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Standard Practice for Organizations Engaged in the Certification of Personnel Testing and Inspecting Bituminous Paving Materials[1]

This standard is issued under the fixed designation D 5506; 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 reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers a standard for establishing evaluation and certification procedures for personnel engaged in testing and inspecting bituminous paving materials in accordance with specified test methods and is intended for use by independent organizations providing certification services.

NOTE 1—Refer to Specifications D 3666 for information on the minimum requirements for agencies testing and inspecting bituminous paving materials and to Practice D 4561 for information on quality control systems for organizations producing and applying bituminous paving materials.

1.2 Qualification for certification candidates, qualifications of those administering the certification examinations, methods of administering the certification tests, and certain certification organization operating requirements are given.

1.3 Competency determination typically includes a monitored written examination and a performance evaluation.

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. Referenced Documents

2.1 *ASTM Standards:* [2]

D 2726 Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures

D 3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

D 4561 Practice for Quality Control Systems for Organizations Producing and Applying Bituminous Paving Materials

2.2 *AASHTO Standard:*[3]

AASHTO T-164 Quantitative Extraction of Bitumen from Bituminous Paving Mixtures

2.3 *Other Documents:*

Development, Administration, Scoring and Reporting of Credentialing Examinations: Recommendations for Board Members, March 1993.[4]

Guidelines for Engineering and Related Specialty Certification Programs, June 1991.[5]

Guidelines for Non-Written Examinations, January 1991.[6]

Principles of Fairness: An Examining Guide for Credentialing Boards, February 1993.[7]

Standards for Accreditation of National Certification Organizations, July 1995.[6]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *accreditation*—the formal recognition that a certification organization and its program(s) conform to a set of requirements established by a nationally recognized accreditation body.

3.1.2 *certificant*—an individual who has been certified by a certification organization.

3.1.3 *certification*—an action that determines and announces that an individual has fulfilled the pre-established requirements and is certified to perform the designated task(s) associated with a test method.

3.1.4 *certification organization*—an independent body engaged in the evaluation and credentialing of the knowledge, skills, and abilities of individuals who perform specified tasks.

3.1.5 *examinee*—certification applicant involved in the examination process.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from the American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Washington, DC 20001.

[4] Available from the Council on Licensure, Enforcement and Regulation (CLEAR), 403 Marquis Avenue, Suite 100, Lexington, KY 40502.

[5] Available from the Council of Engineering and Scientific Specialty Boards (CESB), 130 Holiday Court, Suite 100, Annapolis, MD 21401.

[6] Available from the National Commission for Certifying Agencies (NCCA), 1101 Connecticut Avenue, N.W., Suite 70, Washington, D.C. 20036.

[7] Available from The National Organization for Competency Assurance (NOCA), 1200 19th Street, N.W., Suite 300, Washington, D.C. 20036-2422.

3.1.6 *examiner*—a qualified professional who is responsible for administering and evaluating the performance examination component of the certification process.

3.1.7 *proctor*—a qualified individual who is responsible for administering the written examination component of the certification process.

3.1.8 *qualified professional*—a professional engineer or similar professional who is recognized by peers and associates as having expertise in testing and inspecting bituminous paving materials.

4. Significance and Use

4.1 This practice covers basic criteria for the structure and conduct of a certification organization, the development and operation of a certification program, and the development and use of customary mechanisms to evaluate a candidate's knowledge, skill, and ability. The qualifications of the examiner and limitations on the relationship between the examiner and the examinee are given.

4.2 The basic criteria covered by this practice are intended to be supplemented by more specific criteria serving the requirements of the certification organization.

5. Certification Organization

5.1 *Structure*:

5.1.1 The certification organization shall be administratively independent in matters pertaining to certification in order to avoid any possibility of a conflict of interest. Administratively independent means that all policy decisions relating to certification matters are the sole decision of the certification organization. They are not subject to approval by any other body.

5.1.1.1 A certification organization that is not a legal entity in and of itself shall provide proof that the organization's governing body is administratively independent in certification matters from the organization of which it is part.

5.1.2 The certification organization shall disclose, through the publication of a publicly available document, rules and procedures that describe how the certificant, employer, and specifying entity have input into the policies and decisions of the certification organization.

5.2 *Resources*:

5.2.1 The certification organization shall show that the organization has the financial resources to conduct the certification activities properly.

5.2.2 The certification organization shall disclose, through publication of a publicly available document, evidence that its staff possesses the knowledge and skill necessary to conduct the certification activities or has available, and makes use of, non-staff consultants and professionals to supplement staff knowledge and skill sufficiently.

5.3 *Responsibilities*:

5.3.1 The certification organization is responsible for ensuring fair and objective evaluation mechanisms.

5.3.2 At least annually, the certification organization shall publish a summary of certification activities to include the number tested, number passing the examinations, number certified, and, when applicable, number recertified.

5.3.3 The certification organization shall provide a mechanism for responding to inquiries from individuals and organizations wanting to verify that a particular individual has a specific certification.

