

REQUEST FOR USACE LABORATORY VALIDATION

The USACE validation of engineering testing laboratories is administered and executed by the Director of the Materials Testing Center, located at the USACE Engineer Research and Development Center in Vicksburg, Mississippi. The program was established under USACE Engineer Regulation 1100-1-8100 (31 DEC 1997) and Engineer Regulation 1110-1-261 (Updated 15 JUN 1999).

The validation of a laboratory is executed according to the number of methods required for validation, AASHTO accreditations (if present), and the laboratory's function. The following are the TYPICAL validation scenarios. The Director of the MTC will determine, based on a laboratory's specific circumstances, how a validation will be performed to meet the standards of the USACE and the MTC.

1. **Onsite Inspection** – for laboratories that do not possess current AASHTO accreditations and who require the validation of more than 7 ASTM methods, an onsite inspection, typically requiring up to two full working days to complete, including review of the quality system, inspection of equipment and facilities, and interviews with technicians performing the tests on procedures, calculations, and reporting.
2. **Desk Audit** – for laboratories that do not possess current AASHTO accreditations but only require the validation of 7 or less ASTM methods, the process involves submittals (usually by email) of quality system documentation, digital photographs and facilities, current calibration certificates, personnel qualification documentation, brief and concise written description of procedures, completed data sheets, and final test reports.
3. **Abbreviated Audit** – for laboratories that possess current AASHTO accreditations as stated on the AASHTO website, validation of any methods accredited by AASHTO can be done by submittal of the latest reports from AMRL and/or CCRL.

Once we receive your request for a validation, we will determine the best validation path and provide you with the cost estimate, and a Testing Services Agreement (TSA), which will be executed by an officer of your company. Once we receive the TSA and bank check from your laboratory, the TSA is then executed at the MTC and the check processed. This usually takes 10-15 business days. We will then contact you to set up the onsite inspection and/or begin the audit.

ATTENTION: In order for the MTC to execute ANY validation, the Federal Government requires your laboratory to register with the System for Award Management (SAM), which can be done at www.sam.gov, and provide us with a Commercial and Government Entity (CAGE) Code. When you register with SAM.GOV, you will be assigned a new CAGE Code if one does not exist. If you have an existing code, your information will be updated. There is no fee associated with SAM.GOV or obtaining a CAGE CODE.

In general, the process to validate a laboratory typically takes at least 30 days (15 days to process payments and TSAs, conduct audits, and process validations) and up to 60-90 days if the validation requires an onsite inspection and report.

REQUEST FOR LABORATORY VALIDATION FORM

Please fill in **ALL** of the information on this form below. **Failure to fill out all the information will delay your request and validation process.** Once completed, please email the form to the following email address (this is the fastest way to process) or you can mail the request to the mailing address listed:

E-mail: Brittany.N.Hopkins@usace.army.mil

**U.S. Army Engineer Research and Development Center
ATTN: Ms. Brittany N. Hopkins, CEERD-GMC
3909 Halls Ferry Road
Vicksburg, MS 39180-6199
Phone: (601) 634-2142 Fax: (601) 634-3242**

DATE OF REQUEST: _____

LABORATORY NAME: _____

LABORATORY ADDRESS/LOCATION: _____

LABORATORY POINT OF CONTACT: _____

LABORATORY POINT OF CONTACT EMAIL: _____

LABORATORY PHONE: _____ LABORATORY FAX: _____

LABORATORY MAILING ADDRESS: _____

Is the lab to be validated a satellite/portable lab reporting to a permanent laboratory location? _____

If the answer is yes, please provide the name and address/location of the permanent laboratory location responsible for the satellite/portable lab: _____

LABORATORY SAM# (CAGE CODE): _____
FAILURE TO PROVIDE YOUR CAGE CODE WILL DELAY YOUR VALIDATION PROCESS.

WHO IS YOUR USACE DISTRICT CONTACT? _____

USACE DISTRICT CONTACT PHONE: _____

IN WHAT TESTING AREAS DO YOU REQUIRE VALIDATION?

Aggregates ____ Bituminous ____ Concrete ____ Masonry ____ Rock ____ Soils ____

The U.S. Army Corps of Engineers Materials Testing Center (MTC) does not certify nor does it provide any accreditation to laboratories. The MTC conducts inspections to validate the capability of a laboratory to perform specific tests as required by contract with the U.S. Army Corps of Engineers.

