

Introduction and History

The Rocky Mountain Asphalt Education Center (RMAEC) administers the Lab for Certification of Asphalt Technician (LabCAT) Program, as well as offering training for technicians who are preparing for LabCAT certification. Additionally, the RMAEC presents and hosts various Asphalt Construction Seminars throughout the year. Please reference the LabCAT and the RMAEC pages on the CAPA website for current schedules.

The LabCAT Program 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 is a partnership between CDOT, CAPA, and the FHWA. A joint Board of Directors consisting of CAPA, CDOT, FHWA and Industry Representatives provide direction to the program.

As of 1996, all asphalt technicians working on CDOT projects where QC/QA specifications are used, are required to hold certification through the LabCAT Program. Certification through LabCAT is also required by some local agencies. These include, but are not inclusive to, The Metropolitan Government Pavement Engineers Council (MGPEC), City of Greeley, and the Pikes Peak Regional Transportation Authority (PPRTA). LabCAT is considered to be a NICET equivalent for those testing asphalt and related materials at Denver International Airport.

Technicians testing for certification must be proficient in each of the Laboratory and Field tests required for materials acceptance in conjunction with the CDOT QC/QA specifications. The Field and Laboratory testing is based on the current references to the CDOT Field Materials Manual (FMM), CDOT Laboratory Manual of Test Procedures (CP-L), and the AASHTO Standard Specification for Transportation Materials and Methods of Sampling, where applicable.

LabCAT Certification Levels

- Level A – Laydown Operations
- Level B – Plant Materials Control
- Level C – Volumetric and Stability
- Level E – Aggregate
- Level S – Smoothness
- Level I – Asphalt Inspector

Certification Fees

Each certification is valid for three years.

Level	CAPA Member or CDOT	Non Member
ABC	\$650	1200
AB	\$500	\$910
A	\$200	\$420
B	\$300	\$510
C	\$250	\$490
E	\$280	\$535
S	\$300	\$550
I	\$250	\$400

Registration – Levels A, B, C, E, and S

Please reference the LabCAT page / Technician Registration on the CAPA website for Registration Forms.

Technician Registration Form

This form allows you to request your session date, request the level(s) you will be testing for, and provide billing information. You may register on-line, or print the pdf and submit via: fax, USPS, or scan and email.

Upon receiving your registration, the RMAEC will email a registration confirmation. If you do not receive confirmation within 48 hours, please contact the RMAEC at (303)741-6148 ext 154.

Registration must be completed prior to the registration close date. Registration closes the Wednesday prior to the session start date.

Technician Prerequisite Form

Technicians are required to pre-qualify for their initial certification by level. The Prerequisite Form is a qualifying document that provides a format for required signatures. Individuals signing this form are documenting the testing technician's readiness and qualification for certification.

Because signatures are required, the form is a hard copy form. Please print the pdf, obtain the signatures for proper documentation, and submit.

Required prerequisites include: Testing Experience, Verification of Proficiency in Laboratory Procedures and a Liability Release.

Certification Prerequisites: Levels A, B, C, E, and S

- Testing Experience for Levels ABCE
A minimum of 60 days of continuous asphalt materials testing is required. Accumulation of time is not allowed. As indicated in CDOT FMM CP 10, inexperienced technicians (less than one year of documented experience) performing asphalt materials testing should consider successful completion of the "Introduction to QC/QA Testing" course offered by the RMAEC. A supervisor's signature on the Technician Prerequisite Form is accepted as documentation.
- Testing Experience for Level S
A minimum of 60 days of continuous testing experience profiling roadways using the HSP is required. Accumulation of time is not allowed. A supervisor's signature on the Technician Prerequisite Form is accepted as documentation.
- Verification of Proficiency in Laboratory Procedures as required by level.
This prerequisite is waived if the testing technician has been previously LabCAT certified in the requested level.

The individual (verifier) signing the verification must be qualified to verify the testing technician's proficiency. Therefore, the verifier must have current LabCAT certification in the level(s) he/she is verifying. The verifying technician's signature on the Technician Prerequisite Form is accepted as documentation

This prerequisite is to ensure the testing technician has prior experience in the test procedures.

Please note: Certification sessions are not to be used as a platform for training. Falsification of the testing technician's experience or proficiency in the laboratory procedures may result in the verifying technician losing his/her certification.

