

**ROBERT E. BOYER, PHD, PE**

**EDUCATION:**

PhD, Civil Engineering, Purdue University  
MS, Civil Engineering, Purdue University  
BS, Agricultural Engineering, University of Kentucky

**PROFESSIONAL REGISTRATIONS:**

Professional Engineer - Florida, #30843  
Professional Engineer - Kentucky, #06253

**PROFESSIONAL AFFILIATIONS:**

Fellow, American Society of Civil Engineers (ASCE)  
Past Chairman, ASCE Management Group C  
Past Chairman, ASCE Materials Division Executive Committee  
Past Chairman, ASCE Air Transport Division  
Past Chairman, ASCE Airfield Pavement Committee  
Member, ASCE Airfield Pavement Committee  
Past Chairman, ASCE Bituminous Materials Committee  
Member, ASCE Bituminous Materials Committee, Technical Advisor  
Life Member, Society of American Military Engineers (SAME)  
Member, Board of Directors, Panama City Post of SAME  
Member, American Association of Asphalt Technologists (AAPT)

**PAVEMENT CONSULTANT ENGINEER PRACTICE**

Pavement Projects – Consultant Engineer Practice [Expert: Asphalt Pavement – Airport Pavement Specialty]

Consultant Engineer, Private Practice, Lynn Haven, FL

- Developed/Delivered Seminars on “Implementation of Superpave for Local Governments” – Client: Florida Technology Transfer Center.
  - Orlando, Florida
  - Tallahassee, Florida
  - Ft. Lauderdale, Florida
  
- Developed/Delivered Seminars on “Implementation of Superpave for Local Governments” – Client: Alabama Technology Transfer Center.
  - Montgomery, Alabama
  - Mobile, Alabama
  - Huntsville, Alabama
  - Birmingham, Alabama

- Developed Project Rehabilitation Strategy and Design and Construction Consulting for Taxiway N, Memphis International Airport. The Federal Express [FedEx] World Headquarters is located at the Memphis International Airport. This project involved rehabilitation of this concrete taxiway in a 30 day timeframe to meet FedEx operational constraints with a delay cost of more than \$1.0 million per day. The taxiway was subjected to a traffic loading of 54,000 annual departures of a fully loaded MD-11 aircraft [610,000 pounds]. The crack and seat process was employed to destroy integrity of concrete slabs, an under drain system installed, and five inches of P-401 hot mix asphalt placed [predicated on a nine year design facilitated by construction of a new runway and taxiway]. The complete construction was completed and opened to traffic ahead of schedule in 28 days. **Client: PDR Engineers, Inc.**
- Developed Project Rehabilitation Strategy and Design and Construction Consulting for Rehabilitation of Runway 14-32, Mobile Downtown Airport, Mobile AL. Project included the rehabilitation of the entire 9,000 x 150 feet Runway 14-32. Work involved milling existing asphalt overlays, break and seat 12 to 14 inches thickness concrete slabs to maximum 30 inches pieces, installing edge drains and placing 8 inches of P-401 hot mix asphalt. **Client: Volkert Engineers, Inc.**
- Developed Project Rehabilitation Strategy and Design and Construction Consulting for Orlando International Airport Taxiways E and F and Associated Connectors using performance based modified asphalt binder and Superpave asphalt mix design methodology. **Client: PBS & J, Inc.**
- Developed Project Emergency Reconstruction Strategy and Design and Construction Consulting for Orlando International Airport Taxiway J using performance based modified asphalt binder and Superpave asphalt mix design methodology. **Client: Greater Orlando Aviation Authority.**
- Project Manager, Revision of Asphalt Handbook, 1989 Edition, Asphalt Institute, which involves inclusion of performance graded asphalt binders and the Superpave Mix Design System, advanced construction technologies, and state-of-the-practice design and rehabilitation strategies for highways, airports, and heavy wheel loads. **Client: Asphalt Institute.**
- Program Manager for National Federal Aviation Administration/Asphalt Institute Airport Pavement Workshop Program as described under Pavement Experience – Asphalt Institute. **Client: Asphalt Institute.**
- Developed Rehabilitation Strategy and Design Consulting for Orlando Sanford International Airport Runway 9C-27C using performance based modified asphalt binder and Superpave asphalt mix design methodology. **Client: Avcon, Inc.**
- Accomplished State-of-the-Practice Study and developed asphalt rejuvenator performance related specification. **Client: South Carolina Division of Aviation.**
- Performed investigation study on out-of-tolerance asphalt construction associated intersection of Runway 9L-27R and Runway 13-31 with smoothness and grade for Ft. Lauderdale-Hollywood International Airport. **Client: URS Corporation.**
- Conducted investigation of durability/performance of P-401 Bituminous Plant Mix Pavement placed on Runway 9L-27R, Ft. Lauderdale-Hollywood International Airport. **Client: USR Corporation and Broward County Aviation Department.**
- Conducted investigation on premature P-401 asphalt pavement distress for runway, taxiways and apron construction for major \$300 million capital investment rehabilitation at Jaun Santamaria International Airport, Costa Rica. **Client: Alterra Partners of Costa Rica, SA.**

