



**DEPARTMENT OF  
TRANSPORTATION**

**Technical Certification Program  
Office of Materials and Road Research**

# **Technical Certification Policy Manual**

**2024 Edition**

<https://www.dot.state.mn.us/technical-certification/index.html>



# For Your Information

## REGISTRATION

Registration opens the first business day in October for all technical certification classes. Visit the LSC website at <https://training.lsc.edu/mndot-technical-certification/> for class offerings and registration information. For information on the Technical Certification Program, visit the Technical Certification webpage, address found on the cover page. This site has links to the websites of the training partners who assist MnDOT in administering certification and non-certification classes.

## AGGREGATE PRODUCTION REQUIRED

Aggregate Production is required for all aggregate testers. It is also required for certification in Bituminous Plant, Bridge Construction Inspection, Concrete Plant, and Grading & Base.

Currently Aggregate Production certification does not expire. Consequently, there are no recertification classes for Aggregate Production.

## CERTIFICATION CARDS

Certification cards are available by registering in the Technical Certification Public Portal. For more information, please access the Technical Certification website, address found on the cover page.

## RECERTIFICATION

Successful completion of an Inspector certification class will extend the corresponding Tester certification to the Inspector expiration date. Otherwise, individuals must take the requisite recertification class. **IF AN INDIVIDUAL FAILS AN INSPECTOR RECERTIFICATION CLASS, THEY MUST RECERTIFY THE TESTER RECERTIFICATION TO RETAIN IT.**

**Recertification is required every five years for both Tester and Inspector certification to maintain certification for both disciplines.**

## KEEP YOUR CONTACT INFORMATION CURRENT

Log on to the Technical Certification Public Portal and update your personal information. Use the link found on the cover page. If you have any questions, please contact The Technical Certification Office at: [tech-cert.dot@state.mn.us](mailto:tech-cert.dot@state.mn.us)

**These Trainings/Certifications are not covered under the Technical Certification Program, but information for them can be found on the Technical Certification website.**

**PRESTRESSED CONCRETE CERTIFICATION  
CONCRETE FLAT WORK FINISHER  
SIGNAL & LIGHTING CERTIFICATION  
EROSION AND SEDIMENT CONTROL**

**FLAGGER TRAINING  
MNDOT TRAFFIC CONTROL SUPERVISOR  
BRIDGE SAFETY INSPECTION**

# TABLE OF CONTENTS

Introduction .....	3
Registration in the Technical Certification Public Portal .....	4
Technical Certification Program Summary .....	4
Eligibility for Certification .....	5
Certification of Engineers .....	5
Certification Cards .....	6
Provisional Certification .....	6
Certifications from Other States .....	8
Registration and Enrollment .....	8
Courses Required for Certification .....	9
Recertification .....	10
Retest .....	11
Revocation of Certification .....	12
Recently Expired Certification Exam .....	14
Certification Course Descriptions & Area Requirements .....	14
Additional certification programs.....	15

# INTRODUCTION

The Technical Certification Unit developed this Policy manual to help you better understand the MnDOT Technical Certification Program (TCP). It addresses questions commonly asked about the program. However, for the sake of brevity, it does not address every aspect of the program. For questions not covered in this handbook, check the Technical Certification website. Use the link on the cover page, or email the Technical Certification Unit at [tech-cert.dot@state.mn.us](mailto:tech-cert.dot@state.mn.us)

This program is like other technician certification programs offered across the United States. By Federal mandate, all state transportation departments have a technical certification program for construction and/or materials testing and inspecting technicians. Programs vary somewhat from state to state but have a common objective: to gauge technician expertise and ensure a minimum level of competency.

TCP training courses are developed and taught cooperatively by MnDOT and various proponent agencies. Technical experts from MnDOT, private industry, and educational institutions teach these courses. Using experienced instructors is extremely helpful to students, especially during the hands-on training sessions conducted in a MnDOT or private industry materials laboratory. All Instructors, both classroom and laboratory, are required to be in good standing with full certification for the course/s they teach. Any Instructor not certified, will not be allowed to teach.

A person may apply to become an Instructor in the Technical Certification Program by submitting a resume with teaching experience to the Technical Certification Program Director at [tech-cert.dot@state.mn.us](mailto:tech-cert.dot@state.mn.us). The resume is then reviewed by the Technical Certification Advisory Committee who will make a recommendation to the Technical Certification Director on whether they believe the individual has the background to teach and are currently certified in the course/s they have stated an interest in. The Technical Certification Director has the final say on any instructor's involvement in the program. All instructors are reviewed annually through student evaluations and visits by the Technical Certification Program Staff. These reviews determine the continued involvement of the instructor in the program. For privacy reasons, these reviews are shared with the instructor their contracting authority, and the Technical Certification Staff. The instructor may share with others in their organization as necessary.

People from all areas of the construction industry attend MnDOT Technical Certification courses. They receive various certifications through successful completion of classroom and laboratory courses, written examination, and performance review. Many bring a wealth of experience with them, which they often share with others in the classroom. The communication and cooperation fostered in these courses is one of the most beneficial aspects of the program.

Certain recertification courses are being offered virtually and on-line for those that prefer independent study to normal classroom learning. If you prefer an On-Line course versus a classroom, or virtual, please check each year, during registration, to see if the recertification course you need is offered On-Line, virtually, or in person.

The MnDOT Technical Certification Unit has the responsibility for granting certifications and providing access to certification cards. Its policy and procedures are developed from administrative law, Department policy, and input from the Technical Certification Advisory Committee, comprised of representatives from both the public and private sector.

If you have questions regarding course content or certification policy, see the Technical Certification Website Unit at [tech-cert.dot@state.mn.us](mailto:tech-cert.dot@state.mn.us)

# REGISTRATION IN THE TECHNICAL CERTIFICATION PUBLIC PORTAL

To register in the public portal each person needs to access the public portal login page. Link found on the cover page. Search the website home page and select the section you wish to access.

## TECHNICAL CERTIFICATION PROGRAM SUMMARY

There are two levels of technical certification:

**TESTER:** referred to as a "tester" or "field tester". This is for individuals with limited responsibility who normally work under the direction of a supervisor. Often, materials testing and/or sampling is the sole duty of a tester technician.

**INSPECTOR:** referred to as the "inspector"; is an advanced certification for individuals in a decision-making role, such as project supervision or oversight. Chief Inspectors, Mix Designers, etc., require inspector certification.

Technicians receive certification through successful completion of the required MnDOT Technical Certification Program curricula for that certification area. Successful completion consists of:

- Classroom, virtual or On-Line instruction
- Written examination.
- And, if required, a hands-on performance evaluation. **Completed by May 15th of the corresponding training season (unless otherwise stated)**

Only training courses approved by the Minnesota Department of Transportation are accepted for technical certification. See the section on *Certification Areas* (beginning on P.15) for the specific requirements for each certification area.