- Liability Release
The testing technician documents he/she has read, understands, and agrees to the RMAEC Release of Liability. The testing technician's signature on the Technician Prerequisite Form is accepted as documentation.

Certification Session Formats

Standard

The standard certification format is structured for the technician who is certifying for the first time in the requested level, or for the technician who is re-certifying, and would benefit from review. The standard program begins with classroom presentations which describe each of the Laboratory Procedures and their purpose. Technicians are then given a closed book written exam. Following successful completion of the written exam the technician is required to demonstrate proficiency in each Laboratory Procedure required by level. Proficiency demonstrations are conducted before a qualified volunteer proctor and are closed book.

Streamline

The streamline re-certification format is reserved for the technician who has previously been certified in the requested level. The streamline session moves at an accelerated pace. Classroom presentations of the Laboratory Procedures are not included. Technicians are given a brief review of Laboratory Procedure changes which may have occurred over the previous three years. Technicians are then given a closed book written exam. Following successful completion of the written exam the technician is required to verbalize Laboratory Procedures to demonstrate proficiency. Proficiency demonstrations are conducted before a qualified volunteer proctor and are closed book.

Proctor Incentive Re-certification (PIR)

The PIR format is reserved for technicians who have volunteered their time by assisting as a laboratory proctor for the LabCAT Program. Technicians who meet the eligibility requirements will be allowed to waive their Laboratory Procedure demonstrations for re-certification. The written exam testing is still required and is closed book.

Level A - Laydown

Technicians responsible for sampling and conducting compaction tests on asphalt materials at the laydown site are required by CDOT to have this certification.

Prerequisites: Level A

- Required prerequisite documentation. Please reference the Technician Prerequisite Form.

Recommended prerequisites include; basis 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.

Successful Completion: Level A

- Pre-qualifying by satisfying the prerequisite documentation.
- Passing both the written testing and the Laboratory Procedure testing as required by level.

Level A Overview

Classroom Presentations (standard session format)

Certification begins with the classroom presentations, as listed below. Each section will be described including the purpose of the test and application of the test data.

Quality Control	Tester Responsibilities
Random Sampling of Materials	CP 75 / D 3665
Verification of Equipment	CP 76 / CP-L 5101
Sampling of Aggregates	CP 30 / T 2 / D 75
Sampling of Asphalt	CP 41 / T 168
Reducing Asphalt Samples to Testing Size	CP 55 / T 248
Compaction Test Section	CP 82
In-Place Density by Nuclear Method	CP 81

Written Exam Testing

Written exams are closed book. Testing technicians will be allowed 60 minutes to complete their written exam. At the time of written exam testing, the Instructor will distribute copies of the CDOT procedures per level. These handouts are for quick reference. Please be prepared. Handouts will be collected at the completion of the written exams.

Laboratory Procedure Testing

Laboratory orientation occurs prior to the Laboratory Procedure testing. The purpose of the orientation is to show the technician where each of the Laboratory Procedure Tests will occur.

Laboratory exams are closed book. Technicians are required to independently demonstrate proficiency in the Laboratory Procedures. Additional training or coaching from the Laboratory exam proctor will not be allowed. Certification sessions are not to be used as a platform for training. The RMAEC must emphasize the importance of prior experience, preparation and study, on the part of the testing technician.

Level B - Plant Materials Control

Technicians responsible for materials process control at the asphalt plant are required by CDOT to have this certification.

Prerequisites: Level B

- Current Level A certification.
- Required prerequisite documentation. Please reference the Technician Prerequisite Form.

Successful Completion: Level B

- Pre-qualifying by satisfying the prerequisite documentation.
- Passing both the written testing and the Laboratory Procedure testing as required by level.

Level B Overview

Classroom Presentations (standard session format)

Certification begins with the classroom presentations, as listed below. Each section will be described including the purpose of the test and application of the test data.

Reducing Aggregate Samples to Testing Size	CP 32 / T 248
-200 Wash and Sieve Analysis of Aggregate	T 11 / T 27 / CP 31
Asphalt Content by Nuclear Method	CP 85 / T 287
Bulk Specific Gravity of Cores	CP 44 / T 166
Theoretical Maximum Specific Gravity (Rice)	CP 51 / T 209
Asphalt Content by Ignition Method	CP-L 5120
Determination of Moisture Content of Asphalt	CP 43

Written Exam Testing Level B – Please reference Level A

Laboratory Procedure Testing Level B – Please reference Level A

Level C – Volumetrics and Stability

Technicians responsible for determining asphalt mixture volumetric and strength characteristics at the asphalt plant are required by CDOT to have this certification.

