

# LIST OF TESTING SERVICES

## CONSTRUCTION MATERIALS

Sr. No	Description of Test	Test Method
<b>Soil</b>		
1	In-situ Density by Sand Replacement Method Using Large / Small Pouring Cylinder	BS 1377 Part 9
2	In-place Density Test by Sand Cone Method	ASTM D 1556
3	In-situ Density Test Using Nuclear Densitometer	BS 1377 Part 9 ASTM D 6938
4	Dry Density – Moisture Content Relationship (MDD-OMC)	BS 1377 Part 4 ASTM D 1557
5	Particle Size Distribution / Sieve Analysis	BS 1377 Part 2
6	California Bearing Ratio	BS 1377 Part 4 AASHTO T 193 / ASTM D 1883
7	Liquid Limit	BS 1377 Part 2 ASTM D 4318 / AASHTO T 89
8	Plastic Limit & Plasticity Index	BS 1377 Part 2 AMD 9027 ASTM D 4318 / AASHTO T 90
9	In-situ CBR	BS 1377 Part 9
10	Moisture Content	BS 1377 Part 2 ASTM D 2216
11	Moisture Content by Calcium Carbide Gas Pressure Tester	ASTM D 4944
12	Sieve Analysis - Hydrometer Method	BS 1377 Part 2 ASTM D 422
13	Linear Shrinkage	BS 1377 Part 2
14	Soil Classification	ASTM D 2487 ASTM D 3282 / AASHTO M 145
15	Shear Box Test	BS 1377 Part 7
16	Soil Permeability	BS 1377 Part 5
17	Coefficient of Uniformity ( $C_u$ )	ASTM D 2487
18	Plate Load Tests	ASTM D 1194 BS 1377 Part 9
19	Maximum and Minimum Density	BS1377 Part 4
20	Bulk Density and Dry Density	BS 1377 Part 2
21	Theoretical Density (Zero Void Condition)	BS 1377 Part 4
22	Particle Density	BS 1377 Part 2

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Sr. No	Description of Test	Test Method
23	Determination of Moisture Content	BS 1377 Part 2
24	Percolation Test	IHTP - 02
25	Dynamic Cone Penetration Test (DCPT)	ASTM D 6951
26	In-situ Density of Soil in Place (Sleeve Method)	ASTM D 4564
27	Thermal Conductivity in Soil	ASTM D 5334
28	Electrical Resistivity	BS 1377 Part 3
29	Moisture Condition Value (MCV)	BS 1377 Part 4
30	Determination of Bulkage Factor of Natural Soil Deposits, Compaction Factor & Shrinkage Factor of	IHTP-34
31	Laboratory Compaction Characteristics of Soil Using Standard Effort	ASTM D 698 AASHTO T 99
32	Triaxial Compression Test on Cohesive Soils	ASTM D 2850 ASTM D 4767
<b>Aggregates</b>		
1	Sampling of Aggregate	ASTM D 75
2	Particle Size Distribution (Wet / Dry Sieving)	BS 812 Part 103.1
3	Flakiness Index of Aggregates	BS 812 Part 105.1
4	Elongation Index of Aggregates	BS 812 Part 105.2
5	Shell Content in Coarse Aggregates	BS 812 Part 106 BS EN 933 Part 7
6	Aggregate Crushing Value	BS 812 Part 110
7	Ten Percent Fines Value	BS 812 Part 111
8	Aggregate Impact Value	BS 812 Part 112
9	Soundness of Aggregates by the Use of Sodium Sulphate and Magnesium Sulphate	ASTM C 88 BS 812 Part 121
10	Materials Finer than 75µm Sieve (Fines Passing No. 200) in Mineral Aggregates by Washing	ASTM C 117
11	Specific Gravity & Water Absorption of Coarse Aggregates	ASTM C 127
12	Specific Gravity & Water Absorption of Fine Aggregates	ASTM C 128

