

AMRL #: \_\_\_\_\_

QUALITY MANAGEMENT SYSTEM EVALUATION REPORT #: \_\_\_\_\_

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**Note:** An "X" indicates that a finding exists for one or more of the items listed under that heading.  
 "NP" or a dash indicates that the section was not reviewed.

**Note to Assessor:** Equipment required to be C/S/C over its Range of Use (ROU) should be checked at multiple points (3 or more) that encompass the range typically used. Ovens and thermometers should be standardized at or near temperatures used (this may be a single point.)

❖ - Indicates the line has been modified since the version of the worksheets dated 2013-10-02.

▬ - Indicates the line is optional for abbreviated quality system reviews.

**QUALITY MANAGEMENT SYSTEM FOR CONSTRUCTION MATERIALS LABORATORIES****R18**

Date: \_\_\_\_\_

**Scope of QMS review:** Indicate the fields of test included in the scope of the quality management system review. A quality management system evaluation should be conducted in all fields associated with the laboratory's on-site assessment.

**Asphalt      Emul      HMA      Soil      Agg      Metals and Metals Coatings      SFRM      Pipe**

**Management Requirements (Section 5)****Quality Management System (Section 5.1):**

1. Has the construction materials laboratory (CML) established, implemented, and maintained a quality management system (QMS) appropriate to the scope of its activities?..... \_\_\_\_\_
  2. Is the QMS available for use and understood by laboratory staff?..... \_\_\_\_\_
- Note:** A QMS may be documented and distributed in hard copy format, electronic format, or both.

**AAP Procedures Manual Requirements:**

**Note to Assessor:** Please record evidence, such as min/max lab temperature, or any unusual circumstances as needed to support the finding. If unsure of a finding in these areas, please consult your supervisor.

3. Does the laboratory have test areas, energy sources, lighting, heating/cooling, and ventilation necessary to facilitate the performance of testing (AAP Procedures Manual Section 3.5.14)? ..... \_\_\_\_\_
4. Does the laboratory have sufficient environmental controls and appropriate conditions to prevent adversely affecting test results (such as levelness, lack of vibration, water supply, etc)? ..... \_\_\_\_\_

**Document Control (Section 5.2):**

1. Does each QMS document indicate its preparation date or revision date? ..... \_\_\_\_\_
2. Are copies of the test methods readily accessible to employees performing testing? ..... \_\_\_\_\_

**Organization (Section 5.3):**

1. Is the legal name and address of the laboratory – and that of the main office or company, if different – and any other information needed to identify the organization, documented in the QMS? ..... \_\_\_\_\_
2. Is the ownership and management structure of the laboratory documented including the names, affiliations, and positions of principal officers and directors?..... \_\_\_\_\_
3. Is an organization chart maintained showing relationships with partner organizations, where applicable? ..... \_\_\_\_\_
4. Does the organization chart include positions and names of employees from relevant internal organizational components?..... \_\_\_\_\_

COMMENTS:

Abbreviated review? Write standard finding under QMS:

**QUALITY MANAGEMENT SYSTEM FOR CONSTRUCTION MATERIALS LABORATORIES****R18**

Date: \_\_\_\_\_

**Staff (Section 5.4):****1. Position Descriptions (Section 5.4.1)**

- (a) Are there descriptions for each technical operational position shown on the lab's org. chart? ..... ☐
- (b) Does each position description identify the position, and the duties, required skills, education, and experience associated with the position? ..... ☐
- Note to assessor:** *Required Knowledge, Skills, & Abilities (KSA) are acceptable alternatives to education.*

**2. Biographical Sketches (Section 5.4.2)**

- (a) Are biographical sketches maintained for each supervisory technical staff member? ..... ☐
- (b) Does each biographical sketch indicate the education, work experience, licensure, certifications, and current position of each supervisory technical staff member? ..... ☐

**3. Laboratory Management Personnel - Technical Manager (Section 5.4.3)**

- (a) Is there a technical manager with overall responsibility for the technical operations of lab? ..... ☐
- Name: \_\_\_\_\_ Title: \_\_\_\_\_
- (b) Has the laboratory nominated an individual to serve in the technical manager's absence? ..... ☐
- Name: \_\_\_\_\_ Title: \_\_\_\_\_

**4. Laboratory Management Personnel - QMS Management (Section 5.4.4)**

- (a) Is there a person responsible for determining if the quality management system activities are being implemented by the laboratory staff (this person shall have direct access to top management)? ..... ☐
- Name: \_\_\_\_\_ Title: \_\_\_\_\_

**Technician Training and Evaluation (Section 5.5):****1. Training (Section 5.5.1)** *Note: There may be several different methods depending on previous experience of new staff. New employees with previous experience performing the tests can be evaluated for competency instead.*

- (a) Is there a procedure describing the method used to ensure that new laboratory personnel are trained to perform the tests in accordance with standard procedures (which can include on-the-job training, formal in-house training, or training by external organizations)? ..... ☐
- (b) Does it indicate what position / employee is responsible for the laboratory's training program? ..... ☐
- (c) Does it indicate what position / employee is responsible for maintaining training records? ..... ☐

**2. Competency Evaluation Procedures (Section 5.5.2)**

- (a) Is there a procedure describing the method used in-house to evaluate staff competency in testing? ..... ☐
- Note:** *Procedure should include observation of actual testing performed, not just proficiency sample testing.*
- Note to Assessors:** *Procedures using AMRL on-site assessments for competency evaluations are not acceptable.*
- Does the procedure:
- (b) Describe the frequency of competency evaluations for each technician? (note frequency: \_\_\_\_\_) .. ☐
- (c) Indicate what position / employee is responsible for the CML's competency evaluation program? ..... ☐
- (d) Indicate what position / employee is responsible for maintaining competency evaluation records? ..... ☐
- (e) Ensure that each technician receives a performance evaluation for each test that person performs? ..... ☐

