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| **Accreditation Standard** | **ISO/IEC 17025: 2005** | | |
| **Certificate Number** | **TC-6552** | **Page 1 of 5** | |
| **Validity** | **15.11.2017 to 14.11.2019** | **Last Amended on 12.04.2018** | |

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|---|---|---|---|---|

**CHEMICAL TESTING**

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|---|---|---|---|---|
| **I.** | **WATER** | | | |
| **1.** | **Construction Water** | Chloride Content | IS 3025, Part-32 | 5 mg/l to 5000 mg/l |
| | | Sulphate Content | IS 3025, Part-24 | 5 mg/l to 4000 mg/l |
| | | pH Value | IS 3025, Part-11 | 2.0 to 12.0 |

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**MECHANICAL TESTING**

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| **I.** | **BUILDING MATERIALS** | | | |
| **1.** | **Concrete** | Compressive strength of cubes | IS 516 | 10 N/mm$^2$ to 80 N/mm$^2$ |
| | | Slump test | IS 1199 | 1 mm to 300 mm |
| **2.** | **Burnt Clay Bricks and Fly Ash Bricks** | Compressive strength | IS 3495, Part-1 | 3.5 N/mm$^2$ to 15 N/mm$^2$ |
| | | Efflorescence | IS 3495, Part-3 | Qualitative |
| | | Water absorption | IS 3495, Part-2 | 2 % to 25 % |
| | | Dimension | IS 1077 | L = 4500–4700 mm |
| | | | | W= 2100–2300 mm |
| | | | | H = 1300–1500 mm |
| **3.** | **Paver Blocks** | Compressive strength | IS 15658 | 5 N/mm$^2$ to 85 N/mm$^2$ |
| | | Water absorption | IS 15658 | 0.5 % to 20 % |
| **4.** | **Coarse Aggregate** | Sieve analysis (4.75 mm to 125 mm) | IS 2386, Part-1 | 0.1 % to 100.0 % |
| | | Flakiness index | IS 2386, Part-1 | 2 % to 40 % |
| | | Elongation index | IS 2386, Part-1 | 2 % to 40 % |
| | | Specific gravity | IS 2386, Part-3 | 1.50 to 4.00 |
| | | Water absorption | IS 2386, Part-3 | 1 % to 10 % |
| | | Crushing value | IS 2386, Part-4 | 1 % to 60 % |
| | | Impact value | IS 2386, Part-4 | 1 % to 50 % |
| | | Los angeles abrasion value | IS 2386, Part-4 | 1 % to 60 % |
| | | 10% Fines Value | IS 2386, Part-4 | 1 kN to 400 kN |
| **5.** | **Fine Aggregate** | Sieve analysis (75 μm to 4.75 mm) | IS 2386, Part-1 | 0.1 % to 100.0 % |
| | | Specific gravity | IS 2386, Part-3 | 1.50 to 4.00 |
| | | Water absorption | IS 2386, Part-3 | 1 % to 10 % |
| | | Silt content | IS 2386, Part-1 | 1 % to 5% |
| **6.** | **Bitumen and Bituminous material** | Softening point | IS 1205 | 40°C to 60°C |
| | | Penetration | IS 1203 | 25 div to 100 div (1/10$^{th}$ of mm) |

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| | | Ductility | | IS 1208 | 40 cm to 100 cm |
| | | Specific gravity | | IS 1202 | 0.99 to 1.102 |
| | | Absolute Viscosity | | IS 1206 | 360 poise to 4000 poise |
| | | Kinematics Viscosity | | IS 1206 | 60 cSt to 600 cSt |
| **7.** | **Bitumen Mix design** | Marshall Stability | | ASTM D 1559<br>ASTM D 6927 | 0.1 kN to 25 kN |
| | | Flow Test | | ASTM D 1559<br>ASTM D 6927 | 0.01 mm to 6.0 mm |
| **8.** | **Cement** | Consistency | | IS 4031 Part-4 | 25% to 40% |
| | | Initial setting times | | IS 4031 Part-5 | 5 minute to 250 minute |
| | | Final setting times | | IS 4031 Part-5 | 30 minute to 700 minute |
| | | Compressive strength | | IS 4031 Part-6 | 10 $N/mm^2$ to 80 $N/mm^2$ |
| | | Soundness by Le–chatelier methods | | IS 4031 Part-3, Clause No.5 | 0.05 mm to 10 mm |
| | | Fineness by dry sieving (% retained) | | IS 4031 Part-1, Clause No.5 | 0 to 10% |
| | | Fineness by blaine air permeability | | IS 4031 Part-2 | 200 $m^2/kg$ to 600 $m^2/kg$ |
| **II.** | **SOIL AND ROCK** | | | | |
| **1.** | **Soil** | Gradation (75 micron to 40 mm) | | IS 2720 Part-4 | 75 μm to 40 mm (0.1 % to 100.0 %) |
| | | Liquid Limit | | IS 2720 Part-5 | 25 % to 120 % |
| | | Plastic Limit | | IS 2720 Part-5 | 15 % to 40 % |
| | | Light Compaction | MDD | IS 2720 Part-7 | 1 gm/cc to 2.10 gm/cc |
| | | | OMC | | 5 % to 40.0 % |
| | | Heavy Compaction | MDD | IS 2720 Part-8 | 1.4 gm/cc to 2.60 gm/cc |
| | | | OMC | | 2 % to 30.0 % |
| | | | | IS 2720 Part-16 | 1 % to 60 % |
| | | California Bearing Ratio | | IS 2720 Part-16 | 1 % to 60 % |
| | | Direct Shear Test | | IS 2720 Part-13 | C = 0.02 to 0.4 $kg/cm^2$, Φ = 0 to 40 ° |

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| **2.** | **Soil – Field Test** | Pile Load – Vertical load (Compression) | IS 2911 Part-4 | 1 to 500 t |
| | | Pile Load Test Vertical (Uplift) | | 1 to 125 t |
| | | Lateral Pile Load Test | | 0.05 to 40 t |
| **III.** | **MECHANICAL PROPERTIES OF METALS** | | | |
| **1.** | **Reinforcement & structural steel** | Ultimate tensile strength | IS 1608 | 100 N/mm$^2$ to 1000 N/mm$^2$ |
| | | Elongation | IS 1608 | 1% to 60 % |
| | | Re–bend test | IS 1786 | Qualitative<br>Mandrel size: (24, 32, 40,50, 175, 196, 224) mm |
| | | Bend test | IS 1599 | Qualitative<br>Mandrel size: (16, 24, 28, 30, 40, 50, 60, 64, 80, 100, 112, 125, 128, 140, 160) mm |
| | | Mass / Meter | IS 1786 | 1g to 10 kg<br>(6mm to 36mm) |
| | | Yield stress / 0.2 % Proof stress | IS 1608 | 100 N/mm$^2$ to 1000 N/mm$^2$ |

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**NON-DESTRUCTIVE TESTING**

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|---|---|---|---|---|
| **I.** | **BUILDING MATERIALS** | | | |
| **1.** | **Reinforced Concrete structure** | Ultrasonic Pulse Velocity | IS 13311 Part-1 | 1000 m/s to 5000 m/s |
| | | Rebound hammer | IS 13311 Part-2 | 10 to 100 Rebound Numbers |
| | | Pile integrity | ASTM D 5882 | 2 m to 80 m |

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