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Sr. No	Description of Test	Test Method
13	Sieve Analysis of Fine and Coarse Aggregates	ASTM C 136
14	Resistance to Degradation of Small Size or Large Size Coarse Aggregates by Abrasion and Impact in	ASTM C 131 ASTM C 535
15	Clay Lumps & Friable Particles	ASTM C 142
16	Specific Gravity & Absorption	BS 812 Part 2
17	Particle Density of Fillers	BS 812 Part 2
18	Sand Equivalent Value	ASTM D 2419
19	Rock Armour Grading Analysis	CIRIA SP / CUR 154
20	Unconfined Compressive Strength of Intact Rock Core Specimens	ASTM D 2938 / ASTM D 4543
21	Point Load Index Tests	ASTM D 5731 ISRM
22	Fully Crushed Faces of Aggregates	DM 300
23	Partially Crushed Faces of Aggregates	DM 301 / DMS - 8
24	Compaction Fraction	IHTP-01
25	Drying Shrinkage ( Masonry )	BS 6073 Part 1
26	Drying Shrinkage	BS 812 Part 120 BS EN 1367 Part 4
27	Sieve Analysis of Mineral Filler	ASTM D 546
28	Bulkage Factor	IHTP-34
29	Bulk Density	BS 812 Part 2
30	Determination of Moisture Content	BS 812 Part 109
31	Weight Distribution of Quarried Stone (Rock Grading)	CIRIA SP / CUR 154 BS EN 13383-2
32	Shape Index (Length-to-Thickness Ratio of Quarried Stone)	CIRIA SP / CUR 154 BS EN 13383-2
33	Drop Test Breakage Index	CIRIA SP / CUR 154 BS EN 13383-2
34	Water Absorption at Atmospheric Pressure	CIRIA SP CUR 154 BS EN 13383-2

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Sr. No	Description of Test	Test Method
35	Density of Rocks with a Volume of at Least 50 ml.	CIRIA SP CUR 154 BS EN 13383-2
36	Bulk Density (unit weight) and Voids in Aggregate	ASTM C 29 / C29M
37	Materials Finer than 63µm in Mineral Aggregates	BS EN 933 Part 1
38	Los Angeles Abrasion Test	BS EN 1097 Part 2
39	Particle Size Distribution of Soil	ASTM D 422
40	Density of Coarse Aggregates & Water Absorption	CIRIA SP - 1983 / CUR 154 - 1991
41	Particle Size Distribution	CIRIA SP / CUR 154
42	Content / Sieve Analysis of Extracted Aggregates	CIRIA SP / CUR 154
43	Resistance to Wearing	CIRIA SP / CUR 154
44	Specific Gravity	CIRIA SP / CUR 154
45	Point Load Index	CIRIA SP / CUR 154
46	Unconfined Compressive Strength	CIRIA SP / CUR 154
47	Impact Test	CIRIA SP / CUR 154
48	Crushing Value	CIRIA SP / CUR 154
<b>Fresh Concrete Tests</b>		
1	Method of Sampling Fresh Concrete at Site	BS 1881 Part 101
2	Slump & Temperature in Fresh Concrete	BS 1881 Part 102
3	Air Content in Fresh Concrete	BS 1881 Part 106
4	Density of Compacted Fresh Concrete	BS 1881 Part 107
5	Bleeding of Fresh Concrete	ASTM C 232
6	Concrete Setting Time	ASTM C 403
7	Yield / Cement Content of Fresh Concrete	ASTM C 138/C 138M
8	Water Cement Ratio	BS 1881 Part 2

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Sr. No	Description of Test	Test Method
9	Monitoring of Temperature in Concrete Using Thermocouple	IHTP - 08
<b>Hardened Concrete</b>		
1	Compressive Strength of Concrete Cubes	BS 1881 Part 116 BS EN 12390 Part 3
2	Density of Concrete Cubes	BS 1881 Part 114
3	Dimension of Pre-cast Concrete Masonry Units	BS 6073 Part 1 BS EN 772 Part 16
4	Compressive Strength of Pre-cast Concrete Masonry Units	BS 6073 Part 2 BS EN 772 Part 1
5	Dimension of Pre-cast Concrete Paving Blocks	BS 6717 Part 1 BS EN 772 Part 16
6	Compressive Strength of Pre-cast Concrete Paving Blocks	BS 6717 Part 1 BS EN 772 Part 1
7	Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration (RCP)	ASTM C 1202
8	Water Absorption of Hardened Concrete	BS 1881 Part 122
9	Depth of Penetration of Water Under Pressure	BS EN 12390 Part 8 DIN 1048 Part 5
10	Recommendations for the Determination of the Initial Surface Absorption of Concrete (ISAT)	BS 1881 Part 208
11	Method of Normal Curing of Test Specimens (20°C method)	BS 1881 Part 111
12	Transverse Strength of Kerbstone	BS 7263 Part 1
13	Water Absorption of Kerbstone	BS 7263 Part 1
14	Compressive Strength of Concrete Cores	BS 1881 Part 120
15	Compressive Strength of Concrete Cylinders	ASTM C 39 / C39M
16	Flexural Strength of Concrete Beam	BS 1881 Part 118
17	Tensile Splitting Strength	BS 1881 Part 117 ASTM C 496 / C 496M
18	Modulus of Elasticity of Cylinder	ASTM C 469
19	Chloride Migration Coefficient	NT Build 492
20	Chloride Diffusion Coefficient	NT Build 355
21	Porosity of Hardened Concrete (Absorption in Vacuum)	Rilem CPC 11.3