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- Principal Investigator for the FAA AC 5370-10B Project, Task Order 00225C, Bituminous Pavement Rejuvenation, to develop a performance specification for application of rejuvenation materials on airport pavements. **Client: Northrop Grumman Corporation.**
- Conducted and implemented Pavement Management System using MicroPaver methodology for the complete airside pavement inventory at Jaun Santamaria International Airport, Costa Rica. **Client: Bechtel International Corporation.**
- Prepared structural analysis and Superpave mix design for “Crack and Seat” of concrete and hot-mix asphalt rehabilitation overlay for U.S. 27. **Client: Ranger Construction.**
- Co-Principal Investigator for FAA Airfield Asphalt Pavement Technology Program (AAPTP), Project AAPTP 05-02, Fuel Resistant Sealers and Binders for HMA Airfield Pavements. **Client: AMEC Corporation.**
- Prepared structural thickness design and Superpave mix selections for the General Aviation DestinJet Parking Apron. **Client: Crystal Beach Development, Inc.**
- Conducted investigation strategy for emergency repair of General Aviation Apron at Panama City-Bay County International Airport. **Client: Avcon, Inc.**
- Conducted investigation of durability/performance of P-401 Bituminous Plant Mix Pavement and application of Rejuvaseal Rejuvenator placed on ASG Apron, Naples Municipal Airport. **Client: Avcon, Inc.**
- Expert Consultant on performance of FDOT standard HMA on South Apron, Lakeland Linder Airport, Lakeland, FL. **Client: Vezina, Lawrence & Piscitelli, P.A., Tallahassee, FL.**
- Expert Consultant on performance and corrective measures for deleterious materials in P-401 Bituminous Plant Mix Pavement, Runway XX-XX, Taxiways A and B, and Apron pavements, FAA AIP Project, Wright Army Airfield/Liberty County Airport. **Client: Arch Insurance Group, Philadelphia, PA. /Bovis, Lyle, & Burch, LLC, Atlanta, GA.**
- Expert Consultant on performance and corrective measures for deleterious materials in GDOT Superpave 12.5 mm NMAS hot-mix asphalt, Federal Law Enforcement Training Center, Department of Homeland Security, Glynco, GA. **Client: Arch Insurance Group, Philadelphia, PA.**
- Conducted investigation of “ripple” type distress involving a pavement system water content study and analysis to develop a rehabilitation strategy for Runway 18-36, Dothan Regional Airport. **Client: Barge, Waggoner Sumter & Cannon, Consultant Engineers.**
- Conducted pavement condition survey, structural evaluation, and drainage analysis, Runway 18-36, Greystone Airport, Ocala, FL. **Client: Eraclides, Johns, Hall, Gelman, Johannessen, & Kempner, LLP, Jacksonville, FL.**
- Expert Consultant on Smoothness Performance and Specifications Requirements for GA State Route 196, Liberty County, GA. **Client: Arch Insurance Group, Philadelphia, PA. /Bovis, Lyle, & Burch, LLC, Atlanta, GA.**
- Co-Principal Investigator for FAA Airfield Asphalt Pavement Technology Program (AAPTP), Project AAPTP 06-05, Guidelines for Use of Highway Specifications for HMA airport Pavements. **Client: Asphalt Institute.**
- Expert Consultant on Analysis of Pavement Performance for GA State Route 247, Bibb County, GA. **Client: Arch Insurance Group, Philadelphia, PA. /Bovis, Lyle, & Burch, LLC, Atlanta, GA.**