Prerequisites: Level C

- Current Level A and Level B certification.
- Required prerequisite documentation. Please reference the Technician Prerequisite Form.

Successful Completion: Level C

- Pre-qualifying by satisfying the prerequisite documentation.
- Passing both the written testing and the Laboratory Procedure testing as required by level.

Level C Overview

Classroom Presentations (standard session format)

Certification begins with classroom presentations, as listed below. Each section will be described including the purpose of the test and application of the test data.

Mixture Volumetrics	Properties
Superpave Gyrotory Compaction	CP-L 5115 / T 312
Hveem Stability	CP-L 5106 / T 246
Resistance to Moisture Induced Damage (Lottman)	CP-L 5109 / T 283

Written Exam Testing Level C - Please reference Level A

Laboratory Procedure Testing Level C - Please reference Level A

Level E - Aggregates

Technicians responsible for determining aggregate characteristics for the use in asphalt designs are required by CDOT to have this certification.

Prerequisites: Level E

- Required prerequisites documentation. Please reference the Technician Prerequisite Form.

Recommended prerequisites include; basis reading and math skills, one paving season in construction or an asphalt or aggregate testing laboratory.

Successful Completion: Level E

- Pre-qualifying by satisfying the prerequisite documentation.
- Passing both the written testing and the Laboratory Procedure testing as required by level.

Level E Overview

Classroom Presentations (standard session format)

Certification begins with classroom presentations, as listed below. Each section will be described including the purpose of the test and application of the test data.

Sampling of Aggregates	CP 30 / T 2
Reducing Aggregate Samples to Testing Size	CP 32 / T 248
Sieve Analysis of Fine and Course Aggregates	CP 31 / T 11 / T 27
Specific Gravity and Absorption of Fine Aggregate	T 84
Specific Gravity and Absorption Of Course Aggregate	T 85
Toughness (LA Abrasion)	T 96
Micro-Deval	CP-L 4211
Plasticity Index	T 90
Soundness	T 104
Clay Lumps and Friable Particles in Aggregate	T 112
Sand Equivalent (Clay Content)	T 176
Uncompacted Void Content of Fine Aggregate (FAA)	T 304
Fractured Faces	CP 45
Flat and Elongated Particles	D 4791

Written Exam Testing Level E – Please reference Level A

Laboratory Procedure Testing Level E – Please reference Level A

Level S – Smoothness

For CDOT Projects, certification in the operation of the HSP and Operator Smoothness Certification is required. Certification of the equipment is completed by CDOT.

Prerequisites: Level S

- Required prerequisite documentation. Please reference the Technician Prerequisite Form.

Recommended prerequisites include; one paving season in construction or operation of the High Speed Profiler (HSP).

Successful Completion: Level S

- Pre-qualifying by satisfying the prerequisite documentation.
- Passing both the written exam and the Field Procedure testing.

Level S Overview

Classroom Presentations (*standard session format*)

Certification begins with classroom presentation on the basic principles of set up and data collection for pavement smoothness in accordance with the CDOT specifications, as listed below. Certification on the smoothness specification and data reduction is the primary focus of the presentation.

Operation of High Speed Profiler	CP 74
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Written Exam Testing Level S

Written exams are closed book. Testing Operators will be allowed 60 minutes to complete the written exam. A score of 80% or higher must be obtained to pass.

Written Exam Re-Test Level S

If the written exam is failed, the Operator will be advised. Upon request, a review of the missed questions will be allowed. The written re-test will be promptly administered, following the review. If the re-test is failed the Operator will not be allowed to continue the certification process or to proceed to the Field Procedure testing. The Operator must re-register in a new session. The full certification fee will be assessed.

Field Procedure Testing Level S

Operators are required to independently demonstrate Field Proficiency on the HSP. This includes operating the equipment. Operators are required to bring HSP equipment to certification. The RMAEC does not have HSP equipment.

Field Procedure exams are closed book. A score of 80% or higher must be obtained to pass.

