

CHAPTER 3

ASPHALT INSPECTION TRAINING AND QUALIFICATION PROGRAM

3.1 PURPOSE

The purpose of this section is to describe the Asphalt Inspection Training and Qualification Program. This program is designed to establish a qualification program for persons responsible for the manufacture, placement and inspection of asphalt concrete material. This procedure lists the details of the qualification program including the associated training courses.

3.2 AUTHORITY

Code of Federal Regulations, Quality Assurance Procedures for Construction, 23 CFR 637

Sections 334.044(2), 334.048 Florida Statutes (F.S.)

Section 334, FDOT Standard Specifications for Road and Bridge Construction

3.3 REFERENCE

The following sections of the Materials Manual are included with this procedure for projects requiring Marshall Testing.

Materials Manual, Topic No. 675-000-000 Section 3.1 District Materials Activities for Asphalt Construction.

Materials Manual, Topic No. 675-000-000 Section 3.2 Pavement Coring and Evaluation

3.4 BACKGROUND

The Florida Department of Transportation (Department) has had an asphalt qualification/certification program in effect for over 15 years. Due to the introduction of Superpave technology, the former training needed for an asphalt qualification has been phased out. This procedure has replaced **Chapter 11, Section 2, Asphalt Technician Qualification Programs for Plant and Paving Technicians** (Obsoleted May 18, 2000) of the **Construction Project Administration Manual (CPAM), Topic No. 700-000-000**.

To eliminate confusion, the existing asphalt qualification system shall be referred to as the **"DOT Qualification System"**. The new qualification system, which includes Superpave training, shall be referred to as the **"Construction Qualification System"**. The existing asphalt qualification database residing in the Department's **Construction Automated Reporting System (CARS)** will be maintained through the year 2005.

The new qualification system with its associated training is divided into two levels with three areas of specialization. Job functions for each asphalt qualification with the scheduled implementation date are contained in **Attachment 3-10**.

3.5 QUALIFICATIONS

There are five qualifications:

- (1) Asphalt Paving Level I
- (2) Asphalt Paving Level II
- (3) Asphalt Plant Level I
- (4) Asphalt Plant Level II
- (5) Asphalt Mix Designer

The criteria for becoming qualified in these two levels and three specialization areas are described in detail in the following text:

3.5.1 Asphalt Paving Level I Qualification Requirements

The objective of this qualification is to assure that all test results that are used for quality control, verification, dispute resolution and acceptance of asphalt mixtures are performed in accordance with the **Standard Test Methods** so that the test results reflect the actual characteristics of asphalt and whether specifications are met.

All trainees seeking Asphalt Paving Level I qualifications must:

- (1) Pass the Asphalt Paving Level I written examination.
- (2) Pass the Asphalt Paving Level I proficiency examination.

After a trainee has successfully met all of these qualification requirements, the trainee's qualification date will be added to the Training and Qualification Database System. Qualification shall be for five (5) years (60 months). The date of qualification shall be from the date the last qualification requirement was satisfied.

3.5.1.1 Asphalt Paving Level I Training Course

This course shall consist of a one day training class with a written examination (usually 2 hours, multiple choice) and a proficiency examination (usually 2 hours) will be given following the written examination. Subjects to be covered in this course are listed in ***Attachment 3-6***.

Also included are the calculations for testing, calibration procedures for the testing devices and the reporting of data using standard report forms.

Training course attendance is encouraged, but is not required for qualification.

3.5.1.1.1 Asphalt Paving Level I Training Course Prerequisites

There are no prerequisites for taking the Asphalt Paving Level I Course.

3.5.1.1.2 Asphalt Paving Level I Written Examination

A closed book written examination (usually 2 hours, multiple choice) is administered at the end of the course. The examinations are electronically graded by the Concrete Training and Qualification Program. A passing grade for this examination 70%. Two weeks should be allowed for grading and posting of the examination results.

3.5.1.1.3 Asphalt Paving Level I Proficiency Examination

A proficiency examination (usually ½ day) is administered subsequent to the course. Each trainee is expected to correctly demonstrate skills in measurement of surface tolerance and cross

slope. Each trainee will be given two chances to pass each test. Should a trainee fail any one test twice, this will constitute failure of the proficiency examination. Anyone failing the proficiency examination can apply for another examination. The application must be completed and the appropriate fee paid before the examination.

3.5.2 Asphalt Paving Level II Qualification Requirements

The objective of this qualification is to assure that personnel responsible for inspecting asphalt pavement construction (paving and compaction) are familiar with Department specification requirements, good construction practices and equipment operation necessary to place and compact a Superpave mixture which will meet requirements for smoothness, texture, density, cross slope and thickness.

All trainees seeking Asphalt Paving Level II qualification must:

- (1) Pass the Asphalt Paving Level II written examination.
- (2) First-time qualifiers must possess an active Asphalt Paving Level I qualification at the time of taking the Asphalt Paving Level II written examination.
- (3) Have 90 days experience in asphalt paving operations or asphalt roadway testing.

After a trainee has successfully met all of these qualification requirements, the trainee's qualification date will be added to the training database. Qualification shall be for five (5) years (60 months) from the date the last qualification examination requirement was satisfied.

