



Policies & Procedures Manual

May 2006



Rocky Mountain Asphalt Education Center
Policies & Procedures Manual
May 2006

CERTIFICATION AND EDUCATION PROGRAMS

INTRODUCTION

The Rocky Mountain Asphalt Education Center (RMAEC) offers education and certification programs in asphalt technology on a regular basis throughout the year. There are three programs providing education in various aspects of hot mix asphalt (HMA) and five levels of certification for asphalt technicians working in the industry.

These programs include:

Certification

- Level A - Laydown Operations Technician
- Level B - Plant Materials Control Technician
- Level C - Volumetrics Technician
- Level D - Smoothness Measurement Technician
- Level E - Aggregate Technician

Education

- Hot Mix Asphalt (HMA) Construction and Inspection
- Introduction to HMA QC/QA Testing
- Introduction to HMA Mixture Design

CERTIFICATION

The asphalt pavement technician certification program in Colorado was developed to increase the proficiency of asphalt technicians, improve the reliability of QC/QA testing, increase the quality of asphalt paving materials purchased by owner-agencies, and respond to the Federal-Aid Projects. The program, entitled Laboratory for Certification of Asphalt Technicians (LabCAT), is a partnership between Colorado Department of Transportation (CDOT), the Colorado Asphalt Pavement Association (CAPA) and the Federal Highway Administration (FHWA). A joint Board of Directors consisting of CDOT, FHWA and industry representatives provide direction to the program.

Beginning with the 1996 construction season, all technicians working on CDOT projects where the QC/QA specification is used are required to hold an Asphalt Construction Technician Certification through the LabCAT program.¹



¹ The RMAEC reserves the right to schedule technicians according to space available.

Although the certification program does not require any of the education programs described above as a prerequisite, it is **highly** recommended that individuals not previously experienced with asphalt laboratory or field testing techniques complete the Introduction to HMA QC/QA Testing Education Program before attempting the Certification Program.

Certifications in this program have been designed for individuals who have worked as quality control or quality assurance technicians for a minimum of one construction season or have completed the Introduction to HMA QC/QA Testing Education Program. Individuals becoming certified in this program should be proficient conducting each of the laboratory and field tests required for materials acceptance in conjunction with the CDOT QC/QA specification. The field and laboratory testing is based on the current AASHTO Standard Specification for Transportation Materials and Methods of Sampling and Testing, with the appropriate references to the Colorado Department of Transportation Field and Laboratory manuals.

Certification through LabCAT is now required by some agencies other the CDOT, these include by are not inclusive to, The Metropolitan Government Pavement Engineers Council (MGPEC), The City of Greeley. LabCAT is considered to be a NICET equivalent for those testing asphalt and related materials at Denver International Airport (DIA).

PRE CERTIFICATION REQUIREMENTS

As of January 2002, technicians attempting certification are required to pre-qualify prior to registering for certification. A two-sided registration form must be completed and received at the RMAEC office prior to being given a spot on the certification roster. This form includes the following:

Certification Prerequisites

(There will be **no exceptions** to these requirements)

1. Persons attempting certification will be required to have and document at least 30 days experience in the testing of hot mix asphalt and related materials.
2. Applicants are required to include the evaluation/sign-off form indicating that a technician certified at the same level has observed the applicant performing each required test. Candidates must have prior experience in the procedures required by the level of certification they are attempting. **THIS IS NOT A TRAINING CLASS.** This does not apply to those previously certified through LabCAT attempting to re-certify at the same level (s).¹

¹ Technicians certified by another state's certification program covering similar material are allowed to use their certification as the evaluation/sign-off form. If a technician attends the RMAEC Introduction to HMA QC/QA Testing course and demonstrates the test methods to the satisfaction of the LabCAT staff, the staff can provide the sign-off requirement. **THESE PREREQUISITES WILL BE STRICTLY ENFORCED.**



3. Persons attempting certification at Levels A, B or C will be required to provide proof that they have passed an approved nuclear safety certification. A photo copy of your nuclear safety certificate is acceptable. A dosimeter is not sufficient proof.
4. Liability Release must be submitted the first day of certification.

ASPHALT CONSTRUCTION TECHNICIAN CERTIFICATION-STANDARD

The LabCAT was established in 1996 to certify technicians involved with asphalt pavement construction. These individuals are directly responsible for identifying the properties of the final asphalt product in any QC/QA program and therefore the quality level. Obviously, disputes regarding the quality of the asphalt being produced can be minimized if both the QA and QC technicians are conducting the same tests, using the same procedures.

Five certifications have been established for the asphalt construction technician based on tests required on typical paving projects. These certifications include:

- A - Laydown
- B - Plant Materials Control
- C - Mixture Volumetrics and Stability
- D – Smoothness *
- E - Aggregate

The asphalt construction technician certification Levels A - D programs are always offered sequentially, so individuals have the opportunity to become certified in any or all of those programs.

