



Certification Policies for Cement Physical Tester

*Last revised by the Certification Programs Committee
November 26, 2024*

The statements contained herein are approved policies and procedures. This revised policy statement supersedes all previous action of the ACI Board of Direction with respect to Cement Physical Tester certification.

The certification program policies are organized into seven sections as follows:

Section 1.0	Certification Criteria
Section 2.0	Definitions
Section 3.0	ACI Responsibilities
Section 4.0	Examiner, Supplemental Examiner, and Proctor Criteria and Responsibilities
Section 5.0	Examination Criteria
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SECTION 1.0 CERTIFICATION CRITERIA

- 1.1 The American Concrete Institute (ACI) certification program for Cement Physical Tester shall require successful completion of both a written examination and a performance examination.
- 1.2 ACI certification for Cement Physical Tester shall be valid for a period of five years from the date of completion of all certification requirements.
- 1.3 Recertification requires the successful completion of both a written and performance examination according to Section 6 of this policy.
- 1.4 Groups desiring to conduct ACI Certification programs shall adhere to the current *Policy on Sponsoring Groups for Certification* (Annex 621.1-1).

SECTION 2.0 DEFINITIONS

- 2.1 Examinee - a person taking either the written or performance examination, or both.
- 2.2 Examiner - a person authorized by ACI to be in responsible charge of an examination session.
- 2.3 Performance Exam Checklist - a list of criteria used by the Supplemental Examiner to judge the compliance of the Examinee with the provisions of the performance examination.
- 2.4 Proctor - a person who assists the Examiner in conducting the written examination.
- 2.5 Supplemental Examiner - a person who assists the Examiner by administering the performance examination.

SECTION 3.0 ACI RESPONSIBILITIES

- 3.1 ACI shall assemble, maintain, and distribute all examination materials.
- 3.2 ACI shall approve the Sponsoring Group.
- 3.3 ACI shall authorize the Sponsoring Group to conduct examination sessions for Cement Physical Tester certification.
- 3.4 ACI shall approve the Examiner.
- 3.5 ACI shall grade the written examinations, review the performance examinations, and notify the Examinee and the Examiner of the final results in writing.
- 3.6 ACI shall certify Examinees who meet the certification requirements.
- 3.7 ACI shall issue a certificate, wallet card, and hard hat decal to Examinees who meet the certification requirements.

SECTION 4.0 EXAMINER, SUPPLEMENTAL EXAMINER, AND PROCTOR CRITERIA AND RESPONSIBILITIES

- 4.1 Applicants must be selected by an approved Sponsoring Group and shall submit a current ACI Examiner Application to ACI through that same Sponsoring Group.
- 4.2 To maintain access to ACI examination materials, the Examiner shall maintain approval from ACI and authorization from the Sponsoring Group.
- 4.3 Examiners, Supplemental Examiners, and Proctors shall not conduct any portion of the examination for anyone with whom he/she is personally related.
- 4.4 Supplemental Examiners or Examiners acting as Supplemental Examiners shall not examine anyone on the performance examination who is employed in the same organization. Governmental organizations may petition ACI, in writing, and request a waiver of this requirement. Waivers shall be granted only if it can be shown that the intent of the policy will be maintained.
- 4.5 Supplemental Examiners shall be permitted to assist in conducting the performance examination and may be authorized to conduct the performance examination without direct supervision of an Examiner with prior approval from the ACI Certification Department.
- 4.6 Examiners or Supplemental Examiners shall not observe more than one Examinee conducting tests at any one time during the performance examination.
- 4.7 Supplemental Examiners shall have recent experience in cement, concrete, and/or masonry testing.
- 4.8 Proctors and Supplemental Examiners shall be selected by the Examiner subject to their consideration as being trustworthy and conscientious.
- 4.9 The Examiner shall meet the following requirements:
 - A) Be a registered professional engineer, or hold equivalent international credentials; and
 - B) Have had at least two years of recent experience in cement, concrete and/or masonry testing; and
 - C) Be thoroughly familiar with the current applicable standards.OR
 - A) Be currently certified as an ACI Cement Physical Tester; and
 - B) Pass the written exam for this program with a score of 90% or more; and
 - C) Satisfy one of the following:
 - I. Assist in the administration of at least one ACI examination session, performing to the satisfaction of the Examiner of record; or
 - II. Participate in an ACI Cement Physical Tester Certification Administration Orientation Program, performing to the satisfaction of the program facilitator.

