



# Airport Pavement Design Seminar

April 21 through 23, 2009  
Charlotte, North Carolina

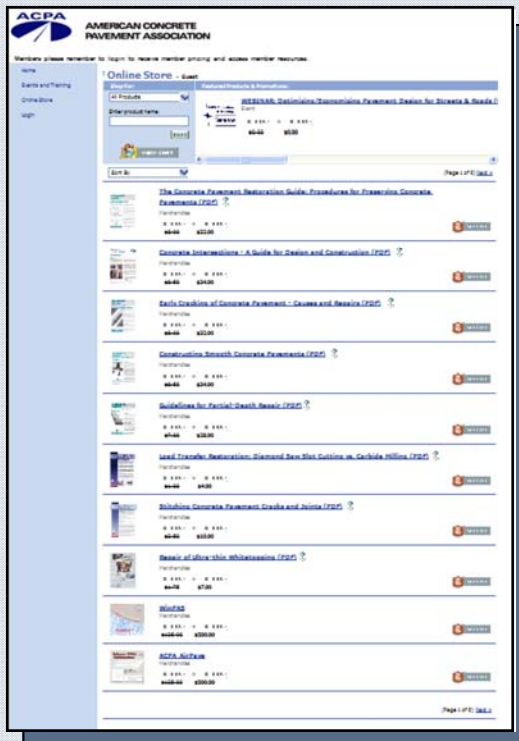
An American Concrete Pavement Association  
Education & Training Program





“**Airport Pavement Design Seminar**” is the official program of the American Concrete Pavement Association’s airport pavement design seminar, please visit [www.pavement.com](http://www.pavement.com). Follow the ACPA Education & Training link, or the logo shown at left.

This program describes one component of ACPA’s Education & Training program planned for 2009. For inquiries about this or other education and training, please contact Michael Ayers, Ph.D., ACPA’s Director of Education for Design and Construction, at 217-621-3438 or [mayers@pavement.com](mailto:mayers@pavement.com).

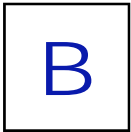


## Get the resources you need, when you need them!

ACPA now offers a convenient and simple way to order publications and software, as well as to register for upcoming events. Also, we are now offering a wide variety of our publications as downloadable PDF’s. You can, of course, still order printed publications, as well.

To get started, please visit [www.pavement.com](http://www.pavement.com). Click on the bookstore tab at the top of the home page.

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Back by popular demand is the American Concrete Pavement Association's popular "Airport Pavement Design Seminar."

Updated for 2009, the program is designed to meet the demands of airport owners, consultants, and other busy professionals. The concrete pavement industry is responding to airport owner demands for quality and efficiency in construction of airport pavements. This comprehensive, hands-on training course covers the design and construction of concrete pavements for airports.

**Who should attend?**

- Airport Consultants
- Airport Managers and Owners
- Airport Authorities and Local Municipalities
- State Aviation Officials
- Military Engineers
- Federal Aviation Administration Officials
- Airport Paving Contractors
- Rehabilitation Contractors
- Material and Equipment Suppliers
- Academic Leaders and Students

**Program Features**

- Latest on the Federal Aviation Administration's (FAA's) rigid pavement design procedure.
- Update on the latest research on Alkali Silica Reaction (ASR) and its effects on airfield pavements.
- A comparative analysis of the FAA, PCA, and military design methods.
- An explanation of FAA specifications and design requirements.

- Latest on stabilized and drainable base — design and construction.
- Joint and crack sealing and repair for concrete pavements.

**Course Materials**

Materials include all the latest relevant publications from the American Concrete Pavement Association (ACPA), Innovative Pavement Research Foundation (IPRF), and FAA. Course materials also include current edition of military design manuals and specifications.

Examples include:

- General Aviation Pavement Design,
- Stabilized Base Construction Bulletin,
- Concrete Pavement Repair Manuals and more.

Participants also will receive software and instruction for the following

programs:

- ACPA's AirPave 2000 software program
- PCASE (Pavement-Transportation Computer Assisted Structural Engineering) program
- Rigid pavement design software and
- FAA pavement design software

Study notes for each session will be provided.

