



## PROFESSIONAL EXPERIENCE

LUIS A. MARIACA, M.S., P.E.

August 2009  
to Present

### **Applied Building Sciences, Inc., Chapin, South Carolina**

Consulting Structural Engineer.

Over 25 years of engineering experience involving failure analysis, damage evaluation, project construction supervision, structural design, structural certification, and building code compliance inspections. Investigation of structural failures involving overload, design analysis, construction evaluations, and materials testing. Scope of damage assessments to structures from impact, vibration, fire, wind and flooding. Licensed commercial general contractor and residential builder. Construction inspection and evaluations.

August 2002  
to July 2009

### **Engineering Structures, Consulting, Analysis, Design Inc., Irmo, South Carolina,**

Owner, Consulting Engineer.

Specialized consultation in the areas of structural engineering and foundation systems. Technical consultation to industry and private institutions. Engineering analysis, damage assessment and technical support. Evaluation of concrete, steel, timber, and masonry structures. Industrial and commercial construction evaluations, code compliance analysis, and reviews. Sensitivity analysis. Structural design, commercial and industrial projects.

August, 1989  
to July, 2002

### **Engineering Design & Testing Corp., Columbia, South Carolina,**

Senior Structural Engineer.

Analysis of wind forces and snow drifts on existing structures, structural analysis of reinforced concrete and steel structures; building code compliance studies and structural design reviews. Structural integrity evaluations by load testing methods; laboratory and field testing of components and connections. Seismograph monitoring. Damage evaluations due to vibrations and settlement stresses. Timber truss framing analysis. Testing of truss plate connections. Ultimate load analysis of steel joist framing systems. Restoration cost analysis. Structural assessment and scope of damage evaluations.

October, 1984  
to August,  
1989

### **Post, Buckley, Schuh & Jernigan, Columbia, South Carolina,**

Senior Engineer

Project engineer and principal engineer in charge of the firm's regional structural efforts. Developed contract documents. Designed and supervised productions of drawings for industrial and municipal projects. Prepared specifications for water and waste-water treatment plants. Designed deep foundation systems. Performed analytical investigations, strength evaluations, seismic analysis and code conformance studies. Coordinated review and approval of shop drawings and as-builts. Management of projects from preliminary phase through final construction.

January, 1984  
to July, 1984

**Bradley University, Peoria, Illinois,**

Instructor for undergraduate Engineering Dynamics course  
Conducted soils and concrete laboratories. Developed course work.

August, 1982  
to December,  
1983

**Bradley University, Peoria, Illinois,**

Research assistant while enrolled as a graduate student in Master's program in structural engineering. Performed studies on small scale structural models. Conducted model analysis and testing and developed program algorithms for design of structures

March, 1981 to  
August, 1982

**Wilbur Smith & Associates, Columbia, South Carolina,**

Project engineer, construction supervision of the Viru-Viru International Airport in Santa Cruz, Bolivia. Coordinated and supervised field inspections. Approval of progress of works. Participated in review and approval of structural design documents. Load testing and deflection analysis of structure. Quality control program. Translations of technical documents.

**EDUCATION**

1986 – 1996            Post graduate studies, University of South Carolina, Columbia, South Carolina

1983                    M.S., Structural Engineering, Bradley University, Peoria, Illinois

1980                    B.S., Civil Engineering, Bradley University, Peoria, Illinois

**PROFESSIONAL ORGANIZATIONS AND HONORARY SOCIETIES**

Chi Epsilon National Honor Society  
National Society of Professional Engineers (SC Young Engineer of the Year, 1990)  
South Carolina Society of Professional Engineers (Past Columbia Chapter President, State Scholarship Chairman)  
International Code Council, Inc.  
American Institute of Steel Construction  
Aircraft Owners and Pilots Association  
American Society of Civil Engineers  
American Concrete Institute

**REGISTRATIONS**

Registered Professional Engineer in Mississippi, #14985  
Registered Professional Engineer in South Carolina, # 11977  
Registered Professional Engineer in North Carolina, # 15622  
Registered Professional Engineer in Tennessee, # 101414  
Registered Professional Engineer in Florida, # 45694  
Registered Professional Engineer in Louisiana, #33461  
Licensed General Contractor, South Carolina, # 30923  
Federal Aviation Administration - Pilot Instrument Rating Certificate  
National Council of Examiners for Engineering and Surveying, #15214

**SEMINARS AND PRESENTATIONS**

- “Wind versus Flood”, Annual Catastrophe Seminar, Custard Insurance; Ramada Plaza Hotel, Columbia, South Carolina; March 27-28, 2006.
- “Parametric Analysis in Structural Failure Investigations”, guest speaker ECIV 798 Graduate class, University of South Carolina, Engineering Department, March 2003.
- “Failure Analysis in Structural Applications”, guest speaker at the University of South Carolina, Engineering Department, March 2001.
- “The Use of Audio Visual Equipment in a Technical Presentation”, presented by Luis A. Mariaca, M.S., P.E., Technical Session, Annual Engineers Meeting, Charlotte, North

Carolina, February 2000.