- 4.10 The Examiner shall be present at, and supervise, the examination session.
- 4.11 The Examiner shall be directly responsible for the following activities:
- A) Select the Supplemental Examiners and Proctors;
 - B) Verify the qualifications of the Supplemental Examiners and Proctors according to the criteria outlined in Section 4.3 through 4.7 of this policy;
 - C) Order examinations;
 - D) Verify the identity of each Examinee;
 - E) Ensure that the Examinees are aware of the certification criteria;
 - F) Verify that the Examinees have signed the release statement on the performance examination prior to performing any test methods or procedures;
 - G) Verify the performance evaluations conducted by the Supplemental Examiners by co-signing the performance examination checklist report;
 - H) Enter the appropriate grade for the completed performance examination on the checklist report;
 - I) Ensure that all Examinees have an opportunity to perform each test method at least once and to take a second trial on any failed procedure of the performance examination;
 - J) Refrain from interpreting examination questions during the course of the written examination;
 - K) Assist, if requested, the Examinee by providing definitions for general use words (i.e. “depict” = “shows”). Examiners shall not define terms specific to the ASTM Standards whose definitions are readily available through adequate study of the Standards.

SECTION 5.0 EXAMINATION CRITERIA

- 5.1 The content of the written and performance examinations shall be derived directly from the Job Task Analysis for ACI Cement Physical Tester Certification (Annex 621.1-2). Information contained within notes and appendices of the referenced documents shall not be subject to examination.
- 5.2 Both the written and performance examinations for Cement Physical Tester must be successfully completed within a one-year period in order to be considered for certification.
- 5.3 The examinations shall be conducted by the Examiner, Proctors, and Supplemental Examiners as applicable. [See Section 4.]
- 5.4 Examiners, Proctors, Supplemental Examiners, and/or Sponsoring Groups have no jurisdiction over the content of any examination or grading of the written examination.
- 5.5 This ACI Certification program is ADA-compliant. Alternative administration of the examinations may be permitted on a case-by-case basis.

- 5.6 Simple function (non-programmable) calculators shall be permitted.

WRITTEN EXAMINATION

- 5.7 The written examination for certification as a Cement Physical Tester shall consist of approximately 100 multiple-choice questions (approximately 8–12 questions in each section).
- 5.8 A maximum of 120 minutes shall be permitted for completion of the written examination, after which the exam answer sheets must be collected. Additional time, up to one-half hour, with access to the exam question booklet will be allotted to the Examinee to facilitate exam question challenges.
- 5.9 The written examination is open-book. Only materials referenced in the Job Task Analysis for ACI Cement Physical Tester Certification (Annex 621.1-2) are permitted during the examination.
- 5.10 Successful completion of the written examination requires the Examinee to score a minimum of:
- A) 60% on each individual section; AND
 - B) 70% on the overall examination.

PERFORMANCE EXAMINATION

- 5.11 The Examinee's performance (or verbal response as indicated) shall be evaluated based on the criteria of the performance examination checklist.
- 5.12 The performance examinations are closed-book; notes or other technical material shall not be permitted in the examination area. Simple function (non-programmable) calculators shall be permitted.
- 5.13 It is the Sponsoring Group's responsibility to provide equipment that conforms to the applicable ASTM Standards and is in good working order. The Examinee shall not be penalized due to faulty or incorrect equipment.
- 5.14 The Examinee shall conduct the performance examination in the direct presence of the Supplemental Examiner or the Examiner when acting as a Supplemental Examiner.
- 5.15 Supplemental Examiners (or Examiners acting as Supplemental Examiners) shall observe only one Examinee conducting tests at a time while conducting the performance examination.
- 5.16 After the Examinee performs each test method, the Supplemental Examiner must record the results of the test.
- 5.17 The Examinee's performance shall be evaluated based on the criteria of the performance examination checklist.
- 5.18 The Supplemental Examiner shall indicate pass or fail for each step on the checklist.
- 5.19 Grading for the performance examination shall be on a pass/fail basis only.