3.5.2.1 Asphalt Paving Level II Training Course

This is a three (3) day course with a written examination on the last day (approximately 4 hours, multiple choice). This class emphasizes the need for uniformity and consistency of the mix, placement and compaction operations in achieving the specification requirements for texture, smoothness, density, cross slope and thickness. Equipment operation of pavers and rollers are presented. Balancing of delivery, milling, paving and compaction operations are demonstrated. Proper pavers operation for

smoothness is emphasized. Proper roller operation is emphasized in order to achieve specific density.

Department specifications for acceptance of mix on the roadway are reviewed. The basics of the statistical approach behind the specifications are presented in order to input data. The trainee will understand and be able to recognize problems and make suggestions for corrections in the paving operation. Random number table for sampling for density and thickness is explained. Identification and possible causes of pavement problems and the solutions are presented. The need for uniformity and consistency is explained.

Training course attendance is encouraged, but is not required for qualification.

3.5.2.1.1 Asphalt Paving Level II Training Course Prerequisites

Prior to attending the Asphalt Paving Level II Training Course, the trainee employed by the Department shall have passed the Department Asphalt Concrete Paving Self-study examination (must be - CQC version) and have 90 days experience in asphalt paving operations.

3.5.2.1.2 Asphalt Paving Level II Training Course Written Examination

An open book written examination (usually 4 hours, usually multiple choice) is administered at the end of the course. The examinations are electronically graded by the CTQP. The passing grade for this examination is 70%. Two weeks should be allowed for grading and posting of the examination results.

3.5.3 Asphalt Plant Level I Qualification Requirements

The objective of this qualification is to assure that all test results used for quality control, verification, dispute resolution and acceptance of asphalt mix are performed in accordance with **Standard Test Methods** so that the test results reflect the actual characteristics of the asphalt mixtures and whether specification

requirements are met.

All trainees seeking Asphalt Plant Level I qualification must:

- (1) Pass the Asphalt Plant Level I written examination.
- (2) Pass the Asphalt Plant Level I proficiency examination.

After a trainee has successfully met all of these qualification requirements, the qualification date will be added to the training database. Qualification shall be for five (5) years (60 months) from the date the last qualification requirement was satisfied.

3.5.3.1 Asphalt Plant Level I Training Course

The Asphalt Plant Level I Training Course is a (3) three day training course. A written examination (usually multiple choice) and a proficiency examination (approximately 2 days) are included in the course. The course consists of test methods used in the acceptance determination of asphalt mixtures and are listed in ***Attachment 3-7***.

Included are the calculations for the testing and use of a random number table. The calibration procedures for the testing devices/equipment and reporting of data using standard report forms is also reviewed.

Training course attendance is encouraged but is not required for qualification.

3.5.3.1.1 Asphalt Plant Level I Training Course Prerequisites

Prior to attending the course, the trainee employed by the Department must have passed the Department's Asphalt Concrete Testing self-study examination (CQC version).

3.5.3.1.2 Asphalt Plant Level I Training Course Written Examination

A closed book written examination (approximately 2 hours, multiple choice) is administered at the end of the course. The examinations are electronically graded by the CTQP. Passing grade for this

examination is 70%. Two weeks should be allowed for grading and posting of the examination results.

3.5.3.1.3 Asphalt Plant Level I Training Course Proficiency Examination

A proficiency examination (usually 4 hours) is administered at the end of the course. Subjects that each trainee will be expected to demonstrate skills in are listed in ***Attachment 3-8***.

Each trainee will be given two chances to pass each test. Should a trainee fail any one test twice, this will constitute failure of the proficiency examination. Anyone failing the proficiency examination can apply for another examination. The application must be completed and the appropriate fee paid before the examination.

3.5.4 Asphalt Plant Level II Qualification Requirements

The objective of this qualification is to assure that personnel operating or inspecting an asphalt production operation (at a plant) are familiar with the Department: specification requirements, good materials management, and equipment operation necessary to produce a Superpave mixture which will meet the mix design criteria and mix production requirements.

All trainees seeking Asphalt Plant Level II qualification must:

- (1) Pass the Asphalt Plant Level II written examination.
- (2) First time qualifiers must possess an active Asphalt Plant Level I qualification at the time of taking the Asphalt Plant Level II examination.
- (3) Have 90 days experience in asphalt plant operations or asphalt mix testing.

After a trainee has successfully met all of these qualification requirements, the qualification date will be added to the training database. Qualification shall be for five (5) years (60 months) from the date the last qualification examination requirement was satisfied.

3.5.4.1 Asphalt Plant Level II Training Course

This course is three (3) days including a written examination at the end (usually 4 hours, usually multiple choice). The course emphasizes the need for uniformity and consistency of Asphalt Mix materials from the properties of component materials, blending, heating, drying, and mixing to loading and transporting of the mixture to the roadway. Proper stockpiling and unloading of aggregates to the cold feeds will be emphasized. Blending and adjustment of blends based on tests are presented. Department specifications for acceptance of mix at the plant are reviewed and the basics of the statistical approach behind the specifications are presented to input data and to understand and recognize problems and then make changes in operation. Interpretation of quality control charts will be discussed and stressed. The theory and use of random numbers for obtaining samples will be reviewed. Plant calibration, inspection and operation will be presented. Proper loading, scale checks and mixture weighing will be explained. The need for uniformity of materials, proportions, temperature and quality control are emphasized.