Field Procedure Re-test Level S

If the Field Procedure testing is failed, the Operator will be advised. No review or additional instruction will be given by the Instructor. The Field Procedure re-test policy requires the testing Operator to schedule a re-test session. Re-tests may be scheduled as early as the Friday following the original test date.

Registration – Level I

Please reference the LabCAT page / Inspector Registration on the CAPA website for Registration Forms.

Asphalt Inspector Certification is required by Colorado CP 10 and MGPEC. The Inspector Registration & Prerequisite Form may be submitted at any time prior to the registration close date. Registration closes the Wednesday prior to the session start date.

Inspector Registration & Prerequisite Form

This dual purpose form allows you to request your session date, provide billing information, and document your certification prerequisites. You may register on-line or print the pdf and submit via: fax, USPS, or scan and email.

Upon receiving your registration, the RMAEC will email a registration confirmation. If you do not receive confirmation within 48 hours, please contact the RMAEC at (303)741-6148 ext 154.

Registration must be completed prior to the registration close date. Registration closes the Wednesday prior to the session start date.

Prerequisites: Level I

- Required prerequisite documentation. Please reference the Inspector Registration & Prerequisite Form.

Successful Completion: Level I

- Pre-qualifying by satisfying the prerequisite documentation.
- Passing the written exam.

Level I Overview

Classroom Presentations

Certification begins with classroom presentations, as listed below.

Reading Specification
Surface Preparation for Asphalt
Materials Transfer Vehicles
Sampling of Asphalt Mixtures
Paving Operations
Compaction
High Speed Profiler
Mat Defects

Written Exam Testing Level I

Written exams are closed book. Testing Inspectors will be allowed 60 minutes to complete the written exam. A score of 80% or higher must be obtained to pass.

Written Exam Re-Test Level I

If the written exam is failed the Inspector will be advised. Upon request, a review of the missed questions will be allowed. The written re-test will be promptly administered, following the review. If the written re-test is failed the Inspector must re-register in a new session. The full certification fee will be assessed.

Laboratory Procedure Testing Level I

Inspector Certification does not require Laboratory Procedure Testing.

Written Exam Re-test Levels A, B, C, and E

Written exams are divided into sections. A score of 70% or higher must be obtained per section. An overall score of 80% per level must be obtained to pass.

If a section of the written exam is failed, the technician will be advised. Upon request, a review of the missed questions will be allowed. The written re-test will be promptly administered, following the review.

The number of failed sections allowed, during the initial written exam, is limited per level. If the limit is exceeded the technician is not eligible to re-test the written exam.

Level	# of Sections	# of Sections allowed to Fail
A	7	2
B	7	2
C	4	1
E	15	4
E w/o A	12	3

If the written re-rest is failed the technician will not be allowed to continue the certification process, or proceed to the Laboratory Procedure testing. The technician must re-register and start the level over in a new session. The full certification fee per level will be assessed.

Written Exam Re-Test Fees Levels A, B, C, E, S, and I

The written exam re-test fee is \$25 per level.

Laboratory Procedure Re-test Levels A, B, C, and E

Technicians are required to independently demonstrate proficiency in each Laboratory Procedure. If a Laboratory Procedure test is failed, the testing technician will be advised. No review or additional instruction will be given by the Instructor. The Laboratory Procedure re-test policy requires the testing technician to schedule a re-test session. Re-tests may be scheduled as early as the Friday following the original test date. Laboratory Procedure re-testing sessions are “one-one-one” with the LabCAT Instructor.

During the re-test session the technician may be required to demonstrate proficiency in additional Laboratory Procedures within the level being sought.

A score of 80% or higher must be obtained per Laboratory Procedure. The number of failed Laboratory Procedures is limited per level. If a testing technician fails more than the number allowed, the entire level must be taken over.

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

Laboratory Procedure Re-test Fees: Levels A, B, C, E and S

The Laboratory Procedure re-test fee is \$150.00 per level.

RMAEC Cancellation / Reschedule Policy

Registration closes at 2:00 pm on the Wednesday prior to the session start date. Cancellations or reschedules made after 2:00 pm on the Wednesday prior to the session start date may be assessed

a \$100 cancellation/reschedule fee. Please notify the RMAEC at 303-741-6148 ext 154 to make registration changes or e-mail rmaec@co-asphalt.com

Technicians who do not attend a scheduled session and have not scheduled a qualified substitute, are subject to the full registration fee. No refunds will be given.

