

<b>Laboratory</b>	<b>Rahul Engineers Laboratory, 5 A, Chitrakut Nagar, Bhuwana By Pass Road, Udaipur, Rajasthan</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Mechanical Testing</b>	<b>Issue Date</b>	<b>17.11.2014</b>
<b>Certificate Number</b>	<b>T-1262</b>	<b>Valid Until</b>	<b>16.11.2016</b>
<b>Last Amended on</b>	<b>19.11.2014</b>	<b>Page</b>	<b>1 of 4</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 MATERIAL</b>			
<b>1.</b>	<b>Cement: OPC/PPC/ White Cement</b>	Soundness by Le-Chatelier	IS 4031 (Part 3): 1988 (RA 2000), Amd. 1	0.10 mm to 50 mm
		Consistency	IS 4031 (Part 4): 1988 (RA 2000), Amd. 1	15 % to 50 %
		Setting time	IS 4031 (Part 5): 1988 (RA 2000), Amd. 1	5 min to 700 min
		Compressive Strength	IS 4031 (Part 6): 1999 (RA 2000)	5 N/mm <sup>2</sup> to 88 N/mm <sup>2</sup>
		Fineness by air Permeability	IS 4031(Part 2): 1999	100 m <sup>2</sup> /kg to 500 m <sup>2</sup> /kg
		Soundness by Autoclave	IS 4031 (Part 6): 1988	0.01 % to 2.0 %
		Density	IS 4031 (Part 11) : 1988 (RA 2000)	2 gm/cc to 4 gm/cc
<b>2.</b>	<b>Aggregate (Coarse / Fine)</b>	Gradation	IS2386 (Part 1): 1963 (RA 2000), Amd. 3	75 um to 125 mm
		Deleterious Substances	IS 2386 (Part 2): 1963 (RA 2000), Amd. 1	0.1 % to 10 %
		Organic Impurities		Qualitative
		Unit weight & voids (Bulk Density)	IS 2386 (Part 3): 1963 (RA 2000), Amd. 3	1 g/cc to 3.5 g/cc

<b>Laboratory</b>	<b>Rahul Engineers Laboratory, 5 A, Chitrakut Nagar, Bhuwana By Pass Road, Udaipur, Rajasthan</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Mechanical Testing</b>	<b>Issue Date</b>	<b>17.11.2014</b>
<b>Certificate Number</b>	<b>T-1262</b>	<b>Valid Until</b>	<b>16.11.2016</b>
<b>Last Amended on</b>	<b>19.11.2014</b>	<b>Page</b>	<b>2 of 4</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>Aggregate (Coarse / Fine)</b>	Soundness by Na <sub>2</sub> SO <sub>4</sub> /MgSO <sub>4</sub>	IS 2386 (Part 5): 1963 (RA 2000)	0.01 % to 40 %
		Impact value	IS 2386 (Part 4): 1963 (RA 2002), Amd. 3	4.0 % to 80 %
		Crushing value	IS 2386 (Part 4): 1963 (RA 2002) , Amd. 3	4.0 % to 80 %
		(10%) Fines value	IS 2386 (Part 4): 1963 (RA 2002) , Amd. 3	5 kN to 600 kN
		Sp. Gravity	IS 2386 (Part 3): 1963 (RA 2002) , Amd. 3	2 to 4
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2002), Amd. 3	0.01 % to 25 %
		Flakiness Index	IS 2386 (Part 1): 1963 (RA 2002) , Amd. 3	1.0 % to 100 %
		Elongation Index	IS 2386 (Part 1): 1963 (RA 2002), Amd. 3	1.0 % to 100 %
		Abrasion Value	IS; 2386 (Part 4): 1963	5 % to 50 %
		Stripping Value	IS 6241: 1971 (RA 2003)	Qualitative 5 % to 100 %
<b>3.</b>	<b>Bricks</b>	Compressive Strength	IS 3495 (Part 1): 1992 (RA 2002)	1.0 Mpa to 50 Mpa
		Water Absorption	IS 3495 (Part 2): 1992 (RA 2002)	0.5 % to 50 %