Technical certification is a cooperative effort between the Minnesota Department of Transportation and various agencies.

Cooperating agencies include:

- Lake Superior College (LSC)
- Aggregate and Ready-Mix Association of Minnesota (ARM)
- Coursework AASHTO Technical Training Solutions (TTS)
- Concrete Paving Association of Minnesota (CPAM)
- MN Asphalt Paving Association (MAPA)

Requirements for a certified technician are included in the ***Standard Specifications for Construction Handbook***, project **Special Provisions** and the **Schedule of Materials Control for Federal Aid Projects**. Certification is required for all individuals sampling, testing, or inspecting material on all Federal Aid and state projects. Refer to the contract proposal for technical certification requirements on State Projects. Certification is required for personnel on all State Aid Projects as specified by the MnDOT Division of State Aid. Contact William Meinholz PE, at 651-366-3832 concerning certification on State-Aid projects.

## ELIGIBILITY FOR CERTIFICATION

The certification program is designed primarily for personnel already working in highway construction. Experience is highly recommended, but not required for certification. To be eligible for certification, you must successfully complete all classroom coursework, written examination, and any related performance evaluation.

Seasonal workers, such as students or laborers, may obtain a *provisional testing certificate* in a specific area. *Provisional testing certificates* are for individuals who need testing privileges for only one season and who demonstrate proficiency in one or more related material testing procedures. See the *Provisional Testing Certificate* section on page 6 for more information.

Most certification classes require mathematical calculations and formulas at various proficiency levels. Students should be proficient with a scientific calculator and familiar with mathematical functions, including percentages, ratios, fractions, decimals, metric system, engineering type formulas, and basic algebra.

Aggregate Production certification is required for all aggregate testers, and is required for certification in Bituminous Plant Tester, Concrete Plant Tester, and Grading & Base Tester.

## CERTIFICATION OF ENGINEERS

Federal Highway Administration (FHWA) guidance clarifies who needs technical certification. All personnel who perform field sampling, laboratory testing, field testing, or inspection, on materials for acceptance on Federal Aid projects and State projects, must be certified.

The State of Minnesota adds, those who perform bituminous mix designs, or mix corrections of these materials for state highway projects, must be certified. This includes registered, professional engineers.

**For more information access the link below to view the FHWA Code of Federal regulations, Title 23- part 637.**

<https://www.gpo.gov/fdsys/pkg/CFR-2011-title23-vol1/pdf/CFR-2011-title23-vol1-part637.pdf>

# CERTIFICATION CARDS

The Technical Certification Program makes available a certification card to all certified technicians. These certification cards are accessed by logging into the Technical Certification Public Portal and downloading or printing them. These certification cards are annual and expire May 31 of each year. For information on certification ID cards see the Technical Certification website. Link found on the cover page.

**Certification cardholders are responsible for ensuring:**

- **Cardholders obtain a new certification card each year.**
- **Cardholders verify certification areas and dates.**
- **Cardholders verify and correct contact information including name, address, email address, and employer.**

Certified personnel must present a valid certification card on demand of a MnDOT Independent Assurance Inspector, MnDOT Plant or Field Inspector, MnDOT Lab Supervisor, local agency inspector, or Federal Highway Administration official.

There are two types of certification cards: formal and provisional.

**Formal certification cards** are downloaded cards from the TCP portal. These cards are accessed each year by the certified individual and will list the expiration date for each certification area the technician holds. Formal certification is granted for five years. Successfully complete of the associated recertification course will retain that certification for another five years. See the *Recertification* section, page 10, for more information.

**Provisional Testing Certification Cards** are issued by the MnDOT *Independent Assurance Inspector* in the District which the individual is working. Contact the Independent Assurance Inspector (IAI) to request provisional certification.

Provisional Testing Certificate cards must be signed by the granting authority and expire December 31 of the calendar year issued.

**PROVISIONAL TESTING CERTIFICATION (continued next page)**



**PROVISIONAL TESTING CERTIFICATION (continued)**

Following is a comparison between the two types of certifications:

	<b>Formal certification</b>	<b>Provisional testing certificate</b>
<b>Card issued by:</b>	Technical Certification Unit	Independent Assurance Inspector
<b>Certification expires:</b>	5 years from year granted	end of calendar year issued
<b>Can work alone:</b>	YES	NO
<b>Can be recertified:</b>	YES	NO (see bullet points below)
<b>Inspector certification:</b>	YES	NO

- Provisional testing certificate is not a full certification. It gives an individual the right to perform certain testing procedures marked on the provisional testing certificate card.
- Provisional Testing Certificates are limited to specific testers to testing procedures, such as gradations, concrete air or slump tests or sand cone density.
- Provisional Testing Certificate is not available for Inspector procedures.

**A Provisional Testing Certificate is offered once per testing discipline, Individuals who receive a provisional certification must attend formal certification training during the next training season.**

The advantage of a Provisional Testing Certificate is, it allows companies or agencies to utilize new or temporary employees performing routine field/laboratory sampling or testing normally requiring certification.

The following also apply to provisional certification:

- A provisionally certified technician cannot be used in lieu of a certified technician but must be under the direct supervision of a tester or Inspector individual formally certified in the same technical area. An exception is given if the provisional tester carries a communication device that provides immediate contact with their certified supervisor. **Supervisor must be available during all operating hours and must be at the testing location within 1 hour when required.**
- Provisional testing certificates **are not** issued for Concrete Plant Tester certifications; due to the requirement of accurately reviewing and responsibly of signing production and/or batch tickets. This can only be done by technicians holding full formal Concrete Plant Tester certifications.
- Full-time students, working construction jobs can be provisionally certified each summer until graduation.
- An individual may be provisionally certified for one additional year with the approval of the MnDOT District Materials Engineer. The District Materials Engineer will consider each exception on an individual basis.
- Anyone failing a full certification class is not eligible for a provisional testing certificate.

Applicants seeking a provisional testing certificate will be required to complete a performance review administered by a MnDOT Independent Assurance Inspector (IAI) in the district the person will be working. The appropriate MnDOT Independent Assurance Inspector will issue a temporary provisional testing certificate card, allowing an individual to perform only those test procedures identified on the provisional testing certificate card, i.e.: Air Test, Slump Test, Cylinders, Gradations, Moisture, Soil Density, Percent Crushing, Proctor, Rice, Spot Check, Extraction, Bulk Specific Gravities or Sampling.

**NOTE:** Any individual, who is provisionally certified in a District, and then moves or transfers to another District, must notify the Independent Assurance Inspector in the new district before beginning testing.

Please see the technical certification webpage for additional information. Address found on cover page.

## **Provisional Testing Certificate Fees**

There is no fee for the initial review of a field tester (all testing areas). A \$150 fee, payable to the Commissioner of Transportation, will be charged for each subsequent review when the initial review has not resulted in a provisional testing certificate being issued.

