Laboratory	**CEG Test House and Research Centre Pvt. Ltd. B-11 (G) Malviya Industrial Area, Jaipur, Rajasthan**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Mechanical Testing**	**Issue Date**	**24.10.2014**
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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 MATERIAL**			
1.	**Aggregate (Coarse)**	Grading (Sieve Analysis)	IS 2386 (Part 1): 1963 (RA 2002)	80mm to 4.75mm 4.75mm to 75 Micron
		Bulk Density	IS 2386 (Part 3): 1963 (RA 2007)	1 gm/cc to 3 gm/cc
		Los Angles Abrasion Value	IS 2386 (Part 4): 1963 (RA 2007)	10 % to 60 %
		Impact Value	IS 2386 (Part 4): 1963 (RA 2007)	10 % to 50 %
		Crushing Value	IS 2386 (Part 4): 1963 (RA 2007)	10 % to 60 %
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2007)	0.1 % to 10 %
		Specific gravity	IS 2386 (Part 3): 1963 (RA 2007)	2 to 4
		Flakiness Index	IS 2386 (Part 1): 1963 (RA 2007)	5 % to 100 %
		Elongation Index	IS 2386 (Part 1): 1963 (RA 2007)	5 % to 100 %
		10% Fine Value	IS 2386 (Part 4): 1963 (RA 2007)	5 kN to 300 kN
		Soundness	IS 2386 (Part 5): 1963 (RA 2007)	0.1 % to 25 %
		Stripping Value	IS 6241: 1971 (RA 2003)	Qualitative
2.	**Aggregate (Fine)**	Grading (Sieve Analysis)	IS 2386 (Part 1): 1963 (RA 2002)	80mm to 4.75mm 4.75mm to 75 Micron
		Bulk Density	IS 2386 (Part 3): 1963 (RA 2007)	1 gm/cc to 3 gm/cc
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2007)	0.1 % to 10 %

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	Aggregate (Fine)	Specific gravity	IS 2386 (Part 3): 1963 (RA 2007)	2 to 4
		Soundness	IS 2386 (Part 5): 1963 (RA 2007)	0.1 % to 25 %
		Sand Equivalent Value	IS 2720 (Part 37): 1976 (RA 2007)	20 % to 100 %
3.	**Aggregate (Coarse / Fine)**	Materials finer than 75 μm	IS 2386 (Part-1): 1963 (RA 2007)	0.1 % to 5 %
		Clay Lumps	IS 2386 (Part-2): 1963 (RA 2007)	0 % to 5 %
		Clay, Fine Silt & Fine Dust (Sedimentation Method)	IS 2386 (Part-2): 1963 (RA 2007)	0.01 % to 5 %
4.	**Concrete**	Workability by Slump Test	IS 1199: 1959 (RA 2004)	0 to 250 mm
		Workability by Compaction Factor	IS 1199: 1959 (RA 2008)	0.70 to 1
		Compressive Strength	IS 516: 1959 (RA 2008) BS 1881 (Part 120): 1983	10 N/mm^2 to 80 N/mm^2
		Accelerated Curing of Concrete for compressive strength	IS 9013: 1978 (RA 2008)	10 N/mm^2 to 80 N/mm^2
		Flexural Strength	IS 516: 1959 (RA 2006)	3 MPa to 10 MPa
5.	**Hardened Concrete**	Water Permeability	IS 3085: 1965 / DIN 1048(Part 5): 1991	0.1 mm to 100 mm
6.	**Solid & Hollow Blocks**	Block Density	IS 2185 (Part 1): 2005	1000 kg/m^3 to 2200 kg/m^3
		Compressive Strength	IS 2185 (Part-1): 2005	20 MPa to 50 MPa
		Water Absorption	IS 2185 (Part 1): 2005	2 % to 20%