The following questions concern the quality assurance system of the laboratory location being validated.

Please be aware that AASHTO accreditation of a permanent laboratory location CANNOT be transferred to a satellite/portable laboratory location. However, satellite/portable laboratories that operate under the responsibility of a permanent laboratory location that is AASHTO accredited can use the Quality Assurance System credentials of the parent lab for their validation process. This usually results in a discount of cost for validation of a satellite/portable laboratory.

**LABORATORY QUALITY ASSURANCE SYSTEM QUESTIONNAIRE
(ASTM C 1077-16, C 1093-15, D 3666-16, D 3740-12, E 329-14)**

| QUALITY SYSTEM | | YES | NO |
|--|-------------|------------|-----------|
| Does the laboratory maintain a quality manual? | | | |
| Does the laboratory participate in proficiency testing programs in any of the testing areas requested for this validation? (If an area was not requested above please check "No" for that area.) | Aggregates? | | |
| | Bituminous? | | |
| | Concrete? | | |
| | Masonry? | | |
| | Soils? | | |

| TECHNICIAN CERTIFICATIONS | Number |
|---|---------------|
| How many of your laboratory technicians are certified by the American Concrete Institute (ACI)? (If none then "N/A") | |
| How many of your laboratory technicians are certified by the National Institute for Certification in Engineering Technologies (NICET)? (If none then "N/A") | |

| ACCREDITATION PROGRAMS *****SEE NOTE BELOW***** | YES | NO |
|---|------------|-----------|
| Does the lab have current accreditation with AASHTO (AMRL)? | | |

| INSPECTIONS | Date |
|---|-------------|
| Date of the last inspection by the MTC (USACE): (If none then "N/A") | |
| Date of last inspection by AASHTO Materials Reference Lab (AMRL): (If none then "N/A") | |
| Date of last inspection by Cement and Concrete Reference Lab (CCRL): (If none then "N/A") | |

*******If you are AASHTO accredited, you are required to send us a copy of your most recent inspection from AMRL and/or CCRL.*******

Aggregate Inspection Checklist

Please mark the test methods to be validated during this inspection to include the laboratory's full capabilities. Mark the last column if a test method has been previously inspected by AMRL or CCRL within the past two years.

If a test method is not listed, add your required test method at the bottom of the checklist:

| Test Method | Test Procedure | No. | Check | AMRL/CCR Inspection |
|--|---|-----|-------|------------------------|
| REQUIRED TESTS PER ASTM C 1077-16 | | | | |
| ASTM C 117-17 | Material Finer than 75 :µm (No. 200) Sieve | A1 | | |
| ASTM C 127-15 | Specific Gravity & Absorption in Coarse Aggregate | A2 | | |
| ASTM C 128-15 | Specific Gravity & Absorption in Fine Aggregate | A3 | | |
| ASTM C 136-14 | Sieve Analysis of Aggregates | A4 | | |
| OPTIONAL TESTS PER ASTM C1077-16 | | | | |
| ASTM C 29-17 | Unit Weight and Voids in Aggregate | A5 | | |
| ASTM C 40-16 | Organic Impurities | A6 | | |
| ASTM C 70-13 | Surface Moisture in Fine Aggregate | A7 | | |
| ASTM C 87-17 | Effects of Organic Impurities on Mortar Strength | A8 | | |
| ASTM C 88-13 | Sulfate Soundness | A9 | | |
| ASTM C 123-14 | Lightweight Particles | A10 | | |
| ASTM C 131-14 | Los Angeles Abrasion Resistance on Small-Size Coarse Aggregate | A11 | | |
| ASTM C 142-17 | Clay Lumps | A12 | | |
| ASTM C 227-10 | Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar) | A13 | | |
| ASTM C 295-12 | Petrographic Examination | A14 | | |
| ASTM C 441-11 | Effectiveness of Mineral Admixtures or GBFS on Preventing | A15 | | |
| ASTM C 535-16 | Los Angeles Abrasion Resistance on Large Size Coarse Aggregate | A11 | | |
| ASTM C 566-13 | Total Moisture Content | A16 | | |
| ASTM C 586-11 | Alkali Reactivity of Carbonate Rocks (Rock Cylinder Method) | A17 | | |
| ASTM C 641-09 | Staining Materials in Lightweight Aggregates | A18 | | |
| ASTM C 702-11 | Reducing Samples to Testing Size | A19 | | |
| ASTM C 1105-08 (16) | Length Change Due to Alkali-Carbonate Reaction | A20 | | |
| ASTM C 1138-12 | Abrasion Resistance of Concrete (Underwater Method) | A21 | | |
| ASTM C 1260-14 | Potential Alkali Reactivity of Aggregates (Mortar-Bar Method) | A22 | | |
| ASTM C 1293-08 (15) | Length Change Alkali-Silica Reaction | A23 | | |
| ASTM D 75-14 | Sampling | A24 | | |
| ASTM D 546-10 | Sieve Analysis of Mineral Filler | A25 | | |
| ASTM D 2419-14 | Sand Equivalent Value | A26 | | |
| ASTM D 3744-11 | Aggregate Durability Index | A27 | | |
| ASTM D 4791-10 | Flat or Elongated Particles | A28 | | |
| ASTM D 5821-13 | Percentage of Fractured Particles in Coarse Aggregate | A29 | | |
| CRD-C 104-80 | Fineness Modulus | A4 | | |
| CRD-C 119-91 | Flat and Elongated Particles | A28 | | |
| CRD-C 130-89 | Scratch Hardness | A30 | | |
| CRD-C 171-94 | Percentage of Crushed Particles in Aggregate | A31 | | |