Training course attendance is encouraged, but is not required for qualification.

3.5.4.1.1 Asphalt Plant Level II Training Course Prerequisites

Prior to attending the course, the trainee employed by the Department have taken and passed the Department Asphalt Concrete Plant Inspection Self-study examination (CQC version). and have 90 days experience in asphalt plant operations.

3.5.4.1.2 Asphalt Plant Level II Training Course Written Examination

An open book written examination (usually 4 hours, multiple choice) is administered at the end of the course. The examinations are electronically graded by the CTQP. The passing grade for this examination is 70%. Two weeks should be allowed for grading and posting of the examination results.

3.5.5 Asphalt Mix Designer Qualification Requirements

The objective of this qualification is to assure that Superpave Mix Designs and all

associated testing of aggregate components for this purpose are done in accordance with **Standard Test Methods** so that the test results reflect the actual characteristics of the components and mix. This course will assure that the trainee has knowledge of the specification requirements for Superpave Mix Designs.

All trainees seeking Mix Designer qualification must:

- (1) Pass the Asphalt Mix Designer written examination.
- (2) First-time qualifiers must possess an active Asphalt Plant Level I qualification at the time of taking the Asphalt Mix Designer qualification.
- (3) Have 90 days experience in asphalt plant operations or asphalt mix testing.

After a trainee has successfully met all of these qualification requirements, the qualification date will be added to the training database. Qualification shall be for five (5) years (60 months) from the date the last qualification examination requirement was satisfied.

3.5.5.1 Asphalt Mix Designer Course

This course consists of a three day classroom lecture including a written examination (usually 4 hours, multiple choice). The testing required for Superpave mix design will be presented in the class. Test methods in Asphalt Plant Level I training will be reviewed. Mix design will be presented in logical sequence. Blending of aggregates and calculations of proportioning will be covered. Test methods in addition to those covered in Asphalt Mix Testing are listed in **Attachment 3-9**.

Also included is a review of FDOT mix design specification criteria, calculation of volumetric criteria (air voids, VMA, VFA) and reporting of mix design data using standard report forms.

Training course attendance is recommended, but is not required for qualification.

3.5.5.1.1 Asphalt Mix Designer Course Prerequisites

No prerequisites are required for taking this course.

3.5.5.1.2 Asphalt Mix Designer Course Examination

An open book written examination (usually 4 hours) is administered at the end of the course. The examinations are electronically graded by the CTQP.

The passing grade for this examination shall be 70%. Two (2) weeks should be allowed for grading and posting of the examination results.

3.6 REQUALIFICATION

Due to constant changes in specifications, materials and processes, ***Certificate of Qualification*** is issued for five (5) years (60 months).

Near the end of that five (5) year (60 month) period, qualified technicians are required to submit an application for requalification. There is a fee for requalification and re-examination. Requalification for all Asphalt Qualifications require taking and passing the current written examination and proficiency examination or written examination only for the particular Qualification as shown in the following table;

Any trainee who fails to become requalified by the 60th month of qualification shall become disqualified on the last day of the 60th month. A previously qualified person who lets their qualification expire must reapply for qualification.

3.7 RESPONSIBILITIES

The following responsibilities are unique to the asphalt qualification program and are in addition to those listed in the end of this Chapter.

Responsibilities are as follows:

3.7.1 State Construction Office

Maintain a database of all Department qualification system applicants for at least two years and all "Department" qualified technicians for at least five years. The database should be accessible to all District Bituminous Engineers, District Construction Engineers and State materials Bituminous Office personnel.

CTQP ASPHALT REQUALIFICATION			
CTQP QUALIFICATION	REQUALIFICATION REQUIREMENT		
	Pass Written Examination	Pass Proficiency Examination	Remarks
Asphalt Plant Level I	Asphalt Plant Level I	Asphalt Plant Level I	1. Asphalt Plant Level I is not automatically requalified with a successful requalification of Asphalt Plant Level II.
Asphalt Plant Level II	Asphalt Plant Level II Or Refresher Course, when available		1. An active Asphalt Plant Level I qualification is not required. 2. Asphalt Plant Level I is not automatically requalified with a successful requalification of Asphalt Plant Level II.
Asphalt Paving Level I	Asphalt Paving Level I	Asphalt Paving Level I	1. Asphalt Paving Level I (even it is expired) is automatically requalified with a successful requalification of Asphalt Paving level II.
Asphalt Paving Level II	Asphalt Paving Level II Or Refresher Course, when available		1. An active Asphalt Paving level I qualification is not required. 2. Asphalt Paving Level I (even it is expired) is automatically requalified with a successful requalification of Asphalt Paving level II. 3. If the Paving Level II is expired, the technician will be considered as a first-time qualifier and must obtain the Asphalt Paving Level I qualification.
Asphalt Mix Designer	Asphalt Mix Design		