Laboratory	**S.M. Consultants, Material Testing Laboratory, Plot No.- 4, Chotiyal Palam Village, Radha Krishna Mandir Gali, New Delhi**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Mechanical Testing**	**Issue Date**	**21.07.2015**
Certificate Number	**T-2503**	**Valid Until**	**20.07.2017**
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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I.	**BUILDING MATERIALS**			
1.	**Aggregate (Coarse/Fine)**	Sieve Analysis	IS 2386 (Part 1): 1963 (RA 2011)	75 mic to 80 mm
		Bulk Density	IS 2386 (Part 3): 1963 (RA 2011)	1 g/cc to 3 g/cc
		Aggregate Los Angles Abrasion Value	IS 2386 (Part 4): 1963 (RA 2011)	5 % to 60 %
		Aggregate Impact Value	IS 2386 (Part 4): 1963 (RA 2011)	5 % to 50 %
		Crushing Value	IS 2386 (Part 4): 1963 (RA 2011)	5 % to 50 %
		Flakiness Index	IS 2386 (Part 1): 1963 (RA 2011)	2 % to 60 %
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2011)	0.1 % to 10 %
		Specific Gravity	IS 2386 (Part 3): 1963 (RA 2011)	1.0 to 4.0
		Elongation Index	IS 2386 (Part 1): 1963 (RA 2011)	2 % to 60 %
		10 % Fine Value	IS 2386 (Part 4): 1963 (RA 2011)	50 kN to 400 kN
2.	**Concrete (Cube/Core/Beam)**	Compressive Strength	IS 516: 1959 (RA 2008)	5 N/mm^2 to 80 N/mm^2
		Flexural Strength	IS 516: 1959 (RA 2008)	2 N/mm^2 to 10 N/mm^2
3.	**Bricks**	Dimensions: Length Breadth Thickness	IS 1077: 1992 (RA 2011)	 1 mm to 5000 mm 1 mm to 2500 mm 1 mm to 1600 mm
		Compressive Strength	IS 3495 (Part 1): 1992 (RA 2011)	3 N/mm^2 to50 N/mm^2

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	Bricks	Water Absorption	IS 3495 (Part 2): 1992 (RA 2011)	1 % to 50 %
		Efflorescence	IS 3495 (Part 3): 1992 (RA 2011)	Qualitative (Visual Observations)
4.	**Bitumen**	Softening Point	IS 1205: 1978 (RA 2009)	5 °C to 70 °C
		Flash & Fire Point	IS 1209: 1978 (RA 2009)	15 °C to 300 °C
		Penetration Test (1/10mm)	IS 1203: 1978 (RA 2009)	30 to 200
		Ductility Test	IS 1208: 1978 (RA 2009)	1 cm to 100 cm
		Specific Gravity	IS1202: 1978 (RA 2009)	0.5 to 1.5
		Marshal Stability	As per ASTM D1559-71	5 kN to 25 kN
		Hardness (Mastic Asphalt)	IS 1195: 2002	1 nos. to 100 nos.
5.	**Concrete Flooring Tiles**	Dimension	IS 1237: 2012	1 mm to 1000 mm
		Water Absorption	IS 1237: 2012	1 % to 25 %
		Abrasion Resistance	IS 1237: 2012	0.1 mm to 5 mm
6.	**Glazed/Ceramic Tiles**	Dimension	IS 13630: 2006 (RA 2012)	1 mm to 1000 mm
		Water Absorption	IS 13630 (Part 2): 2006 (RA 2012)	1 % to 20 %
7.	**Paver Block**	Compressive Strength	IS 15658: 2006 (RA 2011)	5 N/mm^2 to 75 N/mm^2
		Water Absorption	IS 15658: 2006 (RA 2011)	1 % to 20 %