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	Solid & Hollow Blocks	Drying Shrinkage	IS 2185 (Part 1): 2005	0 % to 1%
		Moisture Movement	IS 2185 (Part 1): 2005	0 % to 1%
		Dimension i) Length ii) width iii) Height	IS 2185 (Part 1): 2005	 200 mm to 600 mm 50 mm to 300 mm 100 mm to 200 mm
7.	**Bricks (Heavy Duty Burnt Clay Building Bricks/ Pulverized Fuel Ash-Lime Bricks)**	Compressive Strength	IS 3495 (Part 1): 1992 (RA 2007)	3.5 MPa to 35 MPa
		Water Absorption	IS 3495 (Part 2): 1992 (RA 2007)	1 % to 30 %
		Efflorescence	IS 3495 (Part 3): 1992 (RA 2007)	N.A.
		Dimensions (Heavy Duty)	IS 2180: 1988 (RA 2011)	30 mm to 300 mm
		Bulk Density (Heavy Duty)	IS 2180: 1988 (RA 2007)	1 g/cm^3 to 4 g/cm^3
		Dimensions	IS 12894: 2002 (RA 2007) / IS 1077: 1992	1200 mm to 5000 mm
8.	**Cement OPC & PPC**	Fineness Test (Dry)	IS 4031(Part 1): 1996 (RA 2011)	1 % to 30 %
		Consistency	IS 4031 (Part 4): 1988 (RA 2009)	10 % to 40 %
		Setting Time (Initial & Final)	IS 4031 (Part 5): 1988 (RA 2009)	05 to 300 min & 300 to 700 min
		Soundness (Le-Chatelier Method)	IS 4031(Part 3): 1988 (RA 2009)	0.1 mm to 20 mm
		Compressive Strength	IS 4031(Part 6): 1988 (RA 2009)	8 N/mm^2 to 80 N/mm^2
		Density	IS 4031(Part 11): 1988 (RA 2009)	2 gm/cc to 4 gm/cc

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	Cement OPC & PPC	Soundness (Autoclave)	IS 4031 (Part 3): 1988 (RA 2009)	1 % to 10 %
		Fineness (By Blain Air)	IS 4031 (Part 2): 1999 (RA 2008)	100 m^2/kg to 500 m^2/kg
		Transverse Strength	IS 4031(Part 8): 1988 (RA 2009)	0.5 N/mm^2 to 10 N/mm^2
		Drying Shrinkage	IS 4031 (Part 10): 1988 (RA 2009)	0.01 % to 5 %
9.	**Concrete Floor Tiles/ Chequered Cement Concrete Tiles /Ceramic Tiles**	Abrasion Resistance Test	IS 1237: 2012 / IS 13801: 2013	0.1 mm to 10 mm
		Wet Transverse Strength	IS 1237: 2012 / IS 13801: 2013	0.5 N/mm^2 to 10 N/mm^2
		Water Absorption	IS 1237: 2012 / IS 13801: 2013 / IS 13630 (Part 2): 2006 (RA 2011)	0.01 % to 25 %
		Flatness	IS 1237: 2012 IS 13801: 2013	0.01 mm to 10 mm
		Straightness	IS 1237: 2012 / IS 13801: 2013	0.1 % to 5 %
		Perpendicularity	IS 1237: 2012 / IS 13801: 2013	0.1 % to 5 %
		Modulus of Rupture	IS 13630 (Part 6): 2006 (RA 2011)	5 MPa to 50 MPa
10.	**Building Stone**	True Specific Gravity	IS 1122: 1974 (RA 2003)	2 to 4
		Water Absorption	IS 1124: 1974 (RA 2003)	0.1% to 15 %
		Compressive Strength (72 hrs. Soaked; 24 hrs. Oven Dry)	IS 1121 (Part-1): 1974 (RA 2003)	500 kg/cm^2 to 3000 kg/cm^2