Contact the Technical Certification Unit at [tech-cert.dot@state.mn.us](mailto:tech-cert.dot@state.mn.us) for more information.

## **CERTIFICATIONS FROM OTHER STATES (RECIPROCITY)**

**Please see the technical certification webpage for additional information.**

Address found on cover page.

## **REGISTRATION AND ENROLLMENT**

See the Technical certification website for further information, address on cover page.

# COURSES REQUIRED FOR CERTIFICATION

The chart below shows the prerequisites for certification:

CERTIFICATION AREA	TESTER	INSPECTOR
<b>Aggregate Production</b>	<ul style="list-style-type: none"> <li>- Aggregate Production</li> <li>- Lab Evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• <i>(No Level 2 certification)</i></li> </ul>
<b>Bituminous Plant</b>	<ul style="list-style-type: none"> <li>- Aggregate Production</li> <li>- Bituminous Plant Tester</li> <li>- Lab performance review</li> </ul>	<ul style="list-style-type: none"> <li>- Tester Certification</li> <li>- Bituminous Plant Designer</li> <li>- Approved Mix Design</li> </ul>
<b>Bituminous Street</b>	<ul style="list-style-type: none"> <li>- <i>No Tester certification</i></li> </ul>	<ul style="list-style-type: none"> <li>- Bituminous Street Inspector</li> </ul>
<b>Bridge Construction</b>	<ul style="list-style-type: none"> <li>- <i>No Tester certification</i></li> </ul>	<ul style="list-style-type: none"> <li>- Requires 6 AASHTO TTS online courses.</li> <li>- Requires 2 MnDOT eLearning courses.</li> <li>- Aggregate Production Tester</li> <li>- Grading &amp; Base Tester</li> <li>- MnDOT Concrete Field Tester or ACI Concrete Field-Testing Technician Grade 1</li> <li>- Concrete Field Inspector</li> <li>- Bridge Construction Inspector</li> </ul>
<b>Concrete Field</b>	<ul style="list-style-type: none"> <li>- ACI Concrete Field-Testing Technician Grade 1</li> <li>- Performance Evaluation</li> </ul>	<ul style="list-style-type: none"> <li>- MnDOT or ACI Concrete Field Tester</li> <li>- Concrete Field Inspector course</li> </ul>
<b>Concrete Plant</b>	<ul style="list-style-type: none"> <li>- Aggregate Production</li> <li>- Concrete Plant Tester</li> </ul>	<ul style="list-style-type: none"> <li>- <i>No Inspector certification</i></li> </ul>
<b>Concrete Strength</b>	<ul style="list-style-type: none"> <li>- MnDOT Concrete Strength Tester</li> <li>- ACI Concrete Strength Field Level 1 certified,</li> <li>- Lab Evaluation</li> </ul>	<ul style="list-style-type: none"> <li>- <i>No Inspector certification</i></li> </ul>
<b>Grading &amp; Base</b>	<ul style="list-style-type: none"> <li>- Aggregate Production Tester</li> <li>- Grading &amp; Base Tester</li> <li>- Lab Evaluation</li> </ul>	<ul style="list-style-type: none"> <li>- Tester Certification</li> <li>- Grading &amp; Base Inspector</li> </ul>

Although discouraged, courses may be taken out of order. However, certification is not granted until all certification requirements are fulfilled.

**Bridge Construction Inspector Certification requires the completion of all prerequisites before attending the Bridge Construction course.**

For more information contact Technical Certification Program Unit at [tech-cert.dot@state.mn.us](mailto:tech-cert.dot@state.mn.us)

## RECERTIFICATION

To maintain certification, technicians must successfully complete a recertification class before their certification(s) expire. **Certifications expire May 31<sup>st</sup> of the fifth year of certification.** Certifications that have expired are ineligible to attend a recertification class. To regain their certification, they must attend the original certification course. Or, if qualify, may be able to attempt recertify through a self-study recently expired certification exam. For self-study exam information see the technical certification webpage. Address on cover page.

Currently Aggregate Production Tester certification does not expire. Consequently, there are no recertification classes for Aggregate Production Tester.

**For Recertification, all Prerequisites must be kept current, (see page 9.)**

Successful completion of a recertification course extends that certification for 5 years.

Individuals may attend a recertification course no sooner than two years prior, but not after that certification expires.

All recertification courses include a written examination. One must pass the written examination with a minimum score of (70) seventy percent.

Some certifications have a single recertification class. Other certifications have separate recertification classes for Tester and Inspector. **In either case, successful completion of the Inspector exam grants recertification at both levels.**

**Should an individual fail the Inspector recertification exam, that individual must successfully complete the Tester recertification course to retain Tester certification in that area. Contact the Technical Certification Program Unit at [tech-cert.dot@state.mn.us](mailto:tech-cert.dot@state.mn.us) for more information.**

## RETEST

A retest may be requested in the case of a failed course examination if the individual meets the following requirements:

1. Scored from 60 – 69 on the written exam.
2. Must have successfully completed the lab/field performance review, if required.
3. Must contact the Technical Certification Unit for retest instructions.
4. Must retest prior to May 31 (the end of the training season).

In the following four cases, the individual must successfully complete the original, Technical Certification Program, certification course:

1. Received a score less than 60 percent correct on any written examination.
2. Received a score less than 70 percent correct on any MnDOT Recently Expired Certification Exam (RECE).
3. Did not successfully complete the required performance review.
4. Received a score of less than 70 on a retest exam.
  - There is no fee for the **MnDOT** retest.
  - A retest fee does apply for **ACI Concrete Field-Testing Technician Grade 1** re-examinations. If you need to request a retest for this class, contact Aggregate and Ready-Mix Association of Minnesota at (952) 707-1250. There is a fee to retest for ACI.
  - For all other retest requests contact the MnDOT Technical Certification Unit at [tech-cert.dot@state.mn.us](mailto:tech-cert.dot@state.mn.us)
  - Retests for all MnDOT Technical Certification courses must be completed by May 31<sup>st</sup> of the training year the class was attended. Training year is from October 1 to May 31<sup>st</sup> of each MnDOT fiscal year.

# SUSPENSION OR REVOCATION OF CERTIFICATION

The MnDOT Technical Certification Program grants certification to a technician who meets the requirements for certification.

MnDOT may suspend or revoke certification for reasons including, but not limited to, the following:

- Knowingly or repeatedly failing to comply with the governing materials specifications.
- Knowingly or repeatedly recording erroneous data, calculations, information, or test results in project records.
- Inaccurately reporting what materials were placed in a bituminous or concrete mix.
- Allowing materials to be placed in a bituminous or concrete mix that are not in accordance with the current verified bituminous mix design or approved concrete mix design.
- Providing false information on a certification application or in connection with the certification exam or performance evaluation.
- Performing duties requiring a certification that are outside the scope of the person's certification.
- Failing to timely pay for technical certification courses.
- Behavior that violates the standards of conduct stated in Standard Specification for Construction 1802.
- Any other cause the Technical Certification Supervisor determines to be serious and compelling.