- 5.20 An Examinee shall be permitted to suspend one trial and begin the procedure over again. A voluntary suspension of a trial shall not be counted as a failure of that trial.
- 5.21 The Supplemental Examiner shall not stop a trial at any point at which an error is made.
- 5.22 Incorrect performance, or omission, of one or more of the steps of the performance checklist shall constitute failure of that trial.
- 5.23 An Examinee shall be allowed a second trial for each standard test method if the first trial was not successfully completed. The second trial of a particular test shall not be conducted immediately following the first trial. The second trial shall be administered by a different Supplemental Examiner than the first trial if more than one Supplemental Examiner is available.
- 5.24 A second trial, or voluntary repeat of a trial, shall require performance of the entire test method from the beginning, not from the point the error was made.
- 5.25 Immediately following completion of each trial, the Supplemental Examiner shall inform the Examinee of the results, either pass or fail.
- 5.26 When a failure of a trial has occurred the Supplemental Examiner shall inform the Examinee of the particular step(s) performed incorrectly.
- 5.27 The Examinee shall be permitted to leave the examination area between trials to consult notes or books.
- 5.28 Failure of any section after two trials will constitute failure of the performance examination.

SECTION 6.0 RE-EXAMINATION CRITERIA

- 6.1 Failure of the written examination by either of the criteria cited under Section 5.10 shall require a re-examination of the entire written examination.
- 6.2 Failure or invalidation of any of the required Standards covered by the performance examination in any one session shall require re-examination on the entire performance examination.
- 6.3 Re-examination on the written or the performance examination must be taken within one year of the initial examination. Otherwise, both the written and the performance examinations must be retaken in their entirety.

SECTION 7.0 APPEALS CRITERIA

- 7.1 Appeals regarding the conduct of the exam should be made during the exam session and shall be directed to the Examiner.
- 7.2 In the event that the Examinee is not satisfied with the decision of the Examiner regarding an appeal, the Examinee may pursue an appeal with ACI according to the following order:
 - 1. Sponsoring Group

2. ACI Director of Certification
 3. The Certification Appeals Committee [consisting of the Director of Certification; the Certification Programs Committee Chairman, and the Chairman of Committee C621.]
 4. Committee C621, Cement Tester Certification
 5. Certification Programs Committee
- 7.3 Appeals submitted directly to ACI for consideration after the exam session must be received, in writing, within 60 days of the receipt of the examination at ACI Headquarters.

End of Policy Text

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AMERICAN CONCRETE INSTITUTE

Policy on Sponsoring Groups for Certification

Approved by the ACI Board of Direction
March 21, 1991

Last revised by the ACI Certification Programs Committee
October 18, 2011

In developing certification exams for the concrete construction industry, the American Concrete Institute (ACI) has set forth minimum criteria by which an individual's proficiency is to be judged. Typically, ACI is not in a position to deliver certification exams directly to participants; therefore, it is necessary for ACI to have the ability to delegate this authority. However, if the need arises, ACI reserves the right to conduct exam sessions itself according to each program Policy.

In order to allow others to deliver its certification exams, ACI has adopted the "Sponsoring Group" concept. Sponsoring Groups act as agents of ACI in the delivery of ACI certification exams. Therefore, prior to being selected as an ACI Sponsoring Group, and for the duration of the period in which the group is authorized to act as a Sponsoring Group, such groups are subject to the following policies:

1. Sponsoring Groups shall be approved, in writing, by ACI's Certification Department (hereafter referred to as ACI) before they will be permitted to conduct an ACI¹ certification exam session. In all cases, approval of Sponsoring Groups shall be at the sole discretion of ACI.
2. In reviewing applications, ACI will consider, among other factors, the following:
 - A) The ability and willingness of the applicant to include in their constituency segments of the concrete construction industry impacted by the exams which they have applied to conduct. This includes individuals involved in the specification, production, design, construction, testing and inspection of concrete and concrete products. The applicant must establish a governance structure with representation appropriate to all of the exams for which the applicant has applied.

