SUPPLEMENTAL ACCREDITATION REQUIREMENTS:
CONSTRUCTION MATERIALS TESTING
ISO/IEC 17025 NACLA ACCREDITATION PROGRAM

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INTRODUCTION

This document establishes specific program requirements for the ANAB NACLA Construction Materials Testing (CMT) accreditation program. This program responds to government and private industry requirements to accredit laboratories operating in the CMT field. Specific requestors include the Federal Highway Administration, Federal Aviation Administration, U.S. Army Corps of Engineers, Bureau of Reclamation, various state-level departments of transportation, and industry organizations including NIST, AASHTO Materials Reference Library, American Council of Independent Laboratories, and various accreditation bodies.

CMT accreditation by ANAB provides laboratories with national and international recognition through organizations such as the National Association of Laboratory Accreditation Cooperation (NACLA), Asia Pacific Laboratory Accreditation Cooperation (APLAC), and International Laboratory Accreditation Cooperation (ILAC). ANAB meets the requirements for comparable laboratory accreditation bodies listed in the September 22, 2004, Federal Register Notice. As such, the laboratories accredited by ANAB for CMT are considered to meet the quality assurance requirements in 23 CFR 637.209(a) (2), (3), and (4).

REFERENCES

ISO/IEC 17025, General requirements for the competence of testing and calibration laboratories

AASHTO R 18 Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories


DEFINITIONS

Definitions from the applicable standards apply.

1. SCOPE OF ACCREDITATION

1.1. Accreditation may be offered for one or more tests in each material area:

1.1.1. Concrete;
1.1.2. Aggregate;
1.1.3. Cement;
1.1.4. Soil;
1.1.5. Bituminous materials;
1.1.6. Roofing materials;
1.1.7. Masonry;
1.1.8. Steel;
1.1.9. Non-destructive tests;
1.1.10. Other CMT-related fields or materials.

1.2. The final ANAB scope of accreditation will indicate “Construction Materials Testing.”
2. ACCREDITATION STANDARDS

2.1. This program is based on the following required accreditation standards:

2.1.1. ISO/IEC 17025, General requirements for the competence of testing and calibration laboratories.

2.1.2. ANAB AR 2250, Accreditation Requirements: ISO/IEC 17025 Testing Laboratories (Non-Forensics)


2.2. Optional Engineering Standards

2.2.1. As an option, a laboratory also may obtain accreditation for one or more of the following quality system(s) construction materials engineering standards:

2.2.1.1. ASTM E329, Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

2.2.1.2. ASTM C1077, Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation

2.2.1.2.1. Laboratories that choose accreditation for ASTM C1077 also shall be accredited for the following test methods, which must be included on the Scope of Accreditation (per ASTM C1077 section 7.2)

For Agencies Testing Concrete:

- ASTM C172/C172M, Practice for Sampling Freshly Mixed Concrete
- ASTM C143/ASTM C143M, Test Method for Slump of Hydraulic-Cement Concrete
- ASTM C138/ASTM C138M, Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
- ASTM C173/ASTM C173M, Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method or ASTM C231 / C231M Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method or both
- ASTM C1064/ASTM C1064M-17, Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
- ASTM C31/ASTM C31M, Practice for Making and Curing Concrete Test Specimens in the Field
- ASTM C617/C617M, Practice for Capping Cylindrical Concrete Specimens or ASTM C1231/ASTM C1231M, Practice for Use of Unbonded Caps in Determination of Compressive Strength of Hardened Concrete Cylinders

For Agencies Testing Concrete Aggregates:

- ASTM C136, Test Method for Sieve Analysis of Fine and Coarse Aggregates
- ASTM C117, Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
- ASTM C127, Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
- ASTM C128, Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate

2.2.1.3. ASTM D3666, Specification for Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials

2.2.1.4. ASTM D3740, Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soils and Rock as Used in Engineering Design and Construction

2.2.1.5. ASTM C1093, Practice for Accreditation of Testing Agencies for Unit Masonry

2.2.1.6. ASTM E1212, Standard Practice for Quality Management Systems for Nondestructive Testing Agencies

2.2.1.7. ASTM E543, Standard Specification for Agencies Performing Nondestructive Testing

2.2.1.8. AASHTO R 18, Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories

### 3. SPECIFIC PROGRAM REQUIREMENTS

3.1. In addition to the requirements of ISO/IEC 17025 and ANAB AR 2250, the following specific program requirements apply per the NACLA Accreditation Body Evaluation Procedure for Technical Requirements for Construction Materials Testing – Rev B - October 6, 2016.

3.2. Each of the following statements should be understood to be mandatory laboratory requirements.

3.3. Management Requirements

3.3.1. Organization

3.3.1.1. Operational position descriptions shall identify the position and include a description of the duties associated with the position, required skills, education and experience, and supervision exercised and received.

3.3.2. Quality System

3.3.2.1. The quality manual or related documentation shall contain a brief biographical sketch noting the education, work experience, licensure, certifications, and current position of supervisory technical staff involved in testing areas included in the scope of accreditation.

3.3.3. Technical Records

3.3.3.1. The laboratory shall retain results of participation in proficiency sample programs including data sheets, summary reports, and documentation describing steps taken to determine the cause of outlying results and the corrective actions taken.

