

Laboratory Certification For

Shakib Dastaghir Construction & Design Company (S-CAD) Laboratory

Lab ID: LCP-006

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This letter confirms the completion of inspection and certification for Shakib Dastaghir Construction & Design Company, which is located between Khaja Kalleh and Darb-e-Iraq Squares, Herat, Afghanistan. This laboratory should now be considered as certified for use by the US Army Corps of Engineers Transatlantic Afghanistan District (USACE TAA) and other clients, for all tests listed in Table 1 to Table 7, as attached to this letter. This certification will be included with records that are maintained at the ABA and USACE TAA Headquarters in Bagram Airbase, Afghanistan. Retaining the certification will require yearly inspections by the ABA. This certification is also contingent upon the following conditions:

- A. Continued employment of the following individuals while without their oversight, the laboratory will require recertification:
 1. Ghulam Dastaghir laboratory manager; and
 2. Other Senior Technicians who were inspected and certified during the inspection, a list of certified technicians can be provided upon request;
- B. If the calibration certificates of equipments expire or become invalid as per the relevant ASTM or AASHTO standard;
- C. If the laboratory is moved to a new location, it will require recertification; and
- D. If the laboratory fails to comply by the approved lab quality management plan, safety standards, and other criteria set forth in the most up-to-date ABA lab certification manual, the lab certification may be suspended.

For verification and good standing of this certification please check our online directory of laboratories at <http://aba.af/Lab-certification-program>. The inspection and certification process for the S-CAD lab adhered to procedures outlined by the Materials Testing Center (MTC), which is located at the Geotechnical and Structures Laboratory (GSL), U.S. Army Engineer Research and Development Center (ERDC) in Vicksburg, Mississippi, USA. The MTC is the USACE-authorized agency for certifying laboratories for use in quality control testing for USACE construction projects. To facilitate construction in Afghanistan, the USACE TAA has authorized the ABA to conduct laboratory certifications with strict adherence to MTC protocol. Qualifications of the authors for conducting these certifications include: 12 years of laboratory experience, 12 years of teaching classes on construction materials, and six years of teaching university-level construction classes.

Regards,

Naeem Yassin

President of Afghanistan Builders Association
(ABA)



S-CAD Certified Laboratory Tests

Table 1. List of Certified Soil Tests for S-CAD

No	Test Method	Test Procedure Title
1	ASTM D 421	Dry Preparation for Particle Size Distribution & Soil Constants
2	ASTM D 422	Particle Size Analysis
3	ASTM D 427	Shrinkage Factor
4	ASTM D 558	Moisture-Density of Soil-Cement
5	ASTM D 559	Wetting & Drying Soil-Cement
6	ASTM D 698	Compaction Characteristics by Standard Effort
7	ASTM D 854	Specific Gravity of Soils
8	ASTM D 1140	Material Finer than 75 mm (No. 200) Sieve
9	ASTM D 1556	Density & Unit Weight by Sand Cone
10	ASTM D 1557	Compaction Characteristics by Modified Effort
11	ASTM D 1586	Penetration Test and Split-Barrel Sampling of Soils
12	ASTM D 1587	Thin-Walled Tube Sampling of soils for geotechnical purposes
13	ASTM D 1883	California Bearing Ratio (CBR)
14	ASTM D 2113	Rock Core Drilling and Sampling of Rock for Site Investigation
15	ASTM D 2166	Unconfined Compressive Strength
16	ASTM D 2216	Water Content
17	ASTM D 2217	Wet Preparation for Particle Size Analysis
18	ASTM D 2435	One-Dimensional Consolidation Properties
19	ASTM D 2487	Classification of Soils
20	ASTM D 2488	Description & Identification of Soils (Visual-Manual Procedure)
21	ASTM D 2922	Density by Shallow Depth Nuclear Method
22	ASTM D 2937	Density by Drive Cylinder Method
23	ASTM D 3017	Moisture Content by Shallow Depth Nuclear Method
24	ASTM D 3080	Direct Shear Test in Consolidated Drained Conditions
25	ASTM D 4220	Preserving & Transporting Samples
26	ASTM D 4253	Maximum Index Density by Vibratory Table
27	ASTM D 4254	Minimum Index Density
28	ASTM D 4318	Liquid & Plastic Limits & Plasticity Index
29	ASTM D 4546	One-Dimensional Swell or Settlement Potential
30	ASTM D 4643	Determination of Water Content of Soil by Microwave Oven
31	ASTM D 4829	Standard Test Method for Expansion Index of Soils
32	ASTM D 5434	Field Logging of Subsurface Explorations of Soil and Rock
33	ASTM D 6169	Guide for Selection of Soil and Rock Sampling Devices used with Drill Rigs for Environmental Site Characterization
34	ASTM D 1195	Repetitive Static Plate Load Tests of Soils and Flexible Pavement Components, for Use in Evaluation and Design of Airport and Highway Pavements