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Sr. No	Description of Test	Test Method
22	Compressive Strength & Water Absorption of Cover Block	BS EN 196 / Applicable Procedure
23	Drying Shrinkage of Autoclaved Aerated Concrete	BS EN 680
24	Compressive Strength of Masonry Prisms	ASTM C 1314
25	Compressive Strength of Concrete (using rebound hammer)	BS EN 12504 Part 2
26	Pulse Velocity Through Concrete	BS 1881 Part 203 BS EN 12504 Part 4
27	Moisture Content of Autoclaved Aerated Concrete Units	BS EN 772-10
28	Compressive Strength of Masonry Units	BS EN 772 Part 1
29	(Net / Gross) Dry Density of Masonry Units	BS EN 772 Part 13
30	Dimension of Masonry Units	BS EN 772 Part 16 ASTM C 1386
31	Drying Shrinkage of Masonry Units	ASTM C 426
32	Compressive Strength of Concrete Masonry Blocks	ASTM C 140
33	Density and Water Absorption of Concrete Masonry	ASTM C 140
34	Bulk/Apparent Density of Masonry Units	ASTM C 140 BS EN 772 Part 4
35	Compressive Strength of AAC Blocks	BS EN 772 Part 1
36	Dimension of AAC Blocks	BS EN 772 Part 16
37	Compressive Strength of Grout Cube	ASTM C 579
38	Surface Texture of Interlocking Concrete Blocks	IHTP-27
39	Tensile Splitting Strength of Paving Blocks	BS 6717 Annex E BS EN 1338
40	Flexural Strength on Concrete Pavers	ASTM C 140 / AS/NZS 4456.5
41	Transverse Strength of Unreinforced Concrete and Clayware Covers	BS 2484 Appendix B
42	Water Absorption of Autoclaved Aerated Concrete Masonry Units	BS EN 772 Part 11
43	Compressive Strength of Precast Autoclaved Aerated Concrete ( AAC ) Wall Construction Units	BS EN 772 Part 11 ASTM C 1386

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Sr. No	Description of Test	Test Method
44	Compressive Strength ( Structural Clay Tile )	ASTM C 67
45	Density, Absorption and Voids in Hardened Concrete	ASTM C 642
46	Flexural Tensile Strength	BS EN 14651
47	Measurement of Abrasion Resistance	BS EN 1338, Annex G
48	Skid Resistance	BS EN 1338, Annex I, BS EN 1339, Annex I
49	Slip Resistance/ Static Coefficient of Friction (Tile)	ASTM C1028
50	Solar Reflective Index	ASTM E 1980
51	Thermal Conductivity in Block	ASTM C 518 BS EN ISO 6946
<b>Cement</b>		
1	Consistency	BSEN 196 Part 1 / BS 12 / BS 4027 / ASTM C 150
2	Setting Time	BSEN 196 Part 1 / BS 12 / BS 4027 / ASTM C 150
3	Soundness	BSEN 196 Part 1 / BS 12 / BS 4027 / ASTM C 150
4	Fineness (Specific Surface Blaine)	BSEN 196 Part 1 / BS 12 / BS 4027 / ASTM C 150
5	Flexural Strength	BSEN 196 Part 1 / BS 12 / BS 4027 / ASTM C 150
6	Compressive Strength	BSEN 196 Part 1 / BS 12 / BS 4027 / ASTM C 150
7	Heat of Hydration	BSEN 196 Part 8
<b>GGBS &amp; Fly Ash</b>		
1	Setting Time	BS 6699 / BSEN 196 ASTM C 989
2	Fineness 45microns	BS 6699 / BSEN 196 ASTM C 989
3	Soundness	BS 6699 / BSEN 196 ASTM C 989
4	Slag Activity Index	BS 6699 / BSEN 196 ASTM C 989
5	Compressive Strength	BS 6699 / BSEN 196 ASTM C 989
<b>Micro Silica</b>		
1	Fineness	ASTM C 430