3.3.3.2. Records pertaining to testing, equipment calibration and verification, test reports, internal audits and management reviews, proficiency sample testing, test technician training and evaluation, and personnel shall be retained by the laboratory in a secure location for a minimum of five years.

3.3.3.3. The laboratory shall maintain calibration and verification records for all equipment used for the correct performance of the tests on the scope of accreditation. Such records shall include:

3.2.3.3.1. Detailed results of the work performed (dimensions, mass, force, frequency, temperature, time, etc.).
3.3.3.3.2. Description of the equipment calibrated or verified including model and serial number or other acceptable identification.

3.3.3.3.3. Date the work was done.

3.3.3.3.4. Identification of the individual performing the work.

3.3.3.3.5. Identification of the calibration or verification procedure used.

3.3.3.3.6. The previous calibration or verification date and the next due date and the identification of any in-house calibration or verification device used (including serial numbers, lab numbers, or other identification used to establish traceability of items such as standard masses, proving rings, standard thermometers, balances, calipers, etc.).

3.3.4. Management Reviews

3.2.4.1. The laboratory’s management shall review the quality system established to satisfy the requirements of this standard at least annually. In addition, the laboratory also shall have a policy to perform a management review when there is a reason to suspect problems in the quality of the CMT work, such as technical complaints, proficiency testing (PT) results, etc.

3.4. Technical Requirements

3.4.1. Personnel

3.4.1.1. The training procedure shall indicate what position(s) or employee(s) is responsible for the laboratory’s training program and maintenance of training records, describe the distribution of records to management, and identify the location of resulting records.

3.4.1.2. The training procedure also shall describe the method(s) used to evaluate staff competency to ensure that each test covered by the scope of accreditation is performed in accordance with standard procedures. This description shall include the frequency of evaluations for each technician and indicate what position(s) or employee(s) is responsible for evaluating staff competency and maintaining records, describe the distribution of records to management, and identify the location of resulting records. The procedure shall ensure that each technician performing each test method is evaluated.

3.4.1.3. Training records shall include a form for recording training and competency evaluation activities including the name of the trainee, name of the evaluator, test method evaluated, dates, and results.

3.4.2. Equipment

3.4.2.1. The laboratory’s records shall include a list(s) giving a general description of equipment for performing the test methods on the scope of accreditation which require calibration or verification. Each item on the list(s) shall include information on the interval of calibration or verification, a reference to the calibration or verification procedure used, and the location of the calibration or verification records.

3.4.2.2. The test equipment listed in AASHTO R18 Tables A1.1-A1.9 shall be calibrated or verified at intervals no greater than those shown in those tables unless the laboratory has documentation that a different calibration or verification interval is appropriate.

3.4.2.3. Each piece of equipment shall be labeled to identify the specific calibration due date or usage equivalent.
3.4.2.4. The laboratory shall have detailed written procedures for all in-house calibration and verification activities not addressed in standards. These procedures shall indicate the equipment required to perform the calibration or verification.

3.4.3. Assuring the Quality of Test and Calibration Results

3.4.3.1. Proficiency Testing

3.4.3.1.1. The laboratory shall participate in all available proficiency testing programs for the tests included in the scope of accreditation.

3.4.3.1.2. The laboratory shall maintain a documented plan that identifies all participation and the results.

3.4.3.1.3. The laboratory shall investigate any results found outside of 2.0 standard deviations of the grand average (i.e., z scores greater than 2.0 or ratings of “0” or “1” depending on the program) and any occurrences of nonparticipation.

   a. The laboratory shall promptly notify ANAB of unsatisfactory results or nonparticipation.

   b. When appropriate, corrective action shall be performed.

   c. A record of the investigation summary and conclusion shall be retained.

3.4.3.1.4. The laboratory shall maintain all records of all PT participation.

3.4.3.1.5. The laboratory shall ensure that PT activities are not always performed by the same person if other qualified personnel in the system perform accredited work.

3.4.4. Reporting Results

3.4.4.1. The laboratory shall have a procedure that describes methods used to prepare, check, and amend test reports. The procedure shall identify the individual(s) responsible for maintaining test reports, describe the distribution of test reports, and identify the location of stored test reports.

4. ASSESSMENT BY ANAB

4.1. Assessment to this program include an on-site evaluation to determine compliance with the appropriate accreditation standards identified in section 2 and the specific program requirements identified in section 3. Assessment will also include a technical evaluation to the specific methods defined with the proposed scope of accreditation.

4.2. ANAB will verify that the laboratory has the appropriate equipment, calibration and verification records, most current version of all test procedures, and trained personnel to perform every procedure in the proposed scope.

4.3. ANAB will observe a complete demonstration of each test on the scope that appears on the list of test procedures listed in Appendix A of the NACLA Accreditation Body Evaluation Procedure for Technical Requirements for Construction Materials Testing.

4.4. Test procedures shall be performed with applicable materials.

4.5. ANAB will observe a sampling of all test procedures from areas not covered by test procedures listed in Appendix A. For those tests not listed in Appendix A, the assessor will observe a complete demonstration of at least 25% of the tests within a particular discipline.
## REVISION HISTORY

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<tr>
<td>1</td>
<td>Revised 3.4.3.1.1 and 3.4.3.1.2 and added new 3.4.3.1.3 through 3.4.3.1.5. Revised 4.2.</td>
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