

**Construction Materials Testing – Soils
Level III Selected General References**

Candidates are permitted to bring only the following references into the test center.

| <u>Title</u> | <u>Edition*</u> |
|--|-----------------|
| ASTM Section 4 Construction Volume 04.02 Concrete and Aggregates | 2016 |
| 1ASTM C117: Standard Test Method for Materials Finer than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing | 2013 |
| 2ASTM C128: Standard Test Method for Relative Density (Specific Gravity) and Absorption of Fine Aggregate | 2015 |
| 3ASTM C136/C136M: Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates | 2014 |
| 4ASTM C566: Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying | 2013 |
| 5ASTM C702/C702M: Standard Practice for Reducing Samples of Aggregate to Testing Size | 2011 |
| ASTM Section 4 Construction Volume 04.03 Road and Paving Materials; Vehicle-Pavement Systems | 2016 |
| 6ASTM D75/D75M: Standard Practice for Sampling Aggregates | 2014 |
| 13ASTM D1195/ D1195M: Standard Test Method for Repetitive Static Plate Load Tests of Soils and Flexible Pavement Components, for Use in Evaluation and Design of Airport and Highway Pavements | 2009(2015) |
| 14ASTM D1196/D1196M: Standard Test Method for Nonrepetitive Static Plate Load Tests of Soils and Flexible Pavement Components, for Use in Evaluation and Design of Airport and Highway Pavements | 2012 |
| ASTM Section 4 Construction Volume 04.08 Soil and Rock (I): D420-D5876 | 2016 |
| 7ASTM D558: Standard Test Methods for Moisture-Density (Unit Weight) Relations of Soil-Cement Mixtures | 2011 |
| 62ASTM D560/D560M: Standard Test Method for Freezing and Thawing Compacted Soil-Cement Mixtures | 2015 |
| 8ASTMD698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft ³ (600 kN-m/m ³)) | 2012e2 |
| 9ASTM D806: Standard Test Method for Cement Content of Hardened Soil-Cement Mixtures | 2011 |
| 10ASTM D854: Standard Test Methods for Specific Gravity of Soil Solids by Water Pycnometer | 2014 |
| 11ASTM D1140: Standard Test Methods for Determining the Amount of Material Finer than 75- μ m (No. 200) Sieve in Soils by Washing | 2014 |
| 12ASTM D1143/D1143M: Standard Test Methods for Deep Foundations Under Static Axial Compressive Load | 2007(2013) |
| 15ASTM D1452: Standard Practice for Soil Exploration and Sampling by Auger Borings | 2009 |
| 16ASTM D1556/D1556M: Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method | 2015e1 |
| 17ASTM D1557: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³ (2,700kN-m/m ³)) | 2012e1 |
| 18ASTM D1586: Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils | 2011 |
| 19ASTM D1587/D1587M: Standard Practice for Thin-Walled Tube Sampling of Fine-Grained Soils for Geotechnical Purposes | 2015 |



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| 20 | ASTM D1883: Standard Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils | 2014 |
| 21 | ASTM D2113: Standard Practice for Rock Core Drilling and Sampling of Rock for Site Exploration | 2014 |
| 22 | ASTM D2166/D2166M: Standard Test Method for Unconfined Compressive Strength of Cohesive Soil | 2013 |
| 23 | ASTM D2167: Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method | 2015 |
| 24 | ASTM D2216: Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass | 2010 |
| 25 | ASTM D2435/D2435M: Standard Test Methods for One-Dimensional Consolidation Properties of Soils Using Incremental Loading | 2011 |
| 63 | ASTM D2487: Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) | 2011 |
| 64 | ASTM D2488: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) | 2009a |
| 26 | ASTM D2844/D2844M: Standard Test Method for Resistance R-Value and Expansion Pressure of Compacted Soils | 2013 |
| 27 | ASTM D2850: Standard Test Method for Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils | 2015 |
| 28 | ASTM D2937: Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method | 2010 |
| 29 | ASTM D2974: Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils | 2014 |
| 30 | ASTM D3080/D3080M: Standard Test Method for Direct Shear Test of Soils Under Consolidated Drained Conditions | 2011 |
| 65 | ASTM D3385: Standard Test Method for Infiltration Rate of Soils in Field Using Double-Ring Infiltrometer | 2009 |
| 31 | ASTM D3740: Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction | 2012a |
| 32 | ASTM D4186/D4186M: Standard Test Method for One-Dimensional Consolidation Properties of Saturated Cohesive Soils Using Controlled-Strain Loading | 2012e1 |
| 33 | ASTM D4220/D4220M: Standard Practices for Preserving and Transporting Soil Samples | 2014 |
| 34 | ASTM D4221: Standard Test Method for Dispersive Characteristics of Clay Soil by Double Hydrometer | 2011 |
| 35 | ASTM D4318: Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils | 2010e1 |
| 66 | ASTM D4429: Standard Test Method for CBR (California Bearing Ratio) of Soils in Place | 2009 |
| 36 | ASTM D4546: Standard Test Methods for One-Dimensional Swell or Collapse of Soils | 2014 |
| 37 | ASTM D4829: Standard Test Method for Expansion Index of Soils | 2011 |
| 38 | ASTM D4972: Standard Test Method for pH of Soils | 2013 |
| 39 | ASTM D5084: Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter | 2010 |
| 40 | ASTM D5093: Standard Test Method for Field Measurement of Infiltration Rate Using Double-Ring Infiltrometer with Sealed-Inner Ring | 2015 |
| 41 | ASTM D5434: Standard Guide for Field Logging of Subsurface Explorations of Soil and Rock | 2012 |