¹ For the purposes of this policy, references to "ACI certification" and "ACI certification program(s)" include only those administered solely by ACI (ACI programs). Programs with cosponsors are not directly addressed by this Policy.

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- B) The interest, experience and technical expertise necessary to conduct exam sessions exhibited by the applicant and/or their certification governance structure.
 - C) The legitimate need for the applicant to conduct a specific ACI certification exam within their approved operational jurisdiction.
 - D) The primary objective of the applicant in applying for sponsorship, which must coincide with ACI's overall mission of improving the quality of concrete construction within the political, social, and cultural dynamics of the intended operational jurisdiction.
- 3. Sponsoring Groups are required to maintain a governance structure to oversee the delivery of ACI exams. The governance structure shall consist of a committee of at least three (3) individuals, each working for a different employer and each producing a different product or service related to the concrete construction industry. At all times, at least one (1) member of the committee shall be a member of ACI. Further, ACI shall be furnished with a complete and accurate listing of contact information for all committee members including names, employers, type of businesses, physical addresses, email addresses, and both office telephone and cell phone numbers as available.
 - 4. The certification committee shall obtain the services of ACI-approved examiners. The examiners shall operate under the direct supervision of the certification committee to conduct ACI certification exam sessions. Examiners are permitted to conduct ACI certification exam sessions only under the auspices of ACI or ACI-approved Sponsoring Groups; and they must comply with all ACI certification policies and procedures.
 - 5. At the time of approval, ACI shall assign Sponsoring Groups specific geographical areas within which they will have authority to conduct ACI certification exam sessions. This area is the approved operational jurisdiction for the Sponsoring Group.
 - 6. ACI shall approve each Sponsoring Group on a calendar year basis for a period not to exceed two (2) years. Prior to the conclusion of this period, all groups shall reapply to ACI for approval to continue to act as an ACI Sponsoring Group.
 - 7. In the U.S., in areas where no Sponsoring Group is actively administering a specific ACI examination, the local ACI chapter (not a student chapter) shall have first rights to administer that specific exam. International sponsorship for any ACI examination will be assessed on a case-by-case basis.

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8. If an existing Sponsoring Group or ACI Chapter is solicited to administer an examination and participation is declined, or if a sponsor does not request an examination upon initial availability from ACI, or if a requested examination is not administered within two years following approval, administration of said examination may become available to other potential sponsors.
9. If more than one applicant wishes to sponsor an ACI certification exam in the same operational jurisdiction and there is documented need for more than one group to conduct the examination in that jurisdiction or portion thereof, a system of coordination between those groups shall be established. A description of this system shall be considered along with any new Sponsoring Group application and must be included in the governance system for any existing Sponsoring Group. In all cases, ACI reserves the right, in its sole discretion, to select a delivery system that in its judgment is best able to serve the interests of ACI.
10. Applicants wishing to sponsor ACI certification examinations on a "national" or "regional" basis will, in appropriate circumstances, be approved to conduct exams under specific conditions at the discretion of ACI.
11. Approved Sponsoring Groups are responsible for:
 - A) Maintaining control over the administration of ACI Certification exams offered within their operational jurisdiction. This includes, but is not limited to, maintaining control over the ethical and professional integrity of every sponsored examination session and providing ongoing oversight of exam session coordinators, examiners, and other exam delivery personnel.
 - B) Conducting a sufficient number of exam sessions and providing equitable access to those exam sessions for all individuals seeking ACI Certification within the group's operational jurisdiction.
 - C) Conducting all ACI exams in a manner which complies with the intent of ACI's policies and procedures governing certification.
 - D) Formulating, publishing, and enforcing consistent and equitable pricing for ACI Certification exams offered by the Sponsoring Group within their operational jurisdiction.
 - E) Developing and implementing participant registration processes that satisfy the policy requirements of each exam offered by the Sponsoring Group and verifying that each participant has met the eligibility requirements of the program before being allowed to complete an ACI exam.

