

Laboratory Certification For

Axiom Engineering & Construction Material Testing Laboratory

Lab ID: LCP-021

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Expiry date: April 12, 2017

This Extension letter confirms the completion of inspection and certification for Axiom CMT Laboratory, which is located at Ulmoe-e-Itmae Road, Khushal Khan Mina, District 5, Kabul, 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. Mr. Noor Ahmad 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.html>. The inspection and certification process for the Axiom 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)



Axiom Certified Laboratory Tests

Table 1. List of Certified Soil Tests for Axiom

No	Test Method	Test Procedure Title
1	ASTM D 421	Standard Practice for Dry Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants
2	ASTM D 422	Standard Test Method for Particle Size Analysis of Soils
3	ASTM D 854	Standard Test Methods for Specific Gravity of Soil Solids by Water Pycnometer
4	ASTM D 4318	Standard Test Methods Liquid & Plastic Limits & Plasticity Index
5	ASTM D 1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
6	ASTM D 698	Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³ (2,700 Kn-m/m ³))
7	ASTM D 1556	Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
8	ASTM D 1883 AASHTOO 193	Standard Test Method for CBR (California Bearing Ratio) of Laboratory-Compacted Soils
9	ASTM D 2216	Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
10	ASTM D 4944	Standard Test Method for Field Determination of Water (Moisture) Content of Soil by the Calcium Carbide Gas Pressure Tester
11	ASTM D 2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

Table 2. List of Certified Advance Soil Tests for Axiom

No	Test Method	Test Procedure Title
1	ASTM D 2435	Standard Test Methods for One-Dimensional Consolidation Properties of Soils Using Incremental Loading
2	ASTM D 2166	Unconfined Compressive Strength of Cohesive Soil
3	ASTM D 3080	Standard Test Method for Direct Shear Test of Soils Under Consolidated Drained Conditions (No Calibration Certificate)
4	ASTM D 5333	Measurement of Collapse Potential Soils
5	ASTM D 1586	Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils

Table 3. List of Certified Aggregate (Fine and Coarse) Tests for Axiom

No	Test Method	Test Procedure Title
1	ASTM C 33	Standard Specification for concrete Aggregates
2	ASTM C 75	Standard Practice for Sampling of Aggregates
3	ASTM C 702	Standard Practice for Reducing Samples of Aggregate to Testing Size
4	ASTM C 136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
5	ASTM C 0127	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
6	ASTM C 0128	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate
7	ASTM C 29	Standard Test Method for Unit Weight and Voids in Aggregate
8	ASTM C 131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
9	ASTM C 535	Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
10	ASTM C 88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
11	ASTM C 142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
12	ASTM C 117	Standard Test Method for Materials Finer than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing
13	BS 812 Section 105.2	Testing Aggregates Method for Determination of Particle Shape Flakiness Index in Coarse Aggregate
14	BS 812 Section 105.2	Testing Aggregates Method for Determination of Particle Shape Elongation Index in Coarse Aggregate
15	ASTM D 2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
16	ASTM D 5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate

Table 4. List of Certified Cement, Grout, Mortar, & Concrete Tests for Axiom

No	Test Method	Test Procedure Title
1	ASTM C 39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
2	ASTM C 42	Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete

No	Test Method	Test Procedure Title
3	ASTM C 192	Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
4	ASTM C 617	Standard Practice for Capping Cylindrical Concrete Specimens
5	ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
6	ASTM C 143	Standard Test Method for Slump of Hydraulic-Cement Concrete
7	ASTM C 805	Standard Test Method for Rebound Number of Hardened Concrete
8	ASTM C 109	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
9	ASTM C 231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
10	ASTM C 1019	Standard Test Method for Sampling and Testing Grout
11	ASTM C 187	Normal Consistency of Hydraulic Cement
12	ASTM C 305	Mechanical Mixing of Hydraulic Cement Paste and Mortars of Plastic Consistency
13	ASTM C 191	Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle
14	ASTM C 184	Fineness of Cement by Dry Sieving Through Sieve # 200
15	ASTM C 189	Soundness Test of Cement
16	ASTM C 188	Standard Test Method for Density of Hydraulic Cement
17	ACI 211	Concrete Mix Design
18	ASTM C 270	Mortar Mix Design
19	ASTM C 476	Grout Mix Design
20	ASTM C 926	Plaster Mix Design
21	ASTM C 172	Sampling of Freshly Mixed Concrete
22	ASTM C 1064	Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
23	ASTM C 174	Concrete Thickness By Drilled Core
24	ASTM C 90	Loadbearing Concrete Masonry Unit
25	ASTM C 140	Sampling and Testing Concrete Masonry Units and Related Units

Table 5. List of Certified Asphalt Cement and Asphalt Concrete Tests for Axiom

No	Test Method	Test Procedure Title
1	ASTM D 5	Standard Test Method for Penetration of Bituminous Materials
2	ASTM D 36	Standard Test Method for Softening Point
3	ASTM D 92	Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester

No	Test Method	Test Procedure Title
4	ASTM D 113	Standard Test Method for Ductility of Bituminous Materials
5	ASTM D 70	Standard Test Method for Density of Semi-Solid of Bituminous Materials
6	ASTM D 140	Sampling Bituminous Materials
7	ASTM D 979	Standard Practice for Sampling Bituminous Paving Mixtures
8	ASTM D 1188	Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples
9	ASTM D 1559	Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
10	ASTM D 2041	Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
11	ASTM D 2172	Standard Test Methods for Quantitative Extraction
12	ASTM D 2726	Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
13	ASTM D 5349	Thickness or Height of Compacted Bituminous Paving Mixtures Specimen
14	ASTM D 5361	Standard Practice for Sampling compacted Bituminous Mixtures for Laboratory Testing
15	ASTM D 5444	Standard Test Method for Mechanical Size Analysis of Extracted Aggregate
16	ASTM D 6926	Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus
17	ASTM D 6927	Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
18	ASTM D 546	Standard Test Method for Sieve Analysis of Mineral Filler for Bituminous Paving Mixtures

Table 6. List of Certified Stone, Bricks & Masonry Units Tests for Axiom

No	Test Method	Test Procedure Title
1	ASTM C 649	Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile
2	ASTM C 97	Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
3	ASTM C 170	Standard Test Method for Compressive Strength of Dimension Stone
4	ASTM C 1552	Standard Practice for Capping Concrete Masonry Units, Related Units and Masonry Prisms for Compression Testing
5	ASTM C 67	Standard Test Methods for Sampling and Testing Brick and Structural Clay

Table 7. List of Certified Steel Tests for Axiom

No	Test Method	Test Procedure Title
1	ASTM A 370	Methods and Definition for Mechanical Testing of Steel Products
2	ASTM A 307	Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile strength
3	ASTM D 615	Deformed and Plain Carbon Steel Bars for Concrete Reinforcement
4	ASTM E 8	Tension Testing of Metallic Materials
5	ASTM D 706	Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
6	ASTM F 1554	Anchor Bolts, Steel, 36,55, and 105psi Yield Strength