

<b>Laboratory</b>	<b>Vidyabharti Trust Institute of Technology &amp; Research Centre, Umrahk, TA – Bardoli, Dist. Surat, Gujarat</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Mechanical Testing</b>	<b>Issue Date</b>	<b>24.10.2014</b>
<b>Certificate Number</b>	<b>T-3168</b>	<b>Valid Until</b>	<b>23.10.2016</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. BUILDING MATERIALS</b>				
<b>1.</b>	<b>Fine Aggregate (Sand)</b>	Fineness Modulus by Gradation	IS 2386 (Part I): 1963 (RA 2011) Amd-4	10 mm to 150 $\mu$ m
		Specific Gravity	IS 2386 (Part III): 1963 (RA 2011)	1.0 to 5.0
		Water Absorption	IS 2386 (Part III): 1963 (RA 2011)	0.20 % to 10.0 %
		Silt Clay Content	IS 2386 (Part I & II): 1963 (RA 2011) Amd-4	0.10 % to 20 %
		Bulk Density	IS 2386 (Part III): 1963 (RA 2011)	1000 kg/m <sup>3</sup> to 2000 kg/m <sup>3</sup>
<b>2.</b>	<b>Coarse Aggregate</b>	Grading of Aggregate	IS 2386 (Part I): 1963 (RA 2011) Amd-4	0 % to 100 %
		Specific Gravity	IS 2386 (Part III): 1963 (RA 2011)	1.0 to 5.0
		Water Absorption	IS 2386 (Part III): 1963 (RA 2011)	0.10 % to 5.0 %
		Flakiness	IS 2386 (Part I): 1963 (RA 2011) Amd-4	0 % to 50 %
		Elongation Index	IS 2386 (Part I): 1963 (RA 2011) Amd-4	0 % to 50 %
		Impact Value	IS 2386 (Part IV): 1963 (RA 2011) Amd-3	0 % to 50 %

<b>Laboratory</b>	<b>Vidyabharti Trust Institute of Technology &amp; Research Centre, Umrahk, TA – Bardoli, Dist. Surat, Gujarat</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Mechanical Testing</b>	<b>Issue Date</b>	<b>24.10.2014</b>
<b>Certificate Number</b>	<b>T-3168</b>	<b>Valid Until</b>	<b>23.10.2016</b>
<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>2 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>Coarse Aggregate</b>	Abrasion Value	IS 2386 (Part IV): 1963 (RA 2011) Amd-3	0 % to 50 %
		Crushing Value	IS 2386 (Part IV): 1963 (RA 2007) Amd-3	0 % to 50 %
<b>3.</b>	<b>Building Stone/Rubble</b>	Specific Gravity (apparent)	IS 1124 : 1974 (RA 2013)	1.0 to 5.0
		Water Absorption	IS 1124 : 1974 (RA 2013)	0.20 % to 10.0 %
		Compressive Strength	IS 1121 (Part I): 2013 Revision 2013	100 kg/cm <sup>2</sup> to 1500 kg/cm <sup>2</sup>
<b>4.</b>	<b>Cement</b>	Consistency	IS 4031 (Part 40): 1995 (RA 2009)	5 % to 45 %
		Initial setting time	IS 4031 (Part V): 1995 (RA 2009)	10 min. to 150 min.
		Final setting time	IS 4031 (Part V): 1995 (RA 2009)	60 min. to 500 min.
		Fineness by Blain Air Permeability (Specific surface area)	IS 4031 (Part II): 1995(RA 2013)	100 m <sup>2</sup> /kg to 1000 m <sup>2</sup> /kg
		Soundness by Le-Chatelier apparatus	IS 4031 (Part III): 1988 (RA 2009)	0.5 mm to 10 mm
		Compressive Strength	IS 4031 (Part-VI): 1988 (RA 2009)	1 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>