**3. Training Records (Section 5.5.3)**

- (a) Do the records include the technician name, date on which competence was determined or confirmed, test method(s) evaluated, the name of the evaluator, and a place to record any comments about the evaluation activity? ..... ☐
- (b) Has the CML trained / evaluated the competency of all technicians who are performing tests covered by the scope of associated on-site assessment in the manner described in the QMS? ..... ☐

COMMENTS:

**QUALITY MANAGEMENT SYSTEM FOR CONSTRUCTION MATERIALS LABORATORIES****R18**

Date: \_\_\_\_\_

**Internal Audits (Section 5.6):**

1. Does the QMS contain a document describing the scope of internal audits (internal audits shall verify that the CML's operations continue to comply with its policies, procedures, and the requirements of R18)?..... ☐
2. Does the document indicate the frequency of the reviews? (**must be ≤ 12 months**, note frequency:\_\_\_\_\_). ☐
3. Does it identify what position / employee is responsible for the internal audit review? ..... ☐
4. Does internal audit program address all elements of the QMS? ..... ☐
5. Where possible, have the internal audits been performed by trained personnel that are independent of the activity being audited? ..... ☐
6. Are findings from internal audits recorded? (check records and verify frequency of reviews) ..... ☐
7. Does the most current internal audit show that current laboratory issues were addressed (ex: audit discussed any low PSP ratings, technician certification problems, missing calibration records, etc.)?..... ☐

**Corrective Action (Section 5.7):**

1. Does the QMS contain a procedure for implementing corrective action when nonconforming work or departures from policies and procedures are discovered? ..... ☐  
**Note:** *The corrective action procedure should be implemented for nonconformities in the following areas: internal audits; customer complaints; equipment calibrations, standardizations, checks, and maintenance; external assessments; and proficiency sample testing.*
2. Does the procedure identify the individual responsible for implementing corrective action? ..... ☐
3. Does the procedure begin with an investigation to determine the root cause of the problem? ..... ☐
4. Are records of corrective action maintained?..... ☐
5. Does the QMS contain a document describing the method used in responding to customer complaints? ..... ☐
6. Are records of customer complaints and the resulting actions maintained? ..... ☐

**Records Retention (Section 5.8):**

1. **Quality Management System Records (Section 5.8.1)**  
Are records of activities in the following areas retained by the laboratory for a minimum of five years?
  - (a) External assessments and proficiency sample testing? ..... ☐
  - (b) Internal audits (internal quality management system reviews) of QMS? ..... ☐**Note to assessors:** *If records NP for IA, you do not need to write the note twice. Dash here.*
  - (c) Test technician training, evaluation, and personnel records? ..... ☐
2. **Technical Records (Section 5.8.2)**  
Are records pertaining to the following retained by the laboratory for a minimum of five years?
  - (a) Records of test data and test reports?..... ☐
  - (b) Equipment calibration, standardization, check, and maintenance activities? ..... ☐

COMMENTS:

**QUALITY MANAGEMENT SYSTEM FOR CONSTRUCTION MATERIALS LABORATORIES****R18**

Date: \_\_\_\_\_

**Technical Requirements (Section 6)****Equipment (Section 6.1):****1. Inventory (Section 6.1.1)**

Inventory list of major sampling, testing, C/S/C equipment, and measurement standards? \_\_\_\_\_

**Note:** Major equipment does not usually include expendable items such as glassware, sieves, molds, and viscometers. It should include shakers, balances, ovens, compression testing machines, and other equipment amortized by the laboratory.

Inventory includes (where available):

- (a) Name and manufacturer of equipment? \_\_\_\_\_
- (b) Date placed in service? \_\_\_\_\_
- (c) Model and serial number (or in-house identification number)? \_\_\_\_\_

**2. Equipment Calibrations, Standardizations, and Checks (C/S/C) Documents (Section 6.1.2)****C/S/C Interval List (Section 6.1.2.1)**

- (a) Does the laboratory maintain a list giving a general description of equipment that requires calibration, standardization, or check (C/S/C)? \_\_\_\_\_
- (b) Is the interval of calibration, standardization, or check, listed for each item? \_\_\_\_\_
- (c) Are references to procedures used listed for each item (or indicates performed by outside agency)? .... \_\_\_\_\_

**Procedures for timely performance of C/S/C activities (Section 6.1.2.2 and Section 6.1.2.3)**

- (a) Is there a procedure for ensuring that the C/S/C activities are performed on time? \_\_\_\_\_
- (b) Does the procedure indicate the individuals/positions responsible for ensuring C/S/C are performed? .. \_\_\_\_\_
- (c) Procedure for handling equipment which is newly acquired, removed from service, or defective? ..... \_\_\_\_\_
- (d) Does the lab maintain detailed written procedures for all C/S/C activities? ..... \*see tables\*

**3. Measurement Standards (Section 6.1.3) (reference standards)**

- (a) Does the laboratory have certificates or other documents that establish the traceability of measurement standards and in-house equipment used for C/S/C, including estimates of measurement uncertainty?.. \_\_\_\_\_
- Note:** if reference equipment is used for routine laboratory testing, write a finding under Equipment Records.
- (b) Is there a procedure that ensures the calibration of measurement standards is performed on time?..... \_\_\_\_\_

**4. Equipment Maintenance (Sections 6.1.4)**

- (a) Does the laboratory have a system for performing regular maintenance on applicable equipment? ..... \_\_\_\_\_
- (b) Does the lab maintain a list of equipment that requires maintenance, indicating the interval at which maintenance is conducted, and the procedure used (or indicate Mfg's Instr. are followed)? ..... \_\_\_\_\_
- (c) Does the laboratory have detailed written procedures and records of equipment maintenance?\* .. \*see tables\*

**5. Manufacturer's Instructions (Sections 6.1.4.5)**

- (a) Does the lab maintain the manufacturer's instructions for operating and maintaining the equipment? . \_\_\_\_\_
- Note:** Mfg's Instr. are required even for equip. that does not require maintenance, ex: ignition ovens.