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| ASTM Section 4 Construction Volume 04.09 Soil and Rock (II): D5878-latest | 2016 |
| 42ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis | 2004(2009)e1 |
| 43ASTM D6938: Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth) | 2015 |

*** The test questions are based on the standard editions listed above; therefore, candidates are strongly urged to bring these editions to the exam. Note: Test questions are based on the standard editions listed above; therefore, candidates are strongly urged to bring these published year editions to the exam. Note: candidates may bring older or newer editions—instead of the editions listed above—at their own risk. Exam comments that are made based on other published edition years, will not be reviewed until the next maintenance cycle. Candidates are responsible for reviewing the content outline and bringing in allowable printed references that are applicable to what is being tested. Acceptable references may be copied in whole or part.**

Note: References must be bound or secured in a three-ring binder with a title page (example provided on the main program page). They may have highlighted text and self-adhesive index tabs or dividers, however they must be permanently attached. No other additions or modifications to the references are allowed. Handwritten notes are NOT permitted. References with loose paper or pages and freestanding tabs (e.g., repositionable sticky notes/tabs of any kind) are not permitted into the testing centers.

During the exam, the following titles will be available to candidates **on-screen only**:

| <u>Title</u> | <u>Edition*</u> |
|--|-----------------|
| 45AASHTO R 18: Standard Recommended Practice for Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories | 2017 |
| 46AASHTO R 25: Standard Practice for Technician Training and Qualification Programs | 2000 |
| 47AASHTO T 27: Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates | 2014 |
| 48AASHTO T 134: Standard Method of Test for Moisture-Density Relations of Soil-Cement Mixtures | 2005 |
| 49AASHTO T 218: Standard Method of Test for Sampling Hydrated Lime | 1986 |
| 50AASHTO T 225: Standard Method of Test for Diamond Core Drilling for Site Investigation | 2016 |
| 51AASHTO T 307: Standard Method of Test for Determining the Resilient Modulus of Soils and Aggregate Materials | 1999 |

*Test questions are based on the editions listed above. These editions will be available to candidates during the exam in PDF format.

In addition to the references listed above, the following publications can provide some of the job knowledge required by a construction material testing technician. While these books may help prepare for the exam, they are NOT permitted in the test center.

- 52ASTM C187 (2016): Standard Test Method for Amount of Water Required for Normal Consistency of Hydraulic Cement Paste, American Society for Testing and Materials (ASTM)
- 53ASTM C50/C50M (2013): Standard Practice for Sampling, Sample Preparation, Packaging, and Marking of Lime and Limestone Products, American Society for Testing and Materials (ASTM)
- 44ASTM D7928 (2016e1): Standard Test Method for Particle-Size Distribution (Gradation) of



Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis

54ASTM E11 (2016): Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves, American Society for Testing and Materials (ASTM)

55ASTM G57-06 (2012): Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method, American Society for Testing and Materials (ASTM)

56FHWA-NHI-01-031: Subsurface Investigations - Geotechnical Site Characterization (2002), U.S. Department of Transportation Federal Highway Administration (FHWA)

57OSHA Hazard Communication Standard, Occupational Safety and Health Administration (OSHA)

58OSHA 29 CFR 1910: Occupational Safety and Health Standards Occupational Safety and Health Administration(OSHA)

59OSHA 29 CFR 1926: Safety and Health Regulations for Construction, Occupational Safety and Health Administration (OSHA)

60OSHA 35144: Hazard Communication Standard: Safety Data Sheets, Occupational Safety and Health Administration (OSHA)

61Geotechnical Testing, Observation, and Documentation, 2nd edition (2008), Tim Davis, ASCE Press

➤ This listing is not intended to be complete or representative.

February 5, 2022

[footnote number is linked to a task on the Content Outline](#)