Bituminous Inspection Checklist

Please mark the test methods to be validated during this inspection to include the laboratory's full capabilities. Mark the last column if a test method has been previously inspected by AMRL within the past two years.

If a test method is not listed, add your required test method at the bottom of the checklist:

| Test Method | Test Procedure (ASTM D 3666-16) | No. | Check | AMRL Inspection |
|---------------------|--|-----|-------|--------------------|
| ASTM D 5-13 | Penetration | B1 | | |
| ASTM D 36-14 | Softening Point | B2 | | |
| ASTM D 70-17 | Density of Semi-Solid Bituminous Mat'ls (Pycnometer Method) | B3 | | |
| ASTM D 139-16 | Float Test | B4 | | |
| ASTM D 140-16 | Sampling Bituminous Materials | B5 | | |
| ASTM D 243-14 | Penetration Residue | B6 | | |
| ASTM D 244-09 (17) | Emulsified Asphalts | B7 | | |
| ASTM D 402-14 | Distillation of Cut-Back Asphalts | B8 | | |
| ASTM D 979-15 | Sampling Bituminous Paving Mixtures | B9 | | |
| ASTM D 1074-17 | Compressive Strength | B10 | | |
| ASTM D 1075-11 | Effect of Water on Compressive Strength | B11 | | |
| ASTM D 1188-07 (15) | Bulk Specific Gravity & Density Using Coated Samples | B12 | | |
| ASTM D 1461-17 | Moisture or Volatile Distillates in Bituminous Paving Mixtures | B13 | | |
| ASTM D 1560-15 | Resistance to Deformation & Cohesion by Hveem | B14 | | |
| ASTM D 1561-13 | Preparation by CA Kneading Compactor | B15 | | |
| ASTM D 1754-09 (14) | Effect of Heat & Air by Thin Film Oven | B16 | | |
| ASTM D 1856-09 (15) | Recovery of Asphalt by Abson | B17 | | |
| ASTM D 2041-11 | Theoretical Maximum Specific Gravity & Density (Rice) | B18 | | |
| ASTM D 2042-15 | Solubility by Trichloroethylene | B19 | | |
| ASTM D 2170-10 | Kinematic Viscosity | B20 | | |
| ASTM D 2171-10 | Viscosity by Vacuum Capillary Viscometer | B21 | | |
| ASTM D 2172-17 | Quantitative Extraction | B22 | | |
| ASTM D 2726-17 | Bulk Specific Gravity and Density | B23 | | |
| ASTM D 2872-12 | Effect of Heat & Air on Moving Film by Rolling Thin Film Oven | B24 | | |
| ASTM D 2950-14 | Density of Bituminous Concrete in Place by Nuclear Methods | B25 | | |
| ASTM D 3142-17 | Density of Liquid Asphalts by Hydrometer | B26 | | |
| ASTM D 3203-17 | Percent Air Voids | B27 | | |
| ASTM D 3289-17 | Density by Nickel Crucible | B28 | | |
| ASTM D 3665-12 (17) | Random Sampling of Construction Materials | B29 | | |
| ASTM D 4125-10 (16) | Asphalt Content by Nuclear Method | B30 | | |
| ASTM D 4867-09 (14) | Effect of Moisture | B31 | | |
| ASTM D 5404-12 (17) | Asphalt Recovery by Rotary Evaporator | B32 | | |
| ASTM D 5444-15 | Mechanical Size Analysis of Extracted Aggregate | B33 | | |
| ASTM D 6307-16 | Asphalt Content of Hot-Mix Asphalt by Ignition Method | B34 | | |
| ASTM D 6925-15 | Relative Density of Asphalts by Superpave Gyrotory Compactor | B35 | | |
| ASTM D 6926-16 | Preparation of Bituminous Specimens using Marshall | B36 | | |
| ASTM D 6927-15 | Marshall Stability and Flow of Bituminous Mixtures | B37 | | |
| CRD-C 650-95 | Density and Percent Voids | B38 | | |
| | | | | |