**6. Equipment Calibrations, Standardizations, and Checks Frequency and Records (Sections 6.1.5 to 6.1.6)**

- (a) Has the CML calibrated, standardized, and checked all applicable testing equipment?\* ..... \*see tables\*

**COMMENTS:**

\*see tables\* - indicates that the findings for these requirements are located in the equipment tables (p. 15-18)

**QUALITY MANAGEMENT SYSTEM FOR CONSTRUCTION MATERIALS LABORATORIES****R18**

Date: \_\_\_\_\_

**Sample Management (Section 6.2):**

1. Procedure for storage (before testing), retention (after testing), and disposal of test samples? ..... ☐
2. Procedure for identifying test sample throughout the life of the sample in the laboratory? ..... ☐

**Test Records and Reports (Section 6.3):**

1. **Test Records and Reports procedures documents available (Section 6.3.1)?** ..... ☐
  - (a) Document describing method used by laboratory to produce test records.
  - (b) Document describing how to prepare and check test reports.
  - (c) Document describing how to amend test reports, including a requirement that the previously existing report be clearly reference when an amendment is made and establishing a clear audit trail from the latest issuance or deletion to the original report and data (Section 6.3.2.3).
  - (d) Document identifies individual(s) responsible for maintaining test records and reports.
  - (e) Document describes the distribution of test reports.
2. **Test Records (Section 6.3.2):** Does the laboratory maintain test records which contain sufficient information to permit verification of any test reports, including original observations, calculations, derived data, and identification of personnel involved in sampling and testing? ..... ☐
3. **Do the test reports clearly, accurately, and unambiguously present the following (Section 6.3.2.1)?** ..... ☐
  - (a) Identification of the report, the date issued, and the standard test method used.
  - (b) Description, identification, and condition of the test sample.
  - (c) Test results and other pertinent data required by the standard test method.
  - (d) Identification of any test result obtained from tests performed by a subcontractor.
  - (e) Name of the person(s) accepting technical responsibility for the test report (if applicable).
4. **Is the following information available and traceable to the test reports (Section 6.3.2.2)?** ..... ☐
  - (a) Name and address of the testing laboratory.
  - (b) Name and address of the client or identification of the project.
  - (c) Date of receipt of the test sample and date(s) of test performance.
  - (d) Deviations from, additions to, or exclusions from the standard test method.

**Subcontracting (Section 6.4):****Note:** applies to subcontracted testing in scope of AAP accreditation, not to equipment calibration, technical services, etc.

1. Does the QMS contain a document describing the policies the CML follows relative to subcontracting (or a statement that the CML does not subcontract)? ..... ☐
2. Do the policies include procedures for selecting competent subcontractors? ..... ☐
3. Does the QMS contain a procedure for identifying the results (Section 6.3.2.1) and reporting the results of testing performed by subcontractors (Section 6.4)? ..... ☐

**Assuring the Quality of Results (Section 6.5):**

1. Does the QSM contain documented procedures for planned monitoring of the validity of test results such as (one or more of the following)? ..... ☐
  - (a) Participation in external assessment programs, such as AMRL or CCRL on-site assessments.
  - (b) Participation in proficiency sample or interlaboratory comparison testing.
  - (c) Retesting of retained items.
2. Does the laboratory retain results of monitoring activities, including steps taken to determine the root cause of any nonconformities and the corrective actions taken? ..... ☐
3. Is the laboratory currently enrolled in all applicable AMRL proficiency sample programs? ..... ☐

COMMENTS:

**ADDITIONAL REQUIREMENTS - Personnel****Supervisory Personnel**

Date: \_\_\_\_\_

**Accreditation for (circle):**      C1077      D3666      D3740      E329 (SFRM)      E329 (General)**Laboratory Manager Requirements**

<b>ALL</b>	Full-time employee with at least 5 years experience in related materials testing or inspection.
<b>C1077</b>	<u>Professional Engineer</u> (P.E.)
<b>D3666</b>	<u>Professional Engineer</u> <b>or</b> equivalent science-oriented education and experience in having satisfactorily directed testing or inspection services, or both, of road and paving materials.
<b>D3740</b>	<u>Professional Engineer</u> (or other registered professional, such as a Professional Geologist) <b>or</b> equivalent science-oriented education and experience in having satisfactorily directed testing or inspection services, or both, of soil and rock.
<b>E329</b>	<u>Professional Engineer</u> <b>Note:</b> P.E. is not required for quality control laboratories that do not produce tests for acceptance (such as some HMA producers and quarries). In those cases, the Quality Control Manager shall be full-time, have at least 5 years relevant experience, and have certifications appropriate to the testing of materials being supervised.