<b>Laboratory</b>	<b>Rahul Engineers Laboratory, 5 A, Chitrakut Nagar, Bhuwana By Pass Road, Udaipur, Rajasthan</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Mechanical Testing</b>	<b>Issue Date</b>	<b>17.11.2014</b>
<b>Certificate Number</b>	<b>T-1262</b>	<b>Valid Until</b>	<b>16.11.2016</b>
<b>Last Amended on</b>	<b>19.11.2014</b>	<b>Page</b>	<b>3 of 4</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>Bricks</b>	Efflorescence	IS 3495 (Part 3): 1992 (RA 2002)	Qualitative ( Visual )
<b>4.</b>	<b>Concrete</b>	Workability by Slump	IS 1199: 1959 (RA 1999)	5 mm to 300 mm
		Workability by Compacting factor	IS 1199: 1959 (RA 1999)	0.60 to 1.0
		Compressive Strength	IS 516: 1959 (RA 1999)	4 N/mm <sup>2</sup> to 88 N/mm <sup>2</sup>
		Accelerated testing for concrete for Compressive strength	IS 9013: 1978 (RA 1999)	4 N/mm <sup>2</sup> to 88 N/mm <sup>2</sup>
<b>5.</b>	<b>Bitumen (Paving bitumen, Polymer Modified bitumen, Industrial bitumen)</b>	Softening Point	IS 1205: 1978 (RA 1999)	40 °C to 70 °C
		Ductility	IS 1208: 1978 (RA 1999)	5 cm to 100 cm
		Marshall Stability	IRC Manual for Construction & Supervision of Bituminous Works: 2001	Stability: 0.5 kN to 25 kN, Flow: 0.5 mm to 25 mm
		Flash Point Test	IS 1209: 1978	50 °C to 3000 °C
		Elastic recovery	IS 15462: 2004 IRC 53: 2010	1 % to 100 %
		Solubility in Trichloroethylene	IS 1216: 1978 (RA 1999)	10 % to 100 %
<b>6.</b>	<b>Bituminous Mix</b>	Binder Content	IRC SP 11: 1977	1 % to 15 %
<b>7.</b>	<b>Paver Block</b>	Water Absorption	IS 15658 : 2006	1 % to 20 %
		Compressive Strength	IS 15658 : 2006	4 N/mm <sup>2</sup> to 88 N/mm <sup>2</sup>

**Laboratory**                      **Rahul Engineers Laboratory, 5 A, Chitrakut Nagar, Bhuwana By Pass Road, Udaipur, Rajasthan**

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

**Discipline**                      **Mechanical Testing**                      **Issue Date**    **17.11.2014**

**Certificate Number**            **T-1262**                      **Valid Until**    **16.11.2016**

**Last Amended on**              **19.11.2014**                      **Page**              **4 of 4**

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<b>II. SOIL &amp; ROCK</b>				
1.	Rock	Compressive strength of rock	IS 1121 (Part 1): 1974 (RA 2003)	10 Mpa to 300 Mpa
2.	Soil	Sp. Gravity	IS 2720 (Part 3/ Sec 1 & 2): 1980 (RA 2002)	1 to 4
		Grain size analysis Sieve analysis Wet Sieve analysis Particle size Distribution	IS 2720 (Part 4): 1985 (RA 2001), Cl. 3.0,4,3,5.2	80 mm to 4.75 mm 4.75 mm to 0.075 mm 0.075 um to 0.001um
		Atterberg's Limit Liquid Limit Plastic limit	IS 2720 (Part 5): 1985 (RA 2001)	10 % to 80 % 5 % to 80 %
		Moisture Content	IS 2720(Part 2): 1973 (RA 2002)	1 % to 99 %
		Procter test Light compaction	IS 2720 (Part 7): 1980 (RA 2002)	MDD: 1 g/cc to 3 g/cc, OMC: 3 % to 40 %
		Heavy compaction	IS 2720 (Part 8): 1983 (RA 2002)	MDD: 1 g/cc to 3 g/cc, OMC: 3 % to 40 %
		California Bearing Ratio	IS 2720 (Part 16): 1987 (RA 2002)	2 % to 200 %
		Free Swell Index	IS 2720 (Part 40) : 1977	0.01 % to 50 %
		Direct Shear Test	IS 2720 (Part 13): 1986 (RA 2002)	C: 0.007 kg/cm <sup>2</sup> to 0.2 kg/cm <sup>2</sup> Φ: 5° to 50°

-X-X-X-X-X-X-X-X-X-X-X-X-