

<b>Laboratory</b>	<b>Civil Aid Technoclinic Private Limited (A Bureau Veritas Group Company), Shed No: C/27, Industrial Estate Yeyyadi, Mangalore, Karnataka</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Mechanical Testing</b>	<b>Issue Date</b>	<b>16.06.2016</b>
<b>Certificate Number</b>	<b>T-2870</b>	<b>Valid Until</b>	<b>15.06.2018</b>
<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>1 of 5</b>

<b>S. No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
<b>I.</b>	<b>BUILDING MATERIALS</b>			
<b>1.</b>	<b>Coarse Aggregate</b>	Sieve Analysis (% Passing)	IS 2386 (Part 1): 1963 (RA 2011)	0.1 % to 100 % (4.75 mm to 40 mm)
		Flakiness Index	IS 2386 (Part 1): 1963 (RA 2011)	1 % to 70 %
		Elongation Index	IS 2386 (Part 1): 1963 (RA 2011)	1 % to 70 %
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2011)	0.1 % to 5 %
		Specific Gravity	IS 2386 (Part 3): 1963 (RA 2011)	2 to 4
		Aggregate impact value	IS 2386 (Part 4): 1963 (RA 2011)	1 % to 50 %
		Aggregate Crushing Value	IS 2386 (Part 4): 1963 (RA 2011)	1 % to 50 %
		Bulk Density (Loose & Rodded)	IS 2386 (Part 3): 1963 (RA 2011)	0.5 kg/l to 3.0 kg/l
		10% Fines Value	IS 2386 (Part 4): 1963 (RA 2011)	3 T to 100 T
		Particle Finer Than 75 Micron	IS 2386 (Part 1): 1963 (RA 2011)	0.1 % to 20 %
<b>2.</b>	<b>Fine Aggregate</b>	Sieve Analysis	IS 2386 (Part 1): 1963 (RA 2011)	0.1 % to 100 % (75 μ to 4.75 mm)
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2011)	1 % to 10 %

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<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>2 of 5</b>

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	<b>Fine Aggregate</b>	Specific Gravity	IS 2386 (Part 3): 1963 (RA 2011)	2 to 4
		Bulk Density (Loose & Rodded)	IS 2386 (Part 3): 1963 (RA 2011)	0.5 kg/l to 3.0 kg/l
		Particle Finer Than 75 Micron	IS 2386 (Part 1): 1963 (RA 2011)	0.1 % to 20 %
<b>3.</b>	<b>Bricks</b>	Water Absorption	IS 3495 (Part 2): 1992 (RA 2011)	0.1 % to 25 %
		Compressive Strength	IS 3495 (Part 1): 1992 (RA 2011)	1 MPa to 20 MPa
		Efflorescence	IS 3495(Part 3): 1992 (RA 2011)	Qualitative
<b>4.</b>	<b>Concrete Blocks (Hollow &amp; Solid)</b>	Water Absorption	IS 2185 (Part 1): 2005 (RA 2011) Annexure E	1 % to 10 %
		Compressive Strength	IS 2185 (Part 1): 2005 (RA 2011) Annexure D	1 MPa to 25 MPa
		Block Density	IS 2185 (Part 1): 2005 (RA 2011) Annexure C	1000 kg/m <sup>3</sup> to 2200 kg/m <sup>3</sup>
<b>5.</b>	<b>Hardened Concrete</b>	Compressive Strength	IS 516: 1959 (RA 2013)	5 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>
<b>6.</b>	<b>Paver Blocks</b>	Water Absorption	IS 15658: 2006 (RA 2011) (Annexure C)	1 % to 20 %
		Compressive Strength	IS 15658: 2006 (RA 2011) (Annexure D)	10 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>

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<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>3 of 5</b>