Name: \_\_\_\_\_

License No.: \_\_\_\_\_

State of License: \_\_\_\_\_ ❖

**Testing Technician Supervisor Requirements**

<b>C1077</b>	Shall possess a minimum of 3 years relevant experience and current technician certification. The technician certification program must include a written examination and performance examination of relevant tests. Relevant tests that must be covered by the certification program are: C117, C127, C128, and C136. <b>The written exam shall be of sufficient length and detail to cover the methods. The performance exam shall include demonstration of the method. The period of time for which the certification is valid shall be clearly and prominently stated on the documents showing the individual's certification. The period of time of certification shall not exceed 5 years. ❖ Note: Certification and examinations can be performed in-house.</b>
<b>D3666*</b>	This person shall have applicable technician level or inspector level, or higher, certifications/qualifications (see <u>Note 2</u> ) through a program approved by a state DOT or a national or regional authority.❖
<b>D3740*</b>	Have at least 3 years experience performing tests on soil and rock. This person must demonstrate, by written examination(s), the ability to perform the tests in the manner stipulated under ASTM or other governing procedures and shall be capable of evaluating the test results in terms of specification compliance. Current certification by national, regional or state authorities shall be considered as one means of evidence of fulfilling the written examination requirement (Note 2). The certification shall be appropriate to the work required. At a minimum, the written examination(s) shall include at least five test methods listed in ASTM Volumes 4.08 and 4.09. In addition, a performance evaluation reviewing the technician's competency to perform the test method correctly shall be conducted prior to the technician performing the test independently and at least every 36 months thereafter for each test the person is authorized to perform. <b>Note: The performance evaluation can be performed in-house separately from the written exam. Certs issued by state or regional authorities that use slightly modified ASTM procedures (such as state modified methods) are typically acceptable.</b>
<b>E329*</b>	Have at least three years experience performing tests in relevant construction activities and materials used in construction. This person shall be able to demonstrate either by oral or written examination, or both, their ability to perform the tests normally required in the manner stipulated under ASTM or other governing test procedures and shall be capable of evaluating the test results in terms of specification compliance. Certification by qualified national, regional, or state authorities as appropriate to the services is required.

\* - A person may fill one or more of the levels of management, supervision, or technician positions provided that person qualifies for the highest level of the positions filled.

Testing Technician Supervisor Name: \_\_\_\_\_

For (circle):      C1077      D3666      D3740      E329 (SFRM)      E329 (General)

Testing Technician Supervisor Name: \_\_\_\_\_

For (circle):      C1077      D3666      D3740      E329 (SFRM)      E329 (General)

Testing Technician Supervisor Name: \_\_\_\_\_

For (circle):      C1077      D3666      D3740      E329 (SFRM)      E329 (General)

COMMENTS (ASTM Supervisory Personnel):

(Supervisory Personnel)

**ADDITIONAL REQUIREMENTS - Personnel****Technician Personnel**

Date: \_\_\_\_\_

**Technician Requirements**

<b>C1077</b>	Shall possess current technician certification. The technician certification program must include a written examination and performance examination of relevant tests. Relevant tests that must be covered by the certification program are: Test Methods C117, C127, C128, and C136. <i>The written exam shall be of sufficient length and detail to cover the methods. The performance exam shall include demonstration of the method. The period of time for which the certification is valid shall be clearly and prominently stated on the documents showing the individual's certification. The period of time of certification shall not exceed 5 years. ❖ Note: Certification and examinations can be performed in-house.</i>
<b>D3666*</b>	This person shall have applicable technician level or inspector level certifications/qualifications (see <a href="#">Note 2</a> ) through a program approved by a state DOT or a national or regional authority. ❖
<b>D3740*</b>	Have a high school diploma or equivalent or trade school training and have had sufficient on-the-job training to properly perform the test or inspection to which the person is assigned. This person must demonstrate, by written examination(s), the ability to perform the tests in the manner stipulated under ASTM or other governing procedures. Current certification by national, regional or state authorities shall be considered as one means of evidence of fulfilling the written examination requirement (Note 2). The certification shall be appropriate to the work required. At a minimum, the written examination(s) shall include at least five of the testing or inspection methods listed in ASTM Volumes 4.08 and 4.09. Technicians that perform fewer than 5 of the applicable testing or inspection methods will meet the written exam requirement provided the examination(s) includes each testing or inspection method performed. In addition, a performance evaluation reviewing the technician's competency to perform the test method correctly shall be conducted prior to the technician performing the test independently and at least every 24 months thereafter for each test the person is authorized to perform. <b>Note:</b> <i>The performance evaluation can be performed in-house separately from the written exam. Written exam must cover whole test. Performance evaluation must include demonstration of methods. Certs issued by state or regional authorities that use slightly modified ASTM procedures (such as state modified methods) are typically acceptable.</i>
<b>E329*</b>	Have sufficient education and on-the-job training or trade school training to properly perform the inspection or test to which the person is assigned. This person must be able to demonstrate competence for the test or inspection that is being conducted either by oral or written examination, or both. Certification as appropriate for the services being performed, or certification by other qualified national authorities as appropriate to the service, shall be considered as one means of documenting competency.

\* - A person may fill one or more of the levels of management, supervision, or technician positions provided that person qualifies for the highest level of the positions filled.

Technician Name: \_\_\_\_\_

For (circle):                      C1077                      D3666                      D3740                      E329 (SFRM)                      E329 (General)

Technician Name: \_\_\_\_\_

For (circle):                      C1077                      D3666                      D3740                      E329 (SFRM)                      E329 (General)

Technician Name: \_\_\_\_\_

For (circle):                      C1077                      D3666                      D3740                      E329 (SFRM)                      E329 (General)

Technician Name: \_\_\_\_\_

For (circle):                      C1077                      D3666                      D3740                      E329 (SFRM)                      E329 (General)

Technician Name: \_\_\_\_\_

For (circle):                      C1077                      D3666                      D3740                      E329 (SFRM)                      E329 (General)

Technician Name: \_\_\_\_\_

For (circle):                      C1077                      D3666                      D3740                      E329 (SFRM)                      E329 (General)

COMMENTS (ASTM Technician Personnel):

(Technician Personnel)