In addition to any of the criteria stated above, MnDOT may also suspend, or revoke certification of an inspector based on the following:

- Failing to comply with MnDOT Quality Control or Quality Assurance requirements; and/or
- By act or omission, repeatedly allowing erroneous sampling, testing, or inspection data to be recorded on project documents or submitted to MnDOT, or repeatedly allowing noncompliance with specifications, in the performance of the work subject to inspection.

In addition to any of the criteria stated above, MnDOT may also suspend, or revoke certification of supervisory personnel based on the following:

- Failing to accept responsibility for acts of subordinates that support suspension or revocation; and/or
- Failing to take steps to implement corrective measures related to conduct that supports suspension or revocation.

**Period of suspension or revocation.** The Technical Certification Supervisor will determine, on a case-by-case basis, whether a suspension or revocation is appropriate and the length of the suspension or revocation. The action taken will depend on the severity of the act or omission. After a period of suspension, the individual may apply for certification. To obtain certification after a period of revocation, the individual must apply for certification, take the courses required for certification and pass the certification exam and any related performance review.

**Written Notice.** MnDOT Technical Certification Supervisor will provide a written notice informing an individual that MnDOT intends to suspend or revoke technical certification(s). The notice will state the reason(s) for the proposed action and the length of time the certification will be suspended or revoked.

**Reconsideration.** The individual may submit a written request for a meeting with MnDOT personnel to present information showing that suspension or revocation is not warranted. The request must be received by the Technical Certification Supervisor within two weeks of the notice date. If no request is received in that timeframe, the proposed suspension or revocation becomes automatic and immediately effective.

If a meeting is requested, the Director of the Office of Construction and Innovative Contracting, the Technical Certification Supervisor, and any other appropriate MnDOT personnel will meet with the decertified individual.

After the meeting, the MnDOT personnel may decide not to impose a proposed suspension or revocation. If the group determines after a meeting that suspension or revocation remains appropriate, the Technical Certification Supervisor will refer the matter to the Engineering Services Division Director. The Director will consider the matter and issue a determination in writing. The Director's determination is the final agency action and becomes immediately effective.

**Public documents.** In accordance with the Minnesota Government Data Practices Act (Minnesota Statutes Chapter 13), all documents used at any stage in this process are "government data" subject to the requirements of the Act.

## RECENTLY EXPIRED CERTIFICATION EXAM. (RECE)

For individuals attempting to regain a certification that has recently expired. Please see the Technical Certification webpage. Address found on cover page.

## CERTIFICATION AREA REQUIREMENTS

Normally project responsibilities fall into two categories: *Agency/Owner* and *Contractor*. The following is a definition of who comprises the two categories:

**Agency/Owner:** Any MnDOT (Agency/Owner), or County, City or Consultant personnel representing the Agency/Owner. These individuals are responsible for performing or monitoring QC/QA materials testing.

**Contractor/Producer:** Prime or sub-contractor personnel responsible for performing, supervising, or monitoring the QC materials testing on a given project. These responsibilities are frequently different on a project. This difference is reflected in the following “Who needs certification:” criteria for each certification area.



# Certification: Aggregate Production Tester

## Use of this Certification

**Aggregate Production Tester Certification** is required for anyone who performs Quality Control (QC), Quality Assurance (QA), or Independent Assurance (IA) sampling and testing of aggregate (rocks). This includes procedures such as aggregate sampling, sample reduction, sieve analysis, and loss by washing. (See course objectives for a complete and detailed list of test procedures.)

People who have and use this certification work at/for MnDOT (in QC, QA, and IA roles), local agencies (counties and cities), consultants, contractors (the private businesses who are contracted to do construction work), and producers (businesses that supply the aggregate materials, including concrete and bituminous plants).

## Requirements and Relationship to Other Technical Certifications Courses

Prerequisites needed before beginning the course →	Aggregate Production Tester Certification	→ Is one of the prerequisites for other certification courses
None (Note: additional requirements potentially starting in 2022)	Requirements: Attend course (3 day), pass exam (70% or higher), attend lab session, pass performance exam  Recertification: none required (Note: additional requirements potentially starting in 2023)  Provisional certificates for specific tests: yes	Bituminous Plant Tester Certification course  Concrete Plant Tester Certification course  Grading and Base Tester Certification course

## Certification Course Description

This introductory course focuses on fundamental information about aggregate materials (rocks) and the key methods used to sample, conduct test procedures, and document test results to ensure these materials meet roadway and bridge construction quality requirements.

Instruction includes lecture, demonstration, discussion, practice activities, and hands-on lab experiences with the testing procedures. Quizzes, course resources, and content reviews are included to help participants prepare for the written and lab-based performance exams.

*[Note: Depending on participants' prior knowledge and experience, they may want to do additional practice and review before taking the class and/or the exam.]*

Performance review consists of the following tests:

- AASHTO T2                      Aggregate Sampling
- AASHTO T248                Sample Reduction
- AASHTO T255                Total Moisture Content of aggregate by drying
- AASHTO T27                 Coarse Sieves analysis
- AASHTO T27                 Fine Sieves analysis
- - #200 Course Wash Out
- AASHTO T335                % Crushed

# Certification: Bituminous Plant Tester

## Use of this Certification

**Bituminous Plant Tester Certification** is required for anyone who performs Quality Control (QC), Quality Assurance (QA), or Independent Assurance (IA) sampling and testing of bituminous (asphalt) mixtures. This includes procedures such as sampling, splitting, producing test specimens, maximum and bulk specific gravities, Tensile Strength Ratio (Lottman), spot checks, density core testing, extractions, and gradations, including FAA testing. (See course objectives for a complete and detailed list of test procedures.)

People who have and use this certification work at/for MnDOT (in QC, QA, and IA roles), local agencies (counties and cities), consultants, contractors (the private businesses who are contracted to do construction work), and producers (bituminous plants that supply the materials).

## Requirements and Relationship to Other Technical Certification Courses

Prerequisites needed before beginning the course→	Bituminous Plant Tester Certification	→ Is one of the prerequisites for other certification courses
Aggregate Production Tester Certification (Note: additional requirements potentially starting in 2022)	Requirements: Attend course (3-day), pass exam (70% or higher), pass performance review (completed prior to May 15 of the season in which the class was taken.)  Recertification: yes, after 5 years; attend Recertification course (1 day) and pass exam (70% or higher) (Note: additional requirements potentially starting in 2023)  Provisional certificates for specific tests: yes	Bituminous Mix Designer Certification course

## Certification Course Description

This 3-day introductory course focuses on fundamental information about bituminous (asphalt) and the key methods used to sample, split samples, conduct test procedures, and document and interpret test results to ensure these materials meet roadway and bridge construction quality requirements.