No refunds will be given to a technician who begins a session and chooses not to complete the session on the scheduled day. A technician who chooses to leave a session will be considered “failing” and will need to retest as per policy.

Cancellation Due to Inclement Weather

The following applies to the LabCAT Program and all RMAEC Education Seminars.

If impending weather is forecasted, participants should verify if the session will be held, or will be cancelled. Please call the RMAEC at 303-741-6148 ext 154 (Diane) or ext 153 (Cindy) to inquire about the status of the scheduled session.

If a session has to be cancelled for any reason other than inclement weather, the RMAEC will make every attempt to notify participants seventy-two hours prior to the start date.

If a session is cancelled, the registration will be transferred to a future session, providing one is available.

Re-certification

Each certification level is valid for three years. Re-certification will be necessary after three years. It is possible for the expiration date in one level to be different than in another.

Adding Certification Levels

If one certification level has been attained and a higher certification level is desired at a future date, certification must occur within a twelve month period.

Grandfathering Certification

To insure that each certified technician is following the current 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.

Reciprocity

The LabCAT Program is unique to Colorado Laboratory and Field tests. While certain tests conducted may be 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.

De-Certification Policy

Certification is a privilege. This privilege may be revoked if in the opinion of the Director of Training, the LabCAT Instructor, and the LabCAT Board of Directors, a technician is judged to have knowingly committed acts which are detrimental to the integrity of the LabCAT Program or the construction industry in general. Acts which could result in the revocation of a technician’s certification are:

- Falsification of a testing technician's experience and proficiency in the Laboratory Procedures may result in the verifying technician losing his/her certification.
- Falsification of Field or QC tests results and/or records.
- Incompetence during performance of Field or Laboratory Procedures, knowingly not adhering to the procedures required for testing.
- Cheating on LabCAT certification exams.
- Submitting false information for LabCAT certification.

- Termination due to job incompetence.
- Criminal action while engaged in construction activities.
- Non-Payment of LabCAT Program fees.

The LabCAT Program, Report of Improper Testing or Inspection Form must be completed and submitted to the LabCAT Director of Training. The Director of Training will notify the technician that a written complaint has been filed. The technician will be asked to submit a written response to the Director of Training regarding the complaint. If two written complaints concerning the same technician, detailing similar offenses, are received within a six month period the technician may be required to submit documentation disputing or clarifying the complaints. The technician may be subject to review by the LabCAT Technical Committee and/or LabCAT Board of Directors. If three or more complaints are filed within a twelve month period, the technician will be notified that his/her certification is being suspended until the complaints can be reviewed by the Director of Training, the LabCAT Technical Committee and/or the LabCAT Board of Directors. If upon review judgment is reached that revocation of certification privileges is warranted, the technician will receive written notification by a certified USPS letter. The technician will be allowed seven calendar days, within posting of the notification, to respond in writing. If during that time a written letter of protest is received, the LabCAT Board of Directors will review the case and if necessary a hearing will be scheduled within seven calendar days.

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

If no protest letter is received, it will be assumed by the LabCAT Director of Training, and the LabCAT Board of Directors, the technician does not protest the decision, and revocation will occur. The technician may apply for re-instatement at any time by submitting a formal request to the LabCAT Director of Training. Upon receipt, the LabCAT Director of Training will notify the technician of the re-instatement process. The re-instatement process may include any or all of the following:

- Review by the Director of Training, the LabCAT Technical Committee, the LabCAT Board of Directors, or designated representatives.
- \$150 re-instatement fee may be applied.

Complaints

Any person wishing to register a complaint regarding a certification session, the LabCAT Instructor, a proctor, or an examination result, must do so in writing within thirty days of the event. The written complaint must be detailed and specific. The written complaint must be dated and bear the name and signature of the person making the complaint. All complaints will be addressed by the Director of Training, and the LabCAT Technical Committee, excluding any member(s) directly involved with the complaint. A recommendation will be presented to the LabCAT Board of Directors. All complaints will be answered in writing within sixty days of receipt and all decisions will be final.

Continuing Education Units (CEU)/Professional Development Hours (PDH)

CEU's/PDH'S are designed to measure participation in learning experiences other than academic credit courses. These do not satisfy any requirements toward a college degree. However, they do provide a permanent record for professional training. Each credit represents 8 hours of instruction. Please contact the RMAEC to request documentation.