**New! Register Online**

You can now register for this course online! Registration is fast and easy. To get started visit APCA's registration site at [www.pavement.com](http://www.pavement.com). Click on the Education & Training icon, and then, scroll down on the E&T page to the Airport Pavement Design Seminar. You'll be asked to complete a quick profile, and then



**Other ACPA Education & Training Events**

You may also be interested in some additional training opportunities ACPA is offering. These include our very popular webinar series, which attract thousands of busy professionals each year. Just a few of the upcoming events

Date	Time (Minutes)	Topic
May 14	60	Quantifying Sustainability Through Life-Cycle Cost Assessment
October 22	90	Identifying and Resolving Materials Problems During Construction

These are just two of the web-based training programs offered by ACPA this year. To see more, visit our website at [www.pavement.com](http://www.pavement.com). Follow the link on our home page to our "Education & Training" area.

you can register for this and future events easily and quickly.

**Supplies & Equipment**

Participants should bring a laptop computer, and a hand-held calculator. ACPA will provide beverages and snacks for morning and afternoon breaks.

**Registration Rates**

Register today! Our course size is extremely limited. Only the first 25 registrants will be accepted. The following rates apply. Please note that early/regular rates apply only through March 31, 2009. All registrations received after 12:01 a.m. on April 1 are subject to the higher rates.

Fee Type	Member Fee	Non-Member Fee
Prior to April 1	\$700.00	\$900.00
On or after April 1	\$800.00	\$1000.00

Please note: This program is subject to change without prior notice. Occasionally, circumstances beyond our control may require our cancellation of the program. For more information, see the ACPA refund policy.

**ACPA Refund Policy**

Substitutions are accepted at any time. If your substitute qualifies at a different registration fee, a credit or surcharge

may apply. If you cannot attend the seminar, please notify ACPA at 847-966-2272 immediately. A cancellation fee of \$50 will be charged if notice is received in writing before 5 p.m. (CST) March 31, 2009. No refunds or adjustments will be available for registrations after April 1.

Confirmed participants who do not attend are liable for the entire fee unless we are notified in advance of the seminar date that you cannot attend.

If it becomes necessary for ACPA to cancel the program for any reason, course registration fees will be refunded completely. In those cases, participants are still required to cancel their hotel sleeping rooms.

**Award of Professional Development Hours**

Conference participants who complete the three-day training will receive a certificate of completion for their professional level continuing education activity. The American Concrete Pavement Association offers nineteen and one-half (19.5) professional development hours (PDH's) for the completion of this program.

Every registered engineer has a personal responsibility to assess the applicability of each element of the program attended to their particular professional development need, and, if appropriate, to maintain a record of qualifying PDH's for license renewal documentation.

**Seminar Location/Hotel Registration**

The three-day program will be held at the Charlotte Marriott® City Center, located at 100 West Trade Street, Charlotte, North Carolina 28202.

The group rate for sleeping rooms is \$135. To make hotel reservations, please call toll-free 1.800.228.9290. Be sure to mention Charlotte Marriott City Center, the conference dates, and the "Airport Pavement Design Seminar" to receive the negotiated room rate.

Local numbers are 704.333.9000 (phone) and 704.342.3419 (fax). Important: The cut-off date for hotel registrations is March 30. Rooms booked after that period are subject to higher rates.

Web: <http://www.marriott.com/hotels/travel/cltcc-charlotte-marriott-city-center/>. If registering online, be sure to include the code: "apdapda" on the Marriott website. Important: Please see "Refund Policy" above.

**Parking**

Self-parking is available for \$12/car/day. Valet parking is available for \$18/car/day.

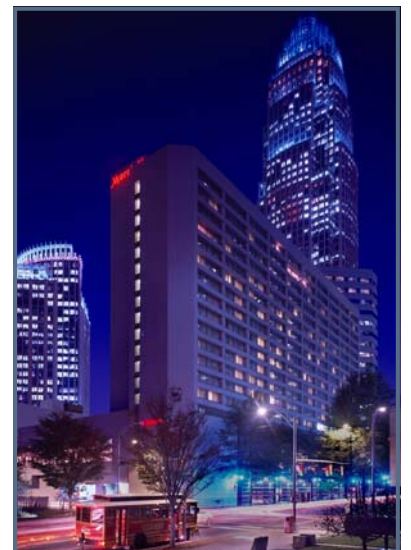


Photo courtesy of the Charlotte Marriott City Center, Charlotte, North Carolina. © 2009 Marriott® International.