Instruction includes lecture, demonstration, discussion, practice activities, and hands-on lab experiences with the testing procedures. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam and the performance review (completed prior to May 15 of the season in which the class was taken in).

*[Note: Depending on participants' prior knowledge and experience, they may want to do additional practice and review before taking the class and/or the exam.]*

*[Note: Unlike other Technical Certification performance exams that are completed as part of the class lab session, the Bituminous Plant Tester review is done in a MnDOT lab. Participants must be evaluated by the MnDOT District Lab Supervisor or Independent Assurance Inspector. **Individuals have until May 15 of the season in which the class was taken in to successfully complete the performance review.** If the performance evaluation is not done within that time limit, they must again attend and successfully complete the course to be eligible for submit another performance review.]*

### Performance reviews associated with Bituminous Plant Tester certification:

- |                                  |   |
|----------------------------------|---|
| - Rate of sampling               | MnDOT Schedule of Materials Control               |
| - Bit Plant Tester course manual | Sampling behind the paver                         |
| - Bit Plant Tester course manual | Sampling (Truck Box)                              |
| - AASHTO T248                    | Splitting (MnDOT lab manual 1201)                 |
| - AASHTO T308 Method "A",        | Ignition Oven (MnDOT lab manual 1853) Modified    |
| - AASHTO T308 Method "A"         | Solvent, Mixture Calibration Process              |
| - AASHTO T209 Modified           | Maximum Specific Gravity (MnDOT lab manual 07)    |
| - AASHTO T312 Modified           | Gyratory Compaction (MnDOT lab manual 1820)       |
| - AASHTO T166 Modified           | Bulk Specific Gravity (MnDOT lab manual 1806)     |
| - AASHTO T269 Modified           | Void Calculation (MnDOT lab manual 1808)          |
| - AASHTO T166 Modified           | Density cores (MnDOT lab manual 1810)             |
| - AASHTO T84 & T85               | Rap procedures (Gsb) (MnDOT lab manual 1815)      |
| - AASHTO D4867 Modified          | Lottman (MnDOT lab manual 1813)                   |
| - AASHTO D6752-D2 Modified       | Corelock System. (MnDOT lab manual 1816)          |
| - AASHTO T304                    | Fine Aggregate Angularity (MnDOT lab manual 1206) |

## Recertification Course Description

This 1-day recertification course reviews core knowledge and skills from the initial certification course and provides information on any recent changes to the relevant specifications and test procedures.

Instruction includes lecture and discussion. Participants will also have an opportunity to discuss lessons learned in the field. Quizzes, course resources, and content reviews may be included to help participants prepare for the written exam.

*[Note: People who have had little or no experience working with their certification since their prior class will want to either 1) review the course content before taking the recertification class or 2) consider taking the initial certification course instead. The recertification course is **not** a complete re-teaching of the content but a review with updates for people who have a solid base of the required knowledge and skills.]*

# Certification: Bituminous Mix Designer

## Use of this Certification

**Bituminous Mix Designer Certification** is required for 1) agency/owner personnel who design, adjust, verify and/or approve bituminous mix designs and/or their related calculations, and 2) contractor personnel who are responsible for the design, adjustment, calculations, and submittal of bituminous mix designs and/or who supervise quality control testing. Bituminous Mix Designers are required for projects funded by the Federal or Minnesota state governments.

People who have and use this certification typically work at MnDOT and local agencies (counties and cities), consultants, contractors (the private businesses who are contracted to do construction work), and producers (bituminous plants that supply the materials).

## Requirements and Relationship to Other Technical Certifications Courses

Prerequisites needed before beginning the course→	Bituminous Mix Designer Certification	→ Is one of the prerequisites for other certification courses
Aggregate Production Tester Bituminous Plant Tester At least one year of experience as a Bituminous Plant Tester is suggested but not required (Note: additional requirements potentially starting in 2022)	Requirements: Attend course (5 day), pass exam (70% or higher), pass performance exam (successful completion of the required 2360 Mix design, submitted within one year of the last day of class) Recertification: yes, after 5 years; attend Recertification course and pass exam (70% or higher) (Note: additional requirements potentially starting in 2023)	None

## Certification Course Description

This advanced 5-day course focuses on why and how to create bituminous mix designs to ensure the materials meet roadway construction quality requirements. These include instructions focused on attaining the proper AC content, gradation, compaction, crushed particles, air voids, density, and durability.

Instruction includes lecture, demonstration, videos, discussion, and practice activities. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam and performance. [Note: Depending on participants' prior knowledge and experience, they may want to do additional practice and review before taking the class and/or the exam.]

*[Note: Upon successful completion of the course and written examination, the student **must** develop a bituminous mix design (2360) and submit it with all required documentation and related mixture materials to the MnDOT Maplewood Lab for verification. Submittals must be delivered to the MnDOT Maplewood Lab no later than one year from the date of the last day of class. If the mix design is not submitted and verified within that one year, the individual will be required to re-attend and successfully complete the class again, including verification of a submitted mix design, to be eligible for certification in this area].*

## Recertification Course Description

This 1-day recertification course reviews core knowledge and skills from the initial certification course and provides information on any recent changes to the relevant specifications and test procedures.

Instruction includes lecture, demonstration, discussion, and practice activities. Participants will also have an opportunity to discuss lessons learned in the field. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam.

[Note: People who have had little or no experience working with their certification since their prior class will want to either 1) review the course content before taking the recertification class or 2) take the initial certification course instead. The recertification course is **not** a complete re-teaching of the content but a review with updates for people who have a solid base of the required knowledge and skills.]

# Certification: Bituminous Street Inspector

## Use of this Certification

**Bituminous Street Inspector Certification** is required for all personnel (agency/owner and contractors) who obtain and/or split samples, compute yield checks, determine density core locations, and conduct general paving inspections on bituminous projects, and for MnDOT Independent Assurance Inspectors.

For agencies/owners there must be at minimum one certified Inspector per project, preferably one for each major work area (Lead Inspector). For contractors, there is a minimum of one certified individual per paving project and preferably one certified individual for each major work area (Paving Superintendent).

People who have and use this certification typically work at MnDOT and local agencies (counties and cities), consultants, contractors (the private businesses who are contracted to do construction work), and producers (bituminous plants that supply the materials).

## Requirements and Relationship to Other Technical Certifications Courses

Prerequisites needed before beginning the course→	Bituminous Street Inspector Certification	→ Is one of the prerequisites for other certification courses
None (Note: additional requirements potentially starting in 2022)	Requirements: Attend course (3 day), pass exam (70% or higher)  Recertification: yes, after 5 years; attend Recertification course (1 day) and pass exam (70% or higher) (Note: additional requirements potentially starting in 2023)	None

## Certification Course Description

This 3-day course focuses on fundamental information about bituminous paving, testing, and technology to ensure bituminous paving meets roadway construction quality requirements. Topics include asphalt properties and types, production and testing, plant types and operation, aggregates used in production of hot-mix design concepts, surface preparation, trucking, paving and compaction specifications, inspector and contractor roles, the MnDOT Quality Management Specification, and Certified Plant requirements.