The Level E, Aggregate is a separate 2-day program.

Level A - Laydown

Description

Technicians responsible for sampling and conducting compaction tests on hot mix asphalt at the laydown site are required by CDOT to possess this certification. Hot mix asphalt aggregate sampling proficiency must be demonstrated from various locations, reducing samples to testing size, and compaction measurements including nuclear density gauge readings and correlation determinations from core samples.

Prerequisites

(See Pre Certification Requirements)

Basic reading and math skills. One paving season on construction projects or in an asphalt laboratory is recommended. Successful completion of a training course in the safe use and handling of portable nuclear gauges which has been accepted by the U.S. Nuclear Regulatory Commission or an Agreement State.

Certification Process

Classroom

The first part of Asphalt Construction Technician Level A certification is completed in the classroom with 2 hours of presentations on the basic principles of field sampling, splitting, and compaction testing using both nuclear density gauges and pavement core samples. Each of the tests shown below will be described including the purpose of the tests and application of the test data.

The proficiency requirements for the *Level A - Laydown Certification* are listed in Table 1.

Table 1 - Proficiency Requirements for Level A

Procedure	AASHTO	CDOT
Practice for Stratified Random Sampling of Materials		CP - 75
Practice for Sampling Bituminous Mixtures	T 168	CP - 41
Practice for Sampling Aggregates	T 2	CP - 30
Test Method for Reducing Field Samples of Hot-Mix Bituminous Pavements to Testing Size		CP - 55
Test Method for Density and Percent Relative Compaction of In-Place Bituminous pavement by the Nuclear Method		CP - 81
Compaction Test Section, Coring , and Core Correlation		CP - 82

A written examination is given on the basics of each of the above subjects. Open books and notes will be permitted. A passing grade requires a minimum of 80% correct answers. The written exam will have a 45-minute time limit. Retests can be taken following the schedule shown in the section **Retests** for scores below 80%.

Laboratory

The second part of Asphalt Construction Technician Level A Certification occurs in the laboratory. The class is divided into small groups to witness the testing procedures. LabCAT personnel demonstrate each of the tests required for Asphalt Construction Technician Certification to each of the groups. After the demonstration, each participant is required to demonstrate proficiency in each test to the LabCAT proctor. A passing grade for each test procedure requires a maximum loss of 20%. Retests can be taken following the schedule shown in the section **Retests** for scores with a loss of greater than 20%.

Requirement of Certification

To become certified, each participant must meet the required prerequisites, successfully pass the written examination and each of the practical demonstrations required for the desired level of certification.

Level B - Asphalt Plant Materials Control

Description

Technicians responsible for materials process control at the asphalt hot mix plant are required by CDOT to possess this certification. Proficiency must be demonstrated for splitting, sieve analysis, asphalt content by Nuclear and Ignition methods, and specific gravity measurements of the loose mixture and compacted core samples.

Prerequisites

(See Pre Certification Requirements)

Level A Certification. Basic reading and math skills. One paving season in construction or in an asphalt testing laboratory. Successful completion of a training course in the safe use and handling of portable nuclear gauges which has been accepted by the U.S. Nuclear Regulatory Commission or an Agreement State.

Certification Process

Classroom

The first part of Asphalt Technician Level B certification is completed in the classroom with 2 1/2 hours of presentations on the basic principles of splitting, sieve analysis, asphalt content and specific gravity of compacted specimens and loose mix. Each of the tests shown below will be described including the purpose of the tests and application of the test data.

A written examination will be given on the basics of the subjects found in Table 2. Open books and notes will be permitted. A passing grade requires a minimum of 80% correct answers. The written exam will have a 60-minute time limit. Retests can be taken following the schedule shown in the section **Retests** for scores below 80%.

The proficiency requirements for the *Level B - Asphalt Plant Materials Control Certification* are shown in Table 2.

Table 2 - Proficiency Requirements for Level B

Procedure	AASHTO	CDOT
Reducing Samples of Aggregate to Testing Size	T 248	CP - 32
Sieve Analysis of Fine and Coarse Aggregates	T 27	CP - 31A
Materials Finer Than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing	T 11	CP - 31B
Test Method for Asphalt Cement Content by the Nuclear Method	T 287	CP - 85
Test Method for Asphalt Cement Content by the Ignition Method	T 308	CP - L5120
Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens	T 166	CP - 44
Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures	T 209	CP - 51
Control Chart Fabrication		



Laboratory

The second part of Asphalt Construction Technician Level B certification occurs in the laboratory. The class is divided into small groups to witness the testing procedures. Each of the tests required for Asphalt Construction Technician certification is demonstrated to each of the groups by LabCat personnel. After the demonstration, each participant is required to demonstrate proficiency in each test to the LabCAT proctor. A passing grade for each test procedure requires a maximum loss of 20%. Retests can be taken following the schedule shown in the section **Retests** for scores with a loss of greater than 20%.