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	Paver Block	Resistance To Wear	IS 15658: 2006 (RA 2011)	1000 mm^3 to 10000 mm^3
		Flexural Strength	IS 15658: 2006 (RA 2011)	1 N/mm^2 to 10 N/mm^2
8.	**Concrete Hallow/Solid Block**	Density	IS 2185 (Part 1): 2005 (RA 2010)	1000 kg/m^3 to 3000 kg/m^3
		Water Absorption	IS 2185 (Part 1): 2005 (RA 2010)	1 % to 50 %
		Compressive Strength	IS 2185 (Part 1): 2005 (RA 2010)	1 N/mm^2 to 30 N/mm^2
II.	**SOIL AND ROCK**			
1.	**Rock**	Unconfined Compressive Strength	IS 9143: 1979 (RA 1996)	10 kg/cm^2 to 3000 kg/cm^2
		Point Load Test	IS 8764: 1998	10 kg/cm^2 to 100 kg/cm^2
		Brazilian Tensile Test	IS 10082: 1981 (RA 1996)	10 kg/cm^2 to 500 kg/cm^2
		Specific Gravity Test	IS 1122: 1974 (RA 2013)	1 to 3
		Slake Durability Test	IS 10050: 1981 (RA 1996)	5 % to 100 %
		Water Absorption Tests	IS 1124: 1974 (RA 2013)	1 % to 10 %
2.	**Soil**	Specific Gravity	IS 2720 (Part 3/Sec I &II): 1980 (RA 2011)	2 to 4
		Grain Size Analysis Sieve Analysis	IS 2720 (Part 4): 1985 (RA 2010)	4.75 mm to 0.075 mm
		Liquid Limit	IS 2720 (Part 5): 1985 (RA 2010)	15 % to 80 %

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	Soil	Plastic Limit	IS 2720 (Part 5): 1985 (RA 2010)	5 % to 50 %
		Relative Density	IS 2720 (Part 14): 1983	10 % to 90 %
		Water Content	IS 2720 (Part 2): 1973 (RA 2010)	1 % to 40 %
		Permeability Test	IS 2720 (Part 17): 1976 (RA 2007)	0.1 cm/s to 10^{-7} cm/s
		Free Swell Index	IS 2720 (Part 40): 1977 (RA 2011)	0 to 300 %
		Heavy Compaction	IS 2720 (Part 8): 1983 (RA 2010)	OMC: 3 % to 40 % MDD: 1.1 g/cc to 2.5 g/cc
		Unconfined Compression Test	IS 2720 (Part 10): 1991 (RA 2005)	C : 0.1 kg/cm^2 to 1 kg/cm^2
		California Bearing Ratio (CBR)	IS 2720 (Part 16): 1987 (RA 2011)	1 % to 70 %
		Tri Axial Compression Test Without Pore Pressure	IS 2720 (Part 11): 1993 (RA 2011)	C : 0 to 2 kg/cm^2 Φ : 3 ° to 40 °
		Direct Shear Test	IS 2720 (Part 13): 1986 (RA 2011)	C : 0 to 0.5 kg/cm^2 Φ : 5 ° to 50 °
		Shrinkage Limit	IS 2720 (Part 6): 1972 (RA 2011)	5 % to 50 %
III.	**MECHANICAL PROPERTIES OF MATERIALS**			
1.	**Steel (Reinforcement)**	Weight / Meter	IS 1786 (RA 2013)	0.075 kg/m to 9.86 kg/m
		Ultimate Tensile Strength	IS 1608: 2010	100 N/mm^2 to 900 N/mm^2

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	Steel (Reinforcement)	Yield Stress	IS 1608: 2010	100 N/mm^2 to 700 N/mm^2
		% Elongation	IS 1608: 2010	5 % to 40 %
		Bend Test	IS 1599: 1985 (RA 2012)	Mandrel dia.: (12, 16, 18, 20, 24, 30, 32, 36, 40, 48, 50, 56, 60, 64, 75, 80, 84, 96, 100, 112, 120, 125, 128, 144, 150, 160, 168, 175, 180, 192, 196, 200, 216, 240) mm
		Rebend Test	IS 1786: 2008	Mandrel dia.: (24, 30, 32, 36, 40, 42, 48, 50, 56, 60, 70, 72, 75, 84, 96, 112, 120, 140, 144, 150, 160, 168, 175, 192, 196, 200, 224, 240, 252, 256, 280, 288, 320) mm

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