Classroom instruction includes lecture, demonstration, discussion, and practice activities. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam.

*[Note: Depending on participants' prior knowledge and experience, they may want to do additional practice and review before taking the class and/or the exam.]*

## Recertification Course Description

This 1-day recertification course reviews core knowledge and skills from the initial certification course and provides information on any recent changes to the relevant specifications and test procedures.

Instruction includes lecture, demonstration, discussion, and practice activities. Participants will also have an opportunity to discuss lessons learned in the field. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam.

*[Note: People who have had little or no experience working with their certification since their prior class will want to either 1) review the course content before taking the recertification class or 2) take the initial certification course instead. The recertification course is **not** a complete re-teaching of the content but a review with updates for people who have a solid base of the required knowledge and skills.]*



# Certification: Bridge Construction Inspector

## Use of this Certification

The **Bridge Construction Inspector Certification** is required for agency/owner personnel acting as an Inspector on constructions projects of significant structures, such as cast-in-place concrete culverts, pile supported structures, bridges, and retaining walls. For all bridge projects, there must be at minimum of one certified Inspector per project.

People who have and use this certification work as Inspectors at MnDOT and local agencies (counties and cities).

*[Note: It is not always required that a local agency provide a Bridge Construction Inspector for each bridge, grading, bituminous, or concrete project, although they may choose to do so. This Inspector may be assigned to several projects at one time in a Lead Inspector capacity for operations relating to their areas of certification.]*

## Requirements and Relationship to Other Technical Certifications Courses

Prerequisites needed before beginning the course→	Bridge Construction Inspector Certification	→ Is one of the prerequisites for other certification courses
<p>Certifications:</p> <ul style="list-style-type: none"> <li>• Aggregate Production Tester</li> <li>• Concrete Field Tester</li> <li>• Concrete Field Inspector</li> <li>• Grading and Base Tester</li> </ul> <p>AASHTO/TC3 (TTS) Construction Inspection of Structures Series E-Learning courses</p> <ul style="list-style-type: none"> <li>• Subsurface (TC3CN053-17-T1)</li> <li>• Substructures (TC3CN054-17-T1)</li> <li>• Superstructures (TC3CN055-17-T1)</li> <li>• Rehabilitation and Maintenance of Structures (TC3MN032-17-T1)</li> </ul> <p>MnDOT eLearning courses</p> <ul style="list-style-type: none"> <li>• Preparing to Drive Piles</li> <li>• Plan Reading</li> </ul> <p>(Note: additional requirements potentially starting in 2022)</p>	<p>Requirements: Attend course (10 day), pass 2 written exams (70% or higher)</p> <p>Recertification: yes, after 5 years; maintain all prerequisite certifications; attend a MnDOT Recertification course, pass exam (70% or higher) (Note: additional requirements potentially starting in 2023)</p>	<p>None</p>

## Certification Course Description

This advanced two-week course focuses on the knowledge and skills needed to serve as an Inspector on bridge projects and other types of structural construction. Topics include bridge staking, excavation and embankment, foundations, steel reinforcement, substructures, structural steel, forms and false-work, pre-stressed beams, deck expansion joints, superstructures, deck drainage, bridge utilities, deck overlays, special structures, slope protection, documentation, approach panels, reconstruction and widening, and safety practices.

Instruction includes lecture, demonstration, discussion, and practice activities. Quizzes, course resources, and content reviews are included to help participants prepare for the written exams.

*[Note: Depending on participants' prior knowledge and experience, they may want to do additional practice and review before taking the class and/or the exam.]*

*Note: There are several prerequisites that **must be** completed before registering for this course.*

### **Prerequisites: Must be completed prior to attending the Bridge Construction Course**

- Aggregate Production Tester certified.
- Grading & Base Tester certified.
- Concrete Field Tester certified (ACI Concrete Testing Technician Grade 1).
- Concrete Field Inspector certified.
- AASHTO/TC3 on-line courses:
  - Construction Inspection Series
    - ✓ Subsurface
    - ✓ Substructures
    - ✓ Superstructures
    - ✓ Rehab and Maintenance of Structures.
  - MnDOT eLearning courses
    - ✓ NEW – Pile Driving eLearning
    - ✓ NEW OPTIONAL – Plan eLearning

## Recertification Course Description

As a prerequisite for the recertification course, Grading and Base Tester, Concrete Field Tester, and Concrete Field Inspector certifications must be current.

This 1-day recertification course reviews core knowledge and skills from the initial certification course and provides information on any recent changes to the relevant specifications and test procedures.

Instruction includes lecture, demonstration, discussion, and practice activities. Participants will also have an opportunity to discuss lessons learned in the field. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam.

*[Note: People who have had little or no experience working with their certification since their prior class will want to either 1) review the course content before taking the recertification class or 2) take the initial certification course instead. The recertification course is **not** a complete re-teaching of the content but a review with updates for people who have a solid base of the required knowledge and skills.]*

# Certification: Concrete Field Tester

## Use of this Certification

The **Concrete Field Tester** Certification is required for anyone who performs Quality Control (QC), Quality Assurance (QA), or Independent Assurance (IA) field sampling and testing of plastic concrete. Procedures include plastic air content, slump, casting cylinders and beams, temperature, unit weight, and calibration of test equipment.

People who have and use this certification work at/for MnDOT (in QC, QA, and IA roles), local agencies (counties and cities), consultants, and contractors (the private businesses who are contracted to do construction work) and producers (such as concrete plants that supply the materials).

*Note: In 2017, MnDOT shifted to use the ACI Concrete Field-Testing Technician Grade 1 certification for individuals performing field tests on plastic concrete. ACI certification is obtained at the discretion of American Concrete Institute (ACI) and maintained by the certified individual. While the MnDOT Technical Certification program will document the certification, it is the responsibility of the individual to be aware of their certification expiration dates. In addition to the MnDOT Technical Certification ID card, the ACI certification card must be shown to any MnDOT project personal or Independent Assurance Inspector upon request.*

## Requirements and Relationship to Other Technical Certification Courses

Prerequisites needed before beginning the course→	Concrete Field Tester Certification	→ Is one of the prerequisites for other certification courses
(Note: additional requirements potentially starting in 2022)	<p>Requirements: Attend course (2 days), pass exam (70% or higher), attend lab session, pass performance exam</p> <p>Recertification: yes, after 5 years; attend a MnDOT (not ACI) Recertification course and pass exam (70% or higher) or attend an ACI Concrete Field-Testing Technician Grade 1 course, pass exam, and pass performance exam. (Note: additional requirements potentially starting in 2023)</p> <p>Provisional certificates for specific tests: yes</p>	<p>Concrete Field Inspector Certification course</p> <p>Bridge Construction Inspector course</p>

### Certification Course Description

This 2-day introductory course focuses on fundamental information about plastic concrete materials and the key methods used to sample, conduct test procedures, and document test results to ensure these materials meet roadway and bridge construction quality requirements.

