

TRAINING and CERTIFICATION SEMINAR for CONCRETE



Table of Contents

1. Introduction

2. ASTM Test Methods

Temperature, Slump, Unit Weight,
Air Content – Pressure, Air Content – Volumetric,
Making Cylinders & Beams, Curing

3. WYDOT Cylinders & Beams

Sampling, Handling & Curing

4. Fundamentals of Concrete

5. Batch Water, Aggregate Moisture, W/CM Ratio & Adjusting Slump

- 6. WYDOT Specifications for Portland Cement Concrete Pavement (PCCP)**
- 7. WYDOT Specifications for Structural Concrete**
- 8. Admixtures, Hot & Cold Weather Concreting**
- 9. Practice Problems**
- 10. WYDOT Sample Exam**

Section 1

Introduction



WMTG Concrete Training & Certification Seminar

Why WMTC Concrete Certification?

- Fulfills testing technician requirements for WYDOT QC/QA concrete projects
- Provides recognition for concrete technicians who have demonstrated ...
 - knowledge & ability to properly perform field tests on fresh concrete
 - a basic knowledge about concrete fundamentals and WYDOT specifications
- Increases the reliability & confidence level of test results
- Improves quality control
- Assures accuracy in identifying good quality & substandard concrete

WMTC Concrete Certification

Consists of the following components:

1. **ACI Concrete Field Testing Technician - Grade I**
 - a) **Written Exam covering ASTM Standards**
 - b) **Performance Exam covering ASTM Standards**

2. **WYDOT**
 - c) **Written Exam covering concrete fundamentals and WYDOT Standard Specifications dealing with concrete & related topics**

To Become Certified...

**You must successfully complete parts a, b, & c
or**

Have current ACI Certification and complete part c 1-6

ACI Concrete Field Testing Technician - Grade I

- Administered by the American Concrete Institute
- International recognized certification
- Valid for 5 years
- **Written Exam - Closed books & notes**
 - 55 multiple choice/True-False questions
 - Covers seven ASTM Sections
 - To Pass: 70% overall & 60% each section
- **Performance Exam - Closed books & notes**
 - Must successfully perform all seven ASTM tests
 - Two (Three) trials maximum per test
- **Re-examination**
 - Written Exam - retake entire exam within 1 yr.
 - Scheduled several weeks after ACI notification in Laramie or other
 - Performance Exam – no individual retest offered, must retest at another session

WMTC Certification

- Administered by the University of Wyoming & WYDOT
- Recognized by State of Wyoming
- Valid for 5 years and runs concurrently with ACI Certification (If ACI expires, so does WYDOT Cert.)
- Written Exam - Open books & notes
 - 45 multiple choice/True-False questions
 - Covers concrete fundamentals & WYDOT Specifications
 - To Pass: 70% score or higher (32 correct answers)

Education Materials

For this seminar, you need the following ...

- 1. WMTC Training and Certification Seminar For Concrete (Three-ring Notebook)**
- 2. ACI Concrete Field Testing Technician Grade I Technician Workbook CP-1**

You will also need a Calculator

Definitions

ACI International -American Concrete Institute, Farmington Hills, MI

ASTM - American Society for Testing and Materials, West
Conshohoken, PA

MTM - *WYDOT Materials Testing Manual*

PCA - Portland Cement Association, Skokie, IL

SSRBC - *WYDOT's Standard Specifications for Road & Bridge
Construction*

How to Prepare for Examinations

- ❑ Read & study ASTM test methods; Sections 1 - 7 in ACI Technician Workbook
- ❑ Study performance checklist at the end of each section in ACI Technician Workbook
- ❑ Answer study questions at the end of each section in ACI Technician Workbook
- ❑ Take “Sample Written Examination” in Appendix C, ACI Technician Workbook
- ❑ Check your answers for study sections and sample exam (see appendix D, ACI Technician Workbook)

- ❑ Review WMTC notebook (fundamentals, batch water, admixtures, hot and cold weather concreting, WYDOT specifications)**
- ❑ Review calculations & example problems**
- ❑ Work & check practice & study problems in Section 9 of notebook**
- ❑ Take & check “WYDOT Sample Written Exam” in Section 10 of notebook**