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Sr. No	Description of Test	Test Method
2	Compressive Strength	ASTM C 109 / C 109M
3	Pozzolonic Index Activity	ASTM C 1240
<b>Asphalt</b>		
1	Sampling of Bituminous Paving Mixtures	ASTM D 979
2	Specimen Thickness / Diameter of Compacted Bituminous Paving Mixture	ASTM D 3549 ASTM D 2726
3	Bulk Specific Gravity of Compacted Bituminous Mixtures	ASTM D 2726 ASTM D 1188
4	Percentage Voidage in Compacted Bituminous Paving Mixture	DMS 9
5	Theoretical Maximum Specific Gravity & Density of Bituminous Paving Mixture	ASTM D 2041
6	Marshall Preparation	ASTM D 6926
7	Stability & Flow of Bituminous Mixtures (Marshall)	ASTM D 6926 ASTM D 6927
8	Stability of Bituminous Mixtures at Different Immersion Time	ASTM D 6926 ASTM D 6927
9	Loss of Stability of Compacted Bituminous Mixtures	DMS 10
10	Coating & Stripping Test of Bitumen Aggregate Mixture	ASTM D 1664
11	Binder Content (asphalt content) by Ignition Method	ASTM D 6307
12	Sieve Analysis of Extracted Aggregate	ASTM D 5444
13	Rate of Application of Bituminous Distributors	ASTM D 2995
<b>Steel</b>		
1	Bend Test	BS 4449
2	Rebend Test	BS 4449
3	Tensile Strength	BS 4449 / BS EN 10002 Part 1
4	Tensile Strength Structural Steel	BS EN 10002 Part 1 / BS EN ISO 6892-1
5	Coating Thickness	ASTM A 775 / A 775M
6	Coating Flexibility	ASTM A 775 / A 775M



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Sr. No	Description of Test	Test Method
7	Coating Continuity (holiday test)	ASTM A 775 / A 775M
8	Galvanizing Coating Thickness on Steel Article	BS EN ISO 1461 ASTM G 12
9	Tensile Test on Anchor Bolts	BS 4360
10	Tensile Test on Tie Rods	BS EN 10002 Part 1 / BS EN ISO 6892-1
11	Tensile Test on Couplers	BS EN 10002 Part 1 / BS EN ISO 6892-1
12	Load Test on Manhole Cover	BS EN 124
13	Tensile Test on Welded Steel Mesh	BS 4483
14	Tensile Test as Welded Steel Bar	BS EN 10002 Part 1 / BS EN ISO 6892-1
15	Tensile Test on Steel Pipe	ASTM A 370
16	Coating Thickness on Manhole Cover	BS 3900
17	Half Cell Potential of Uncoated Reinforcement Steel (Steel Corrosion Tests)	ASTMC 876
18	Adhesion Strength	ASTM D 4541
19	Pull-off Strength After Salt Spray	ASTM D 4541
20	Pull-out Strength	BS 1881 Part 207
21	Pull-off Tests on Paints	ASTM D 4541
22	Pull-off Tests on Plaster	BS 1881 Part 207
23	Dry Film Thickness (DFT)	BS 3900 Part C5
24	Cover Meter Survey	BS 1881 Part 204
25	Test for Crack Width	CIRIA C 519
26	Load Test on Scaffolding	IHTP - 15
27	Load Test on Guard Rail Beam	IHTP - 36
28	Thickness Test on Warning Tape	IHTP - 29