No	Test Method	Test Procedure Title
35	ASTM D 1196	Non-repetitive Static Plate Load Tests of Soils and Flexible Pavement Components, for Use in Evaluation and Design of Airport and Highway Pavements
36	ASTM D 1586	Penetration Test and Split-Barrel Sampling of Soils
37	ASTM D 2435	One-Dimensional Consolidation Properties of Soils Using Incremental Loading
38	ASTM D 3282	Standard Practice for Classification of Soils and Soil-Aggregate Mixture for Highway Construction Purposes
39	ASTM D 4718	Correction of Unit Weight and Water Content for Soils Containing Oversize Particles
40	ASTM D 4972	Standard Test Method for pH of Soils
41	AASHTO T 93	Determining the Field Moisture Equivalent of Soils
42	AASHTO T 224	Correction for Coarse Particles in the Soil Compaction Test
43	ASTM D 6951	Use of the Dynamic Cone Penetrometer in Shallow Pavement Applications
44	ASTM D 5333	Measurement of Collapse Potential of Soils
45	ASTM G 51	Standard Test Method for Measuring pH of Soil for Use in Corrosion Testing
46	ASTM G 57	Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method
47	CRD-C 655	Standard Test Method for Modulus of Soil Reaction

Table 2. List of Certified Aggregate (Fine and Course) Tests for S-CAD

No	Test Method	Test Procedure Title
1	ASTM C 40	Organic Impurities
2	ASTM C 117	Material Finer than 75 μm (No. 200) Sieve
3	ASTM C 127	Specific Gravity & Absorption in Coarse Aggregate
4	ASTM C 128	Specific Gravity & Absorption in Fine Aggregate
5	ASTM C 136	Sieve Analysis of Aggregates
6	ASTM C 29	Unit Weight and Voids in Aggregate
7	ASTM C 70	Surface Moisture in Fine Aggregate
8	ASTM C 87	Effects of Organic Impurities on Mortar Strength
9	ASTM C 88	Sulfate Soundness
10	ASTM C 131	Los Angeles Abrasion Resistance on Small-Size Coarse Aggregate
11	ASTM C 142	Clay Lumps
12	ASTM C 227	Alkali Reactivity of Cement-Aggregate Combination (Mortar-Bar Method)
13	ASTM C 535	Los Angeles Abrasion Resistance on Large Size Coarse Aggregate
14	ASTM C 566	Total Moisture Content
15	ASTM C 702	Reducing Samples to Testing Size
16	ASTM C 1137	Degradation of Fine Aggregate due to Attrition

No	Test Method	Test Procedure Title
17	ASTM C 1252	Uncompacted Void Content
18	ASTM C 1260	Potential Alkali Reactivity of Aggregate (Mortar-Bar Method)
19	ASTM C 1293	Length Change Alkali-Silica Reaction
20	ASTM D 75	Sampling
21	ASTM D 546	Sieve Analysis of Mineral Filler
22	ASTM D 2419	Sand Equivalent Value
23	ASTM D 4791	Flat or Elongated Particles
24	ASTM D 5821	Percentage of Fractured Particles in Coarse Aggregate
25	CRD-C 104	Fineness Modulus
26	CRD-C 119	Flat and Elongated Particles
27	CRD-C 171	Percentage of Crushed Particles in Aggregate
28	BS 812 Section 105.1 and Section 105.2	Testing Aggregates. Methods for Determination of Particle Shape Flakiness Index and Elongation Index for Coarse Aggregate.