Requirements of Certification

To become certified, each participant must meet the required prerequisites, successfully pass the written examination and each of the practical demonstrations required for the desired level of certification.

Level C - Asphalt Mixture Volumetrics and Stability

Description

Technicians responsible for determining asphalt mixture volumetric and strength characteristics at the hot mix asphalt plant are required by CDOT to possess this certification. Proficiency must be demonstrated for Superpave gyratory compaction, Hveem stability, and resistance to moisture induced damage.

Prerequisites

(See Pre Certification Requirements)

Level A and B Certification. Basic reading and math skills. One paving season in construction or in an asphalt testing laboratory is recommended.

Certification Process

Classroom

The first part of Asphalt Construction Technician Level C certification is completed in the classroom with 2 hours of presentations on the basic principles of Moisture Induced Damage Testing, Superpave gyratory compaction, Hveem stability and HMA volumetric properties. Each of the tests shown below will be described including the purpose of the tests and application of the test data.

The proficiency requirements for *Level C - Volumetrics and Hveem Stability Certification* are given in Table 3.

Table 3 - Proficiency Requirements for Level C

Procedure	AASHTO	CDOT
Test Method for Resistance to Deformation and Cohesion of Bituminous Mixtures by Means of Hveem Apparatus	T 246	CP - L5106
Method for Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the SHRP Gyratory Compactor	T-312 R-30	CP - L5115
Resistance of Compacted Bituminous Mixtures to Moisture Induced Damage	T283	CP - L5109

A written examination will be given on the basics of each of the above subjects. Open books and notes will be permitted. A passing grade requires a minimum of 80% correct answers. The written exam will have a 45-minute time limit. Retests can be taken following the schedule shown in the section **Retests** for scores below 80%.

Laboratory

The second part of Asphalt Construction Technician Level C certification occurs in the laboratory. The class is divided into small groups to witness the testing procedures. LabCAT personnel demonstrate each of the tests required for Asphalt Construction Technician Certification to each of the groups. After the demonstration, each participant is required to demonstrate proficiency in each test to the LabCAT proctor. A passing grade for each test procedure requires a maximum loss of 20%. Tests can be retaken following the schedule shown in the section **Retests** for scores with a loss greater than 20%.

Requirements of Certification

To become certified, each participant must meet the required prerequisites, successfully pass the written examination and each of the practical demonstrations required for the desired level of certification.

D – Smoothness*

Description

Technicians responsible for determining pavement smoothness can obtain this certification by attending this program.

Prerequisites

(See Pre Certification Requirements)

Basic reading and math skills. One paving season in construction or in an asphalt testing laboratory.

Certification Process

Classroom

A videotape is presented to demonstrate the assembly of the Cox and Sons profilograph if applicable. A classroom version of a Cox and Sons California profilograph is used to demonstrate operation of the profilograph and data reduction of pavement smoothness in accordance with the CDOT specification if applicable. Certification on the smoothness specification and data reduction is the primary focus of the presentation.

A written examination will be given on the basics of profilograph operation. Open books and notes will be permitted. A passing grade requires a minimum of 80% correct answers. The written exam will have a 20-minute time limit. Tests can be retaken following the schedule shown in the section **Retests** for scores below 80%.

Table 4 - Proficiency Requirement for Level D

Procedure	AASHTO	CDOT
Operation of Multi-Wheel Profilograph and Evaluation of Profiles, 0.1 (2.5mm) (For Hot Bituminous Pavements)		CP - 70

Requirements of Certification

To become certified, each participant must meet the required prerequisites, successfully pass the written examination and the practical demonstration required for this level of certification.

***For Projects Bid and Awarded after July 1, 2002, CDOT does not required Level D, Smoothness Certification. For Projects Bid and Awarded Prior to July 1, 2002 this certification is still required.**

Asphalt Construction Technician Certification - Streamlined

The individual can attend a streamlined program that would last one day and be limited to six attendees per day. This option would be restricted to only those individuals who have been previously certified through the LabCAT Program at the level being recertified and feel confident in their ability to perform the required tests correctly.

The structure of the streamlined course includes:

- A brief 30-minute to 60-minute review of major changes to the testing procedures over the previous 3-year period.
- Written exams consisting of 20-25 questions per certification level to be completed within 45 - 60 minutes per exam, whichever is applicable. (same as standard)
- After the exam(s), each participant will be required to demonstrate proficiency in each test to the LabCAT proctor.