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11.	**Fly Ash**	Fineness (By Blain Air)	IS 1727: 1967 (RA 2008) Amd. 2013	100 m^2/kg to 800 m^2/kg
		Soundness (Le-Chatelier Method)	IS 4031 (Part 3): 1988 (RA 2009)	1 mm to 10 mm
		Soundness by Autoclave	IS 4031 (Part 3): 1988 (RA 2009)	0.01 % to 5 %
		Compressive Strength	IS 1727: 1967 (RA 2008)	5 N/mm^2 to 50 N/mm^2
		Lime Reactivity	IS 1727: 1967 (RA 2008)	1 MPa to 10 MPa
		Drying Shrinkage	IS 1727: 1967 (RA 2008)	0.01 % to 5 %
12.	**Gypsum Building Plasters**	Setting Time- i) Plaster Sand Mixture ii) Neat Plaster	 IS 2542 (Part 1/ Sec 3): 1978 (RA 2007)	 10 min to 1000 min 5 min to 500 min
		Transverse Strength	IS 2542 (Part 1/ Sec 4): 1978 (RA 2007)	1 N/mm^2 to 8 N/mm^2
		Soundness	IS 2542 (Part 1/ Sec 6): 1978 (RA 2007)	Qualitative
		Mechanical Resistance	IS 2542 (Part 1/ Sec 7): 1978 (RA 2007)	1 mm to 25 mm
		Residue on 150 micron sieve	IS 2542 (Part I/ Sec 8): 1978 (RA 2007)	1 % to10 %
		Expansion on setting Percentage	IS 2542 (Part I/ Sec 9): 1978 (RA 2007)	0 % to 5 %
		Dry Bulk Density	IS 2542 (Part I/ Sec 12): 1978 (RA 2007)	500 kg/m^3 to 1000 kg/m^3

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	Gypsum Building Plasters	Dry Set Density	IS 2542 (Part I/ Sec 5): 1978 (RA 2007)	500 kg/m^3 to 1500 kg/m^3
		Compressive Strength	IS 2542 (Part I/ Sec 5): 1978 (RA 2007)	1N/mm^2 to 10 N/mm^2
13.	**Glazed Stoneware Pipes and Fittings**	Hydraulic Test	IS 651: 2007	0 to 0.21 MPa
		Absorption Test	IS 651: 2007	0.5 to 20 %
		Crushing Strength Test	IS 651: 2007	5 kN/m to 100 kN/m
14.	**Paver Block**	Water Absorption	IS 15658: 2006 (RA 2011)	1 % to 20 %
		Compressive Strength	IS 15658: 2006 (RA 2011)	5 N/mm^2 to 80 N/mm^2
15.	**Plywood**	Density	IS 1734 (Part I): 1983 (RA 2008)	0.1 g/cc to1.5 g/cc
		Moisture Content	IS 1734 (Part I): 1983 (RA 2008)	1 % to 50 %
		Resistance to Dry Heat	IS 1734 (Part I): 1983 (RA 2008)	Qualitative
16.	**Particle Board**	Water Absorption	IS 2380(Part 16): 1977 (RA 2013)	2 % to 50 %
		Moisture Content	IS 2380 (Part 3): 1977 (RA 2013)	1 % to 30%
		Density	IS 2380 (Part 3): 1977 (RA 2013)	200 kg/m^3 to 1500 kg/m^3
17.	**Door Shutter**	Dimension & Squareness	IS 4020 (Part 2): 1998 (RA 2008)	10 mm to 3000 mm
		End Immersion Test	IS 4020(Part 13): 1998(RA 2008)	Qualitative
		Measurement of General Flatness Measurement of Twist Measurement of Warping and Cupping	IS 4020 (Part 3): 1998 (RA 2008)	0.1 mm to 10 mm