<b>Laboratory</b>	<b>Vidyabharti Trust Institute of Technology &amp; Research Centre, UmraKh, TA – Bardoli, Dist. Surat, Gujarat</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Mechanical Testing</b>	<b>Issue Date</b>	<b>24.10.2014</b>
<b>Certificate Number</b>	<b>T-3168</b>	<b>Valid Until</b>	<b>23.10.2016</b>
<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>3 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>5.</b>	<b>Concrete</b>	Compressive Strength of C.C. Cube	IS 516 : 1959 (RA 2008) IS 456 : 2000 (RA 2011)	1 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>
		Slump test of fresh concrete	IS 1199 : 2005	0 mm to 300 mm
<b>6.</b>	<b>Bitumen</b>	Penetration (1/10 <sup>th</sup> mm)	IS 1203 : 1978 (RA 2008)	10 mm to 100 mm (0.1 mm)
		Ductility	IS 1208 : 1978 (RA 2009)	10 cm to 100 cm
		Softening Point	IS 1205 : 1978 (RA 2009)	30 °C to 65 °C
		Absolute Viscosity	IS 73 : 2006 IS 1206 (Part II) (RA 2009)	500 Poise to 3000 Poise
		Kinematics Viscosity	IS 73 : 2006 IS 1206 (Part II) (RA 2009)	100 CST to 500 CST
		Specific Gravity	IS 1202 : 1978 (RA 2008)	0.50 to 2.00
<b>7.</b>	<b>Bituminous Mix Test</b>	Binder Content Test	ASTM-D 01 No.11.1520 : 2011	0 % to 6 %
		Marshal Stability Test (One set of three samples)	ASTM-1559 : 1989	500 kg to 2000 kg
		Flow value test	ASTM-D1075 : 2011	1 to 10
		Compacted Density of Mix	ASTM-D.2172 : 2011	1 gm/cc to 5 gm/cc

<b>Laboratory</b>	<b>Vidyabharti Trust Institute of Technology &amp; Research Centre, Umrahk, TA – Bardoli, Dist. Surat, Gujarat</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Mechanical Testing</b>	<b>Issue Date</b>	<b>24.10.2014</b>
<b>Certificate Number</b>	<b>T-3168</b>	<b>Valid Until</b>	<b>23.10.2016</b>
<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>4 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>8.</b>	<b>Bricks</b>	Dimension and Tolerance (20 No. of bricks)	IS 1077 : 1992 (RA 2011)	Width- 100 mm to 150 mm Length- 200 mm to 300 mm Height- 60 mm to 100 mm
		Water Absorption (5 No. of bricks)	IS 3495 (Part 2): 2011 (RA 2011)	1 % to 45 %
		Compressive Strength (5 No. of bricks)	IS 3495 (Part 1): 2011 (RA 2011)	1 N/mm <sup>2</sup> to 15 N/mm <sup>2</sup>
<b>II. SOIL AND ROCK TESTING</b>				
<b>1.</b>	<b>Soil</b>	Grain Size Analysis	IS 2720 (Part IV): 1985 (RA 2006) Clause 3,4 & 5.2	0 % to 100%
		Plasticity Index (Liquid limit & Plastic limit)	IS 2720 (Part V): 1985 (RA 2006) Clause 6 & 7	LL: 10 % to 100% PL: 0 % to 80 %
		Optimum Moisture Content by Light and Heavy Compaction	IS 2720 (Part VII): 1980 (RA 2002)	OMC: 1 % to 30 %
		Maximum Dry Density by Light and Heavy Compaction	IS 2720 (Part VIII ): 1983 (RA 2006)	MDD: 1 gm/cc to 3.00 gm/cc

**Laboratory** Vidyabharti Trust Institute of Technology & Research Centre, Umrahk,  
 TA – Bardoli, Dist. Surat, Gujarat

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

**Discipline** Mechanical Testing **Issue Date** 24.10.2014

**Certificate Number** T-3168 **Valid Until** 23.10.2016

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

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Soil	C.B.R. Test	IS 2720 (Part-16): 1987 (RA 2007)	1 % to 40 %
		Moisture Content	IS 2720 (Part 2): 1973 (RA 2006)	0 % to 80 %

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