Grading

The requirements of certification are the same for both options. Each participant must receive a score of 80% or better to pass the written exam. The participant can miss up to 20% on each of the proficiency demonstrations in the laboratory.

To become certified, each participant must meet the required prerequisites, successfully pass the written examination(s) and each of the practical demonstrations required for the desired level of certification.

Similarities between Streamlined and Standard Certifications:

1. The requirements for certification remain the same. Attendees must pass a written exam and demonstrate proficiency in the required tests for each level of certification desired.
2. The retesting policy is the same.

3. The fees for the standard program and the streamlined program are the same.

Differences between Streamlined and Standard Course:

1. The standard certification includes a detailed classroom discussion for each of the tests required on typical QC/QA projects. *The streamlined certification does not.*
2. The standard certification includes a demonstration, by LabCAT proctors, of the tests required for each level of certification. *The streamlined certification does not.*
3. It is anticipated that the streamlined certification would last one day. Certification enrollment will be limited to maintain this time limit. The standard certification would remain a one to three day program.

Level E - Aggregate Technician Certification

Description

In 1999, CDOT transferred the responsibility for mixture designs to the contractor. To ensure that all technicians performing tests required in a mixture design are qualified the *Level E - Aggregate Technician Certification Program* was developed. With the existing Level C - Volumetrics and Stability and the Level E program, all material testing for a HMA mixture design will be required to be performed by certified technicians.

Technicians responsible for determining aggregate characteristics for use in HMA Mixture Designs are required by CDOT to possess this certification. Aggregate sampling proficiency must be demonstrated from various locations as well as sand equivalency, uncompacted void content of coarse and fine aggregate, percent of fractured faces and specific gravity measurements of the coarse and fine aggregates.

Prerequisites

(See Pre Certification Requirements)

Basic reading and math skills. One paving season on construction projects or in an asphalt and/or aggregate-testing laboratory is recommended.

Certification Process

Classroom

The first part of the Aggregate Technician Level E certification is completed in the classroom with 2 ½ hours of presentations on the basic principles of aggregate sampling, splitting, sieve analysis, soundness, toughness, deleterious materials, clay content, fine aggregate angularity, fractured faces, coarse and fine aggregate specific gravity and flat and elongated particles. Each of the tests shown in Table 5 will be described including the

purpose of the test and application of the test data. The proficiency requirements for *Level E - Aggregate Technician Certification* are given in Table 5.

Table 5 - Required Aggregates Test for Level E

Procedure	AASHTO	CDOT	ASTM
Sampling of Aggregates	T 2 *	CP-30	
Sieve Analysis of Fine and Coarse Aggregates	T 11, T 27	CP-31	
Specific Gravity and Absorption of Fine Aggregate	T 84 *		
Specific Gravity and Absorption of Coarse Aggregate	T 85 *		
Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine	T 96		
Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate	T 104		
Clay Lumps and Friable Particles in Aggregate	T 112		
Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test	T 176 *		
Reducing Samples of Aggregate to Testing Size	T 248	CP-32	
Uncompacted Void Content of Fine Aggregate	T 304 *		
Determining Percent of Particles with Two or more Fractured Faces		CP-45 *	
Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate			D 4791

* Laboratory Proficiency Test Required

A written examination will be given on the basics of the above elements. Open books and notes will be permitted. A passing grade requires a minimum of 80% correct answers. The written exam will have a 45-minute time limit. Retests can be taken following the schedule shown in the section **Retests** for scores below 80%.

Laboratory

The second part of Aggregate Technician Certification Level E occurs in the laboratory. The class is divided into small groups to witness the testing procedures. Each of the tests required for Aggregate Technician Certification is demonstrated to each of the groups by LabCAT personnel. After the demonstration, each participant is required to demonstrate proficiency in each test to the LabCAT proctor. A passing grade for each test procedure requires a maximum loss of 20%. Retests can be taken following the schedule shown in the section **Retests** for scores with a loss greater than 20%.

Requirements of Certification

To become certified, each participant must meet the required prerequisites, successfully pass the written examination and each of the practical demonstrations required for certification.



CLASSROOM MATERIALS - ALL LEVELS

Standard written AASHTO and Colorado Department of Transportation CP or CPL, field and laboratory testing procedures to be evaluated will be available to each participant at the certification. Classroom training materials will consist of instruction aids developed by the LabCAT Technical Committee and agreed upon by the program sponsoring agencies. In addition, literature published by the Asphalt Institute, the National Asphalt Pavement Association (NAPA), National Center for Asphalt Technology (NCAT), Federal Highway Administration (FHWA), and AASHTO will be used to supplement training aids developed by CDOT and LabCAT. Attendees are encouraged to bring whatever literature they feel is necessary to successfully complete each of the tests required for certification.