## Preliminary Course Outline *(Subject to change without notice.)*

### — Tuesday, April 21 —

**8:00 a.m. – 8:15 a.m.** ... Registration – Introduction and Welcome, Gary Mitchell, P.E., American Concrete Pavement Association

**8:15 a.m. – 9:30 a.m.** ... Introduction to Airport Pavement Design, Gary Mitchell, P.E., American Concrete Pavement Association

- < ASTM C 78 (Third-Point Flexural Loading Test)
- < ASTM D 1195 (plate Load Test to determine *k*-value)
- < Airport Improvement Handbook (FAA Order 5100.38B)
- < Subgrades & Subbases paper
- < “Limitations in Theoretical Design of Concrete Pavements,” Ray Rollings
- < “Concrete Thickness Design: It’s More Than Just a Thickness Design Chart, Ray Rollings

**9:30 a.m. – 10:00 a.m.** ... Understanding Stress Ratios, Gary Mitchell, P.E., ACPA

**10:00 a.m. – 10:15 a.m.** ... Break

**10:15 a.m. – 11:00 a.m.** ... Military Airport Pavement Design Procedures, Rich Thuma, P.E., Crawford, Murphy, & Tilly, Inc.

- < UFC 326002 (excerpts from Chapter 12, Plain Concrete Pavements)
- < PCASE Pavement Design Software

**11:00 a.m. – 11:45 a.m.** ... ACPA Design Procedure for Airport Pavement Design, Gary Mitchell, P.E., ACPA

- < “A Comparison of Rigid Airfield Pavement Design Methods,” Rich Thuma, P.E.
- < “Review of Fatigue Models for Concrete Airfield Pavement Design,” Smith, Roesler, Naughton
- < ACPA Airpave Pavement Software

**11:45 a.m. – 1:00 p.m.** ... Lunch Break

**1:00 p.m. – 2:30 p.m.** ... FAA Airport Pavement Design Procedures, Doug Johnson, P.E., FAA

- < AC 150/53206E (excerpts)
- < FAA FAARFIELD Airport Pavement Design Software

**2:30 p.m. – 3:15 p.m.** ... Effects of Stabilized Bases on Airport Pavements, Gary Mitchell, P.E., ACPA

- < IPRF Report on Stabilized and Drainable Base – Design and Construction Guide
- < R&T Update 3.06 – “Stabilized Subbases and Airfield Concrete Pavement Cracking”

**3:15 p.m. – 3:30 p.m.** ... Break

**3:30 p.m. – 4:15 p.m.** ... Airport Pavement Jointing, Greg Dean, ACPA – Southeast Chapter

- < “Airfield Joint, Jointing Arrangements and Reinforcement” (TB017P)

**4:15 p.m. – 5:00 p.m.** ... Joint Sealing, Gary Mitchell, P.E., ACPA,

- < “Joint Crack Sealing and Repair for Concrete Pavements” (TB012P)

### — Wednesday, April 22 —

**8:00 a.m. – 8:30 a.m.** ... Building Smooth Pavement – Aircraft Response, Tony Gerardi, P.E., APR Consultants, Inc.

- < “Constructing Smooth Concrete Pavements” (TB006P)
- < IPRF Airfield Concrete Pavement Smoothness

**8:30 a.m. – 9:15 a.m.** ... Specifications – Using P501 Gary Mitchell, P.E., ACPA

- < AC 150/537010B, Item P501 (though Chapter 12)
- < “Best Practices for Using P501 – Mix Proportions” (Jim Lafrenz)
- < IPRF Proposed Specifications for Construction of Concrete Airfield Pavements
- < IPRF Proposed Specifications Supplementary Report

**9:15 a.m. – 10:00 a.m.** ... Planning for Reconstruction and Fast Track Projects, Mark Manning, P.E., Kimley-Horn and Associates, Inc.

