

ROAD AND BRIDGE MATERIALS TECHNICIAN CERTIFICATION PROGRAM

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POLICIES and PROCEDURES MANUAL

April 2021

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Introduction

The purpose of this program is to certify personnel involved in the testing, control, and acceptance of materials used in road and bridge construction. Certification has proven to be an effective tool for improving the quality of highways and bridges by verifying those who monitor, inspect, and control construction operations possess essential knowledge and skills.

A uniform certification program assures personnel from all parties involved in production control and acceptance of materials have been trained and are certified to perform testing in accordance with Wyoming Department of Transportation (WYDOT) procedures and specifications.

Certification will be required for testing technicians as shown in WYDOT's Quality Control/Quality Assurance Specifications.

To receive certification an individual must participate in a uniform training program and pass an online examination and a hands-on performance tests.

Overview

This program provides orientation and training in WYDOT material specifications, construction, and testing procedures, as well as certification. The format for the program will include online training, video demonstration of test procedures by the instructional staff, online test, and a performance test.

This program was developed by and is operated under the guidance of the Wyoming Materials Technician Certification (WMTC) Committee.

There are three training modules with three possible certifications:

- Soils and Aggregate Technician
- Asphalt Concrete Technician
- Portland Cement Concrete Technician

Requirement of Certification

The requirement of certification is tied to WYDOT's Quality Control/Quality Assurance (QC\QA) specifications for asphalt concrete and Portland cement concrete.

WYDOT's Quality Control/Quality Assurance Specifications require certified testing technicians and all laboratories performing mix designs to be AASHTO Accredited.

Refer to WYDOT's Quality Control/Quality Assurance Specifications for Laboratory and Personnel Requirements.

Certification Committee

In accordance with WYDOT Operating Policy 18-10 the Director of WYDOT will appoint a Certification Committee. This committee will act in accordance with WYDOT Policy and will be responsible for developing a training and certification program, as well as providing continuing oversight of the program.

The chairman of the Committee will be the WYDOT State Materials Engineer with seven additional members appointed in accordance with the following representation:

- 2 Members from the WYDOT
- 2 Members from the contracting industry
- 1 Member from the private engineering and consulting sector
- 1 Non-voting member from the Federal Highway Administration
- 1 Non-voting member from the University of Wyoming

Membership from the private sector is open and does not require affiliation with the Associated General Contractors (AGC)

For a listing of current Certification Committee Members contact the Wyoming Department of Transportation Materials Program.

Certification Records

Certification records are maintained by the WYDOT Materials Program.

Address all correspondence or inquiries concerning technician certifications to WYDOT Materials Program by contacting the following:

WYDOT Materials Program
Attn.: Greg Milburn
5300 Bishop Boulevard
Cheyenne, Wyoming 82009-3340

Tel: 307-777-4070

Description of Certification Courses

Prerequisites of all Certifications

Applicants must exhibit basic mathematic and reading comprehension skills and a basic comprehension of standard measurement. Applicants must be able to perform the calculations for each test procedure and calculate pay factors in accordance with Quality Assurance requirements.

These Certification Courses are not an introductory instruction program for inexperienced personnel. It is advised applicants have at least one year of experience in road and bridge construction and be familiar with aggregate testing procedures.

Training

The first part of each certification consists of online training. This includes basic soil, aggregate, concrete and asphalt properties and handling techniques, a review of WYDOT specifications, principles of quality control, principles of quality assurance, and a demonstration and review of testing procedures.

Online Examination

Participants are required to pass multiple online examinations based on the subjects listed under Training. The online examination will consist of two main parts: The first part is related to the overall course materials while the second part is related to the performance stations. It is required that all class participants be on the zoom call while taking the online exams.

Open books will be permitted.

A passing grade requires a minimum of 70 percent correct answers in each online exam. Participants failing any of these online exams will be given one additional opportunity to retest per the guidelines under the section on Retest.

Performance Evaluation

Participants will be required to perform each test procedure in the presence of an evaluator/proctor. The key elements of each test procedure must be demonstrated correctly to pass the performance evaluation. If a participant fails to demonstrate proficiency for a test, he/she will be allowed one retest per test procedure prior to completion of the class. If a retest is needed in more than 50 percent of the tests or if a retest is failed, then the participant will not pass the course.

If the participant is recertifying and has had at least 3 successful WYDOT Independent Assurance (IA) inspections for each test procedure in the past 5 years, the participant will be exempt from performing the test procedure in the presence of an evaluator/proctor.

Soils and Aggregate Technician Course Description

Test Procedures

The following test procedures will be demonstrated:

<u>Description</u>	<u>Test Method</u>
Sample Splitting by Mechanical Splitter	WYDOT 805.0 - (AASHTO T 248)
Liquid Limit Test	WYDOT 812.0 – (AASHTO T 89)
Plastic Limit Test and Plasticity Index	WYDOT 813.0 – (AASHTO T 90)
Sieve Analysis of Combined Aggregate	WYDOT 814.0 - (AASHTO T 27)
□ Large Gilson	
Sieve Analysis of Combined Aggregate	WYDOT 814.0 - (AASHTO T 27)
□ 8 inch sieves	
Sieve Analysis of Combined Aggregate	WYDOT 814.0 - (AASHTO T 11)
□ Wash Sieve Analysis	

Time Required

2½ Days

Asphalt Concrete Technician

It is **not** required that participants be certified as a Soils and Aggregate Technician prior to taking the Asphalt Concrete Technician certification course. It is necessary for participants to be knowledgeable in aggregate testing and analysis.