Testing on classroom materials as well as laboratory and field testing procedures will be standardized and approved by the program sponsoring agencies. Successful performance is defined as demonstrating the ability to properly answer classroom questions and perform the key elements for testing procedures as identified for each level of certification.

Attendees will be required to bring a calculator, and should have the current copy of the CDOT Field Materials Manual and Laboratory Manual of Test Procedures (If Applicable) to the certification. Copies of the presentations will be provided to each attendee. Lunch will be provided and scheduled according to each certification program attended.

GRANDFATHERING / TEST OUTS

It has been recognized that there are many individuals working in the construction industry who through years of practical experience, have developed skills which go beyond the scope of the courses and performance procedures which have been developed for this program. In addition, previous Certification programs administered by CAPA, NICET, CDOT and others have received prior recognition on asphalt paving projects in Colorado.

However, to insure that each certified technician is following the latest state-of-the-practice as well as the consistency needed from agency to agency, public and private, no grandfathering of technician certifications will be granted.

The certification process includes both a written examination and demonstration of skills while conducting the appropriate laboratory and field tests. Therefore, it is not possible for an individual to test out in order to obtain the required certification.

RE-CERTIFICATION

Each certification is valid for three years. It is possible for the expiration date in one certification to be different than in another. Recertification will be necessary after three years by retaking the certification for each level that has expired.

If one certification level has been attained and a higher certification level is desired at a future date, the attendee must demonstrate proficiency in the additional elements within a



Twelve-month period. After twelve months the attendee must demonstrate proficiency in all of the elements required for the desired level of certification.

RETEST POLICY

Written Retests

Written retests can be taken at the LabCAT facility as early as the Friday following the failed test or at the discretion of the program manager for an earlier re-test time. Written retests can also be taken at CDOT Regions 2, 3, 4, and 5 Materials Laboratories with the Regional Materials Engineer, or their designated representative, serving as proctor with the following conditions:

- All retests shall be scheduled through the Rocky Mountain Asphalt Education Center.
- Retests will be administered by the Regional Laboratory on the first Friday of each month, or as available.
- Retests should be scheduled a minimum of two weeks prior to the retest date.

Individuals requesting retests at CDOT facilities must adhere to the regional laboratory’s time restraints. No fee will be assessed for the written retest regardless of where it is taken.

Retests on the written tests can be requested for any certification in which an individual received a failing grade if certain requirements are met:

The individual must have completed the entire certification for which the failing grade was received. (If more than 33% of the proficiency tests for any level of certification are failed, the entire level must be taken over. See “Proficiency Retests”)

Proficiency Retests

Proficiency retests must be taken at the LabCAT facility. Retests shall be scheduled through the Rocky Mountain Asphalt Education Center. Retests can be taken as early as the Friday following the failed test. A fee of **\$100.00 per level** of certification will be assessed.

The number of proficiency tests allowed to be failed and re-tested is limited according to the following table. If an attendee fails more than the number allowed, the entire level must be taken over.

Level	Procedures allowed to Fail
A	1
B	2
C	1
E	2

The portion of the certification a registrant passes is good for one year. However, the registrant is not issued a certificate until all portions of the certification have been passed.

The certificate will be valid for three (3) years from the date of the first set of certification tests. For example, if an individual passed all but the written exam for B in March 1999, they would not be issued a B certificate until the written exam was passed. The expiration date on the B certificate would be March 2002, regardless of when the written exam was passed. If one year passes from the time of the first testing, the entire certification must be retaken.

DE-CERTIFICATION POLICY

Certification is a privilege. This privilege may be revoked if, in the opinion of the LabCAT Board of Directors, an individual is thought to have knowingly 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:

- Falsification of certification Evaluation/Sign-Off Form.
- Falsification of field or quality control tests results and/or records.
- Incompetence during performance of field or laboratory procedures, knowingly not adhering to the procedures required for testing.
- Cheating on certification exams.
- Submitting false information on certification applications.
- Failure to comply with the LabCAT sign off policy.
- Termination of an individual due to job incompetence.
- Criminal action by an individual while engaged in construction activities.
- Non-Payment of Certification Program registration fees

The offenses cited above, shall be documented by a LabCAT certified individual on the "*LabCAT Certification Program, Report of Improper Testing or Inspection*" form. A technician will be notified a written complaint has been filed and requested to submit a response to the complaint. If the LabCAT Program Manager receives 2 (two) written complaints concerning the same technician detailing similar offenses in a 6 (six) month period the technician may be required to submit documentation disputing or clarifying the complaints, and may be subject to review by the LabCAT Technical Committee and/or Board of Directors. If 3 (three) or more complaints are filed with in a 12 (twelve) month period, the technician will be notified, their certification(s) will be suspended until the complaints can be reviewed by the LabCAT Program Manager, Technical Committee or Board of Directors. If in the opinion of the LabCAT Program Manager or Board of Directors, upon reviewing the report, revocation of certification privileges is warranted an individual will receive written notification by certified letter. The individual will be allowed seven (7) calendar days within posting of the notification to respond by letter to the LabCAT Program Manager. If during that time a written letter of protest is received from the individual, the LabCAT Board of Directors will review the case and if necessary a hearing will be scheduled within seven (7) calendar days of such response.