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Sr. No	Description of Test	Test Method
29	Barcoal Hardness	ASTM D 2583
30	Durometer Hardness ( Shore A )	ASTM D 2240
31	Wet Film Coating Thickness	ASTM D 4414
32	Bend test ( Wire Mesh )	BS 4483
33	Mass / Meter ( Wire Mesh )	BS 4483
34	Pull-off Strength ( Tile )	BS 1881 Part 207
35	Breaking Load ( Post Tension Strand / Wire )	ASTM A 416 / A416M
<b>Cementitious Tile Adhesive</b>		
1	Water Absorption	ASTM C 413
2	Density	ASTM D 792
<b>Grout Test (Post Tension)</b>		
1	Fluidity & Temperature, Bleeding, Volume Change, Wet Density & Compressive Strength	BS EN 445 / Project Specification
<b>Mortar</b>		
1	Flow	ASTM C 185
2	Air Content	ASTM C 185
3	Compressive Strength	ASTM C 109 / C 109M
<b>Epoxy Glue</b>		
1	Pot Life of the Mixed Bonding Agent	FIP 9
2	Open Time of Bonding Agent	FIP 9
3	Thixotropy (Sag Flow)	FIP 9
4	Angle of Internal Friction (Squeezability)	FIP 9
5	Compressive Strength	FIP 9 ASTM C 109
6	Tensile Bending Strength	FIP 9
7	Shear Test	FIP 9

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Sr. No	Description of Test	Test Method
<b>Ceramic Tiles</b>		
1	Modulus of Rupture	BSEN 10545 Part 4
2	Water Absorption	BSEN 10545 Part 3
3	Density	BSEN 10545 Part 3
4	Chemical Resistance	BS EN 100 Cls. 2 BS EN ISO 10545-13
5	MOH's Scratch Hardness	BS EN 101
6	Thickness	Measurement
<b>Marble &amp; Granites / Dimension Stones</b>		
1	Modulus of Rupture	ASTM C99 / C 99M
2	Water Absorption	ASTM C97 / C 97M
3	Bulk Specific Gravity	ASTM C 97/C 97M
4	Flexural Strength	ASTM C 880
5	Compressive Strength	ASTM C170/C 170M
<b>Joint Board Filler</b>		
1	Extrusion, Recovery, Density & Water Absorption	ASTM D 1751 ASTM D 545
<b>Geotextile and Other Related Fabrics</b>		
1	Static Puncture Strength using a 50 mm Probe (CBR)	ASTM D 6241 ISO 12236
2	Index Puncture Resistance	ASTM D 4833 ASTM E 154
3	Wide - Width Tensile Strength (Strip Method)	ASTM D 4595
4	Mass Per Unit Area	ASTM D 5261 DIN EN 1849-1
5	Grab Strength	ASTM D 5034 ASTM D 4632
6	Trapezoidal Tear Strength	ASTM D 5587 ASTM D 4533
7	Trapezoidal Tear Strength (Non-woven Geotextile)	ASTM D 5733
8	Nominal Thickness Measurement	ASTM D 5199 ASTM D 5261

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Sr. No	Description of Test	Test Method
9	Geosynthetics Wide Width Tensile Test	BS EN ISO 10319
10	UV Resistance	ASTM D 4355
<b>Waterproofing Membrane</b>		
1	Tensile Properties	ASTM D 412
2	Mass Per Unit Area	DIN EN 1849-1
3	Tear Resistance	ASTM D 5147 BS EN 12310-1
4	Water Absorption	ASTM D 570
<b>Plastic and Thin Plastic Sheets</b>		
1	Tensile Properties	ASTM D 638
2	Flexural Properties	ASTM D 790
3	Compressive Properties	ASTM D 695
4	Tear Resistance	ASTM D 1004
5	Water Absorption	ASTM D 570
<b>Paper / Paper Board</b>		
1	Tensile and Elongation	ASTM D 828 BS EN 12311-1
2	Thickness	IHTP - 29
<b>Thermoplastic Road Marking Materials</b>		
1	Grading of Thermoplastic (Binder Content, Percentage of Aggregate, Pigment, Extenders and Glass Beads, Total Mass of Glass Beads)	BS 3262 Part 1
2	Relative Density	BS 3262 Part 3
3	Grading of Glass Beads	BS 6088
<b>Warning Tape</b>		
1	Tensile Properties	ASTM D 882
2	Width Measurement	ASTM D 5750 / D 5750 M
3	Physical Dimension	ASTM D 5947