Test Procedures

The following test procedures will be demonstrated:

Density Testing for Compacted Mix	WYDOT 415.0 - (AASHTO T 166, T 275)
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Time Required

2½ Days

Portland Cement Concrete Technician

Test Procedures

The following test procedures will be demonstrated and performed for the Wyoming Certification:

<u>Description</u>	<u>Test Method</u>
Field Sampling Fresh Concrete	WYDOT 477.0 – (ASTM Standard C172)
Method of Determining Temperature of Freshly Mixed Concrete	WYDOT 478.0 - (ASTM Standard C1064)
Unit Weight (Density) of Concrete	WYDOT 479.0 - (ASTM Standard C138)
Slump Test	WYDOT 480.0 - (ASTM Standard C143)
Air Content of Freshly Mixed Concrete	WYDOT 481.0 - (ASTM Standard C231)
Making and Curing Concrete Cylinders	WYDOT 485.0 – (ASTM Standard C31)

Time Required

2½ Days

Training and Testing

The training and online tests are held online while the hands-on performance examination will be held on a different date in Cheyenne on the WYDOT campus.

Qualified instructors and evaluators\proctors will be approved by the Certification Committee.

Upcoming programs will be announced in a brochure available through the University of Wyoming Department of Civil and Architectural Engineering.

Dr. Khaled Ksaibati
University of Wyoming
Civil & Arch. Engineering
1000 East University Ave.
Department 3295
Laramie, WY 82071-3295

Email Address: khaled@uwyo.edu
Phone #: 307-766-6230
Fax #: 307-766-6784

Equipment and Course Materials

All equipment for training, demonstrations, and testing will be provided at the WYDOT Materials Laboratory in Cheyenne.

Attendees will be required to have a calculator which has the capability to calculate standard deviation, and a current edition of the WYDOT Standard Specifications for Road & Bridge Construction book. Changes in these requirements may be shown in the brochures announcing programs.

Specification books are available in electronic format on WYDOT's website.

Enrollment

The number of applicants per class shall be limited to a maximum of thirty, unless otherwise approved by the Certification Committee.

If there are more than thirty applicants for any class the positions will be filled in order of receipt of the applications in accordance with the following allocations:

15 Applicants shall be from WYDOT

15 Applicants shall be from contractor, engineering, and consulting companies

If there are spots remaining in a course, enrollment will be open, with no regard to employer. Enrollment is open to all contractors, engineering, and consulting firms.

Affiliation with the Associated General Contractors (AGC) is not required.

Course Availability

Two to three courses will be scheduled annually in aggregate, asphalt, and concrete.

It is anticipated courses will be held each year between November and May. A schedule of upcoming courses will be posted in September of each year on the WYDOT web page under the Certification Seminar Information – current year brochure.

Registration for the certification courses can be made on the Wyoming T2 website (credit cards): <http://www.uwyo.edu/wyt2/workshops/index.html>

As an alternative, the registration form in the brochure can be downloaded, filled out, and mailed with a check to the Wyoming T2 center.

Fees

The certification programs will be self-supporting through the establishment of course fees. All registration fees charged will be established to recover expenses associated with program operation. Registration fees will be shown in the course brochure. No yearly maintenance fee will be charged.

Retests

Retests for the online performance exams are normally administered on the same day of examination without assessing any additional fees.

The University of Wyoming will establish retest dates for the overall online materials test and will list those dates in the brochure and online. An individual may retest only once.

A fee will be charged for the retest (see current year brochure for dollar amount). Payments for retest should be made before reporting the retest results.

No retests on the performance evaluations for Wyoming Certifications will be given after completion of the class.

Grandfathering

To ensure each certified technician is using the latest published practices and to assure consistency from agency to agency, public and private, no grandfathering of technician certifications will be granted.

Reciprocity

This certification program is unique to Wyoming testing procedures and the training is specialized for WYDOT specifications and procedures. Therefore, to ensure knowledge of current Wyoming specifications and test procedures no reciprocal certifications from other state programs will be issued. No other certification, license, or education units may be substituted for the Wyoming Certification.

Certification

Participants meeting the requirements of this certification program will be recommended for certification to the WYDOT State Materials Engineer. The WYDOT Materials Program will send

successful participants a certificate of certification, a pocket card, and enter their name in the Certification database.

Decertification

Certification is a privilege and may be revoked if in the opinion of the Certification Committee an individual committed acts which are detrimental to the integrity of the certification program or the construction industry in general. Acts which could result in revocation of certification privileges are:

1. Falsification of Quality Control or Quality Assurance test results or records.
2. Cheating on certification examinations.
3. Compromising the integrity of certification exams
4. Submittal of false information on certification applications.
5. Termination of an individual due to job incompetence.
6. Criminal action by an individual while engaged in construction activities.
7. Certified Technician qualifying a technician without completing correlation requirements.

Allegation of misconduct must be made to the WYDOT State Materials Engineer. The accused individual will be notified in writing of the allegation and be given ten days to respond by letter. At the end of the ten day period the WYDOT State Materials Engineer will forward all information to the Certification Committee who will determine if revocation of certification(s) is warranted. The decision will require a majority vote of the Certification Committee Members. The decision of the Certification Committee is final.

Recertification

All WMTC Certifications are valid for five years after which time the technician must be recertified.

It is the responsibility of the individual to keep their certification(s) current. There will be no notification when a certification will lapse. Individuals must be aware the number of certification programs will be limited and plan well in advance to be recertified.