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18.	**Timber**	Moisture Content	IS 1708 (Part 1): 1986 (RA 2010)	1 % to 50 %
		Specific Gravity	IS 1708 (Part 2): 1986 (RA 2010)	0.1 to 3
19.	**Bitumen (Polymer Modified / Industrial / Paving)**	Softening Point	IS 1205: 1978 (RA 2009)	5 ºC to 100 ºC
		Flash Point	IS 1209: 1978 (RA 2009)	15 ºC to 370 ºC
		Penetration Test	IS 1203: 1978 (RA 2009)	5 mm to 120 mm
		Ductility Test	IS 1208: 1978 (RA 2009)	0.1 cm to 100 cm
		Viscosity	IS 1206 (Part-1): 1978 (RA 2009)	5 s to 1200 s
		Marshall Stability	ASTM - D 6927: 2006	50 kg to 2500 kg
		Absolute Viscosity	IS 1206 (Part-2): 1978 (RA 2009)	100 poise to 8000 poise (At 60 ºC)
		Kinematic Viscosity	IS 1206 (Part 3): 1978 (RA 2009)	60 cSt to 1000 cSt (At 135 ºC)
		Solubility in Trichloroethylene	IS 1216: 1978 (RA 2009)	10 % to 100 %
		Test on residue from thin film oven i) Viscosity ratio	IS 1206 (Part 2): 1978 (RA 2009)	1 % to 10 % (At 60 ºC)
		Specific Gravity	IS 1202: 1978 (RA 2009)	0.01 to 1.10
		Thin Film Oven Test (a) Loss in Mass	IS 9382: 1979 (RA 2004)	0 % to 20 %
		(b) Loss on Heating	IS 1212: 1978 (RA 2009)	0 % to 20 %
		(c) Increase in Softening Point	IS 1205: 1978 (RA 2009)	5 ºC to 110 ºC

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	Bitumen (Polymer Modified / Industrial / Paving)	(d) Reduction in Penetration of Residue	IS 1203: 1978 (RA 2009)	0 mm to 50 mm
		(e) Elastic Recovery	IS 15462: 2004	0 % to 100 % (At 25 ºC)
		Elastic Recovery	IS 15462: 2004	0 to 100 % (At 15 ºC)
		Penetration of Residue	IS 1203: 1978 (RA 2009)	0 mm to 100 mm
20.	**Bitumen Emulsion**	Residue on 600 micron	IS 8887: 2004	0.01 % to 10 %
		Viscosity by Saybolt furol viscometer (i) At 25^{O}C (ii) At 50^{O}C	 IS 8887: 2004 & IS 3117: 2004	 10 s to 250 s 10 s to 400 s
		Coagulation of emulsion	IS 8887: 2004	Qualitative
		Storage stability	IS 8887: 2004	0.1 % to 5.0 %
		Coating ability and water resistance	IS 8887: 2004	Qualitative
		Miscibility with water	IS 8887: 2004	Qualitative
		Particle Charge	IS 8887: 2004	Qualitative
		Distillation	IS 1212: 1978 (RA 2009)	20 % to 100%
		Stability with Mixing of Cement	IS 8887: 2004	0 % to 5%

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	Bitumen Emulsion	Tests on Residue		
		i) Residue by Evaporation	IS 8887: 2004	40 % to 70 %
		ii) Penetration	IS 1203: 1978 (RA 2009)	5 Divisions to 400 Divisions
		iii) Ductility	IS 1208: 1978 (RA 2009)	5 cm to 100 cm
		iv) Solubility in Trichloroethylene	IS 1216: 1978 (RA 2009)	90 % to 100 %
21.	**Bituminous Mix**	Water content	IS 1211: 1978 (RA 2009)	5 % to 30 %
		Bitumen Content	IRC SP 11	2 % to 15 %
22.	**Steel (Structural Steel, Steel Bars & Steel Wires)**	Yield Stress	IS 1608: 2005 / IS 2062: 1999 (RA 2004) / IS 432 (Part I & II): 1982 (RA 2004)	10 N/mm^2 to 800 N/mm^2
		Ultimate Tensile Strength	IS 1608: 2005 / IS 2062: 1999 (RA 2004) / IS 432 (Part I & II): 1982 (RA 2004)	10 N/mm^2 to 800 N/mm^2
		% Elongation	IS 1608: 2005 / IS 2062: 1999 (RA 2004) / IS 432 (Part I & II): 1982 (RA 2004)	Upto 40 %
		Bend Test	IS 1599: 1985 (RA 2006) & IS 1786: 2008	(8, 10, 12, 16, 20, 25, 28, 32, 36, 40) mm
		Rebend Test		(8, 10, 12, 16, 20, 25, 28, 32, 36) mm
		Nominal Mass	IS 1786: 2008	0.1 kg/m to 10 kg/m
		Total Elongation at maximum force	IS 1786: 2008 / IS 1608: 2005	0 to 8 %
		Area of Transverse Rib	IS 1786: 2008	0 to 20 mm^2/mm