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- F) Collecting exam fees from participants, paying materials invoices to ACI within 30 days of receipt, and distributing compensation to examiners and other program delivery personnel as warranted.
- G) Developing a program delivery process that establishes separation between the education/training and testing divisions of the Sponsoring Group.
- 12. ACI has the right to revoke a Sponsoring Group's authority to conduct an ACI certification exam at any time, with or without cause, and with or without notice.
- 13. Appeals resulting from the denial or revocation of Sponsoring Group status will be reviewed by ACI Staff for determination of appropriate action on a case-by-case basis.
- 14. This policy shall become effective sixty (60) days after its approval by the ACI Certification Programs Committee, and shall render all previous Policy versions null and void. Sponsoring Groups shall be notified of this new policy in writing within thirty (30) days after it is approved by the ACI Certification Programs Committee.
- 15. The Certification Programs Committee shall review, revise as necessary, and reapprove this Policy at intervals not exceeding two years in length.

ANNEX 621.1-2

Job-Task Analysis (JTA) for ACI Cement Physical Tester Certification

HOW TO USE THIS JTA:

On the written examination, the Candidate must:

- **Understand** the following general concepts, which may not have specified values, procedures, or measurements; *and*
- **Know** the following specific procedures or values; performance of these items may also be assessed on the performance examination.

On the performance examination:

- **Perform**—or describe verbally, where allowed—the following tasks or steps, which are part of the specified procedure; knowledge of these items may also be assessed on the written examination.

RESOURCES:

ASTM C109/C109M—Standard Test Method for Compressive Strength of Hydraulic Cement Mortars

ASTM C1038/C1038M—Standard Test Method for Expansion of Hydraulic Cement Mortar Bars Stored in Water

ASTM C185—Standard Test Method for Air Content of Hydraulic Cement Mortar

ASTM C187—Standard Test Method for Amount of Water Required for Normal Consistency of Hydraulic Cement Paste

ASTM C191—Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle

ASTM C204—Standard Test Methods for Fineness of Hydraulic Cement by Air-Permeability Apparatus

ASTM C305—Standard Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency

ASTM C430—Standard Test Method for Fineness of Hydraulic Cement by the 45- μ m (No. 325) Sieve

ASTM C490/C490M—Standard Practice for Determination of Length Change of Hardened Cement Paste, Mortar, and Concrete

ASTM C1437—Standard Test Method for Flow of Hydraulic Cement Mortar

ASTM C109/C109M—Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Fabrication of 2 in. cubes)

- Understand the scope and significance of the test method
- Know the required equipment necessary to perform the test
- Know the requirements of necessary equipment
- Know temperature and humidity requirements
- Know and perform mixing procedure, including order and timing
- Know and perform batch proportions for this method (6, 9, or 12 cube batch)
- Know and perform flow test, including knowing acceptable range for this test

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Job-Task Analysis (JTA) for ACI Cement Physical Tester Certification (Continued)

- Know and perform procedures for filling cube molds (hand tamping)
- Know timing requirements for filling cube molds
- Know and perform proper strike-off procedure of cube specimens
- Know and perform cleaning, curing, and demolding specimen

ASTM C109/C109M—Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Testing of 2 in. cubes)

- Understand the scope and significance of the test method
- Know the required equipment necessary to perform the test
- Know the requirements of necessary equipment
- Know permissible tolerances for test ages
- Know moisture requirements prior to testing
- Know and perform cube preparation and checking for curvature
- Know and perform breaking cube in compression machine
- Understand strength calculation
- Understand reporting requirements for strength

ASTM C1038/C1038M—Standard Test Method for Expansion of Hydraulic Cement Mortar Bars Stored in Water

- Understand the scope and significance of the test method
- Know the requirements of the equipment necessary for performing the test
- Know temperature and humidity requirements
- Know number of specimens required for each cement
- Know requirements for preparation of specimen molds
- Know and perform weighing/measuring quantities of dry materials and water required for mortar mix
- Know and perform preparation of specimen molds
- Know and perform mixing procedure
- Know and perform procedures for filling specimen molds
- Know and perform requirements for initial storage
- Know and perform requirements for storage after initial storage
- Perform length measurement on bar
- Know and perform the timing requirements for taking initial length comparator measurement
- Know and perform the timing requirements for taking additional length comparator measurement
- Understand length change calculation
- Understand reporting requirements