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	<b>Paver Blocks</b>	Split Tensile Strength	IS 15658: 2006 (RA 2011) (Annexure F)	0.1 N/mm <sup>2</sup> to 10 N/mm <sup>2</sup>
		Flexural Strength	IS 15658: 2006 (RA 2011) (Annexure G)	0.1 N/mm <sup>2</sup> to 15 N/mm <sup>2</sup>
<b>7.</b>	<b>Reinforcing HYSD Bars</b>	Weight/Meter Run	IS 1786: 2008	0.1 kg/m to 15 kg/m
		0.2% Proof Stress	IS 1608: 2005 (RA 2010)	Load range : 20 kN to 900 kN 100 N/mm <sup>2</sup> to 700 N/mm <sup>2</sup>
		Ultimate Tensile Strength	IS 1608: 2005 (RA 2010)	Load range: 20 kN to 900 kN 100 N/mm <sup>2</sup> to 900 N/mm <sup>2</sup>
		Percentage Elongation	IS 1608: 2005 (RA 2010)	1 % to 40 %
		Bend	IS 1599: 1985 (RA 2012)	Mandrel diameter (mm) 16, 20, 24, 30, 32, 36, 40, 48, 50, 60, 64,75, 80, 84, 96, 100, 108, 112, 125, 128, 140, 144, 150, 160, 168, 192, 180, 216 Qualitative
		Rebend Test	IS 1786: 2008	Mandrel diameter (mm) 16, 20, 24, 30, 32, 36, 40, 48, 50, 60, 64,75, 80, 84, 96, 100, 108, 112,125, 128, 140,144, 150, 160, 168, 192, 180, 216 Qualitative

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<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>4 of 5</b>

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<b>8.</b>	<b>Structural Steel</b>	Weight/Meter	IS 808: 1989 (RA 2009)	0.3 kg/m to 100 kg/m
		Tensile Stress	IS 1608: 2005 (RA 2010) IS 2062: 2011	100 N/mm <sup>2</sup> to 600 N/mm <sup>2</sup>
		Elongation	IS 1608: 2005 (RA 2010)	1 % to 50 %
		Bend Test	IS 1599: 1985 (RA 2012)	Mandrel diameter(mm) 16,20,24,30,32, 36,40,48,50,60,64,75,80,8 4,96,100,108,112, 125,128,140,144,150,160, 168,192,180,216
<b>9.</b>	<b>Tiles-Ceramic</b>	Water Absorption	IS 13630 (Part2): 2006 (RA 2012)	0.1 % to 20 %
<b>II. SOIL &amp; ROCK</b>				
<b>1.</b>	<b>Soil</b>	Particle Size	IS 2720 (Part 4): 1985 (RA 2010) Clause. 3.0 Clause. 4.3 Clause. 5.2	0.1 % to 100 % (75 μ to 4.75 mm) 0.1 % to 100 % (2 μ to 75 μ) (0.1 % to 100 %) < 2 μ
		Sieve Analysis		
		Wet Sieve Analysis		
		Hydrometer		
		Specific Gravity		
Liquid Limit	IS 2720(Part 5): 1985 (RA 2010)	15 % to 600 %		
Plastic Limit	IS 2720 (Part 5): 1985 (RA 2010)	10 % to 60 %		

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**Last Amended on** - **Page** 5 of 5

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	Soil	Moisture Content	IS 2720 (Part 9): 1985 (RA 2011)	0.1 % to 80 %
		Light Compaction (Standard Proctor)	IS 2720 (Part 7): 1985 (RA 2011)	OMC : 6 % to 45 % MDD 1.3 g/cc to 2.3 g/cc
		Heavy Compaction (Modified Proctor)	IS 2720 (Part 8): 1985 (RA 2010)	OMC 6 % to 40 % MDD: 1.3 g/cc to 3.0 g/cc
		Direct Shear	IS 2720 (Part 13): 1985 (RA 2010)	C= 0 kg/cm <sup>2</sup> to 0.2 kg/cm <sup>2</sup> Angle of friction $\phi=150$ to 450
		Triaxial Strength Without Pore Pressure	IS 2720 (Part 11): 1985 (RA 2010)	C= 0.05 kg/cm <sup>2</sup> to 10 kg/cm <sup>2</sup> to 1.0 kg/cm <sup>2</sup> Angle of friction $\phi=0^\circ$ to 30 <sup>o</sup>
		Consolidation Test	IS 2720 (Part 15): 1985 (RA 2010)	Cc: 0.01 to 0.05
		Free Swell Index	IS 2720 (Part 40): 1977 (RA 2010)	0 % to 800 %
		CBR	IS 2720 (Part 16): 1987 (RA 2007)	1 % to 80 %

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