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23.	**Seven Ply Strand for Prestressed Concrete**	Breaking Strength	IS 14268: 1995 (RA 2008) / IS 1608: 2005	0 kN to 400 kN
		Proof Load	IS 14268: 1995 (RA 2008) / IS 1608: 2005	0 kN to 400 kN
		Area of Strand	IS 14268: 1995 (RA 2008) / IS 1608: 2005	40 mm^2 to 200 mm^2
		Mass of Strand	IS 14268: 1995 (RA 2008) / IS 1608: 2005	350 kg/km to 1200 kg/km
		Nominal Mass	IS 1786: 2008	0.1 kg/m to 10 kg/m
II.	**SOIL & ROCK**			
1.	**Soil**	Specific Gravity	IS 2720 (Part-3): 1980 (RA 2002)	1 to 4
		Grain Size Analysis		
		i) Sieve Analysis	IS 2720 (Part 4): 1985 (RA 2006)	0 % to 100 %
		ii) Wet Sieve Analysis	IS 2720 (Part 4): 1985 (RA 2006)	0 % to 100 %
		iii) Hydrometer	IS 2720 (Part 4): 1985 (RA 2006)	75 Micron to 2 Micron
		Atterberg's Limit		
		i) Liquid Limit	IS 2720 (Part 5): 1985 (RA 2006)	100 % to 800%
		ii) Plastic Limit	IS 2720 (Part 5): 1985 (RA 2006)	0 % to 50%
		iii) Shrinkage Limit	IS 2720 (Part 6): 1972 (RA 2011)	5 % to 30%
		Water Content	IS 2720 (Part 2): 1973 (RA 2010)	0.5 % to 30 %
		Moisture Content	IS 6186: 1986 (RA 2003)	0.1 % to 20 %
		Direct Shear Test UU CU	IS 2720 (Part 13): 1986 (RA 2002)	C = 0 kg/cm^2 to 0.2 kg/cm^2 Φ = 150 to 400

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	Soil	Tri-axial Compression Test Without pore pressure	IS 2720 (Part 11): 1993 (RA 2002)	C = 0.05 kg/cm^2 to 10 kg/cm^2 Φ = 00 to 150
		Consolidation Test	IS 2720 (Part 15): 1986 (RA 2002)	mV = 1 x10^{-3} cm^2/kg to 10 x10^{-3} cm^2/kg Cv = 5 mm^2/min to 60 mm^2/min
		Compaction Test (Proctor compaction) for		
		i) Light compaction	IS 2720 (Part 7) :1980 (RA 2002)	Moisture Content 4 % to50 %
		ii) heavy compaction	IS 2720 (Part 8):1983 (RA 2006)	Density 1.2 gm/cc to 3 gm/cc Moisture Content 4 % to 50% Density 1.2 gm/cc to 3 gm/cc
		Free Swell Index	IS 2720 (Part 40) :1977 (RA 2011)	0 % to 800 % Max.
		Swelling Pressure	IS 2720 (Part 41): 1977 (RA 2011)	0 kg/cm^2 to 5 kg/cm^2
		California Bearing Ratio (CBR)	IS 272 0(Part 16): 1987 (RA 2002)	1 % to 100 %
		Permeability	IS 2720 (Part 17): 1986 (RA 2011)	1×10^{-2} cm/s to 10^{-9} cm/s
		Sand Content	IS 6186: 1986 (RA 2003)	0.1 % to 20 %
		Swelling Power	IS 6186: 1986 (RA 2003)	10 ml to 100 ml
		Marsh cone Viscosity	ASTM-D (6910)	5 s to 200 s
		Fineness Wet & Dry	IS 6186: 1986 RA 2003	80 % to 100 %

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2.	**Rock**	Unconfined compressive Strength Test	IS 9143: 1979 (RA 2006)	30 N/mm^2 to 500 N/mm^2
		Point Load Strength Index	IS 8764: 1998 (RA 2008)	0 MN/m^2 to 60 MN/m^2
		Water Content	IS 13030: 1991 (RA 2006)	0.1 % to 20 %
		Relative Density	IS 13030: 1991 (RA 2006)	2 to 4

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