**ADDITIONAL REQUIREMENTS – ASTM C1077****C1077** \_\_\_\_\_

Date: \_\_\_\_\_

**ASTM C1077 - Labs Testing Concrete and Concrete Aggregates For Use in Construction and Criteria for Lab Evaluation**

1. Has the laboratory demonstrated the following aggregate test methods during the most recent AMRL and/or CCRL on-site assessment(s): C117, C127, C128, and C136 (Section 7.2.2) (C40 no longer required)?..... \_\_\_\_\_  
**Note:** *The ASTM, rather than the AASHTO, versions of these test methods must be demonstrated.*
2. Is the laboratory currently accredited for C1077? ..... \_\_\_\_\_  
**Note:** *If the laboratory is not currently accredited for C1077, write the Nonconformity requesting supporting documentation, such as an organizational chart and aggregate technician certifications.*
3. Is the following information available for review (Section 6.1.1):
  - (a) Name and position of the responsible, registered professional engineer in charge? ..... \_\_\_\_\_
  - (b) Listing of the relevant technical services (i.e. test methods) offered? ..... \_\_\_\_\_
  - (c) Listing of all external technical services normally utilized (i.e. calibration services, vendors and subcontractors)? ..... \_\_\_\_\_
4. Is the laboratory enrolled in the AMRL Proficiency Sample Program for Coarse and Fine Aggregate? ..... \_\_\_\_\_  
**Note:** *This covers the requirements of Section 8.4.1 and 8.4.3, as well as being required for accreditation.*
5. When mechanical sieving devices are used (Section 8.4.2):
  - (a) Is the **period** (time) of mechanical agitation checked at least annually for adequacy of sieving?..... \_\_\_\_\_
  - (b) Have mechanical agitation periods been established for each different type of aggregate tested?..... \_\_\_\_\_**Note:** *Different types of aggregate refer to shape and composition, not supplier. For example, agitation periods for elongated materials may need to be extended, while softer materials that break down easily may require a shorter period to minimize alteration of the particle size distribution.*
6. Does the laboratory have standard operating procedures which include the transfer of samples (aggregate) from the field to the laboratory (Section 9.2.1)? ..... \_\_\_\_\_
7. Records maintained for all laboratory personnel documenting work experience / education (Section 9.2.5)?..... \_\_\_\_\_  
**Note to Assessors:** *C1077 requires this information for all technical staff. R18 requires this information for supervisory technical staff only.*
8. Are records maintained of all audits and inspections by outside agencies; and of all reports or certifications, with applicable dates, of any evaluation or accreditations issued by any evaluating authorities (Section 9.2.6)? ..... \_\_\_\_\_
9. Do aggregate test reports include the name of the registered professional engineer or their designee (Section 9.4.8)?..... \_\_\_\_\_
10. Has the laboratory established procedures for ensuring the quality of external technical services, such as calibration services, equipment, and materials procured by the laboratory from vendors, and subcontractors (Section 10.1.4)? ..... \_\_\_\_\_
11. Does the laboratory maintain records of the subcontractor and vendor evaluations? ..... \_\_\_\_\_  
**Note:** *Records may include a review of external audits, inspections, certifications, and laboratory accreditations held.*

COMMENTS (C1077):

(C1077)

**ADDITIONAL REQUIREMENTS – ASTM D3666, D3740, E329****D3666, D3740, E329**

Date: \_\_\_\_\_

**D3666 - Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials****D3666** \_\_\_\_\_

1. Is the laboratory currently accredited for D3666? ..... \_\_\_\_\_  
**Note:** If the laboratory is not currently accredited for D3666, write the Nonconformity requesting supporting documentation, such as an organizational chart and asphalt technician certifications.
2. Has the laboratory performed at least one test method in the scope for which they are seeking accreditation (one HMA test if seeking D3666 (Hot-Mix), one aggregate test if seeking D3666 (Aggregate), etc.)? ..... ❖ \_\_\_\_\_
3. Does the laboratory maintain records of any external audits and documentation describing how the deficiencies were corrected (Section 8.1.10)? ..... \_\_\_\_\_
4. Does the laboratory's quality manual contain brief biographical sketches for all bituminous and aggregate technical staff (Section 9.1.2.3)? ..... \_\_\_\_\_  
**Note:** A reference to where biographical sketches are found is acceptable if they are not in the QMS.  
**Note to Assessors:** D3666 requires this information for all technical staff. R18 requires this information for supervisory technical staff only.

**D3740 - Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction****D3740** \_\_\_\_\_

1. Is the laboratory currently accredited for D3740? ..... \_\_\_\_\_  
**Note:** If the laboratory is not currently accredited for D3740, write the Nonconformity requesting supporting documentation, such as an organizational chart and soil technician certifications.
2. Are competency evaluations performed at least every 24 months for inspecting or testing technicians and every 36 months for supervising laboratory technicians (Sections 7.2.2 and 7.4.2)? ..... ❖ \_\_\_\_\_
3. Does the agency maintain **records** of the verification of competency of **any** external organizations used (Section 10.2.6)? ..... \_\_\_\_\_  
**Note to Assessors:** This would include outside agencies that are used for equipment C/S/C/M as well as subcontractor laboratories. Records may include a review of external audits, inspections, certifications, and laboratory accreditations held.