- < Accelerated Practices for Airfield Concrete Pavement Construction

**10:00 a.m. – 10:15 a.m.** ... Break

**10:15 a.m. – 11:00 a.m.** ... Planning the Construction of a New Runway

- < “An Owner’s Perspective,” Jerry Orr (scheduled) Charlotte/Douglas International Airport

**11:00 a.m. – 11:45 a.m.** ... Planning the Construction of a New Runway

- < “From the Engineer’s Perspective,” Carl Ellington & staff, Talbert & Bright, Inc.,

**11:45 a.m. – Noon** ... Load Bus to Charlotte – Douglas International Airport Construction Site (box lunch provided)

**Noon. – 1:00 p.m.** ... Travel to Charlotte–Douglas International Airport

**1:00 p.m. – 2:00 p.m.** ... Planning and Constructing a Major Airport Paving Project, HiWay Paving Construction — **Onsite Training!**

**2:00 p.m. – 4:00 p.m.** ... Tour of Charlotte/Douglas International Airport / New Runway Construction, HiWay Paving — **Onsite Training!**

**4:00 p.m. – 5:00 p.m.** ... Load bus and return to the Marriott Charlotte Center City Hotel

— Thursday, April 23 —

**8:30 a.m. – 9:30 a.m.** ... Material Selection for Concrete Paving, Gary Mitchell, P.E., ACPA

- < ASTM C 33 (Standard Specification for Concrete Aggregates)
- < UFGS02573A, "Concrete Pavement for Airfields and Other Heavy Duty Pavements"

**9:30 a.m. – 10:00 a.m.** ... Concrete Mix Design Review & Acceptance, Gary Mitchell, P.E., ACPA

- < "Design & Control of Concrete Mixtures", 14th Ed. (EB001.14)
- < "Early Cracking of Concrete – Causes and Repairs" (TB016P)
- < "Material Selections to Minimize Early Cracking of Concrete Pavement Panels" paper

**10:00 a.m. – 10:15 a.m.** ... Break

**10:15 a.m. – 11:00 a.m.** ... Concrete Pavement Repair Techniques/Overlays, Greg Dean, ACPA – Southeast Chapter

- < "Concrete Pavement Repair Manual" (JP002P)
- < "Concrete Crack & Spall Repair Manual" (JP003P)
- < Concrete Overlays paper

**11:00 a.m. – 11:45 a.m.** ... Runway Keel Replacement

**11:45 a.m. – 1:00 p.m.** ... Lunch

**1:00 p.m. – 2:00 p.m.** ... Life-Cycle Cost For Airport Pavements, Gary Mitchell, ACPA

- < Life-Cycle Cost Analysis: A Guide for Comparing Alternate Pavement Designs

**2:00 p.m. – 2:30 p.m.** ... Update on Innovation Pavement Research Foundation's Research Projects and Other Design Aids/Resources, Gary Mitchell, P.E., ACPA

- < Characterization and Analysis of Early Age Concrete Pavement Behavior at the National Airport Pavement Test Facility (NAPTF)
- < Lithium Admixtures (LiNO<sub>3</sub>) and Properties of Early-Age Concrete
- < Mitigation of ASR in the Presence of Pavement Deicing Chemicals
- < Design and Construction of Concrete Pavement for Aircraft Deicing Facilities

**19.5** ACPA will award 19.5 professional development hours (PDH's) for the successful completion of this program.



**Bonus!**

Your registration includes on-site training and a guided tour of the Charlotte-Douglas International Airport expansion project. *(Photos courtesy of the Charlotte-Douglas International Airport.)*

- < Evaluation, Deicing and Construction Techniques for the use of Airfield Concrete Pavement as Recycled Material for Subbase
- < Using Maturity Testing for Airfield Concrete Pavement Construction and Repair
- < Potential for Acceleration of ASR in the Presence of Pavement Deicing Chemicals
- < Acceptance Criteria for Airfield Concrete Pavement Using Seismic and Maturity Concepts
- < Best Practices for Airport Portland Cement Concrete Pavement Construction
- < Improved Concrete Overlay Design Parameters for Airfield Pavement
- < Innovative Rehabilitation of Pavement for Light Load Aircraft
- < Strength Measurements Using Maturity for Portland Cement Concrete Pavement Construction at Airfields
- < Evaluation of Dowel Bars Installed Using Plastic Sleeves
- < Effects of Coarse Aggregate Clay Coatings on Concrete Performance

**2:30 p.m. – 3:15 p.m.** ... Reporting Pavement Strength Using the Pavement Classification Number (PCN), Gary Mitchell, P.E., ACPA

- < FAA Advisory Circular 150/53355A Standardized Method of Reporting Airport Pavement Strength – PCN
- < COMFAA Software for Computing PCN

**3:15 p.m. – 3:30 p.m.** ... Break

**3:30 p.m. – 4:00 p.m.** ... Open Discussion, Course Critique and Wrap-up.