

# NRMCA

## Workforce Development



## NRMCA Concrete Durability Course

May 14 - 16, 2019 | Portland, OR

### Course Information

**Shawnta Dickens**

Phone: (240) 485-1154

Email: [sdickens@nrmca.org](mailto:sdickens@nrmca.org)

### Registration and Travel Information

**Jessica Walgenbach**

Phone: (240) 485-1152

Email: [jwalgenbach@nrmca.org](mailto:jwalgenbach@nrmca.org)

Course follows all federal anti-trust guidelines.

This course is part of NRMCA's Seminars, Training and Education Programs, STEPS®, and earns you credit towards becoming a CCPf, a Certified Concrete Professional. The highest professional designation in the industry.



**PAVE AHEAD**  
DURABLE. SUSTAINABLE. CONCRETE.

**BUILD WITH STRENGTH**

A COALITION OF THE NATIONAL READY MIXED CONCRETE ASSOCIATION

**Why attend?** This 2½ day course will cover the fundamental mechanisms that impact durability of concrete. Recognize symptoms and learn about methods to evaluate the deterioration of concrete; understand causes of durability problems and methods to prevent them; test methods for durability and their limitations; and code and specification criteria for durable concrete structures. Topics will cover the concrete microstructure, cracking, corrosion mechanisms, freeze-thaw resistance, sulfate resistance, alkali aggregate reactions (AAR), and other durability-related distress. The course will be taught by instructors who are on the forefront of current research and diagnosis of concrete durability.

### Tentative Program at-a-Glance

#### Day 1

**Morning Session**  
(8:00 a.m. - noon)

#### Introduction

- Concrete Gone Wild – identify durability-related distress
- Nature of Concrete – hydration, pore structure, permeability
- Shrinkage and cracking – identifying the reasons

**Afternoon Session**  
(1:00 p.m. - 5:00 p.m.)

- Corrosion mechanisms – carbonation, chlorides, permeability
- Corrosion protection strategies
- Service-life prediction models – ConcreteWorks
- Group Assignment – design your durable concrete mixture

#### Day 2

**Morning Session**  
(8:00 a.m. - noon)

- Alkali Aggregate Reactions
- Sulfate-Attack and related problems
- Freeze-thaw durability and deicer scaling

**Afternoon Session**  
(1:00 p.m. - 5:00 p.m.)

- Other forms of concrete deterioration
- Code and Specification requirements — general overview
- and durability provisions
- Taming the Wild – Wrap-up interactive session

#### Day 3

**Exam (8:00 a.m. - 10:00 a.m.)**

The course will conclude with a two hour exam that challenges attendees on concepts taught in the course. Persons who have or will obtain NRMCA Concrete Technologist Level 3 certification will achieve NRMCA Concrete Technologist Level 4 certification on successful completion of this exam. NRMCA Level 3 certification is obtained at the technical short course. This is not a prerequisite for attending the Durability Course.

#### Instructors:

**Michael Thomas, Ph.D., P.Eng.,** Professor, Department of Civil Engineering, University of New Brunswick.

**Kevin Folliard, Ph.D.**

Professor, Department of Civil Engineering, University of Texas at Austin

**NRMCA Engineering Division Staff**



# NRMCA's Concrete Durability Course

May 14-16, 2019 | Portland, OR

Day 1 + 2: (8am – 5pm), Day 3: Exam (8am – 10am)

NRMCA USE ONLY

Date:

Member ID:

Confirmation#

## ATTENDEE INFORMATION

Name/Title: \_\_\_\_\_

Company: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ City/State/Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

Emergency Contact Name/Phone: \_\_\_\_\_

Dietary Restrictions/Special Needs: \_\_\_\_\_

I will sit for the exam:  (This exam is optional, but required to fulfill the certification.)

Please Send Registration/Receipt Confirmation Email to: \_\_\_\_\_

(Notification does not guarantee class will run)

## COURSE FEES AND PAYMENT AUTHORIZATION

\$850 NRMCA Member

\$1150 Non-Member

Registration fee includes lunch.

### Group Discount Eligibility for NRMCA Members ONLY.

Please submit separate forms for ALL attendees together to receive group discount 10% (3-5 members) 15% (+6 members)

Check Payment:

\*by sending a check there will be a delay in processing

(Make check payable to NRMCA)

SunTrust Bank, c/o NRMCA, P.O. Box 79433 Baltimore, MD 21279

Select One:  Visa  MasterCard  AMEX

Card Number: \_\_\_\_\_

Exp. Date: \_\_\_\_\_

CVV: \_\_\_\_\_

Cardholder Name: \_\_\_\_\_

Please submit separate forms for all attendees. Registration without payment will NOT be confirmed.

## COURSE LOCATION AND TRAVEL INFORMATION

### Embassy Suites Portland Downtown (TENTATIVE)

319 SW Pine Street

Portland, OR 97204

**Hotel Parking:** Self-parking costs \$7/hour, \$24 max/day on the weekdays. Valet parking costs \$7/hour, \$50 max/day. GPS address for garage entrance: 212 SW 4th Ave., Portland, OR 97204

**Room Rate:** \$209 per night plus applicable taxes.

**Cut-Off Date:** Saturday, April 20, 2019, or whenever the room block sells out, whichever occurs first.

**Call-In Code:** NRMCA or National Ready Mixed Concrete Association

**Reservations:** (503) 279-9000 or book online

**Closest Airport:** The closest airport is the Portland International Airport (PDX) located 9 miles/25 minutes from the Embassy Suites Portland Downtown.

**Transportation:** The hotel does NOT offer shuttle service. A taxi will cost approximately \$30 each way from PDX airport to the host hotel.

## NRMCA POLICIES/INFORMATION

**Cancellation Policy:** Full cancellation refunds, less a \$100 administration fee, will be extended until April 20, 2019. All cancellations after April 20, 2019 will not be refunded. Fee cancellations cannot be transferred to a future class. Substitutions can be made at any time with no penalty. Registration cancellations must be made in writing to: meetings@nrmca.org.

**Confirmation of Event:** After registration and payment is processed, a registration receipt will be provided (allow up to 72 hours). A class confirmation, confirming the course will run as scheduled, will be sent via email no later than COB,

April 20, 2019. It is advisable not to make travel arrangements until you receive the class confirmation.

**Important/Class Confirmation:** NRMCA reserves the right to cancel this event. Class confirmations will be sent to registrants via email no later than COB, April 20, 2019. In the unlikely event the class is cancelled, NRMCA will refund the entire registration fee, but is not responsible for airline and hotel reservation fees. You are responsible for making and paying for your own hotel and travel arrangements.

Return Form to meetings@nrmca.org or Fax: (301) 565-8200