**E329 - Agencies Engaged in Construction Inspection and/or Testing****E329** \_\_\_\_\_

1. Is the laboratory currently accredited for E329? ..... \_\_\_\_\_  
**Note:** If the laboratory is not currently accredited for E329, write the Nonconformity requesting supporting documentation, such as an organizational chart and relevant technician certifications.
2. Who has been nominated as a deputy in case of absence of the Technical or Quality Manager (Section 5.2.8)? ..... \_\_\_\_\_  
 Name: \_\_\_\_\_ Title: \_\_\_\_\_
3. Does the laboratory have a documented policy and procedures to ensure the protection of clients' confidential information and proprietary rights (Sections 5.2.9 and 8.2.17)? ..... \_\_\_\_\_
4. When equipment has been subjected to overloading or mishandling, gives suspect results, or has been shown by verification or otherwise to be defective: ..... \_\_\_\_\_  
 (a) Has the laboratory examined the effect of this defect on previous tests (Section 7.2.1.1)? ..... \_\_\_\_\_  
 (b) Are records of any damage, malfunction, or repair kept (Section 7.4.8)? ..... \_\_\_\_\_
5. Is each item of equipment, including reference materials, labeled, marked or otherwise identified to indicate its calibration status, when appropriate (Section 7.3)? ..... \_\_\_\_\_  
**Note to Assessors:** This should indicate if the piece of equipment is useable or out of service, regardless of whether it is checked, standardized, or calibrated. If unlabeled equipment is being used, write a finding.

COMMENTS (ASTM Additional Requirements):

(D3666, D3740, E329)

**QUALITY MANAGEMENT SYSTEM FOR CONSTRUCTION MATERIALS LABORATORIES****R18**

Date: \_\_\_\_\_

Bituminous Equipment (R18 Annex Table A1.3)	R18 Interval (m)			Procedure		Record Current?		Record Content
"✓" if OK	NP (A)	(B) If > R18 (record #)		NP (C)	Equip (D)	Status (E,F,G)	Date (F, G)	Details (H, I, J, K, L, M)
Cleveland flash cups (check critical dimensions) (T48/D92)	12							
Tag flash cups (check critical dimensions) (T79/D3143)	12							
Penetrometers (standardize penetration depth) (T49/D5)	12							
Penetrometer needles (check condition and critical dimension) (T49/D5)	12							
Timing devices (standardize) (T49/D5, T201/D2170, T202/D2171)	12							
Collars and floats (check critical dimensions) (T50/D139)	12							
Ductility, elastic recovery, and force ductility machines (check speed of travel) (T51/D113, T300, T301/D6084)	12							
Ductility, elastic recovery, and force ductility molds (check critical dimensions) (T51/D113, T300, T301/D6084)	12							
Brass rings and assemblies (check critical dimensions) (T53/D36)	12							
Thin-film ovens (check rotation speed, standardize thermometric device) (T179/D1754)	12							
Rolling thin-film oven (check rotation speed, standardize thermometric device) (T240/D2872)	12							
Flow meters (standardize) (T240/D2872)	12							
Pycnometers (standardize volume and check physical condition) (T228/D70)	12							
Rotational Viscometer (standardize with reference fluids) (T316/D4402)	6							
Dynamic Shear Rheometer (standardize with reference fluids) (T315/D7175)	6			T315				
Pressurized Aging Vessel (standardize temperature and pressure) (R28/D6521)	6							
Bending Beam Rheometer (calibrate masses) (T313/D6648)	12							
Saybolt viscometers (standardize) (T59/D244)	36			T72				
Brush Holder, Brush, and Nylon Strip (check critical dimensions) (D7000)	12							
<b>R18 Interval Findings (Section 6.1.2.1)</b>	<b>Record Content Findings (Section 6.1.5.1)</b>							
(A) NC: Intervals were not specified.	(H) NC: Records did not include detailed results / ROU.							
(B) NC: Intervals specified were greater than those in R18 (record # of months specified, for example "36")	(I) Obs: Records had no name / serial number of the equipment.							
<b>Written Procedure Finding (Section 6.1.2.3)</b>	(J) Obs: Records did not include the date the work was completed.							
(C) NC: Procedures were not presented.	(K) Obs: Records did not include the name of the worker.							
(D) Obs: Procedures did not include a list of calibration, standardization, or check equipment.	(L) Obs: Records did not include a reference to the procedure used.							
<b>Record Status Findings (Section 6.1.2.4)</b>	(M) Obs: Records did not include ID of calibration, standardization, or check equipment.							
<b>Record Status Findings (Section 6.1.2.4)</b>	<b>Definitions</b>							
(E) NC: Records were not presented.	NC = Nonconformity      Obs = Observation							
(F) NC: Records were not current (record previous date).	OA = Outside Agency performed the work							
(G) Obs: Records indicated that a previous interval was missed.	ROU = Shall include several measurements over the range of use							

COMMENTS:

