



Designation: C 1093 – 07

## Standard Practice for Accreditation of Testing Agencies for Masonry<sup>1</sup>

This standard is issued under the fixed designation C 1093; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last approval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope\*

1.1 This practice covers the minimum requirements for laboratory personnel, for establishing and maintaining a quality system, and it establishes minimum qualifications for agencies engaged in the testing of masonry materials.

1.2 Criteria are provided for evaluating the capability of an agency to properly perform designated tests on masonry materials, and for establishing guidelines pertaining to an agency's organization, personnel, facilities, and quality system. This practice may be supplemented by more specific criteria and requirements for particular projects.

1.3 This practice can be used as a basis to evaluate testing agencies, and it is intended for use for the qualifying or accrediting of testing agencies, or both, public or private, engaged in the testing of masonry materials.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

### 2. Terminology

#### 2.1 Definition:

2.1.1 *quality system*—the organizational structure, responsibilities, procedures, processes, capabilities, and resources for implementing quality management.

#### 2.2 Definitions of Terms Specific to This Standard:

2.2.1 *agency*—the organization engaged to test masonry materials as required by a specification or contract.

2.2.2 *quality system manual (QSM)*—a manual describing and documenting an agency's quality system.

2.2.3 *user*—the person or organization engaging the agency to provide tests; or using this practice to evaluate or accredit the agency.

### 3. Significance and Use

3.1 This practice provides the basic minimum criteria for use in evaluating the qualifications of testing agencies for

masonry materials. The criteria may be supplemented by more specific criteria and requirements. It can be used as a guide for internal audits by individual users.

3.2 The intent of this practice is to provide a consensus basis for evaluating a testing agency, with respect to that agency's capability to objectively and competently provide the specific services needed by the user.

3.3 This practice may be used as a basis for accreditation.

### 4. Responsibilities and Duties

4.1 The agency shall ensure that only tests for which it is adequately equipped and staffed are performed.

4.2 The agency shall ensure that personnel perform only tests for which they are adequately trained, qualified, and certified in accordance with applicable specifications.

4.3 The agency shall ensure that all equipment is properly maintained in good operating condition and is calibrated as applicable.

4.4 The agency shall perform all testing in accordance with appropriate standards and quality control criteria. Documents unique to the user shall be furnished to the agency.

### 5. General Capabilities

5.1 *Laboratory Testing*—The laboratory testing services of the masonry materials testing agency shall include some or all of the following capabilities:

5.1.1 Testing of masonry units in the laboratory,

5.1.2 Testing of masonry mortars in the laboratory, and

5.1.3 Testing of aggregates for compliance with specification requirements.

NOTE 1—Since the requirements for construction control can vary from project to project depending upon the nature of the type, location, and intended use of the masonry in the project, the capability of the agency for testing should be that necessary to accomplish construction control for the user's specific project or special requirements.

### 6. Personnel Qualifications

6.1 *Management and Supervision*—All relevant testing services shall be provided under the Full-Time technical direction of a registered professional Engineer, with at least 5 years of experience in inspecting and testing masonry materials or a person of equivalent science-oriented education and experience.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee C15 on Manufactured Masonry Units and is the direct responsibility of Subcommittee C15.07 on Standards for Laboratory Accreditation.

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\*A Summary of Changes section appears at the end of this standard.

6.1.1 It is satisfactory for a person to fill one or more of the levels of management in an agency, Manager, Supervisor, or Technician positions in accordance with 6 and 6.2 providing that person is qualified position.

6.2 *Supervising Laboratory Technician*—The supervising laboratory technician shall have at least five years experience performing tests on materials. This person shall be able to demonstrate, either by oral or written examination, or both, the ability to perform the tests normally required in the manner stipulated under ASTM or other governing procedures and shall be capable of evaluating the test results in terms of specification compliance.

## 7. Quality System Criteria

7.1 The agency shall establish and implement a quality system that meets the following criteria:

7.1.1 *Quality System Manual (QSM)*—The agency shall establish and maintain a QSM that conforms to the requirements in Section 8. Each document in the QSM shall indicate its preparation *date*. If a document is revised, the *date* of revision shall be indicated on the document. The QSM shall be available for use by laboratory staff.