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Job-Task Analysis (JTA) for ACI Cement Physical Tester Certification (Continued)

ASTM C185—Standard Test Method for Air Content of Hydraulic Cement Mortar

- Understand the scope and significance of the test method
- Know the required equipment necessary to perform the test
- Know the requirements of necessary equipment
- Know temperature and humidity requirements
- Know and perform mixing procedure, including order and timing
- Know and perform batch proportions for this method
- Know and perform flow test, including knowing acceptable range for this test
- Know and perform procedures for filling of 400-mL cup
- Know timing requirements for filling 400-mL cup
- Know and perform cleaning and weighing of 400-mL cup
- Understand air content calculation
- Understand reporting requirements for air content

ASTM C187—Standard Test Method for Amount of Water Required for Normal Consistency of Hydraulic Cement Paste

- Understand the significance and use of the test method
- Know the required equipment necessary to perform the test
- Know the requirements of necessary equipment
- Know temperature and humidity requirements
- Know and perform mixing procedure, including order and timing
- Know and perform molding of the test specimen
- Know all timing requirements related to molding test specimen
- Know and perform consistency determination
- Know and perform all timing requirements related to consistency determination
- Know how to calculate the water requirement
- Know reporting requirements

ASTM C191—Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle

- Understand the scope and significance of the test method
- Know the required equipment necessary to perform the test
- Know the requirements of necessary equipment
- Know temperature and humidity requirements
- Know and perform mixing procedure and molding of the test specimen per Normal Consistency (C187)
- Know all timing requirements related to molding specimen as per Normal Consistency (C187)
- Know and perform time of setting determination (one cycle)

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Job-Task Analysis (JTA) for ACI Cement Physical Tester Certification (Continued)

- Know and perform all timing requirements related to time of setting
- Know how to interpolate initial time of setting
- Know how to determine final set
- Know reporting requirements

ASTM C204—Standard Test Methods for Fineness of Hydraulic Cement by Air-Permeability Apparatus

- Understand the scope and significance of the test method
- Know the required equipment necessary to perform the test
- Know the requirements of necessary equipment
- Know how to determine the bed volume and calculate cement weight
- Know and perform preparation of the cement bed
- Know and perform permeability test including the airtight connection and temperature checks
- Know how to calculate the specific surface values
- Know reporting requirements

ASTM C305—Standard Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency

- Understand the significance and use of this practice
- Know the required equipment necessary to perform mixing of cements and mortars
- Know the requirements of necessary equipment
- Know temperature and humidity requirements of room
- Know temperature requirements of the water and dry materials
- Know and perform mixing procedure for pastes, including order and timing
- Know and perform mixing procedure for mortars, including order and timing

ASTM C430—Standard Test Method for Fineness of Hydraulic Cement by the 45- μ m (No. 325) Sieve

- Understand the scope and significance of the test method
- Know the required equipment necessary to perform the test
- Know the requirements of necessary equipment
- Know how to determine the Sieve Correction Factor
- Know and perform the procedure
- Know acceptable cleaning procedure and frequency
- Know how to calculate the fineness

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Job-Task Analysis (JTA) for ACI Cement Physical Tester Certification (Continued)

ASTM C490—Standard Practice for Determination of Length Change of Hardened Cement Paste, Mortar, and Concrete

- Understand the scope and significance of this practice
- Know and understand what length change is
- Know and understand what gage length is
- Know the requirements of molds for test specimens
- Know the requirements for gage studs used for test specimens
- Know the requirements for preparation of the molds for use
- Know the requirements for the comparator and the reference bar
- Know and perform the length measurement procedure
- Know procedure for length measurements of specimens stored in moist conditions

ASTM C1437—Standard Test Method for Flow of Hydraulic Cement

- Understand the scope and significance of the test method
- Know the required equipment necessary to perform the test
- Know the requirements of necessary equipment
- Know temperature and humidity requirements
- Know and perform filling the mold (*can be performed as part of C185 or C109 demonstration)
- Know all timing requirements related to filling mold
- Know and perform removing mold, dropping table, and measuring the flow
- Know and perform flow calculation