Table 3. List of Certified Concrete Tests for S-CAD

No	Test Method	Test Procedure Title
1	ASTM C 31	Making and Curing Test Specimens in the Field
2	ASTM C 39	Compressive Strength of Cylindrical Specimens
3	ASTM C 138	Unit Weight and Air Content by Gravimetric
4	ASTM C 143	Slump
5	ASTM C 172	Sampling
6	ASTM C 231	Air Content by Pressure ***required if C173 not performed***
7	ASTM C 1064	Temperature of Concrete
8	ASTM C 42	Drilled Cores and Sawed Beams
9	ASTM C 78	Flexural Strength by Third Point Loading
10	ASTM C 116	Compressive Strength of Broken Beams
11	ASTM C 157	Length Change of Concrete and Mortars
12	ASTM C 174	Concrete Thickness by Drilled Cores
13	ASTM C 192	Making and Curing Test Specimens in Laboratory
14	ASTM C 293	Flexural Strength by Center Point Loading
15	ASTM C 341	Length Change of Drilled or Sawed Concrete
16	ASTM C 469	Static Modulus of Elasticity and Poisson's Ratio
17	ASTM C 470	Molds for Forming Concrete Test Cylinders Vertically
18	ASTM C 490	Apparatus for Length Change of Cement Paste, Mortar, & Concrete
19	ASTM C 495	Compressive Strength of Lightweight Insulating Concrete
20	ASTM C 496	Splitting Tensile Strength

No	Test Method	Test Procedure Title
21	ASTM C 511	Moist Cabinets, Moist Rooms, Water Storage Tanks
22	ASTM C 567	Unit Mass of Structural Lightweight Concrete
23	ASTM C 617	Capping Cylindrical Specimens
24	ASTM C 642	Density, Absorption, and Voids
25	ASTM C 684	Accelerated Curing & Testing
26	ASTM C 805	Rebound Number of Hardened Concrete
27	ASTM C 823	Examination and Sampling Hardened Concrete in Construction
28	ASTM C 918	Early Age Compression Test
29	ASTM C 1040	Density of Concrete by Nuclear Method
30	ASTM C 1079	Water Content of Freshly Mixed Concrete
31	ASTM C 1231	Unbonded Caps
32	ASTM C 1602	Mixing Water Used in the Production of Hydraulic Cement Concrete
33	ASTM C 1077	Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
34	AASHTO T 26	Quality of Water to be Used in Concrete
35	AASHTO T 132	Standard Method of Test for Tensile Strength of Hydraulic Cement Mortars

Table 4. List of Certified Asphalt Cement and Asphalt Concrete Tests for S-CAD

No	Test Method	Test Procedure Title
1	ASTM D 5	Penetration
2	ASTM D 36	Softening Point
3	ASTM D 70	Specific Gravity & Density
4	ASTM D 113	Ductility
5	ASTM D 140	Sampling Bituminous Materials
6	ASTM D 242	Mineral Filler for Bituminous Paving Mixtures
7	ASTM D 243	Penetration Residue
8	ASTM D 244	Emulsified Asphalts
9	ASTM D 1074	Compressive Strength
10	ASTM D 1075	Effect of Water on Compressive Strength
11	ASTM D 1188	Bulk Specific Gravity & Density Using Coated Samples
12	ASTM D 1461	Moisture or Volatile Distillates in Bituminous Paving Mixtures
13	ASTM D 1559	Resistance of Plastic Flow by Marshall
14	ASTM D 1560	Resistance to Deformation & Cohesion by Hveem
15	ASTM D 1754	Effect of Heat & Air by Thin Film Oven
16	ASTM D 2041	Theoretical Maximum Specific Gravity & Density (Rice)
17	ASTM D 2042	Solubility by Trichloroethylene
19	ASTM D 2172	Quantitative Extraction
20	ASTM D 2726	Bulk Specific Gravity and Density

No	Test Method	Test Procedure Title
21	ASTM D 2950	Density of Bituminous Concrete in Place by Nuclear Methods
22	ASTM D 3203	Percent Air Voids
23	ASTM D 4125	Asphalt Content by Nuclear Method
24	ASTM D 4867	Effect of Moisture
25	ASTM D 5444	Mechanical Size Analysis of Extracted Aggregate
26	CRD-C 649	Unit Weight, Marshall Stability, and Flow of Bituminous Mixtures
27	CRD-C 650	Density and Percent Voids
29	ASTM D 92	Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester
30	ASTM D 95	Water in Petroleum Products and Bituminous Material by Distillation
31	ASTM D 546	Sieve Analysis of Mineral Filler for Bituminous Paving Mixtures
32	ASTM D 979	Sampling Bituminous Paving Mixtures
33	ASTM D 2489	Estimating Degree of Particle Coating of Bituminous-Aggregate Mixture
34	ASTM D 3549	Thickness or Height of Compacted Bituminous Paving Mixture Specimens
35	ASTM D 3665	Random Sampling of Construction Material
36	ASTM D 3666	Minimum Requirements for Agencies Testing and Inspection Road and Paving Material
37	ASTM D 5361	Sampling Compacted Bituminous Mixtures for Laboratory Testing
38	ASTM D 6926	Preparation of Bituminous Specimens Using Marshall Apparatus
39	ASTM D 6927	Marshall Stability and Flow of Bituminous Mixtures
40	CRD-C 652	Standard Test Method for Measurement of Reduction in Marshall Stability of Bituminous Mixtures Caused by Immersion in Water
41	AASHTO T 59	Standard Method of Test for Emulsified Asphalts
42	AASHTO T 79	Flash Point with Tag Open-Cup Apparatus for Use with Material Having a Flash Less Than 93.3°C (200°F)
43	AASHTO T 182	Coating and Stripping of Bitumen-Aggregate Mixtures
44	AASHTO T 230	Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures
45	AASHTO T 283	Standard Method of Test for Resistance of Compacted Hot Mix Asphalt (HMA) to Moisture-Induced Damage

