity 07.02.2018 to 06.02.2020

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		Specific gravity	IS 2386 (Part 3):1963 (RA 2016)	1.50 to 4.00
		Water absorption	IS 2386 (Part 3):1963 (RA 2016)	0.1% to 20%
		10% Fines Value	IS 2386 (Part 4):1963 (RA 2016)	50 kN to 200 kN
		Abrasion value (by Los angeles)	IS 2386 (Part 4):1963 (RA 2016)	1.0% to 70.0%
		Bulk Density	IS 2386 (Part 3):1963 (RA 2016)	1.30 kg/l to 3.50 kg/l
2.	Aggregates (Fine)	Sieve analysis / gradation	IS 2386 (Part 1):1963 (RA 2016)	0 to 100% (10 mm to 0.15 mm)
		Specific gravity	IS 2386 (Part 3):1963 (RA 2016)	1.50 to 4.00
		Water absorption	IS 2386 (Part 3):1963 (RA 2016)	0.1% to 20%
		Material finer than 75 micron	IS 2386 (Part 1):1963 (RA 2016)	0.1% to 100.0%
		Bulk Density	IS 2386 (Part 3):1963 (RA 2016)	1.30 kg/l to 3.50 kg/l
3.	Cement	Consistency	IS 4031 (Part 4):1988 (RA 2014)	20% to 40%
		Initial setting time	IS 4031 (Part 5):1988 (RA 2014)	5 minute to 300 minute
		Final setting time	IS 4031 (Part 5):1988 (RA 2014)	30 minute to 600 minute
		Compressive strength	IS 4031 (Part 6):1988 (RA 2014)	10 N/mm ² to 70 N/mm ²
		Soundness by Le-chatelier methods	IS 4031 (Part 3):1988 (RA 2014)	0.01 mm to 10 mm
		Fineness by blaine air permeability	IS 4031 (Part 2):1999 (RA 2013)	150 m ² /kg to 600 m ² /kg
		Density	IS 4031 (Part 11):1998 (RA 2014)	2.75 g/cc to 3.2 g/cc

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

Certificate Number **TC-6865 (in lieu of T-2856)**

Page 4 of 7

Validity **07.02.2018 to 06.02.2020**

Last Amended on --

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4.	Concrete	Compressive strength	IS 516:1959 (RA 2013)	10 N/mm ² to 60 N/mm ²
		Flexural strength of beam	IS 516:1959 (RA 2013)	10 kg/cm ² to 90 kg/cm ²
5.	Fresh Concrete	Slump test	IS 1199:1959 (RA 2013)	1 mm to 300 mm
		Weight per cubic meter	IS 1199:1959 (RA 2013)	1500 kg/m ³ to 3000 kg/m ³
6.	Paver Blocks	Compressive strength	IS 15658:2006 (RA 2016)	5 N/mm ² to 85 N/mm ²
		Water absorption	IS 15658:2006 (RA 2016)	0.1% to 50.0%
		Dimensions, thickness of wearing layer	IS 15658:2006 (RA 2016)	1 mm to 500mm 1 mm to 100mm
		Abrasion Resistance	IS 15658:2006 (RA 2016)	5000 mm ³ /mm ² to 200000 mm ³ /mm ²
7.	Bricks	Dimensions		
		Length	IS 1077:1992 (RA 2011)	1 mm to 5000 mm
		Width	IS 1077:1992 (RA 2011)	1 mm to 2500 mm
		Height	IS 1077:1992 (RA 2011)	1 mm to 1600 mm
		Water absorption	IS 3495 (Part 2):1992, (RA 2011)	0.1% to 50.0%
		Compressive strength	IS 3495 (Part 1):1992, (RA 2011)	3.5 N/mm ² to 60 N/mm ²
		Efflorescence test	IS 3495 (Part 3):1992 (RA 2011)	Qualitative (Visual assessment)
8.	Fly Ash	Fineness by sieving	IS 1727:1967 (RA 2008)	0.1% to 100.0%
		Specific gravity	IS 1727:1967 (RA 2008)	1.0 to 3.0
9.	Sand	In situ density of sand:By	IS 2720 (Part 28):1974	1.200 g/cc to 2.500 g/cc

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

Certificate Number **TC-6865 (in lieu of T-2856)**

Page 5 of 7

Validity **07.02.2018 to 06.02.2020**

Last Amended on --

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		sand replacement test	(RA 2015)	
		Relative density of sand:Maximum Dry Density	IS 2720 (Part 14):1983 (RA 2015)	1.4 g/cm ³ to 2.8 g/cm ³
		Relative density of sand:Minimum Dry Density	IS 2720 (Part 14):1983 (RA 2015)	1.2 g/cm ³ to 1.8 g/cm ³
10.	Autoclave Aerated Block	Compressive strength	IS 6441 (Part 5):1972 (RA 2011)	1 N/mm ² to 9 N/mm ²
		Moisture content	IS 6441 (Part 1):1972 (RA 2011)	1% to 30%
		Dimensions	IS 2185 (Part 3):1984, (RA 2010)	390 mm to 610 mm
		Length		190 mm to 310 mm
		Breadth		90 mm to 260mm
		Height		
Dry density	IS 6441 (Part 1):1972 (RA 2011)	40 kg/m ³ to 1200kg/m ³		
11.	Bitumen	Softening Point	IS 1205:1978 (RA 2009)	20 °C to 100 °C
		Penetration	IS 1203:1978 (RA 2009)	5 to 100 (1/10 mm)
		Ductility	IS 1208:1978 (RA 2009)	5 cm to 100 cm
		Specific Gravity	IS 1202:1978 (RA 2009)	0.5 to 1.5
12.	HSD steel Bars and wire (Diameter 8 to 32 mm)	Tensile strength	IS 1608:2005 (RA 2017)	Load 20 kN to 600 kN (200 to 1000 N/mm ²)
		Yield stress	IS 1608:2005 (RA 2017)	200 N/mm ² to 1000 N/mm ²
		Weight per meter	IS 1786:2008 (RA 2013)	0.3 kg/m to 6.5 kg/m
		% Elongation	IS 1608:2005 (RA 2017)	5% to 60%
		Bend test	IS 1599:2012	Mandrel dia. (24, 30, 32,

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Accreditation Standard ISO/IEC 17025:2005

Certificate Number TC-6865 (in lieu of T-2856)

Page 6 of 7

Validity 07.02.2018 to 06.02.2020

Last Amended on --

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			(RA 2015)	36, 40, 48, 60, 64, 80, 100, 125, 128, 160 mm)
		Re bend Test	IS 1786:2008 (RA 2013)	Mandrel dia. (40, 50, 84, 112, 140, 175, 224 mm)

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Certificate Number TC-6865 (in lieu of T-2856)

Page 7 of 7

Validity 07.02.2018 to 06.02.2020

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NON DESTRUCTIVE TESTING

I. BUILDING MATERIALS - REINFORCED CONCRETE STRUCTURES				
1.	Reinforced Concrete structure	Ultrasonic Pulse Velocity test	IS 13311:1992 (Part 1) (RA 2008)	0.1 km/s to 5.0 km/s
		Rebound hammer test	IS 13311:1992 (Part 2) (RA 2008)	10 to 60 Rebound Numbers
		Half Cell Potential Test	ASTM C 876:2015	(-)0.600 mV to (+)0.100 mV