Instruction includes lecture, demonstration, discussion, practice activities, and hands-on lab experiences with the testing procedures. Quizzes, course resources, and content reviews are included to help participants prepare for the written and lab-based performance exams.

*[Note: Depending on participants' prior knowledge and experience, they may want to do additional practice and review before taking the class and/or the exam.]*

### Recertification Course Description

To maintain an ACI Concrete Field 1 certification, students must retake the full ACI Concrete Field 1 certification class. Students who only need MnDOT certification must successfully complete the 1-day MnDOT Concrete Field Tester Recertification class.

This 1-day recertification course reviews core knowledge and skills from the initial certification course and provides information on any recent changes to the relevant specifications and test procedures.

Instruction includes lecture, demonstration, discussion, and practice activities. Participants will also have an opportunity to discuss lessons learned in the field. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam.

*[Note: People who have had little or no experience working with their certification since their prior class will want to either 1) review the course content before taking the recertification class or 2) take the initial certification course instead. The recertification course is **not** a complete re-teaching of the content but a review with updates for people who have a solid base of the required knowledge and skills.]*

# Certification: Concrete Field Inspector

## Use of this Certification

**Concrete Field Inspector Certification** is required for agency/owner personnel acting as an Inspector on concrete projects such as paving, curbs and gutters, medians, and sidewalks.

People who have and use this certification work as Inspectors at MnDOT and local agencies (counties and cities).

*[Note: It is not always required that a local agency provide a Concrete Field Inspector for each concrete project, although they may choose to do so. This Inspector may be assigned to several projects at one time in a Lead Inspector capacity.]*

## Requirements and Relationship to Other Technical Certifications Courses

Prerequisites needed before beginning the course →	Concrete Field Inspector Certification	→ Is one of the prerequisites for other certification courses
Concrete Field Tester (Note: additional requirements potentially starting in 2022)	Requirements: Attend course (3 days), pass exam (70% or higher)  Recertification: yes, after 5 years; attend a MnDOT Recertification course and pass exam (70% or higher) (Note: additional requirements potentially starting in 2023)	Bridge Construction Inspector

## Certification Course Description

This advanced 3-day course focuses on the knowledge and skills needed to serve as an Inspector on concrete projects, working to ensure concrete materials meet roadway and bridge construction quality requirements. Topics include Inspector roles and responsibilities; concrete material properties; materials technology and construction techniques required by MnDOT specifications; concrete paving, forming, and curing; and joint reconstruction.

Instruction includes lecture, demonstration, discussion, and practice activities. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam. [Note: Depending on participants' prior knowledge and experience, they may want to do additional practice and review before taking the class and/or the exam.]

## Recertification Course Description

This 1-day recertification course reviews core knowledge and skills from the initial certification course and provides information on any recent changes to the relevant specifications and test procedures.

Instruction includes lecture, demonstration, discussion, and practice activities. Participants will also have an opportunity to discuss lessons learned in the field. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam.

Students who successfully complete the 1-day MnDOT Concrete Field Tester/Inspector Recertification class will receive credit for the MnDOT Concrete Field Tester and/or Concrete Field Inspector certification only. To maintain an ACI Concrete Field 1 certification, students must retake the full ACI Concrete Field 1 certification class.

*[Note: People who have had little or no experience working with their certification since their prior class will want to either 1) review the course content before taking the recertification class or 2) take the initial certification course instead. The recertification course is **not** a complete re-teaching of the content but a review with updates for people who have a solid base of the required knowledge and skills.]*

# Certification: Concrete Plant Tester

## Use of this Certification

The **Concrete Plant Tester Certification** is required for anyone who performs Quality Control (QC), Quality Assurance (QA), or Independent Assurance (IA) sampling and testing of ready-mix/central-mix concrete mixtures at a concrete plant. This may include but are not limited to the requirements of a certified ready-mix plant program, representative aggregate sampling and splitting, moisture testing, and gradation testing. (See course objectives for a complete and detailed list of test procedures.)

People who have and use this certification work at/for MnDOT (in QC, QA, and IA roles), local agencies (counties and cities), consultants, contractors (the private businesses who are contracted to do construction work), and producers (concrete plants that supply the materials).

## Requirements and Relationship to Other Technical Certification Courses

Prerequisites needed before beginning the course→	<b>Concrete Plant Tester Certification</b>	→ Is one of the prerequisites for other certification courses
Aggregate Production Tester Certification  (Note: additional requirements potentially starting in 2022)	Requirements: Attend course (2-day), pass exam (70% or higher)  Recertification: yes, after 5 years; attend Recertification course and pass exam (70% or higher) (Note: additional requirements potentially starting in 2023)  Provisional certificates for specific tests: yes, for moisture testing and concrete gradation testing	None

## Certification Course Description

This 2-day introductory course focuses on fundamental information about concrete and the key methods used to sample, conduct test procedures, and document test results to ensure these materials meet roadway and bridge construction quality requirements.

Instruction includes lecture, demonstration, discussion, and practice activities. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam.

*[Note: Depending on participants' prior knowledge and experience, they may want to do additional practice and review before taking the class and/or the exam.]*

## Recertification Course Description

This 1-day recertification course reviews core knowledge and skills from the initial certification course and provides information on any recent changes to the relevant specifications and test procedures.

Instruction includes lecture, demonstration, discussion, and practice activities. Participants will also have an opportunity to discuss lessons learned in the field. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam.

*[Note: People who have had little or no experience working with their certification since their prior class will want to either 1) review the course content before taking the recertification class or 2) take the initial certification course instead. The recertification course is **not** a complete re-teaching of the content but a review with updates for people who have a solid base of the required knowledge and skills.]*



# Certification: Concrete Strength Tester

## Use of this Certification

The **Concrete Strength Tester Certification** is required for anyone who performs testing for concrete compressive strength. This includes procedures such as curing, sample preparation, and capping and breaking cylinders. (See course objectives for a complete and detailed list of test procedures.)

Note: In lieu of MnDOT Concrete Strength Testing Technician Certification, MnDOT will accept personnel who hold a current ACI Strength Testing Technician Certification or Wisconsin Concrete Strength Certification.

## Requirements and Relationship to Other Technical Certification Courses

Prerequisites needed before beginning the course→	<b>Concrete Strength Tester Certification</b>	→ Is one of the prerequisites for other certification courses
(Note: additional requirements potentially starting in 2022)	Requirements: Attend course (1-day), pass exam (70% or higher), pass performance exam Recertification: <b>no recertification course/exams</b> ; after 5 years <b>must repeat the certification course and exams</b> (Note: additional requirements potentially starting in 2023) Provisional certificates for specific tests: yes	None

## Certification Course Description

This 1-day introductory course focuses on fundamental information about preparation and testing of concrete strength specimens and the key methods used to sample, conduct test procedures, and document test results to ensure these materials meet roadway and bridge construction quality requirements.

