Construction Materials Testing
Soils Certification

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Level 1 Content Outline

Technician Trainee

The candidates for NICET certification at Level I in Construction Materials Testing – Soils should have the knowledge, experience and basic skills needed to work in the industry. Under direct supervision, they become familiar with sampling standards (for example, ASTM and AASHTO); collect samples and follow sampling procedures; identify soil types; operate a nuclear gauge; reduce samples to testing size; perform lab tests, including proctor and Atterberg limits; perform testing of materials on the job site; perform basic math calculations; read with basic comprehension skills, grasping construction and materials terminology; read a map or plan; identify task-specific hazards; use safe practices such as wearing personal protective equipment; and verify current calibration and equipment operation for tests.

1.1 Personal and Worksite Safety

(Questions related to these tasks make up 1-9% of the exam.)

1.1.1 Determine and wear personal protective equipment (PPE). 40, 41
1.1.2 Inspect equipment. 5, 18, 23, 41
1.1.3 Identify unsafe conditions. 40, 41, 42, 43
1.1.4 Apply job safety analysis. 40, 41, 44

1.2 Plans and Specifications

(Questions related to these tasks make up 5-15% of the exam.)

1.2.1 Relate plans to the field (e.g., find location on plan, establish relative elevation). 34, 35, 36, 37, 39

1.3 Sampling of Soils

(Questions related to these tasks make up 15-25% of the exam.)

1.3.1 Obtain samples. 3, 16, 31
1.3.2 Document sample locations. 3, 4, 16, 21
1.3.3 Transport samples back to lab. 3, 16
1.3.4 Identify type of materials of samples. 4, 9, 12, 13
1.3.5 Log sample or I.D. the sample for lab testing (i.e., tracking). 3, 10, 12, 13, 16

1.4 Soils Sample Preparation

(Questions related to these tasks make up 5-15% of the exam.)

1.4.1 Reduce sample to test size. 1, 2
1.4.2 Dry the sample. 2, 5, 6, 8, 11
1.4.3 Weigh the sample. 1, 2, 5, 8
1.4.4 Process through sieve. 2, 4, 5, 18, 27, 28
1.4.5 Moisture-condition the sample. 4, 5, 18, 24, 28, 30

1.5 Field Density Testing

(Questions related to these tasks make up 18-28% of the exam.)

1.5.1 Identify where to take the test. 14, 39
1.5.2 Determine the number of tests. 14
1.5.3 Identify type of material. 5, 7, 12, 13, 25
1.5.4 Document test location. 22, 37, 38, 39
1.5.5 Document results. 5, 7, 8, 22
1.5.6 Document limitations. 7, 22, 26, 39
1.5.7 Perform assigned field density test. 22

1.6 Laboratory Testing of Soils

(Questions related to these tasks make up 17-27% of the exam.)

1.6.1 Perform Atterberg limit tests. 4, 18, 30
1.6.2 Perform Proctor tests. 4, 5, 8, 17, 19
1.6.3 Perform sieve analysis. 1, 2, 3, 6, 12, 24
1.6.4 Perform Washed -No. 200 sieve. 1, 6, 29
1.6.5 Perform moisture content test. 4, 6, 11, 32

1.7 Communication of Results

(Questions related to these tasks make up 1-9% of the exam.)

1.7.1 Inform client of presence. 15
1.7.2 Give verbal report of observations to supervisor. 7, 15, 39
1.7.3 Complete test forms. 5, 15, 22, 26

1.8 Equipment Calibration and Maintenance

(Questions related to these tasks make up 1-9% of the exam.)

1.8.1 Verify equipment calibration. 5, 8, 15, 20, 26, 33

April 22, 2017 footnote number is linked to a reference on the Selected General References listing