Concrete Inspection Checklist

Please mark the test methods to be validated during this inspection to include the laboratory's full capabilities. Mark the last column if a test method has been previously inspected by CCRL within the past two years.

If a test method is not listed, add your required test method at the bottom of the checklist:

| Test Method | Test Procedure | No. | Check | CCRL |
|--|---|-----|-------|------|
| REQUIRED TESTS PER ASTM C 1077-16 | | | | |
| ASTM C 31-15 | Making and Curing Test Specimens in the Field | C1 | | |
| ASTM C 39-17 | Compressive Strength of Cylindrical Specimens | C2 | | |
| ASTM C 138-17 | Unit Weight and Air Content by Gravimetric | C3 | | |
| ASTM C 143-15 | Slump | C4 | | |
| ASTM C 172-14 | Sampling | C5 | | |
| ASTM C 173-16 | Air Content by Volumetric ***required if C231 not performed*** | C6 | | |
| ASTM C 231-17 | Air Content by Pressure ***required if C173 not performed*** | C7 | | |
| ASTM C 1064-12 | Temperature of Concrete | C8 | | |
| OPTIONAL TESTS PER ASTM C 1077-16 | | | | |
| ASTM C 42-16 | Drilled Cores and Sawed Beams | C9 | | |
| ASTM C 78-16 | Flexural Strength by Third Point Loading | C10 | | |
| ASTM C 157-08 (14) | Length Change of Concrete and Mortars | C11 | | |
| ASTM C 174-17 | Concrete Thickness by Drilled Cores | C12 | | |
| ASTM C 192-16 | Making and Curing Test Specimens in Laboratory | C13 | | |
| ASTM C 215-14 | Fundamental Frequencies of Concrete | C14 | | |
| ASTM C 232-14 | Bleeding of Concrete | C15 | | |
| ASTM C 293-16 | Flexural Strength by Center Point Loading | C16 | | |
| ASTM C 341-13 | Length Change of Drilled or Sawed Concrete | C17 | | |
| ASTM C 403-16 | Time of Setting by Penetration Resistance | C18 | | |
| ASTM C 418-12 | Abrasion Resistance by Sand Blasting | C19 | | |
| ASTM C 457-16 | Air-Void System by Microscopic Determination | C20 | | |
| ASTM C 469-14 | Static Modulus of Elasticity and Poisson's Ratio | C21 | | |
| ASTM C 470-15 | Molds for Forming Concrete Test Cylinders Vertically | C22 | | |
| ASTM C 490-17 | Apparatus for Length Change of Cement Paste, Mortar, & Concrete | C23 | | |
| ASTM C 495-12 | Compressive Strength of Lightweight Insulating Concrete | C24 | | |
| ASTM C 496-11 | Splitting Tensile Strength | C25 | | |
| ASTM C 511-13 | Moist Cabinets, Moist Rooms, Water Storage Tanks | C26 | | |
| ASTM C 512-15 | Creep of Concrete in Compression | C27 | | |
| ASTM C 567-14 | Unit Mass of Structural Lightweight Concrete | C28 | | |
| ASTM C 597-16 | Pulse Velocity Through Concrete | C29 | | |
| ASTM C 617-15 | Capping Cylindrical Specimens | C30 | | |
| ASTM C 642-13 | Density, Absorption, and Voids | C31 | | |
| ASTM C 666-15 | Freezing & Thawing Concrete Specimens | C32 | | |
| ASTM C 672-12 | Scaling Resistance by Deicing Chemicals | C33 | | |
| ASTM C 779-12 | Abrasion Resistance of Horizontal Surfaces | C34 | | |
| ASTM C 803-17 | Penetration Resistance of Hardened Concrete | C35 | | |
| ASTM C 805-13 | Rebound Number of Hardened Concrete | C36 | | |
| ASTM C 823-12 (17) | Examination and Sampling Hardened Concrete in Construction | C37 | | |

Concrete Inspection Checklist Continued

Please mark the test methods to be validated during this inspection to include the laboratory's full capabilities. Mark the last column if a test method has been previously inspected by CCRL within the past two years.