Instruction includes lecture, demonstration, discussion, practice activities, and hands-on lab experiences with the testing procedures. Course resources and content reviews are included to help participants prepare for the written exam and the performance exam. [Note: Depending on participants' prior knowledge and experience, they may want to do additional practice and review before taking the class and/or the exam.]

Performance evaluation consists of the following tests:

STM C617	Capping Cylindrical Concrete Specimens
ASTM C1231	Use of Unbonded Caps in Determination of Compressive Strength of Hardened Concrete Cylinders
ASTM C39	Compressive Strength of Cylindrical Concrete Specimens (Modified)
AASHTO T 23	Making and Curing Concrete Test Specimens in the Field
AASHTO M 201	Standard Specification for Moist Cabinets, Moist Rooms

**There is no Concrete Strength Tester Technician Recertification. Anyone who's current MnDOT Concrete Strength Tester Certification expires is required to complete the Concrete Strength Tester Technician course to obtain recertification.**

# Certification: Grading and Base Tester

## Use of this Certification

**Grading and Base Tester Certification** is required for anyone who performs Quality Control (QC), Quality Assurance (QA), or Independent Assurance (IA) sampling and testing of grading and base (the soil, sand, and rocks used in roadway and bridge construction). This includes procedures such as moisture test for soils and aggregates representative sampling, moisture-density (Proctor), and in-place field density test. (See course objectives for a complete and detailed list of test procedures.)

People who have and use this certification work at/for MnDOT, local agencies (counties and cities), consultants, and contractors (the businesses who are contracted to do construction work), and producers (the businesses that supply the materials).

## Requirements and Relationship to Other Technical Certification Courses

Prerequisites needed before beginning the course →	Grading and Base Tester Certification	→ Is one of the prerequisites for other certification courses
Aggregate Production Tester Certification (Note: additional requirements potentially starting in 2022)	Requirements: Attend course (3 days), pass exam (70% or higher), attend lab session, pass performance exam  Recertification: yes, after 5 years; attend Recertification course and pass exam (70% or higher) (Note: additional requirements potentially starting in 2023)  Provisional certificates for specific tests: yes	Grading and Base Inspector Certification course  Bridge Construction Inspector course

## Certification Course Description

This introductory course focuses on fundamental information about grading and base materials (the soil, sand, and rocks used in roadway and bridge construction), and the key methods used to sample, conduct test procedures, and document test results to ensure these materials meet roadway and bridge construction quality requirements.

Instruction includes lecture, demonstration, discussion, practice activities, and hands-on lab experiences with the testing procedures. Quizzes, course resources, and content reviews are included to help participants prepare for the written and lab-based performance exams.

*[Note: Depending on participants' prior knowledge and experience, they may want to do additional practice and review before taking the class and/or the exam.]*

Performance evaluation consists of the following tests:

- Moisture-Density Relations
    - AASHTO T 99
    - AASHTO T 265
    - AASHTO T 217 Modified
    - AASHTO T 99
  - MnDOT G&B manual 5-692-232
  - MnDOT G&B manual 5-692-232
  - AASHTO T 191
  - MnDOT G&B manual 5-692.255
  - MnDOT G&B manual 5-692.601
- Method C Moisture-Density Relation (Proctor).
  - Moistures & Calculations
  - CCGP<sup>1</sup> Method: 20-gram Speedy Moisture Meter
  - Proctor – Plotting Test Results
  - Cone & Ring Calibration
  - Standard Sand Calibration
  - In Place Field Density – Sand Cone Method
  - Dynamic Cone Penetrometer (DCP)
  - Soils ID (Soils Triangle)

## Recertification Course Description

This 1 Day recertification course reviews core knowledge and skills from the initial certification course and provides information on any recent changes to the relevant specifications and test procedures.

Instruction includes lecture, demonstration, discussion, and practice activities. Participants will also have an opportunity to discuss lessons learned in the field. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam.

*[Note: People who have had little or no experience working with their certification since their prior class will want to either 1) review the course content before taking the recertification class or 2) take the initial certification course instead. The recertification course is **not** a complete re-teaching of the content but a review with updates for people who have a solid base of the required knowledge and skills.]*

Note:

*The engineering properties associated with soils have been used for classification and are the basis of the AASHTO system. The AASHTO system uses the engineering properties of elasticity, expansion and load bearing capacity based on actual field use along with exact texture as the basis for classification.*

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<sup>1</sup> Calcium Carbide gas pressure moisture meter

# Certification: Grading and Base Inspector

## Use of this Certification

**Grading and Base Inspector Certification** is required for agency/owner personnel acting as an Inspector on grading and base materials, activities, and placements done as part of roadway and bridge projects.

People who have and use this certification work as Inspectors at MnDOT and local agencies (counties and cities).

*[Note: It is not always required that a local agency provide a Grading and Base Inspector for each grading and base project, although they may choose to do so. This Inspector may be assigned to several projects at one time in a Lead Inspector capacity.]*

## Requirements and Relationship to Other Technical Certifications Courses

Prerequisites needed before beginning the course →	<b>Grading and Base Inspector Certification</b>	→ Is one of the prerequisites for other certification courses
Grading and Base Tester (Note: additional requirements potentially starting in 2022)	Requirements: Attend course (3 days), pass exam (70% or higher)  Recertification: yes, after 5 years; attend Recertification course and pass exam (70% or higher) (Note: additional requirements potentially starting in 2023)	None

## Certification Course Description

This advanced course focuses on the knowledge and skills needed to serve as an Inspector on grading and base projects, working to ensure these materials meet roadway and bridge construction quality requirements. Topics include Inspector roles and responsibilities, subgrade soils and soils identification, excavation and embankment construction, base construction, cold mix asphalt, pavement reclamation, turf establishment, geosynthetic applications, and compliance with labor laws.

Instruction includes lecture, demonstration, discussion, and practice activities. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam. [Note: Depending on participants’ prior knowledge and experience, they may want to do additional practice and review before taking the class and/or the exam.]

## Recertification Course Description

This 1-day recertification course reviews core knowledge and skills from the initial certification course and provides information on any recent changes to the relevant specifications and test procedures.

Instruction includes lecture, demonstration, discussion, and practice activities. Participants will also have an opportunity to discuss lessons learned in the field. Quizzes, course resources, and content reviews are included to help participants prepare for the written exam.

*[Note: People who have had little or no experience working with their certification since their prior class will want to either 1) review the course content before taking the recertification class or 2) take the initial certification course instead. The recertification course is **not** a complete re-teaching of the content but a review with updates for people who have a solid base of the required knowledge and skills.]*