If no hearing is warranted based on the report and response from the individual, the individual will be notified of the final decision.

If no protest letter is received, it will be assumed by the LabCAT Program Manager and Board of Directors, the individual does not protest the decision, and revocation will occur with the individual so notified. The technician may apply for re-instatement at any time following revocation by submitting a formal request to the LabCAT Program Manager in writing with an explanation of why they are requesting re-instatement. When the LabCAT Program Manager receives the request a notice will be sent to the applicant as to the status of the process. The re-instatement process may include any or all of the following:

- Review by the LabCAT Program Manager.
- Review by the LabCAT Board of Directors, or designated representatives.
- Review by the LabCAT Technical Committee, or designated representatives.
- Paying the required \$150 fee before a Certification will be re-instated (If required).

COMPLAINTS / PROTESTS POLICY

Any candidate wishing to register a complaint/protest regarding a course, examiner or examination result must do so in writing within thirty (30) days of the event. The written complaint/protest must be specific with regards to location, person(s) involved (if any) and the exact nature of the complaint/protest. The written complaint/protest must be dated and bear the name and signature of the person making the complaint/protest.

All complaints/protests will be addressed by the LabCAT Technical Committee (excluding any members directly involved with the complaint/protest) and their recommendation will be presented to the Board of Directors for approval. All complaints/protests will be answered in writing within sixty (60) days of receipt and all decisions will be final.

RECIPROCITY

This certification program is unique to Colorado laboratory and field tests. While certain tests are conducted similar to other states or agencies, small differences may exist. Therefore, to insure knowledge of current CDOT laboratory and field tests no reciprocal certifications from other state programs will be issued.

EDUCATION

Three education programs are offered by the Rocky Mountain Asphalt Education Center (RMAEC). These programs were developed to provide everything from basic information about asphalt inspection during construction to detailed training in specific quality control (QC) and quality assurance (QA) laboratory tests and HMA mixture design. An individual completing each of the education programs will be provided a well-rounded education in asphalt pavement construction with the background necessary to begin working in any area of the industry.



EDUCATION COURSE #1: INSPECTOR AND PAVING PERSONNEL TRAINING

This one day course is designed to help Agency Inspectors and Industry/Consultants work toward a common goal during HMA construction. These sessions will touch on all aspects of HMA pavement construction from subgrade preparation thru Laydown, compaction and the finished HMA product. Initially, all of the class sessions will be held in the winter/spring months, so the Inspectors, Industry personnel and Consultants will be ready for the construction season.

Those new to asphalt paving or those desiring to refresh some aspect of their experience will benefit from this basic training course. All aspects of asphalt paving and construction are covered by the course with an emphasis on new developments and technologies. RMAEC instructors are included in the program. The RMAEC also partners with other training organizations to hold courses throughout the year. Some examples of the other educational opportunities are; NCAT Construction course which will be presented in the Denver area, Inspectors School which will be presented around the state.

EDUCATION COURSE #2: INTRODUCTION TO HMA QC/QA TESTING

This is a one day to five day course for individuals desiring to learn how to conduct each of the quality control (QC) and quality assurance (QA) laboratory tests necessary for controlling hot mix asphalt production and laydown processes. This course is designed to provide individuals with a head start to on-the-job training in QC/QA testing. This course should be considered a prerequisite for individuals desiring certification as asphalt construction technicians.

Five levels of education and training have been established for QC/QA Asphalt Construction Technicians based on typical tests required for Quality Control and Quality Assurance programs and are given in Table 6. Each of the laboratory and field tests required for certification as an asphalt construction technician is presented in this course. An introduction to asphalt plants and paving operations is also included.

Table 6 - Introduction to Hot Mix Asphalt QC/QA Testing

Level	Education and Training
A	Laydown Operations
B	Asphalt Plant Materials Control
C	Volumetrics and Stability
D	Smoothness
E	Aggregates

The Programs

The programs are offered sequentially, so that participants can attend one level of training and education, different levels of training or all of the levels offered by the RMAEC.

Level A – Laydown Operations

Technicians responsible for sampling HMA, HMA aggregates, and conducting compaction tests of HMA will want to attend this level. The topics covered in *Level A - Laydown* are listed in Table 7.