7.1.2 *Quality System Management*—The agency shall designate a person(s) having responsibility for the quality system and its implementation. The quality manager ensures that activities are being conducted by agency staff in the manner specified in the agency’s quality system manual and has responsibility for maintaining and revising it. This individual(s) shall have direct access to top management (see Note 2).

NOTE 2—This individual(s) may have other responsibilities (for example, laboratory manager).

7.1.3 *Laboratory Procedure Manual*—A written laboratory procedure manual outlining the method or inspection procedure for each test or service performed by the laboratory.

NOTE 3—Inspection and testing procedures may reference published standards.

7.1.4 *Equipment Calibration and Verification*—The agency shall calibrate or verify all significant testing equipment associated with tests covered by the scope of this standard which the agency performs. As a minimum, the equipment listed in Table 1 shall be included if it is associated with tests

performed by the agency. Applicable equipment shall be calibrated or verified at the intervals specified in the agency’s QSM. The intervals specified in the QSM shall be no greater than those indicated in Table 1 (see Note 4). Newly acquired equipment without manufacturer’s certification and equipment that has not been calibrated or verified because it has been removed from service shall be calibrated or verified before being placed in service. The agency 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.

NOTE 4—When a maximum calibration or verification interval for a specific piece of test equipment is specified in a standard, the maximum interval specified by this practice is intended to be the same as the maximum interval specified by the standard.

7.1.5 *Inspection of Facilities*—The agency shall have its laboratory procedures and equipment evaluated at intervals of approximately two years by an evaluation authority (see Note 5) as evidence of its competence to perform the required test. Within 30 days of the receipt of the evaluation authority’s written report, the agency shall address or correct any deficiencies cited in the report. The laboratory shall report corrections made to the evaluation authority or include a plan of action to implement the corrections in response to the on-site inspection report.

NOTE 5—The AASHTO Material Reference Laboratory (AMRL), Cement and Concrete Reference Laboratory (CCRL), the Construction Materials Engineering Council (CMEC), the National Institute of Standards and Technology National Voluntary Laboratory Accreditation Program (NVLAP), and the American Association for Laboratory Accreditation (AALA) are qualified evaluation authorities.

7.1.6 *Agency Accreditation*—The agency shall possess a certificate of accreditation, (see Note 6) from a national authority as evidence that it meets the requirement of this practice.

NOTE 6—Accreditation programs offered by AASHTO (Accreditation Program—AAP), the Construction Materials Engineering Council (CMEC), the American Association for Laboratory Accreditation (AALA), and the National Voluntary Laboratory Accreditation Program (NVLAP) are examples of programs offered by national authorities.

7.1.7 *Proficiency Sample Testing*—The agency shall participate in applicable proficiency sample programs, (see Note 7).

NOTE 7—The Cement and Concrete Reference Laboratory (CCRL), the AASHTO Materials Reference Laboratory (AMRL), and the Construction Materials Engineering Council (CMEC) are providers of such programs.

7.1.8 *Test Records*—The agency shall maintain test records that contain sufficient information to permit verification of any test reports. Records pertaining to testing shall include traceability of sample from source to agency, original observations, calculations, derived data, and an identification of personnel involved in sampling and testing. The agency shall prepare test reports that clearly, accurately, and unambiguously present the information specified in Table 2. The procedure for amending reports shall require that the previously existing report be clearly referenced when an amendment is made. The references shall establish a clear audit trail from the latest issuance or deletion to the original report and its supporting data.

**TABLE 1 Masonry Test Equipment**

Equipment—Test Method	Requirements	Intervals Months
Analytical balances and weights	Verify	24
Brass and plastic cube molds	Check critical dimensions	12
Compression test machine	Verify load indications	18
Flexural bond apparatus	Calibrate	12
General purpose balances, scales, and weights	Verify	12
Mechanical shakers	Check sieving thoroughness	12
Mixers	Check paddle to bowl clearance	24
Molds, cylindrical	Check critical dimensions	12
Molds and tampers	Check critical dimensions	12
Ovens	Verify temperature setting	4
Sieves	Check physical condition	6
Thermometers	Calibrate	6
Timers	Check dial and timer accuracy	6
Water retention	Calibrate vacuum	12