If a test method is not listed, add your required test method at the bottom of the checklist:

| Test Method | OPTIONAL TESTS PER ASTM C 1077-16 | No. | Check | CCRL |
|---------------------|--|-----|-------|------------|
| ASTM C 856-17 | Petrographic Examination of Hardened Concrete | C38 | | Inspection |
| ASTM C 873-15 | Compressive Strength of Cast in Place Cylinders | C39 | | |
| ASTM C 876-15 | Half-Cell Potentials of Uncoated Reinforcing Steel | C40 | | |
| ASTM C 900-15 | Concrete Pullout Strength | C41 | | |
| ASTM C 918-13 | Early Age Compression Test | C42 | | |
| ASTM C 944-12 | Abrasion Resistance by Rotating-Cutter Method | C43 | | |
| ASTM C 1040- 16 | Density of Concrete by Nuclear Method | C44 | | |
| ASTM C 1074-11 | Estimating Concrete Strength by Maturity Method | C45 | | |
| ASTM C 1084-10 | Portland Cement Content of Hardened Concrete | C46 | | |
| ASTM C 1152-04 (12) | Acid-Soluble Chloride in Concrete | C47 | | |
| ASTM C 1202-12 | Electrical Indication of Concrete to Resist Chloride Ion | C48 | | |
| ASTM C 1218-17 | Water-Soluble Chloride in Concrete | C49 | | |
| ASTM C 1231-15 | Unbonded Caps | C50 | | |
| CRD-C 114-97 | Soundness by Freezing and Thawing of Concrete | C51 | | |

What is the capacity of the compression testing machine(s)? _____

How many ranges are associated with the test machine(s)? _____

Masonry Inspection Checklist

Please mark the test methods to be validated during this inspection to include the laboratory's full capabilities. Mark the last column if a test method has been previously inspected by AMRL or CCRL within the past two years.

If a test method is not listed, add your required test method at the bottom of the checklist:

| Test Method | Test Procedure (ASTM C 1093-15) | No. | Check | CCRL |
|----------------|---|-----|-------|-------------------|
| | | | | Inspection |
| ASTM C 109-16 | Compressive Strength of Cement Mortars Using Cube Specimens | M1 | | |
| ASTM C 140-17 | Sampling and Testing Concrete Masonry and Related Units | M2 | | |
| ASTM 151-16 | Autoclave Expansion of Portland Cement | M3 | | |
| ASTM C 185-15 | Air Content of Hydraulic Cement Mortar | M4 | | |
| ASTM C 187-16 | Normal Consistency of Hydraulic Cement | M5 | | |
| ASTM C 266-15 | Time of Setting of Hydraulic-Cement Paste by Gillmore Needles | M6 | | |
| ASTM C 305-14 | Mechanical Mixing of Cement Pastes & Mortars of Plastic Consistency | M7 | | |
| ASTM C 780-17 | Evaluation of Mortars for Plain and Reinforced Unit Masonry | M8 | | |
| ASTM C 1019-18 | Sampling and Testing Grout | M9 | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Rock Inspection Checklist

Please mark the test methods to be validated during this inspection to include the laboratory's full capabilities. Mark the last column if a test method has been previously inspected by AMRL or CCRL within the past two years.

If a test method is not listed, add your required test method at the bottom of the checklist:

| Test Method | Test Procedure (ASTM D 3740-12) | No. | Check | AMRL/CCRL Inspection |
|---------------------|--|-----|-------|-------------------------|
| ASTM D 3967-16 | Tensile Strength, Splitting (Brazilian) Method | R1 | | |
| ASTM D 4435-13 | Rock Bolt Anchor Pull Test | R2 | | |
| ASTM D 4543-08 | Preparing Rock Core Specimens and Determining Tolerances | R3 | | |
| ASTM D 4644-16 | Slake Durability of Shales and Weak Rocks | R4 | | |
| ASTM D 5312-12 (13) | Durability of Rock to Freezing and Thawing | R5 | | |
| ASTM D 5313-12 (13) | Durability of Rock to Wetting and Drying | R6 | | |
| ASTM D 5607-16 | Laboratory direct Shear Tests on Rock Under Constant Normal | R7 | | |
| ASTM D 5731-16 | Point Load Index | R8 | | |
| ASTM D 5878-08 | Rock-Mass Classification for Engineering Purposes | R9 | | |
| ASTM D 7012-14 | Compressive Strength & Elastic Moduli of Rock Core Specimens | R10 | | |
| CRD-C 144-92 | Resistance of Rock to Freezing and Thawing | R5 | | |
| CRD-C 148-69 | Expansive Breakdown on Soaking in Ethylene Glycol | R12 | | |
| CRD-C 169-97 | Resistance of Rock to Wetting and Drying | R6 | | |
| | | | | |

Soils Inspection Checklist

Please mark the test methods to be validated during this inspection to include the laboratory's full capabilities. Mark the last column if a test method has been previously inspected by AMRL within the past two years.

If a test method is not listed, add your required test method at the bottom of the checklist:

| Test Method | Test Procedure (ASTM D 3740-12) | No. | Check | AMRL Inspection |
|---------------------|---|-----|-------|--------------------|
| ASTM D 421-85 (07) | Dry Preparation for Particle Size Distribution & Soil Constants | S1 | | |
| ASTM D 422-63 (07) | Particle Size Analysis | S2 | | |
| ASTM D 558-11 | Moisture-Density of Soil-Cement | S3 | | |
| ASTM D 559-15 | Wetting & Drying Soil-Cement | S4 | | |
| ASTM D 560-16 | Freezing & Thawing Soil-Cement | S5 | | |
| ASTM D 698-12 | Compaction Characteristics by Standard Effort | S6 | | |
| ASTM D 854-14 | Specific Gravity of Soils | S7 | | |
| ASTM D 1140-17 | Material Finer than 75 :m (No. 200) Sieve | S8 | | |
| ASTM D 1556-15 | Density & Unit Weight by Sand Cone | S9 | | |
| ASTM D 1557-12 | Compaction Characteristics by Modified Effort | S10 | | |
| ASTM D 1883-16 | CA Bearing Ratio (CBR) | S11 | | |
| ASTM D 2166-16 | Unconfined Compressive Strength | S12 | | |
| ASTM D 2167-15 | Density & Unit Weight by Rubber Balloon | S13 | | |
| ASTM D 2168-10 | Calibration of Laboratory Mechanical-Rammer Soil Compactors | S14 | | |
| ASTM D 2216-10 | Water Content | S15 | | |
| ASTM D 2435-11 | One-Dimensional Consolidation Properties | S16 | | |
| ASTM D 2487-11 | Classification of Soils | S17 | | |
| ASTM D 2488-17 | Description & Identification of Soils (Visual-Manual Procedure) | S18 | | |
| ASTM D 2850-15 | Unconsolidated, Undrained Strength in Triaxial Compression | S19 | | |
| ASTM D 2937-17 | Density by Drive Cylinder Method | S20 | | |
| ASTM D 2974-14 | Moisture, Ash, & Organic Matter of Peat & Other Organic Soils | S21 | | |
| ASTM D 3080-11 | Direct Shear Test in Consolidated Drained Conditions | S22 | | |
| ASTM D 4220-14 | Preserving & Transporting Samples | S23 | | |
| ASTM D 4253-16 | Maximum Index Density by Vibratory Table | S24 | | |
| ASTM D 4254-16 | Minimum Index Density | S23 | | |
| ASTM D 4318-17 | Liquid & Plastic Limits & Plasticity Index | S26 | | |
| ASTM D 4546-14 | One-Dimensional Swell or Settlement Potential | S27 | | |
| ASTM D 4643-17 | Determination of Water Content of Soil by Microwave Oven | S28 | | |
| ASTM D 4767-11 | Consolidated-Undrained Triaxial Compression | S29 | | |
| ASTM D 5084-16 | Hydraulic Conductivity using a Flexible Wall Permeameter | S30 | | |
| ASTM D 6913-03 (09) | Particle-Size Distribution of Soils Using Sieve Analysis | S31 | | |
| ASTM D 6938-17 | Density and Water Content by Shallow Depth Nuclear Method | S32 | | |
| | | | | |