Table 7 - Level A - Laydown Methods and Procedures (Day 1)

Procedure	AASHTO	CDOT
Practice for Stratified Random Sampling of Materials		CP - 75
Practice for Sampling Bituminous Paving Mixtures	T 168	CP - 41
Practice for Sampling Aggregates	T 2	CP - 30
Test Method for Reducing Field Samples of Hot Mix Bituminous Pavements to Testing Size		CP - 55
Test Method for Density and Percent Relative Compaction of In-Place Bituminous Pavement by the Nuclear Methods		CP - 81
Compaction Test Section		
Nuclear vs. Core Correlation		CP - 82

Level B - Plant Materials Control

Technicians responsible for material process control at the HMA plant will want to attend this level. The topics covered in *Level B - Asphalt Plant Materials Control*, are shown in Table 8.

Table 8 - Plant Materials Control Methods and Procedures (Day 2 and 3)

Procedure	AASHTO	CDOT
Reducing Samples of Aggregates to Testing Size	T 248	CP - 32
Sieve Analysis of Fine and Coarse Aggregates	T 27	CP - 31A
Materials Finer Than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing	T 11	CP - 31B
Test Method for Binder Content by the Nuclear Method	T 287	CP - 85
Test Method for Binder Content by the Ignition Method	T 308	CP-L 5120
Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens	T 166	CP - 44
Theoretical Maximum Specific Gravity of Bituminous Paving Mixtures	T 209	CP - 51
Control Chart Fabrication		

Level C - Volumetrics and Stability

Technicians responsible for determining mixture volumetrics, Resistance to Moisture Induced Damage and Hveem stability characteristics for HMA produced at the HMA plant will want to attend this level of training and education. The topics covered in *Level C - Volumetrics and Stability* are given in Table 9.

Table 9 - Volumetrics and Stability, Methods and Procedures (Day 4)

Procedure	AASHTO	CDOT
Test Method for Resistance to Deformation and Cohesion of Bituminous Mixtures by Means of Hveem Apparatus	T 246	CP-L5106
Method for Preparing and Determining the Density for Hot Mix Asphalt (HMA) Specimens by Means of the SHRP Gyration Compactor	T-312 R-30	CP-L5115
Practice for Volumetric Analysis of Compacted Hot Mix Asphalt (HMA)	PP 19	CP 48
Method for Resistance of Compacted Bituminous Mixture to Moisture Induced Damage	T 283	CP-L5109

Level D – Smoothness*

Technicians responsible for measuring smoothness using any Colorado approved device will want to attend this level of training. The information presented for the *Level D - Smoothness* is shown in Table 10. (*Not a required certification for projects bid and awarded after July 2002, this remains a required element for certification on projects bid and awarded prior to July 2002)

Table 10 - Level D (Day 4)

Procedure	AASHTO	CDOT
Operation of Multi-Wheel Profilograph and Evaluation of Profiles, 0.1 inch (2.5 mm) (For Hot Bituminous Pavements)		CP - 70

Level E - Aggregates

Technicians responsible for determining aggregate characteristics for use in HMA Mixture Designs will want to attend this level. The topics covered in Level E - Aggregates are given in Table 11.

Table 11 - Required Aggregates Tests for Level E (day 5)

Procedure	AASHTO	CDOT	ASTM
Sampling of Aggregates	T 2	CP-30	
Sieve Analysis of Fine and Coarse Aggregates	T 11, 27	CP-31	
Specific Gravity and Absorption of Fine Aggregates	T 84		
Specific Gravity and Absorption of Coarse Aggregates	T 85		
Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine	T 96		
Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate	T 104		
Clay Lumps and Friable Particles in Aggregate	T 112		
Plastic Fines in Graded Aggregates in Soils by Use of the Sand Equivalent Test	T 176		
Reducing Samples of Aggregate to Testing Size	T 248	CP-32	
Uncompacted Void Content of Fine Aggregate	T 304		
Determining Percent of Particles with Two or More Fractured Faces	CP-45		
Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate			D 4791

EDUCATION COURSE #3: INTRODUCTION TO HMA MIXTURE DESIGN

This is a two-part program divided into classroom and laboratory sessions designed to introduce individuals to Hot-Mix Asphalt (HMA) mixture design procedures. Part 1 includes a classroom course for individuals desiring to learn more about mixture design, but who may not need the details included in the laboratory session. Part 2 is a laboratory



course for individuals desiring to understand how to establish aggregate gradations, mix and compact test specimens, measure volumetric properties, and determine optimum asphalt content. Registration is available for Part 1 or Parts 1 and 2. The Superpave method of mixture design is presented.