Table 5. List of Certified Masonry and Cement Tests for S-CAD

No	Test Method	Test Procedure Title
1	ASTM C 20	Apparent Porosity, Water Absorption, Apparent Specific Gravity, and Bulk Density of Burned Refractory Brick and Shapes by Boiling Water
2	ASTM C 27	Fireclay and High-Alumina Refractory Brick
3	ASTM C 90	Loadbearing Concrete Masonry Units
4	ASTM C 91	Masonry Cement
5	ASTM C 109	Compressive Strength of Cement Mortars Using Cube Specimens
6	ASTM C 133	Cold Crushing Strength and Modulus of Rupture of Refractories
7	ASTM C 140	Sampling and Testing Concrete Masonry and Related Units
8	ASTM C 151	Autoclave Expansion of Portland Cement
9	ASTM C 185	Air Content of Hydraulic Cement Mortar
10	ASTM C 187	Normal Consistency of Hydraulic Cement
11	ASTM C 188	Density of Hydraulic Cement
12	ASTM C 191	Time of Setting of Hydraulic Cement by Vicat Needle
13	ASTM C 204	Fineness, specific surface, (Air permeability test method), m ² /kg
14	ASTM C 266	Time of Setting of Hydraulic-Cement Paste by Gilmore Needles
15	ASTM C 305	Mechanical Mixing of Cement Pastes & Mortars of Plastic Consistency
16	ASTM C 451	Early Stiffening of Hydraulic Cement (Paste Method)
17	ASTM C 780	Evaluation of Mortars for Plain and Reinforced Unit Masonry
18	ASTM C 1019	Sampling and Testing Grout
19	ASTM C 1437	Flow of Hydraulic Cement Mortar
20	ASTM C 1552	Capping CMU/Related Units/Masonry Prisms for Compression Testing
21	ASTM C 67	Sampling and Testing Brick and Structural Clay Tile
22	ASTM C 97	Absorption and Bulk Specific Gravity of Dimension Stone
23	ASTM C 99	Modulus of Rupture of Dimension Stone
24	ASTM C 170	Compressive Strength of Dimension Stone
25	ASTM C 1093	Accreditation of Testing Agencies for Unit Masonry
26	ASTM C150	Standard Specification for Portland Cement

Table 6. List of Certified Rock Tests for S-CAD

No	Test Method	Test Procedure Title
1	ASTM D 2938	Unconfined Compressive Strength
2	ASTM D 3967	Tensile Strength, Splitting (Brazilian) Method
3	ASTM D 4543	Preparing Rock Core Specimens and Determining Tolerances
4	ASTM D 5313	Durability of Rock to Wetting and Drying
5	ASTM D 5731	Point Load Index
6	ASTM D 5873	Standard Test Method for Determination of Rock Hardness by Rebound Hammer Method
7	ASTM D 5878	Rock-Mass Classification for Engineering Purposes
8	ASTM D 6032	Standard Test Method for Determination Rock Quality Determination (RQD) of rock core
9	ASTM D 6473	Specific Gravity and Absorption of Rock

Table 7. List of Certified Steel Tests for S-CAD

No	Test Method	Test Procedure Title
1	ASTM A36	Carbon Structural Steel
2	ASTM A307	Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength
3	ASTM A 370	Mechanical Testing of Steel Products
4	ASTM A500	Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
5	ASTM A615	Deformed and Plain Carbon Steel Bars for Concrete Reinforcement
6	ASTM E290	Standard Test Methods for Bend Testing of Material for Ductility