- Expert Consultant on Analysis of Pavement Performance for GA State Route 196, Bibb County, GA. **Client: Arch Insurance Group, Philadelphia, PA. /Bovis, Lyle, & Burch, LLC, Atlanta, GA.**
- Conducted pavement investigation, including condition and structural evaluation, and rehabilitation strategy, Runway 18-36, Former Howard Air Force Base. **Client: London and Regional Properties – Panama.**
- Developed Rehabilitation Strategy and Design and Construction Consulting for Orlando Sanford International Airport Runway 9L-27R and Taxiway B1 using performance based modified asphalt binder and Superpave asphalt mix design methodology. **Client: Avcon, Inc.**
- Expert Consultant on Analysis of Asphalt Pavement Floor Performance for Wood Pellet Processing and Shipping Facility, Port Panama City. **Client: Panama City Port Authority.**
- Developed Rehabilitation Strategy and Design and Construction Consulting for Orlando International Airport Taxiway C using performance based modified asphalt binder and Superpave asphalt mix design methodology. **Client: Greater Orlando Aviation Authority.**
- Conducted investigation of durability/performance of P-401 Bituminous Plant Mix Pavement placed on RW 02-20, Patrick AFB, FL **Client: TESS, J2 Engineering, Cape Canaveral Air Station, FL.**

**Pavement Experience - Asphalt Institute** - Senior District Engineer, Asphalt Institute, Panama City, FL - Position involved a major role in the National Asphalt Training Center which involved development of curriculum, test procedures and training materials to promulgate implementation of the Superpave System into the State Departments of Transportation, including performance binder tests and Superpave mix design methodology training protocols. The position also involved forensic analysis associated with Superpave construction and discussions/recommendations on highway/airport pavement problems [including materials, mix and structural design, construction, and maintenance and rehabilitation strategies] with state transportation departments, airport managers, engineering firms and pavement contractors on a continuous basis throughout the United States. More than 300 lectures on Performance Graded Asphalt Binders and the Superpave Mix Design System, and state-of-the-practice construction and quality issues, were delivered while in this position with the Asphalt Institute. Other specific areas of work are briefly outlined below:

**National FAA/AI Airport Pavement Workshop Program - FAA Headquarters, Washington, DC/Asphalt Institute, Lexington, KY** - Program Manager - The education/training program required complete development, implementation, and delivery of a three day workshop to meet AIR 21 and Vision 100 Funding Authorizations associated with AIP Grants to commercial and general aviation airport pavement projects. The workshop encompasses up-to-date information and implementation of Superpave technology for engineers designing, constructing and managing airport pavements. This includes review of current specifications, and advisory circulars and detailed descriptions of materials, mix design, structural design methods, and pavement construction, maintenance and rehabilitation practices. To date, very successful workshops have been conducted in the following FAA Regions:



- Southwest Florida International Airport
- Gainesville Regional Airport
- Lakeland Linder Regional Airport
- Miami International Airport
- Orlando International Airport
- Orlando Sanford International Airport
- Panama City International Airport
- Pensacola Regional Airport
- Pompano Beach Airport
- Sarasota-Bradenton Airport
- Tallahassee Regional Airport
- Tampa International Airport
- Vero Beach Municipal Airport
- Palm Beach International Airport
- McDill Air Force Base

**Georgia:**

- Georgia Department of Transportation
- DeKalb Peachtree Airport
- Fulton County-Brown Field
- Hartsfield International Airport
- Columbus Metropolitan Airport
- Moultrie Municipal Airport
- Savannah Airport
- St. Mary's Airport
- Waycross-Ware County Airport

**Pavement Experience – Florida State University Tallahassee, Florida** - Professor of Civil Engineering - Coordinator of Florida Engineering Education Delivery System (FEEDS); Director, Region 1, NASA Southern Technology Applications Center (NASA-STAC), focal point for FAMU/FSU Research and Development, teaching Geotechnical Engineering and Highway and Airport Pavement Design courses, and assistant to the Dean of Engineering FAMU/FSU, College of Engineering, in all duties.