Part 1 - This is a one day classroom session spent on general principles of mixture design specific to Superpave design methods including: aggregate production and quality, asphalt binder properties, aggregate gradation development, laboratory batching and mixing procedures, volumetric properties of mixtures including air voids, VMA, VMA filled with asphalt, developing mixtures to meet volumetric requirements, and laboratory compaction vs. construction and traffic compaction principles.

Part 2 - This is a one day laboratory course in which the class is divided into small groups for specific training in the Superpave Method.

Each group will learn to fabricate and evaluate properties of test specimens using the equipment specific to the Superpave Method, including compaction, bulk specific gravity, Hveem Stability, resistance to moisture, and volumetric analysis. The last part of the class is devoted to the selection of an appropriate job mix formula for an actual mixture design.

FEES

The fees for all RMAEC education and LabCAT certification programs can be obtained by contacting the RMAEC at 303-741-6148, by fax at 303-741-6146 or by email at rmaec@co-asphalt.com or visiting www.co-asphalt.com/education

RMAEC CANCELLATION POLICY

The following RMAEC Participant Cancellation Policy applies to the Asphalt Technician Certification Program (LabCAT) and all RMAEC education programs.

- The RMAEC will accept and hold registrations **“To Be Announced”**, (**“TBA”**) for a grace period up to 30 days prior to the session start date. If no name is submitted to the RMAEC within the grace period, the **“TBA”** registration will be released. The Company/Agency will not be charged a cancellation/reschedule fee if the registration is released prior to the 30 day grace period. The RMAEC will not accept a **“TBA”** registration less than 30 days prior to the session start date.
- A registration in which a name has been submitted will be subject to the same policy and will not be charged a cancellation/reschedule fee if the cancellation is made prior to the 30 day grace period.
- Cancellations or reschedules after the grace period and up to 12:00 noon on the Wednesday prior to the session start date, will be assessed a \$50 administrative fee.
- Cancellations or reschedules made after 12:00 noon on the Wednesday prior to the session start date will be assessed a cancellation/reschedule fee which will be **50% of the registration fee, but will be not be less than \$100.**



- Registrants who do not attend a scheduled session and have not scheduled a qualified substitute, (see program requirements for LabCAT certification) **are subject to the full registration fee.**
- Please notify RMAEC at 303-741-6148 to make schedule changes or E-Mail rmaec@co-asphalt.com. All E-Mail changes must be postmarked by Noon on the Wednesday prior to the session start date. If the post mark is after noon on the Wednesday prior the above guidelines will be followed.

The following RMAEC Policy applies to the Asphalt Technician Certification Program (LabCAT) and all RMAEC education programs for cancellations due to lack of participants and weather related issues.

1. If inclement weather is possible, registrants scheduled to attend should verify if the course would be held or canceled. A decision will be made by the RMAEC twenty-two (22) hours prior to the start of the course. Please call the RMAEC at 303-741-6148 to inquire about the status of the scheduled course.
2. If a scheduled course has to be canceled for any reason other than inclement weather, the RMAEC will make every attempt to notify registrants seventy-two (72) hours prior to the start of course when ever possible.
 - The registrants will be notified by phone about the possible course cancellation.
 - If a course is cancelled, registrant will be transferred to a future course (if one is available).

LOCATIONS OF THE PROGRAMS

All certification programs of the RMAEC are held in the classroom and laboratory facilities located on the first floor of 6880 South Yosemite Court, Centennial, Colorado.

Most of the educational programs are held at the RMAEC, however, these programs are also offered at various locations in Colorado and New Mexico.

EQUIPMENT REQUIREMENTS

All equipment for training, demonstrations, and testing are located at the RMAEC facilities. This includes classroom as well as laboratory equipment and material requirements. Attendees desiring certification in areas where nuclear asphalt content or density gauges are required must be graduates of a Radiological Safety Course and in possession of their radiation safety certificate.

COURSE AVAILABILITY

The educational courses and certifications are available to all on a first-come, first-served basis depending on course schedule. All courses are offered throughout the year. Look for announcements in the mail, email announcements, visit us at www.co-asphalt.com or call the RMAEC at 303-741-6148.



CONTINUING EDUCATION UNITS (CEUs)

Optional CEUs (Continuing Education Units) will be offered. Continuing Education Units are designed to measure participation in learning experiences other than academic credit courses. As such, these units do not satisfy any requirements toward a degree, but they do provide a permanent record for professional training and enrichment activities. One CEU represents 8 hours of instruction. These continuing education “professional credits” are accepted for recertification requirements and as a measure of in-service activities in professional fields. Participants may receive CEUs for the RMAEC Education and Certification programs. For individuals desiring to receive CEUs please inform the instructor. A letter will be issued from the RMAEC after the course has been completed. Call 303-741-6148 for details.