**QUALITY MANAGEMENT SYSTEM FOR CONSTRUCTION MATERIALS LABORATORIES****R18**

Date: \_\_\_\_\_

Hot Mix Asphalt Equipment (R18 Annex Table A1.4)	R18 Interval (m)			Procedure		Record Current?		Record Content
“✓” if OK	NP (A)	(B) If > R18 (record #)		NP (C)	Equip (D)	Status (E,F,G)	Date (F, G)	Details (H, I, J, K, L, M)
Compression testing machines (standardize) (T167/D1074)	12			E4				ROU
Compressive strength molds (check critical dimensions) (T167/D1074)	12							
Compressive strength plungers (check critical dimensions) (T167/D1074)	12							
Flow meters (standardize) (T170/D1856)	12							
Vacuum/pressure gauges (standardize, manometers need no records) (T209/D2041)	12							
Compaction hammers (check mass & critical dimensions) (T245/D6926)	12							
Breaking heads (check critical dimensions) (T245/D6927)	12							
Marshall Molds (check critical dimensions) (T245/D6926)	12							
Marshall compression testing machines (standardize) (T245/D6927)	12			E4				
Hveem compression testing machines (standardize) (T246/D1560)	12			E4				ROU
Calibration cylinders (check critical dimensions) (T246/D1560)	12							
Followers (check critical dimensions) (T246/D1560, T247/D1561)	12							
CA Kneading Compactor Molds (check critical dimensions) (T247/D1561)	12							
California kneading compactors (standardize) (T247/D1561)	24							
Compression / loading devices: TSR (standardize) (T283/D4867)	12			E4				ROU
Ignition oven internal balances (standardize) (T308/D6307)	12			M231	D4753			ROU
Gyratory compactors (standardize ram pressure, frequency of gyration, LVDT) (T312/D6925)	12							
Gyratory compactor - Internal Angle of Gyration (standardize internal angle) (T312)	12							
Gyratory compactor - External or Internal Angle of Gyration (standardize external or internal angle) (D6925)	12							
Gyratory molds, ram face, and base plate faces (check critical dimensions) (T312/D6925)	12							
Vacuum measurement gauge (standardize) (T331/D6752)	12							
Load Measurement Devices (T167/D1074, T245/D6927, T283/D4867)	12			E74				ROU
Load Cells (standardize)								
Load Measurement Devices (T167/D1074, T245/D6927, T283/D4867)	12			E74				ROU
Proving Rings (standardize)								
Length Measurement Devices (T245/D6927, T246/D1560)	12							
Dial Indicators (standardize) (T324)								ROU
Length Measurement Devices (T245/D6927, T246/D1560)	12							
LVDTs (standardize) (T324)								ROU
<b>R18 Interval Findings (Section 6.1.2.1)</b>	<b>Record Content Findings (Section 6.1.5.1)</b>							
(A) NC: Intervals were not specified.	(H) NC: Records did not include detailed results / ROU.							
(B) NC: Intervals specified were greater than those in R18 (record # of months specified, for example “36”)	(I) Obs: Records had no name / serial number of the equipment.							
	(J) Obs: Records did not include the date the work was completed.							
<b>Written Procedure Finding (Section 6.1.2.3)</b>	(K) Obs: Records did not include the name of the worker.							
(C) NC: Procedures were not presented.	(L) Obs: Records did not include a reference to the procedure used.							
(D) Obs: Procedures did not include a list of calibration, standardization, or check equipment.	(M) Obs: Records did not include ID of calibration, standardization, or check equipment.							
<b>Record Status Findings (Section 6.1.2.4)</b>	<b>Definitions</b>							
(E) NC: Records were not presented.	NC = Nonconformity      Obs = Observation							
(F) NC: Records were not current (record previous date).	OA = Outside Agency performed the work							
(G) Obs: Records indicated that a previous interval was missed.	ROU = Shall include several measurements over the range of use							

COMMENTS:

**QUALITY MANAGEMENT SYSTEM FOR CONSTRUCTION MATERIALS LABORATORIES****R18**

Date: \_\_\_\_\_

Soil Equipment (R18 Annex Table A1.5)	R18 Interval (m)			Procedure		Record Current?		Record Content
"✓" if OK	NP (A)	(B) If > R18 (record #)		NP (C)	Equip (D)	Status (E,F,G)	Date (F, G)	Details (H, I, J, K, L, M)
<b>Hydrometers</b> (check critical dimensions) (T88/D422)	24							
<b>Liquid Limit Devices</b> (check wear & critical dimensions) (T89/D4318)	12							
<b>Grooving tools</b> (check critical dimensions) (T89/D4318)	12							
<b>5.5-lb. Mechanical Proctor Compactors</b> (standardize) (T99/D698)	12			D2168				
<b>10-lb. Mechanical Proctor Compactors</b> (standardize) (T180/D1557)	12			D2168				
<b>5.5-lb. Manual hammers</b> (check weight & critical dimensions) (T99/D698, D4829)	12							
<b>10-lb. Manual hammers</b> (check weight & critical dimensions) (T180/D1557)	12							
<b>4-in. Proctor Molds</b> (check critical dimensions) (T99/D698, T134/D558, T135/D559, T136/D560, T180/D1557)	12				D698 D1557			
<b>6-in. Proctor Molds</b> (check critical dimensions) (T99/D698, T180/D1557)	12				D698 D1557			
<b>Straightedges</b> (check planeness of edge) (T99/D698, T134/D558, T135/D559, T136/D560, T180/D1557)	12							
<b>Vacuum / pressure gages</b> (standardize, manometers need no records) (T100/D854)	12							ROU
<b>Weighted foot assemblies</b> (check mass) (T176/D2419)	12							
<b>R-Value Molds</b> (check critical dimensions) (T190/D2844)	12							
<b>California kneading compactors</b> (standardize) (T190/D2844)	24							
<b>Standard metal specimens</b> (check outside diameter) (T190/D2844)	12							
<b>Metal followers</b> (check diameter) (T190/D2844)	12							
<b>CBR Molds</b> (check critical dimensions) (T193/D1883)	12							
<b>CBR Penetration pistons</b> (check critical dimensions) (T193/D1883)	12							
<b>CBR annular and slotted weights</b> (check mass) (T193/D1883)	12							
<b>Load Measurement Devices</b> (T193/D1883, T208/D2166, T216/D2435) <b>Load Cells</b> (standardize) (T236/D3080, T296/D2850, T297/D4767, D4546)	12			E74				ROU
<b>Load Measurement Devices</b> (T193/D1883, T208/D2166, T216/D2435) <b>Proving Rings</b> (standardize) (T236/D3080, T296/D2850, T297/D4767, D4546)	12			E74				ROU
<b>Consolidometers</b> ( <u>check for deflection records</u> ) (T216/D2435, D4546) (standardize loads, either deadweight or mechanically applied)	12			E4				ROU
<b>Normal load, Compression / loading devices: direct shear</b> (T236/D3080) (standardize normal load indicators and normal load application device)	12			E4				ROU
<b>Shear load, Compression / loading devices: direct shear</b> (T236/D3080) (standardize shear load indicators and shear load application device)	12			E4				ROU
<b>Expansion Index Vertical Load</b> (standardize) (D4829)	12							
<b>Length Measurement Devices</b> (T193/D1883, T208/D2166, T216/D2435) <b>Dial Indicators</b> (standardize) (T236/D3080, T296/D2850, T297/D4767, D4546)	12							ROU
<b>Length Measurement Devices</b> (T193/D1883, T208/D2166, T216/D2435) <b>LVDTs</b> (standardize) (T236/D3080, T296/D2850, T297/D4767, D4546)	12							ROU
<p>(A) NC: Intervals were not specified.</p> <p>(B) NC: Intervals specified were greater than those in R18 (record # of months specified, for example "36")</p> <p>(C) NC: Procedures were not presented.</p> <p>(D) Obs: Procedures did not include a list of calibration, standardization, or check equipment.</p> <p>(E) NC: Records were not presented.</p> <p>(F) NC: Records were not current (record previous date).</p> <p>(G) Obs: Records indicated that a previous interval was missed.</p> <p>(H) NC: Records did not include detailed results / ROU.</p> <p>(I) Obs: Records had no name / serial number of the equipment.</p> <p>(J) Obs: Records did not include the date the work was completed.</p> <p>(K) Obs: Records did not include the name of the worker.</p> <p>(L) Obs: Records did not include a reference to the procedure used.</p> <p>(M) Obs: Records did not include ID of calibration, standardization, or check equipment.</p>								

