| Laboratory             | Shreyas Material Testing Lab, Vejpur, Taluka-Desar, Dist- Vadodara,<br>Vadodara, Gujarat |                 |
|------------------------|--|-----------------|
| Accreditation Standard | ISO/IEC 17025: 2005  |                 |
| Certificate Number     | TC-8089  | Page 1 of 2     |
| Validity               | 19.11.2018 to 18.11.2020   | Last Amended on |
| ·                      |  |                 |

| SI. | Product / Material<br>of Test | Specific Test Performed | Test Method Specification against which tests are | Range of Testing /<br>Limits of Detection |
|-----|-------------------------------|-------------------------|---|---|
|     |                               | <u> </u>                | performed   | <u> </u>                                  |

## MECHANICAL TESTING

| I. | BUILDING MATERIALS        |                                      |                                     |  |
|----|---------------------------|--------------------------------------|-------------------------------------|--|
| 1. | Cement<br>(OPC)           | Standard Consistency                 | IS 4031 (Part 4): 1988<br>RA 2014   | 25% to 40 %  |
|    |                           | Initial Setting Time                 | IS 4031 (Part 5)-1988,              | 30 Min. to 250 Min.  |
|    |                           | Final Setting Time                   | RA 2014                             | 100 Min. to 700 Min.   |
|    |                           | Compressive Strength                 | IS 4031 (Part 6)-1988,<br>RA 2014   | 10 N/mm <sup>2</sup> -80 N/mm <sup>2</sup>                     |
|    |                           | Soundness by Le-<br>Chatilier method | IS 4031 (Part 3)-1988,<br>RA 2014   | 0.5 mm to 10 mm  |
|    |                           | Fineness by Blain's<br>Method        | IS 4031 (Part 2)-1996,<br>RA 2014   | 100 m <sup>2</sup> /kg to 600 m <sup>2</sup> /kg               |
| 2. | Concrete                  | Compressive Strength                 | IS 516-1959, RA 2013                | 10 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>                   |
| 3. | Bricks                    | Compressive Strength                 | IS 3495 (Part 1) -1992,<br>RA 2016  | 2.5 N/mm <sup>2</sup> to 20 N/mm <sup>2</sup>                  |
|    |                           | Water Absorption                     | IS 3495 (Part 2) -1992,<br>RA 2016  | 2% to 25 %   |
|    |                           | Efflorescence                        | IS 3495–1992 (Part 3),<br>RA 2016 2 | Qualitative  |
|    |                           | Dimensions                           | IS 1077: 1992 RA 2016               | L: 4400 to 4800 mm<br>W: 2000 to 2300 mm<br>H: 1200 to 1500 mm |
| 6. | Paver Block               | Compressive Strength                 | IS 15658-2006, RA 2017,<br>Annex D  | 5 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>                    |
|    |                           | Water Absorption                     | IS 15658-2006, RA 2017,<br>Annex C  | 0.5% to 20 %   |
| 7. | Natural Building<br>Stone | Compressive Strength                 | IS 1121-1959, RA 2013               | 100 kg/cm <sup>2</sup> to 5000 kg/cm <sup>2</sup>              |
|    |                           | Water Absorption                     | I.S 1124 – 1974                     | 0.1% to 2 %  |
| 8. | Bitumen                   | Specific Gravity                     | I.S 1202 – 1978 (RA 2013)           | 0.98 to 1.102  |
|    |                           | Ductility                            | I.S 1208 – 1978 (RA 2014)           | 25 to 05 cm  |

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| SI. | Product / Material<br>of Test | Specific Test Performed | Test Method Specification<br>against which tests are<br>performed | Range of Testing /<br>Limits of Detection |
|-----|-------------------------------|-------------------------|---|---|
|     |                               | Penetration             | I.S 1203 – 1978 (RA 2013)   | 35 (1/10mm) to 100<br>(1/10mm)            |
|     |                               | Softening Point         | I.S 1205 – 1978 (RA 2014)   | 20 °C to 65 °C                            |
|     |                               | Absolute Viscosity      | I.S 1206 (Part-2) - 1978<br>(RA 2014)                             | 800 to 4800 Poise                         |
|     |                               | Kinematics Viscosity    | I.S 1206 (Part-3) - 1978<br>(RA 2014)                             | 250 Cst to 700 Cst                        |
| 9.  | Bitumen Mix                   | Binder Content          | IRC SP-11 1984<br>Appendix 5 Clause C                             | 1% to 10%                                 |
|     |                               | Marshal Stability       | ASTM D 6927 - 15  | 600 kg to 2500 kg                         |
|     |                               | Marshall Flow Test      | ASTM D 6927 - 15  | 1 mm to 10 mm                             |
|     |                               | Density                 | ASTM D 2726 - 17  | 1.5 g/cc to 3.5 g/cc                      |