**Pavement Experience – United States Air Force** - USAF AFESC Engineering and Services Research Laboratory - Tyndall Air Force Base, Florida. - Director - Position involved direction of 108 military and civilian scientists, engineers, and technicians; direction of 16 major contractors involving more than 350 scientists and engineers; and management of an annual research and development budget exceeding \$200.0 million. Specific responsibilities included development of technology to support Air Force Weapon Systems in the areas of Civil Engineering--fire protection, airfield surfaces, rapid runway repair [RRR – a major USAF research and development pavement repair program] and survivability of structures and utility systems, and in the areas of environmental cleanup scenarios related to military operations.

**USAF 341st Civil Engineering Squadron** - Malmstrom Air Force Base, Montana - Commander Position involved supervision of 450 military and 250 civilian personnel, and the direction of the Operations, Industrial Engineering, Engineering and Environmental Planning, Family Housing Management, and Fire Department functions, as well as the Squadron Administrative and Funds Management activities. Management included an annual operations and maintenance budget of approximately \$45.0 million and a 5-year Military Construction Program totaling \$150.0 million. Daily operations supported a Strategic Air Command Wing comprised of 200 Minuteman missiles, encompassing a total area of more than 23,000 square miles, including roadway pavement networks and the air base pavement facilities; directly responsible for controlling and maintaining over \$1.5 billion in real property and equipment assets.

**USAF AFESC Engineering Research Division** - Division Chief - Position involved planning, managing and conducting research, development, test and evaluation (RDT&E) programs, and serving as lead Air Force organization to support engineering and airbase facilities RDT&E requirements, worldwide. Specific areas included: hardened airbase facilities for non-nuclear attacks, aircraft shelters, rapid runway repair, contingency launch and recovery surfaces, tactical mobile facilities, airbase vulnerability assessment, passive defense techniques, airbase operations in chemical and biological environments, aircraft platforms, geotechnical assessments, foundation design and analysis, aircraft fire/crash protection research, and support facilities research.

**USAF AFIT Department of Engineering Technology** - Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio - Department Chief - Position involved course development and curricula to meet the Air Force's worldwide engineering construction and physical plant maintenance, repair and operations with primary emphasis on airfield pavements.

**USAF, Engineering Division** - 12th Missile Warning Group, Thule Air Base, Greenland. - Director Position involved management of all real property facilities for the air base and the Early Warning Missile complex. Operation and maintenance of the facilities exceeded \$45.0 million annually, and included the USAF only deep-water arctic port facilities, the largest USAF electrical power generation plant (15,000KW), and the only paved airfield inside the Arctic Circle -- Supervised rehabilitation of the 12,000-ft x 300-ft runway and taxiway and apron pavement facilities during the three month arctic construction season.

**USAF AFIT US Air Force Civil Engineering School** - Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio - Course Director/Department Chief - Position involved responsibility for continuing education courses in the Civil Engineering School and teaching graduate level courses in the School of Engineering. Courses taught included soil mechanics, structural analysis, reinforced concrete, steel design and airfield pavements engineering – Course Director for airfield pavement course.

**USAF 632nd Civil Engineering Squadron** - Pleiku Air Base, South Vietnam - Chief, Operations and Maintenance Division - Supervised a construction work force of more than 400 personnel. Projects accomplished during this period consisted of 140 semi permanent buildings, asphalt and

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Portland cement concrete runways, taxiways and aircraft parking areas to support a wing of 100 aircraft, and a containment area with water and sewage systems, electrical distribution system with power plant and supporting structures capable of housing an Air Force population of 5,000 personnel.