5.4 *Records*:

5.4.1 The files of the certification organization should contain at least the following:

5.4.1.1 Examination identity and date administered,

5.4.1.2 Examination question source,

5.4.1.3 Identity and qualifications of the examiner, and

5.4.1.4 Examination question performance statistics.

5.5 *Evidence of Certification*:

5.5.1 Evidence of certification shall be issued by the organization to the candidate upon successful completion of the examinations. Certification shall include the date of certification; period of certification; and ASTM, AASHTO, or other test method or methods for which the examinee is qualified.

5.5.2 The test method shall be listed by the test method designation and year of the version used for certification, for example, Test Method D 2726 – 93a or AASHTO T-164-93.

5.6 *Accreditation*—A certification organization and it's program that are already accredited by the National Council for Certifying Agencies (NCCA) or by the Council of Engineering and Scientific Specialty Boards (CESB) shall be considered as having met the full intent of this practice.

6. Examiner

6.1 The examiner shall be a qualified individual, preferably a professional engineer, with proof of at least five years of experience in performing or supervising the performance of a variety of ASTM or AASHTO test methods, particularly those in the examination.

6.1.1 The examiner is responsible for providing as objective and consistent an evaluation environment as possible for all examinees.

6.1.2 The examiner shall not be a relative, supervisor, or associate (co-worker) of the examinee.

6.1.2.1 When there is a possibility of conflict of interest, documentation shall be attached to the examinee's file certifying that there is sufficient separation in the organization's structure between the examiner and examinee, and that it is not in the examiner's interest whether the examinee is certified.

7. Examinee

7.1 The examinee must be able to read, understand, and answer questions of the written examination and must be capable of performing required calculations, to place necessary data in forms or unformatted data tables, and personally perform the test method.

8. Certification and Recertification

8.1 The specific requirements for certification shall be established by the certification organization to reflect the needs of the represented industry and the job/practice analysis of the candidate pool.

8.2 The period of certification shall be established by the certification organization to reflect the rate of change in technology and common practices within the represented

industry. Certification shall be valid for a period not exceeding six years without recertification.

8.3 Recertification shall be achieved by examination, continued relevant work experience, continued relevant professional development, or by a combination thereof.

NOTE 2—An appropriate written examination should be given if sufficient changes to the test method have occurred that cannot be covered properly by the performance exam.

8.4 Discipline of certificants, including revocation of certification, shall occur only after due process is provided to all individuals involved.

9. Written Examination

9.1 The written examination shall be prepared by qualified persons thoroughly familiar with the test method(s). The examination may be in paper and pencil form or computer based. The examination shall be comprehensive and change periodically. All measures required to prevent compromise of the examination shall be taken.

9.1.1 When reasonable suspicion of compromise of an examination exists, that examination shall not be used.

9.2 The examination shall stress the essentials of the test method(s), as well as the details. In particular, common sources of error in performing the test should be the basis for a number of the examination questions. A basic understanding of the principles underlying the test method and the basis of some of the required calculations for the test method should also be stressed. The questions shall cover the test method elements such as apparatus, sample preparation, test procedures, calculations, and report requirements.

NOTE 3—See footnotes 5 and 8 for information on conducting written examination.

9.3 The written examinations shall be given in a room that provides the lighting level, noise control, work space, ventilation, and temperature control that is recognized universally as necessary for a testing facility in which written examinations are administered.

9.4 The examination shall be proctored by a person of integrity with appropriate training and experience in supervising written examinations.

10. Performance Evaluation

10.1 The performance evaluation shall be conducted in the form of a performance exam or a performance appraisal or a combination of both.

10.2 *Performance Examination*:

10.2.1 The performance examination for each test method shall be administered by at least two, preferably three, qualified examiners meeting the requirements of Section 6.

10.2.2 The examiner shall conduct the performance examination for a given test method in accordance with a pre-established evaluation guidelines that recognizes the steps that must be conducted to perform the test method properly.

NOTE 4—See footnotes 5, 7, and 8 for information on conducting oral and performance examinations.

10.2.3 The performance examination shall be given in an environment that duplicates or attempts to duplicate the environment in which that test method is normally conducted.

10.2.4 The scoring reports from the individual examiners shall be compared to obtain a consensus pass/fail result for the examinee.

10.3 *Performance Appraisal*:

10.3.1 The performance appraisal for each test or practice shall be administered by the candidate's immediate supervisor or his qualified equivalent meeting the requirements of section 6 (the examiner). He must have the technical expertise in the specialty area and must have first hand knowledge of the candidates job skills.

10.3.2 The performance appraisal for a given test method or practice shall be conducted in accordance with pre-established evaluation guidelines that recognize the steps that must be conducted to perform the test method properly and allows the evaluator to exercise professional judgement when actions are taken by the candidate which are not part of the documented procedure.

10.3.3 The appraisal must consider the individual's performance over time and under a variety of work conditions.

10.3.4 The results of the performance appraisal shall be validated by the supervising Professional Engineer or his qualified equivalent.

NOTE 5—Management and supervision staff requirements are found in specifications D 3666 in the section titled "Personnel Qualifications."

10.3.4.1 If the appraisal is conducted by the supervising Professional Engineer or his equivalent, then an appropriate mechanism shall be used to validate the results.

11. Keywords

11.1 certification; competency; evaluation; examination; examiner