- “Case Histories in Structural Failures”, guest speaker at the University of South Carolina for the South Carolina Society of Professional Engineers Chapter, Columbia, South Carolina; April 5, 1999.
- “Damage Engineering”, guest speaker at Civil Engineering Issues in Engineering (CIVE 490) class at University of Nebraska, Lincoln, Nebraska, December 4, 1998.
- “Analysis Techniques for Structural Failure Investigations”, Technical Session IIC, Engineering Design & Testing Corp. Annual Engineers Meeting, Columbia, South Carolina; January 30, 1998.
- “Analysis of the Failure of a Steel Smoke Stack”, American Society of Mechanical Engineering, International Mechanical Congress and Exposition, Dallas, Texas, November 18, 1997.
- “Structural Design Liability and The Use of Consultants”, South Carolina Claims Association, Myrtle Beach, South Carolina; November 1996.
- “Slope Stability in Trench Excavations”, Occupational Safety and Health Administration (OSHA), with Dr. Dimitri Rizos, Columbia, South Carolina, November 1995
- “Fundamental Soil Properties”, Occupational Safety and Health Administration (OSHA); Columbia, South Carolina; October 1995.

### **CONTINUING EDUCATION**

SEA Seminar, Columbia, SC; Michael Leming – Concrete Mix Design for Structural Engineering;  
Chris Hewitt -- 2005 AISC Seismic Provisions; July 26, 2008

SEAK, Inc. Seminar; James Mangravitis; Deposition of Experts; May 10 2007

Quality Management; Wind Loads, ASCE 7-02 Revealed; Civil Engineering – Asphalt; Failure Investigations and Forensic Engineering; Airport Pavement – Asphalt; Red Vector  
Columbia, South Carolina, December 2005

Professional Development Center, Practical Dynamic Analysis and Design for Engineers and Architects, Columbia, South Carolina, December 31, 2004

Design of Wood Beam-Columns with Spreadsheet, Engineered Wood Construction Guide,  
Columbia, South Carolina

American Concrete Institute, ACI Wind and Seismic Seminar, Hilton Hotel, Charlotte, North Carolina; SK Ghosh and David Fanella, November 11, 2004

FEMAP, Windows-based pre- and post processor for engineering finite element analysis training seminar, November 27 -29, 2001

South Carolina Law for Design Professionals, Columbia, South Carolina, March 21, 2000.

Futurex, Inc.-System 21 Transportation, Technical Session # 1, Design/Build and the Navy, Session # 2, Sizing up the Metric Movement, Technical Session # 3, 2000 State Convention SCSPE/CESC, Charleston, South Carolina, June 2000

Spoil of Evidence, Technical Session, presented by Rodney Dean, Review of NFPA 921, presented

- by D. Jeff Jaco, Vibrations/Settlement Analysis, Technical Session, Presented by Charles Whitley, The Use of Audio Visual Equipment in a Technical Presentation, Technical Session, presented by Luis A. Mariaca, M.S., P.E., Annual Engineers Meeting, Charlotte, North Carolina, February 2000
- Analysis of Fatigue Fractures, presented by R. Dean Harris, Engineering Design & Testing Corps Annual Engineers Meeting, Charleston, South Carolina, February 1999
- Property Loss and Liability Conference, Chicago, Illinois, April 1998
- Analysis Techniques for Structure Failure Investigations, Technical Session IIC, Engineering Design & Testing Corps Annual Engineers Meeting, Columbia, South Carolina, January 1998
- American Society of Mechanical Engineering Congress and Exposition, Failure Analysis and Prevention Committee, Dallas, Texas, November 1997
- American Concrete Institute - The New Masonry Code Seminar, Charlotte, North Carolina, October 1997
- Seismic Design, University of South Carolina, Columbia, South Carolina, February 1997
- Economical Design of Steel Structures, AISC Seminar, Columbia, South Carolina, November 1996
- The New American Concrete Institute 318 Building Code Seminar, Charlotte, North Carolina May, 1996
- Ground Modification Seminar, sponsored by Hayward Baker, Incorporated, Columbia, South Carolina, March, 1996
- Speaking Out With Confidence, Daniel Management Center, College of Business Administration, University of South Carolina, Columbia, South Carolina, September 1995
- Small Appliance Fires - Some Tips for Root Cause Investigations, presented by Steven W. Morris, Technical Session, Engineering Design & Testing Corp.'s Annual Engineers Meeting, Columbia, South Carolina, February 1995
- Writing With Confidence, Daniel Management Center, College of Business Administration, University of South Carolina, Columbia, South Carolina March 1994
- Twenty Five Welding Cost Reduction Concepts, sponsored by the Virginia-Carolina Structural Steel Fabricators Association, Columbia, South Carolina, October 1993
- General Contractors Seminar, Columbia, South Carolina, February 1991
- International School of Construction Estimating, Orlando, Florida, March, 1990
- Portland Cement Association, Structural Concrete Design Seminar, Myrtle Beach, South Carolina, October, 1985

## **PUBLICATIONS**

Analysis of the Failure of a Steel Smoke Stack, Proceedings from the American Society of Mechanical Engineering, 1997 International Mechanical Congress and Exposition, Dallas, Texas, November 16-21, 1997 (Failure Analysis and Prevention Committee).

## **LANGUAGES**

Fluent in English, French and Spanish, spoken and written.