COMMENTS:

**QUALITY MANAGEMENT SYSTEM FOR CONSTRUCTION MATERIALS LABORATORIES****R18**

Date: \_\_\_\_\_

Aggregate Equipment (R18 Annex Table A1.2)	R18 Interval (m)	Procedure		Record Current?		Record Content
"✓" if OK	NP   (B) If > R18 (A)   (record #)	NP (C)	Equip (D)	Status (E,F,G)	Date (F, G)	Details (H, I, J, K, L, M)
Unit weight measures (standardize) (T19/C29)	12					
Conical molds and tampers (check critical dimensions) (T84/C128)	24					
L.A. machines (check RPM & critical dimensions) (T96/C131)	24					
Steel spheres (check individual weight & charge weight) (T96/C131)	24					
Temperature recorders (standardize) (T96/C131)	12					
Sulfate soundness sample containers (check physical condition) (T104/C88)	12					
Sulfate soundness ovens (check rate of evaporation) (T104/C88)	12					
Weighted foot assemblies (check mass) (T176/D2419)	12					
<b>General Equipment (R18 Annex Table A1.1)</b>	<b>R18 Interval (m)</b>	<b>Procedure</b>		<b>Record Current?</b>		<b>Record Content</b>
"✓" if OK	NP   (B) If > R18 (A)   (record #)	NP (C)	Equip (D)	Status (E,F,G)	Date (F, G)	Details (H, I, J, K, L, M)
Mechanical shakers (check sieving thoroughness and time required to sieve sample)	12					
Sieves (check physical condition of all, check openings of No. 4 and larger)	12					
Ovens (standardize thermometric device)	12					ROU
Temperature Measuring Devices and Thermometers (standardize)	12	E1/E77				ROU
General purpose balances, scales, and weights (standardize)	12	M231	D4753			ROU
Analytical balances and weights (calibrate)	12					
Calipers (standardize)	12					ROU
<b>R18 Interval Findings (Section 6.1.2.1)</b>	<b>Record Content Findings (Section 6.1.5.1)</b>					
(A) NC: Intervals were not specified. (B) NC: Intervals specified were greater than those in R18 (record # of months specified, for example "36")	(H) NC: Records did not include detailed results / ROU. (I) Obs: Records had no name / serial number of the equipment. (J) Obs: Records did not include the date the work was completed.					
<b>Written Procedure Finding (Section 6.1.2.3)</b>	(K) Obs: Records did not include the name of the worker.					
(C) NC: Procedures were not presented. (D) Obs: Procedures did not include a list of calibration, standardization, or check equipment.	(L) Obs: Records did not include a reference to the procedure used. (M) Obs: Records did not include ID of calibration, standardization, or check equipment.					
<b>Record Status Findings (Section 6.1.2.4)</b>	<b>Definitions</b>					
(E) NC: Records were not presented. (F) NC: Records were not current (record previous date). (G) Obs: Records indicated that a previous interval was missed.	NC = Nonconformity      Obs = Observation OA = Outside Agency performed the work ROU = Shall include several measurements over the range of use					

**Note to Assessors:** All notes related to Maintenance go in the Equipment section of the report, not the Equipment C/S/C Records.

Equipment that requires maintenance Section 6.1.4, A1.9 "✓" if OK	Interval (months)	Have Procedure or follow Manufacturer's Instructions?	Name of Worker	Date / Comments
PG-binder equipment (PGB tests)	12			
Ductilometers (T51/D113, T300, T301/D6084)	12			
Mechanical Marshall compactors (T245)	12			
California kneading compactors (T247/D1561, T190/D2844)	12			
Gyratory compactors (T312/D6925)	12			
Mechanical Proctor Compactors 5.5 & 10 lb. (T99/D698, T180/D1557)	12			
Compression machines (as applicable) (not all compression machines require periodic maintenance)	12			
Mechanical shakers (as applicable)	12			

**Equipment maintenance** - Maintenance activities will typically involve lubricating, tightening fittings, cleaning, replacing fluids, and replacing damaged or worn parts. This will vary based on the type of equipment, how often the equipment is used, the manufacturer's recommendations, etc.

COMMENTS: